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Hoosier Energy REC
2014 Integrated Resource Plan
Volume II: Appendices
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Appendix A1

Energy Efficiency and Demand Response potential Report

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Engineers and Consultants

HOOSIERENERGY
A Touchstone Energy® Cooperative

Memo: 2013 Update of 2009 Avoided Costs and General Modeling Assumptions of EE & DR Programs

June 2013

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List of Acronyms

Acronym	Definition
CP	Coincident Peak
CT	Combustion Turbine
DR	Demand Response
DSM	Demand Side Management
EE	Energy Efficiency
EIA	Energy Information Administration
EPA	Environmental Protection Agency
HE	Hoosier Energy
IOU	Investor Owned Utility
IRP	Integrated Resource Plan
LMP	Locational Marginal Price
MISO	Midwest Independent System Operator
NERC	North American Electric Reliability Council
PRS	Power Requirements Study
RIM	Ratepayer Impact Metric
RUS	Rural Utilities Services
T&D	Transmission & Distribution
TRC	Total Resource Cost

Introduction

This document compiles a listing and description of the DSM Potential Study avoided cost and general modeling assumptions. Hoosier Energy ("HE") conducted a DSM potential study as part of its 2009 IRP. In 2013, HE is updating the DSM potential analysis to reflect current benefits, costs, and other major assumptions. HE has retained GDS Associates, Inc. ("GDS") to assist in the update efforts since GDS provided assistance to HE in the 2009 potential study. In the first phase of the project, GDS has identified the major global assumptions and avoided cost assumptions and has worked closely with HE staff to evaluate the methodologies employed to develop the assumptions and to update the assumptions to reflect current conditions in the HE and MISO territories. This document provides a listing of the 2009 vintage assumptions, the updated assumptions, and discussion of how those assumptions were developed. Furthermore, a brief indication to how sensitive benefit cost ratios will be to the changes in the assumptions, and whether the changes will have positive or negative impacts on the ratios is provided. For the DSM study, the Total Resource Cost Test ("TRC") is the primary test used to determine cost effectiveness of a given program or measure.

1 General Modeling Assumption Change#1: Transmission & Distribution Line Losses

Because of resistance line losses throughout the transmission and distribution systems, a generation facility must generate greater than 1 kW in order for an end-use customer to receive 1 kW at the retail meter. Therefore, a DSM program implemented within a home or commercial building that reduces 1 kW of demand will reduce greater than 1 kW of demand at the generation facility. The line loss assumptions are used to gross up at-the-retail meter load reduction assumptions to at generation in order to calculate the avoided costs benefits.

Table 1: Line Loss Assumptions

	2009 Vintage	2013 Vintage
Transmission Line Loss	**4.51%**	**4.10%**
Distribution Line Loss	**5.43%**	**5.39%**

1.1 2009 Assumption

The transmission losses were based on expected line loss factors from HE's 2007 PRS. The distribution line loss assumptions were also based on the 2007 PRS, but industrial loads were removed at an assumed distribution loss factor of 3% to estimate residential and small commercial line losses.

1.2 2013 Assumption

The transmission and distribution line losses assumptions in the 2013 vintage study are based on the most recent five years of history available (2007-2011) and are consistent with the 2011 PRS. For distribution losses, 1.5% losses for industrial customer were excluded. HE's load forecasting staff felt that 1.5% losses for industrials was more appropriate than 3.0%.

1.3 Projected Impact

Energy Efficiency - LOW IMPACT, NEGATIVE EFFECT ON TRC
Demand Response – LOW IMPACT, NEGATIVE EFFECT ON TRC

The losses in the 2013 vintage are slightly lower than the 2009 vintage. In general this will reduce the energy and demand reduction values at generation which will reduce avoided cost savings for all programs thus reducing TRC ratios. However, the impact will be minimal compared to other assumption changes.

2 General Modeling Assumption Change#2: Planning Reserve Margin Requirement

Planning reserve margins are used to add avoided planning reserve benefits to those DSM programs that provide firm reductions in system peak demand. If a program is able to reduce the peak demand requirements, and HE has firm control of that demand reduction, then HE can reduce its planning reserve requirements as well.

Table 2: Planning Reserve Margin Assumptions

	2009 Vintage	2013 Vintage
2009	14.3%	
2010	14.3%	
2011	14.3%	
2012	14.3%	
2013	14.3%	14.2%
2014	14.3%	14.1%
2015	14.3%	14.0%
2016	14.3%	13.9%
2017	14.3%	13.8%
2018	14.3%	13.7%
2019	14.3%	13.7%
2020		13.6%
2021		13.5%
2022		13.4%

2.1 2009 Assumption

In the 2009 vintage study, the planning reserve margin was estimated by taking the MISO Reserve Margin Requirement for the June 2009 Planning Year of 5.35% and including HE's forced outage rate for generation capacity. That value was held constant throughout the study horizon.

2.2 2013 Assumption

For the 2013 vintage assumption, HE used MISO's 2013 Loss of Load Expectation Study. In that study, MISO has estimated future planning reserve requirements which are reasonable for HE to use as planning reserves as well. MISO began using new modeling methodologies in 2012 that have caused the declining reserve margins in the future: "The model responds to the advantage of load diversity in the external systems relative to MISO, and responds to the forced outage rates of resources in the external world, while monitoring use of the transmission system within known safe historical limits. That new method drives the PRM down".[1]

2.3 Projected Impact

Energy Efficiency - LOW IMPACT, NEGATIVE EFFECT ON TRC
Demand Response – LOW IMPACT, NEGATIVE EFFECT ON TRC

Since reserve margins are slightly lower in the 2013 vintage, the impact on DR programs for which reserve benefits are accrued will be a reduction in TRC ratios. However, the new reserve margins are only slightly lower than the 2009 vintage assumptions and the reserve margin benefits are only a fraction of the total avoided cost benefits. The update in reserve margin assumptions will have a minor impact on the TRC ratios.

[1] MISO. *Planning Year 2013 LOLE Study Report*. November 1, 2012. Page 11.

3 General Modeling Assumption Change#3: Inflation & Discount Rates

The inflation and discount rates are general economic assumptions. The inflation rate is used to escalate certain costs or benefits when other growth rate assumptions are not identifiable or available. The discount rate is used to discount future cash flows into present dollars for purposes of calculating the TRC benefit-cost ratio across the entire planning horizon of benefits accrued and costs incurred during the life of a program or measure. The inflation and discount rate assumptions are shown in *Table 3*.

Table 3: Inflation and Discount Rate Assumptions

	2009 Vintage	2013 Vintage
Inflation Rate	3.0%	2.0%
Discount Rate	6.0%	5.0%

3.1 2009 Assumption

The 2009 vintage assumptions were provided by HE's planning staff and were consistent with assumptions made by planning and forecasting departments at the time. The discount rate is assumed to be the cost of capital or the cost of debt.

3.2 2013 Assumption

Like the 2009 vintage assumptions, the 2013 vintage inflation and discount rates were provided by HE's planning staff to be consistent with assumptions used in other HE planning studies. HE's Corporate Planning department had inflation projections that average about 1.75% per year. They suggested a rate of 2.00% per year to be conservative. HE's Finance department suggested use of 5% for the discount rate. This rate reflects the likely rate at which HE could borrow money for a 30-year note from a source other than RUS.

3.3 Projected Impact

Energy Efficiency - LOW IMPACT, MIXED EFFECT ON TRC
Demand Response – LOW IMPACT, MIXED EFFECT ON TRC

It is difficult to assess how the changes in the inflation and discount rate assumptions will impact TRC results other than that either is highly unlikely to "flip" a result (e.g., change a program from cost effective to not cost effective based on this change in assumption only). The 2013 vintage inflation assumption will lower both benefits and costs that are escalated based on inflation relative to the 2009 vintage study. The lower discount factor in the 2013 vintage study will result in dollars that are further out in the study horizon have a greater impact on the net present value TRC ratio. For most cost-beneficial programs, this will likely result in a slightly higher TRC ratio in 2013 relative to 2009 based solely on the change in the discount rate.

4 General Modeling Assumption Change#4: Avoided Cost of Generation Energy – For Demand Response Programs

For direct control demand response programs, energy is saved during control hours but typically the energy is recovered at the conclusion of the control period. For instance, a water heater element is shut off during control and once it is released it will run to reheat the water in the tank as necessary. Therefore, the avoided energy cost of a demand response program is the net value of avoided energy costs during control hours less the cost to serve the recovery load during recovery hours. The tables below show the avoided cost assumptions for summer and winter.

Table 4: Avoided DR Energy Costs Assumptions – Summer

	2009 Vintage ($/MWh)			2013 Vintage ($/MWh)		
	Control Hrs.	Recovery Hrs.	Net Savings	Control Hrs.	Recovery Hrs.	Net Savings
2009	91.73	78.76	12.97			
2010	94.48	81.12	13.36			
2011	94.54	81.84	12.69			
2012	97.68	72.69	25.00			
2013	103.45	64.19	39.26	79.80	55.73	24.07
2014	100.61	63.67	36.93	79.66	56.25	23.41
2015	113.30	71.85	41.45	79.74	58.37	21.37
2016	119.71	75.66	44.05	82.76	60.17	22.59
2017	121.20	75.63	45.57	84.97	60.44	24.53
2018	124.57	80.22	44.35	86.56	62.24	24.32
2019				89.36	70.65	18.71
2020				92.16	73.60	18.56
2021				94.46	75.44	19.02
2022				96.82	77.33	19.49

Table 5: Avoided DR Energy Cost Assumptions – Winter

	2009 Vintage ($/MWh)			2013 Vintage ($/MWh)		
	Control Hrs.	Recovery Hrs.	Net Savings	Control Hrs.	Recovery Hrs.	Net Savings
2009	48.00	39.73	8.27			
2010	49.80	43.36	6.44			
2011	52.56	45.21	7.35			
2012	54.42	46.70	7.73			
2013	56.64	47.70	8.94	48.00	39.73	8.27
2014	57.93	49.32	8.60	49.25	41.97	7.28
2015	59.65	53.23	6.41	52.11	43.15	8.97
2016	61.59	55.61	5.97	53.84	44.64	9.19
2017	63.13	57.00	6.12	55.74	45.63	10.11
2018	64.71	58.43	6.28	56.79	47.02	9.76
2019				58.71	52.21	6.51
2020				60.60	54.39	6.21
2021				62.12	55.75	6.37
2022				63.67	57.14	6.53

4.1 2009 Assumption

The 2009 vintage assumptions were developed in two steps. The base year avoided costs were estimated using actual real time Cin Hub LMP. Since HE had not implemented any DR programs prior to the 2009 study, GDS calculated average LMP during "typical" control and recovery hours for 2006 and 2007 real time prices. These base year prices were escalated using average on- and off-peak energy cost growth rates as estimated by Production Cost Modeling analysis conducted as part of HE's 2009 IRP.

4.2 2013 Assumption

In the 2013 vintage, actual DR control periods were known, so GDS first estimated average Cin Hub[2] real time LMPs during control and recovery periods for 2010, 2011, and 2012. That value became the base avoided cost values.

Escalation of control avoided costs was based on forward price curves for a 5x16 on-peak product. The forward prices for April 2013 through December 2020 are broker forward prices at the Indiana Hub[3] as quoted on April 2, 2013. Beyond 2020, projections are provided by Wood Mackenzie. However, the Wood Mackenzie models showed overall prices that were higher than the current market forward prices, so a blending procedure in 2021-2023 created extremely high growth rates in HE's project forward price curves. HE staff investigated to ensure that the growth was not attributable to expected tightening of capacity or carbon tax costs, but was rather just a function of blending two forecast sources. For the DSM study, we have grown the prices in those years by 2.5% and then used the Woods Mackenzie projected growth rates beyond 2023.

Escalation of recovery avoided costs was based on forward price curves for a 7x8 off-peak product. The forward prices for April 203 through December 2020 are broker forward prices at the Indiana Hub as quoted on April 2, 2013. As with the on-peak product, the price growth is 2.5% per year for 2021-2023 and then escalated at Woods Mackenzie projected growth rates.

4.3 Projected Impact

Energy Efficiency – N/A

Demand Response – MODERATE IMPACT, MIXED EFFECT ON TRC

Avoided energy cost benefits are a secondary benefit of demand response and have much less impact on benefit-cost ratios than avoided capacity benefits. However, they do have a moderate effect on TRC ratios relative to many other assumptions. The effects on the TRC ratio with the 2013 update will be mixed, but most likely result in a decline in TRC ratios. The summer avoided costs are lower in 2013 than they were in 2009, but the winter costs are slightly higher. For AC control, the change will definitely reduce the TRC ratio. For WH control, it is not as clear, as the winter energy shift is greater (which will benefit the TRC) but the summer avoided costs are lower. The net effect is still likely to be a reduction in TRC values, but the impact will be less because of the offsetting increase in winter months.

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[2] HE conducted market transactions at the Cin Hub prior to 2013. The Indiana Hub was established in 2012.
[3] The historical data is based on data for the Cin Hub since the Indiana Hub is new. However, forward prices for the Indiana Hub are now available, reflecting the hub at which HE will settle market transactions in the future.

5 General Modeling Assumption Change#5: Avoided Cost of Generation Energy – For Energy Efficiency Programs

Whereas DR avoided energy costs are based on energy shifting, EE avoided energy costs are driven by energy reductions throughout many or all hours of the year. The primary avoided cost benefit for EE programs is avoided energy cost. In order to capture the savings, on- and off-peak periods for summer and winter seasons are defined and load shapes for various EE measures will then be defined to match those on- and off-peak periods. In the 2013 vintage study, the summer has been defined as April through September and the winter is October through March. This definition is consistent with HE's seasonal definitions from the PRS. On-peak is defined as weekdays, 7:00 AM to 11:00 PM (consistent with a 5x16 market product) and off-peak is all remaining weekday hours and all weekend hours[4]. The avoided energy costs for EE programs for each vintage year are shown in *Table 6* and *Table 7* below.

[4] These definitions of on- and off-peak are consistent with the products available on the market and are not reflective of the HE wholesale tariff definitions of on- and off-peak. However, for purposes of projecting growth in avoided costs, the on- and off-peak periods as defined in the market forward products are the best source. The HE tariff is a mechanism for transferring costs from HE to the member cooperatives and is not considered in the TRC test. The tariff *would* be considered in a Utility Cost Test taken either from HE's perspective or a member cooperative's perspective. Consideration of such factors is given in the rate design process.

Table 6: Avoided EE Energy Costs – Summer

	2009 Vintage ($/MWh)		2013 Vintage ($/MWh)	
	On-Peak	Off-Peak	On-Peak	Off-Peak
2009	87.88	31.70		
2010	84.88	29.72		
2011	84.92	29.98		
2012	87.75	26.63		
2013	92.93	23.52	46.13	28.23
2014	90.38	23.33	46.05	28.50
2015	101.78	26.32	46.09	29.57
2016	107.54	27.72	47.84	30.49
2017	108.88	27.71	49.12	30.62
2018	111.91	29.39	50.04	31.54
2019	114.24	30.89	51.65	35.80
2020	120.65	33.62	53.27	37.29
2021	123.40	34.60	54.60	38.22
2022	125.22	35.67	55.97	39.18
2030	154.46	52.42	68.01	50.50
2035	176.45	69.49	76.19	57.05
2040	196.33	87.66	84.12	62.99
2045	227.60	101.62	92.87	69.55
2050	263.85	117.80	102.54	76.79

Table 7: Avoided EE Energy Costs – Winter

	2009 Vintage ($/MWh)		2013 Vintage ($/MWh)	
	On-Peak	Off-Peak	On-Peak	Off-Peak
2009	73.33	33.06		
2010	68.25	31.72		
2011	68.03	31.58		
2012	72.91	27.91		
2013	80.61	24.69	39.37	28.19
2014	79.67	23.39	40.40	29.78
2015	89.72	25.62	42.75	30.62
2016	94.80	27.23	44.16	31.68
2017	95.98	27.54	45.72	32.38
2018	98.64	29.59	46.58	33.37
2019	100.70	31.16	48.16	37.05
2020	106.35	32.76	49.71	38.59
2021	108.77	34.17	50.95	39.56
2022	110.38	35.20	52.23	40.55
2030	136.16	52.87	64.34	53.27
2035	155.54	71.15	72.51	60.31
2040	173.06	90.73	80.06	66.59
2045	200.63	105.18	88.39	73.52
2050	232.58	121.93	97.59	81.17

5.1 2009 Assumption

The estimates for on- and off-peak avoided energy prices in the 2009 vintage study were developed by the Production Cost Modeling efforts being run as part of the 2009 IRP.

5.2 2013 Assumption

In 2013 vintage study, the avoided energy costs for EE programs are estimated in a manner similar to the avoided energy costs for DR. The 2013 base year are based on the average Cin Hub LMPs for each defined season and set of hours. The average is based on real time LMPs for 2010 through 2012. For the summer on-peak growth, the 5x16 forward price curves were utilized, average forward prices for April through September of each year and applying the growth from the forward curves. The winter on-peak growth uses the 5x16 forward curves for October through March. The off-peak curves use the same seasonal split, but the growth rates are based on forward prices for a wrap product, representing prices for the off-peak weekday 5x8 product coupled with a 2x24 product for weekends. As with the DR analysis, growth rates of 2.5% per year were applied in 2021-2023 to adjust the forward price projections between two data sources (broker forward prices through 2020 and Woods Mackenzie projections beyond 2023).

5.3 Projected Impact

Energy Efficiency – HIGH IMPACT, MOSTLY NEGATIVE EFFECT ON TRC
Demand Response – N/A

Avoided energy costs are the primary driver of benefits for evaluation of EE programs, so changes to these assumptions will have large impacts on TRC tests. The 2013 vintage on-peak prices are significantly lower than the 2009 on-peak prices. The 2013 off-peak prices start out higher than the 2009 off-peak prices, but become lower in the future. The result is that many programs will likely see a declining TRC ratio because the on-peak differential is significant. However, programs that focus energy in off-peak periods and have relatively shorter effective lives may see increasing TRC ratios in 2013 relative to 2009.

6 General Modeling Assumption Change#6: Avoided Cost of Generation Capacity

The avoided cost of generation capacity provides a benefit to DSM programs when those programs reduce HE's system peak demand. Avoided generation capacity benefits are the primary benefits assigned to DR programs and are usually a secondary benefit for EE programs.

Table 8: Avoided Cost of Generation Capacity Assumptions

	2009 Vintage ($/kW-Year)		2013 Vintage ($/kW-Year)	
	Summer	Winter	Summer	Winter
2009	$24.00	$0.00		
2010	$25.80	$0.00		
2011	$46.35	$0.00		
2012	$66.91	$0.00		
2013	$87.46	$0.00	$6.67	$0.00
2014	$90.09	$0.00	$17.76	$0.00
2015	$92.79	$0.00	$28.86	$0.00
2016	$95.57	$0.00	$39.96	$0.00
2017	$98.44	$0.00	$51.05	$0.00
2018	$101.39	$0.00	$62.15	$0.00
2019	$104.43	$0.00	$63.39	$0.00
2020	$107.57	$0.00	$64.66	$0.00
2021	$110.79	$0.00	$65.95	$0.00
2022	$114.12	$0.00	$67.27	$0.00

6.1 2009 Assumption

In the 2009 vintage study, HE's planning staff determined that summer peak demands drive the total capacity requirements of the system even though summer and winter peaks are nearly equivalent. Therefore, for avoided capacity cost, summer demand reductions drive the value. As a result, the 2009 vintage winter avoided capacity costs were set to $0. For demand response programs in which HE has firm control of the demand reduction, HE could technically sell the excess capacity created by DR into the market, so avoided costs at the market price of capacity was assigned for winter demand savings only for DR programs.

Some utilities use the "Peaker Method" as the basis for establishing avoided costs of future generation capacity in the analysis of DSM programs. This method generally uses the costs of a simple cycle CT to establish the avoided cost. The method is intended to be consistent with DSM being viewed within the context of long-range generation planning and can consider multiple units that are contained in the planning horizon. For a utility that is planning for and making commitments to meeting its future load requirements through the construction of new generating resources, the approach of comparing DSM programs to new generation is appropriate.

However, it was concluded that the Peaker Method alone does not provide the best measure of avoided cost for HE, especially in the short-term planning horizon. HE anticipated that market capacity prices would be below CT construction costs for a number of years but could escalate to the cost of a newly constructed CT. After considerable discussion with HE staff, GDS agreed that the estimated costs of market capacity purchases should provide the basis for avoided generation capacity costs since use of the Peaker Method would likely over-state the value of demand reductions, especially in the short-term. However, it was assumed that the market price would reach the full value of a newly constructed CT by 2013.

6.2 2013 Assumption

In the 2013 study, the same methodology as was used in the 2009 study was adopted in which market prices are used as the value of avoided capacity. As in the 2009 vintage, a key assumption is when the market prices would escalate. Capacity is currently long in MISO, but economic theory posits that the market price of capacity should approach the cost of a newly constructed CT as capacity tightens to more "normal" levels in the region. NERC's *2012 Long-Term Reliability Assessment*, published in November 2012, indicates that MISO should have sufficient reserves until 2020. However, NERC also points out that retirement of several coal units in the region may reduce reserves more rapidly. Several MISO market analysts expect capacity prices to rise in the 2016/2017 timeframe as old plants are retired in response to the EPA's Air Toxic Standards rule, which requires coal units to meet certain emissions standards by April 2015.[5] Therefore, in the 2013 vintage study, the market is estimated to reach the

[5] "Experts weigh coal retirements, MISO market." *Electric Power Daily*, February 12, 2013. Platts.

cost of new CT construction by 2018, a compromise position between 2016 impacts and expected reserve levels being sufficient until 2020.

To establish the avoided CT cost, GDS used a first year construction cost based on 5% cost of debt (consistent with the discount factor assumption, see section 3.2), and an overnight construction cost of $666 per kW. The overnight construction cost is consistent with EIA's 2012 *Annual Energy Outlook* assumptions for construction of a new CT. GDS and HE also reviewed data on the construction costs for several recent CT projects and expansion to verify the basic cost assumption by EIA as a reasonable estimate.

6.3 Projected Impact

Energy Efficiency – MODERATE IMPACT, NEGATIVE EFFECT ON TRC
Demand Response – HIGH IMPACT, NEGATIVE EFFECT ON TRC

The 2013 vintage avoided capacity cost assumptions are lower than the 2009 vintage assumptions. For DR programs, this is the single greatest source of benefits. For EE programs, avoided energy costs tend to drive TRC results more than avoided capacity costs, but avoided capacity costs do have a moderate impact on results. With the lower 2013 avoided costs, TRC ratios for all programs and measures evaluated will be negatively impacted.

7 General Modeling Assumption Change#7: Avoided Cost of Transmission & Distribution

Avoided T&D capacity costs provide additional benefits to DSM programs. For the transmission system, reductions in transmission coincident peak demands can reduce the need for investment in growth-related transmission plant. Likewise, it is possible that demand reductions can delay distribution system improvements.

Table 9: Avoided Cost of T&D Assumptions

	2009 Vintage ($/kW-Year)			2013 Vintage ($/kW-Year)		
	Summer Avoided Trans. Capacity	Winter Avoided Trans. Capacity	Avoided Dist. Capacity	Summer Avoided Trans. Capacity	Winter Avoided Trans. Capacity	Avoided Dist. Capacity
2009	$16.20	$1.45	$0.00			
2010	$16.68	$1.50	$0.00			
2011	$17.16	$1.54	$0.00			
2012	$17.64	$1.59	$0.00			
2013	$18.24	$1.63	$0.00	$15.72	$3.88	$0.00
2014	$18.72	$1.68	$0.00	$16.08	$3.96	$0.00
2015	$19.32	$1.73	$0.00	$16.32	$4.04	$0.00
2016	$19.92	$1.79	$0.00	$16.68	$4.12	$0.00
2017	$20.52	$1.84	$0.00	$17.04	$4.20	$0.00
2018	$21.12	$1.89	$0.00	$17.40	$4.28	$0.00
2019				$17.76	$4.36	$0.00
2020				$18.12	$4.46	$0.00
2021				$18.48	$4.54	$0.00
2022				$18.84	$4.64	$0.00

7.1 2009 Assumption

Most of HE's load lies within two different MISO load areas – approximately 40% in the HE load area and the remaining 60% in areas served by IOUs, with the greatest majority of that portion served in the Duke load area. In the HE load area, the G&T provides network transmission service through the ownership of facilities. In the IOU load areas, HE purchases transmission service under 12-CP billing demand methodologies.

Due to HE's transmission arrangements, the 2009 vintage avoided transmission costs were calculated as the weighted combination of deferred investment on the HE system and avoided purchases in other load areas. Discussions with staff concluded that peak system demands in the summer are the primary determinant in the capacity requirement of the HE-owned network transmission system. As a result, summer load reductions on the HE system could result in the deferral of load-growth related transmission capacity additions, while winter load reductions would not provide any such benefit. Load-growth related projects from HE's transmission work plan were separated from projects that focused on reliability, environmental, or contingency purposes. Based on an average of the projected levels of investment each year, GDS estimated the avoided cost per kW on the HE system. The peak demands on the Duke system were examined, and it was concluded that due to the diversity between the Duke and HE systems and the lack of real-time information regarding when the Duke system peaks are occurring, it would not be feasible to manage load during the Duke system peaks. It was determined, however, that by targeting HE's peaks for load management, it could also coincidentally result in load being controlled during two summer monthly peaks and one winter peak on the Duke system, thus reducing HE's transmission purchases. The avoided transmission cost was determined as the weighted average of the value of the deferred load-growth related transmission investment on the HE system (40% share) and the value of three months of reduced transmission service purchases (60% share). The weighted average transmission avoided cost was then escalated at the assumed rate of inflation of 3% per year.

Some G&T cooperatives consider the potential impact that DSM programs could have in delaying the construction of new cooperative distribution facilities. However, to effect such a delay, the local peak demand for the substation loading would have to be reduced and the DSM programs are targeting HE's system coincident peak demand. Furthermore, such reductions often delay the need for new construction no more than several months. It was concluded that the impact of such savings was not significant enough to consider in the TRC test.

7.2 2013 Assumption

The methodology employed to develop avoided transmission costs in the 2013 vintage DSM study are consistent with those methodologies employed in the 2009 vintage study. Updated HE transmission work plans were used to revise that portion of the cost and recent Duke network service charges were used to update that portion of the avoided cost. Escalation was set at 2% per year, consistent with the assumed rate of inflation in the 2013 study.

One major change in the 2013 study methodology is that avoided purchased transmission services was changed from one winter month to two winter months. GDS evaluated the timing of HE's actual hours of control from 2010-2012 and compared those times to the times for the Duke CP. HE's control periods in the winter overlapped with Duke peaks enough to warrant adjusting the assumption up by one month.

It is still reasonable to assume negligible cost savings on the distribution system from DSM demand reductions. Therefore, in the 2013 study, no avoided distribution cost is still the assumption.

7.3 Projected Impact

Energy Efficiency – MODERATE IMPACT, NEGATIVE EFFECT ON TRC
Demand Response – MODERATE IMPACT, NEGATIVE EFFECT ON TRC

Avoided T&D costs represent one of the more major benefits of DSM programs, although avoided generation benefits tend to outweigh them. The 2013 vintage summer avoided costs are lower than the 2009 vintage avoided costs, which will impact TRC ratios negatively for all programs with moderate or high summer loads. However, winter avoided costs have increased in the 2013 study because of the additional month of avoided transmission service purchases. So measures that are solely winter measures or have predominant winter loadings will see an increase in TRC ratios.

8 General Modeling Assumption Change#8: Forecast of Electric Retail Rates

In the TRC test, electric retail rates are used when fuel switching occurs. In a measure in which the participant changes fuel types for an end-use, the net cost or savings to the customer due to the fuel switch is considered in the TRC calculation. Since the change in energy consumption occurs incrementally, the upper-block retail rate is appropriate to use if the participant is subject to a block energy charge.

Table 10: Retail Electric Rate Assumptions

	2009 Vintage (¢/kWh)	2013 Vintage (¢/kWh)
2009	7.98	
2010	8.22	
2011	8.47	
2012	8.72	
2013	8.98	10.79
2014	9.25	11.12
2015	9.53	11.45
2016	9.81	11.79
2017	10.11	12.15
2018	10.41	12.51
2019	10.72	12.89
2020	11.05	13.27
2021	11.38	13.67
2022	11.72	14.08

8.1 2009 Assumption

To establish the base year assumption, GDS collected the upper-end block rate and tracker values for as many HE member cooperatives as were available. The total avoided cost represents the upper block rate plus the tracker. This value was averaged across the members to produce a value to represent the average retail rate for an HE member cooperative. Escalation was then applied using the assumed inflation rate of 3% per year. The assumption is that, on average, the real retail price of electricity will remain stable in the future.

8.2 2013 Assumption

The 2013 vintage value is computed in a manner consistent with the 2009 vintage value. An average of member cooperative upper-block rates and trackers was computed. The average includes rate information for 12 of HE's members. Escalation is based on 2% inflation.

8.3 Projected Impact

Energy Efficiency – LOW IMPACT, MIXED EFFECT ON TRC
Demand Response – N/A

The avoided retail rate assumption would have a minor impact on TRC benefit-cost ratios for energy efficiency programs. No DR programs under analysis involve fuel switching, so the retail rate has no impact on DR TRC tests. The effects on the TRC are hard to determine since the impact depends on whether fuel is being switch from gas to electric or vice versa and depends on the direction and magnitude of the change in gas assumptions (discussed in section 9).

9 General Modeling Assumption Change#9: Avoided Cost of Natural Gas and Propane

The avoided cost of natural gas and propane are used to understand the benefits of fuel switching and of secondary savings in natural gas that may result from an EE measure.

	2009 Vintage		2013 Vintage			
	Natural Gas	Propane	Natural Gas (Commodity)	Natural Gas (Retail)	Propane (Commodity)	Propane (Retail)
2009	$12.66	$26.17				
2010	$12.52	$26.60				
2011	$12.54	$27.01				
2012	$12.66	$27.54				
2013	$12.76	$28.05	$5.02	$9.44	$10.60	$20.82
2014	$12.92	$28.64	$5.19	$9.26	$10.52	$20.67
2015	$13.15	$29.32	$5.40	$9.11	$10.37	$20.39
2016	$13.49	$30.13	$5.45	$9.78	$10.58	$20.79
2017	$14.03	$31.11	$5.57	$10.30	$11.09	$21.80
2018	$14.59	$32.14	$5.71	$10.91	$11.50	$22.60
2019	$15.15	$33.18	$5.94	$11.31	$11.90	$23.38
2020	$15.45	$33.99	$6.17	$11.65	$12.31	$24.18
2021	$15.76	$34.81	$6.55	$12.04	$12.67	$24.90
2022	$16.48	$36.07	$7.00	$12.52	$13.07	$25.69
2023	$17.20	$37.32	$7.36	$13.02	$13.46	$26.45
2024	$17.99	$38.67	$7.66	$13.42	$13.84	$27.19
2025	$18.80	$40.05	$8.01	$13.77	$14.22	$27.94
2026	$19.70	$41.50	$8.34	$14.20	$14.61	$28.72
2027	$20.46	$42.92	$8.71	$14.57	$14.99	$29.47
2028	$21.55	$44.64	$9.00	$15.03	$15.38	$30.23
2029	$22.60	$46.32	$9.35	$15.49	$15.77	$30.99
2030	$23.64	$48.03	$9.73	$15.93	$16.17	$31.78

9.1 2009 Assumption

The 2009-vintage avoided costs for natural gas and propane were derived from EIA's 2008 *Annual Energy Outlook* reference case for the "East North Central" region. The 2008 forecast is stated in $2006 real dollars and was escalated by an annual inflation rate of 3% (2009-vintage HE global assumption) to convert to nominal dollars. The EIA forecast represents the residential rate forecast for natural gas and propane.

9.2 2013 Assumption

For the 2013-vintage fossil fuel avoided costs, GDS has included both the forecast retail price and avoided commodity price of natural gas and propane. Although HE is an electric cooperative and does not sell either propane or natural gas directly to its members, the forecasted retail rate should be reserved for the Participant Test or the RIM Test while the avoided commodity price of natural gas and propane should be utilized in the TRC or Societal Tests. Using the avoided commodity price of natural gas and/or propane in the TRC Test improves upon the methodology selected in the 2009 analysis, which used the retail rate for all cost-effectiveness screening where fossil fuel consumption declined.

The forecast retail rates of propane and natural gas are based on EIA's 2013 *Annual Energy Outlook* reference case for the "East North Central" region. EIA's forecast is stated in nominal dollars and extends from 2013-2040. The avoided commodity price of natural gas was supplied by Vectren Gas for an analysis of a proposed HE/Vectren supported Weatherization program for gas-heated homes in the HE service territory. The Vectren forecast extends through 2034. Finally, the propane commodity price was determined using the historical average 2012 price of wholesale propane in Indiana. This price was then escalated at the same rate as the EIA forecast for retail propane.

9.3 Projected Impact

Energy Efficiency – LOW IMPACT, NEGATIVE EFFECT ON TRC
Demand Response – N/A

In general, 2013-vintage natural gas and propane commodity prices are approximately 35%-40% of the assumed 2009-vintage retail rate avoided costs. Meanwhile, 2013-vintage natural gas and propane retail costs are 67%-75% lower than the 2009-vintage retail rate avoided costs.

Although the forecast of natural gas prices and propane prices is significantly lower in the 2013 vintage avoided costs, the overall projected impact of these changes on the original DSM program offerings of HE is anticipated to be minor. Overall, the $ benefits of measures that include gas and/or propane savings will decrease. However, few measures include fossil fuel savings.

10 General Modeling Assumption Change#10: Avoided Cost of Water

Avoided costs of water represent a benefit to EE programs that reduce water consumption in the home or place of business.

	2009 Vintage	2013 Vintage
	$ per gallon	$ per gallon
2009	$0.0023	
2010	$0.0024	
2011	$0.0025	
2012	$0.0026	
2013	$0.0026	$0.0053
2014	$0.0027	$0.0054
2015	$0.0028	$0.0055
2016	$0.0029	$0.0056
2017	$0.0030	$0.0057
2018	$0.0031	$0.0059
2019	$0.0031	$0.0060
2020	$0.0032	$0.0061
2021	$0.0033	$0.0062
2022	$0.0034	$0.0063
2023	$0.0035	$0.0065
2024	$0.0036	$0.0066
2025	$0.0038	$0.0067
2026	$0.0039	$0.0069
2027	$0.0040	$0.0070
2028	$0.0041	$0.0071
2029	$0.0042	$0.0073
2030	$0.0044	$0.0074

10.1 2009 Assumption

The 2009-vintage water avoided cost was based on the latest available water rate schedules for the city of Indianapolis in 2009, and escalated at 3% annually. Avoided wastewater was not reflected in the 2009-vintage avoided cost of water forecast.

10.2 2013 Assumption

The 2013-vintage avoided cost of water savings is based on the average residential retail schedules available for the City of Bloomington, City of Columbus, and the City of Indianapolis, and has been weighted to account for an estimated 62% of homes using municipal water services versus well-water systems. After 2013, the avoided cost of water is escalated at 2% a year, the assumed rate of inflation in the 2013 study.

10.3 Projected Impact

Energy Efficiency – LOW IMPACT, POSITIVE EFFECT ON TRC
Demand Response – N/A

In contrast to the 2009-vintage assumptions, the 2013-vintage avoided cost of water includes wastewater charges to more accurately value reduced water consumption. This results in higher water avoided costs compared to the 2009-vintage assumptions.

The projected impact of these changes on the original DSM program offerings of HE is anticipated to be minor. Although the avoided cost of water has increased by approximately 70%-100% over the 2009-vintage assumptions due to the inclusion of wastewater charges, the number of measures that include water savings is relatively minor and the magnitude of water savings compared to electric energy savings is minimal across the various Hoosier DSM offerings.

Energy Efficiency & Demand Response Potential Report for the Hoosier Energy Member Territory

FINAL REPORT

Prepared for:
HOOSIER ENERGY

By:
GDS ASSOCIATES
SUMMIT BLUE CONSULTING

November 2009

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1 EXECUTIVE SUMMARY

In January 2008, Hoosier Energy commissioned GDS Associates and Summit Blue Consulting to conduct a study of the potential for electric energy efficiency and demand response programs to reduce electric consumption and peak demand throughout the Hoosier Energy member territory. Recent forecasts predict total sales and summer peak demand in the Hoosier Energy member territory to increase at an average annual rate of more than 1.9% from 2009 through 2028. Improving energy efficiency and lowering electric demand in homes, businesses, and industries can be a cost effective way to address the challenges of high energy prices and the increasing demand for more energy. Consequently, energy efficiency and demand response potential studies are important and helpful tools for building the policy case for demand side management (DSM), evaluating efficiency and demand response as an alternative to supply side resources, and for the development of detailed energy efficiency and demand response program plans.

The detailed report presents results from the evaluation of additional opportunities for energy efficiency and demand response programs in the Hoosier Energy member territory. Estimates of technical potential, economic potential, and achievable potential by the year 2028 (a 20-year period) are provided for the 1) residential and 2) commercial/industrial sectors. Results from a program potential scenario are also presented to estimate the portion of the achievable potential that might be achieved given a specific funding level and program design.

All results were developed using customized residential and commercial/industrial sector-level potential assessment computer models and Hoosier Energy-specified cost effectiveness criteria including the most recent avoided cost projections for electricity and alternate fuels. To help inform these models, actual customer information was collected through site visits with random samples of residential and commercial/industrial facilities. These surveys provided valuable insight regarding the current saturation of electrical equipment and baseline levels of energy efficiency throughout the service area.

The results of this study (summarized herein) provide detailed information on the energy efficiency and demand response measures that are most cost effective and have the greatest potential kWh and kW savings. The data used for this report was based on the best available at the time the models were run – but given the demands and time limits for this project, it is possible that some sources were overlooked. As building and appliance codes and standards change and as energy prices fluctuate, additional opportunities for energy efficiency and demand response may occur while current practices may become out-dated.

1.1 STUDY SCOPE

The study examines the potential to reduce electric consumption and peak demand through the implementation of energy efficiency and demand response (EE&DR) technologies and practices in residential, commercial, and industrial facilities. The study assessed DSM potential throughout the Hoosier Energy member territory over 20 years, from 2009 through 2028.

The study had six main objectives:

- Evaluate the electric energy efficiency technical potential savings for the Hoosier Energy member territory;

- Calculate the results for the Total Resource Cost (TRC) benefit costs test and determine the electric energy efficiency economic potential savings for the HE member territory;
- Evaluate the potential for achievable savings through electric efficiency programs over a 20 year horizon (2009-2028) for three long term market penetration scenarios (low, base, and high);
- Calculate the potential for achievable peak demand savings through cost-effective demand response programs over a 20 year horizon (2009-2028)
- Examine electric efficiency and demand response program designs and recommend programs for implementation;
- Estimate the potential savings over a ten-year period from the delivery of a portfolio of recommended efficiency and demand response programs based on a targeted savings and budget level. The portfolio of programs has been designed based on an allowable total budget of roughly $82 million dollars from 2009-2018.

The scope of this study distinguishes among four types of energy efficiency potentials; (1) technical, (2) economic, (3) achievable, and (4) program potential. The definitions used in this study for energy efficiency potential estimates are as follows:

- **Technical Potential** is defined in this study as the complete penetration of all measures analyzed where they were deemed to be technically feasible from an engineering perspective.
- **Economic Potential** is the subset of technical potential resources that are cost-effective based on the Total Resource Cost (TRC) Test.
- **Achievable Potential** is the realistic penetration of energy efficiency measures taking into account real-world market and adoption barriers. This study provides a base case achievable potential scenario as well as a low case and high case. *All achievable figures reported in this study are for the base case unless explicitly stated as low or high.*
- **Program Potential** is the achievable potential possible given specific funding levels and program designs. In the report, program potential results are discussed for a 10-year time period only.[1]

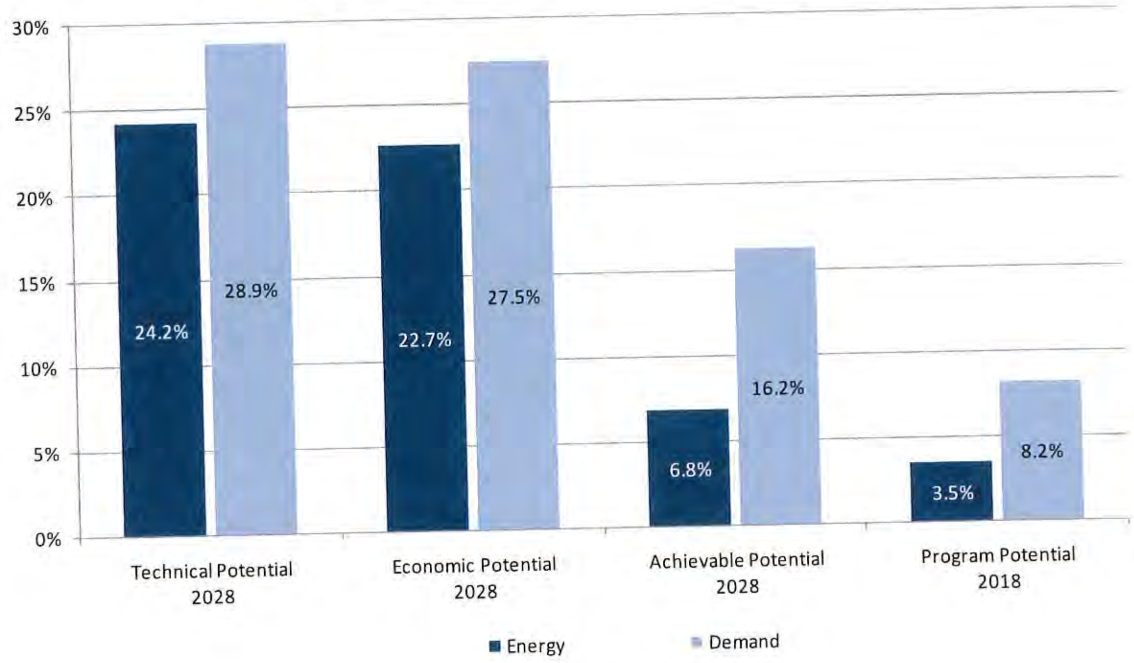
Limitations to the scope of study: As with any assessment of energy efficiency potential, this study necessarily builds on a large number of assumptions, from average measure lives, savings and costs, to the discount rate for determining the net present value of future savings. While the authors have sought to use the best available data, there are many assumptions where there may be reasonable alternative assumptions that would yield somewhat different results. Furthermore, while the lists of measures examined in this study represent most commercially available measures, they are not exhaustive. Finally there was no attempt to place a dollar value on some difficult to quantify benefits that may result from the installation of some measures, such as increased comfort, which may in turn support some personal choices to implement particular measures that may otherwise not be cost-effective or only marginally so.

[1] It is necessary for program plans to adapt over time to pursue new goals and promote new technologies. As a result, program potential estimates and recommended program plans were limited to 10 years in this analysis due to the uncertainty associated with forecasting actual savings and utility budgets out into the future.

1.2 RESULTS OVERVIEW

Figure 1-1 shows that cost effective electric demand-side management resources, such as energy efficiency and demand response, can play a significantly expanded role in Hoosier Energy's energy resource mix over the next two decades.

Figure 1-1: DSM Potential Savings Summary



This study examined over 170 energy efficiency measures and 7 demand response programs in the residential and commercial/industrial sectors combined. The findings suggest that Hoosier Energy could save up to 23% of total energy sales and 27.5% of summer peak demand by pursuing ***"Economic Potential"*** energy efficient technologies.[2] In the base case ***"Achievable Potential"*** scenario savings of approximately 7% of total energy sales (624,440 MWh) and 16% of peak demand (297 MW) are possible by 2028 when DSM strategies include both energy efficiency and demand response programs.[3]

The ***"Program Potential"*** is a subset of the ***"achievable potential"*** and has been designed to aggressively target the most cost-effective measures/programs. This scenario is based on a targeted budget of $5 and $7 million in 2009 and 2010, followed by an increase of 5% annually from 2011-2018. In total, the combined budget from 2009-2018 under this scenario is approximately $81.4 million. This scenario achieves estimated savings in 2018 of 269,350 MWh and summer peak load reductions of 126 MW. This represents approximately 3.5% of total energy sales and 8.2% of summer peak demand in 2018. The recommended DSM programs discussed in the following section represent the programs included in the program potential.

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[2] The demand response analysis was limited to estimates of achievable and program potential, and was based on experience from other utilities. Therefore, technical and economic potential estimates are not available for these programs and only include savings from energy efficient measures.

[3] All energy and demand savings are presented in this report are at the end-consumer level unless specifically noted in this report. Tables 1-1, 10-8, 10-9, and 12-1 all include generation level savings estimates.

1.3 RECOMMENDED DSM PROGRAMS

A wide assortment of residential and commercial/industrial energy efficiency measures and demand response programs were found to be cost-effective and as a result, Hoosier Energy has numerous options regarding a DSM portfolio. In addition to high efficiency lighting, Hoosier Energy should consider expanding existing offerings or target areas, such as the heating and cooling market, where there is a significant potential for energy efficiency gains. In total, 13 recommended programs were detailed in this analysis.

Table 1-1, presented below, provides the energy savings, demand savings, dollar benefits, and costs for each recommended program. Costs included in this table represent all costs included in the Total Resource Cost test, including all measure costs paid by the utility and/or participant as well as any administrative or overhead costs. Combined, the portfolio of programs is expected to achieve 269,351 MWh in energy savings in 2018, or 3.5% of the 2018 forecasted total energy sales. In addition, the programs are expected to save approximately 126 MW in 2018 (7.5% of summer peak demand).

Table 1-1: Recommended Program Summary

	Cumulative Annual MWh Savings - 2018	Cumulative Annual MW Savings - 2018	NPV Benefits $2009	NPV Costs (Utility + Participants) $2009	TRC B/C Ratio
			$ in millions		
1 Residential Energy Efficiency Programs					
Residential Lighting Program	72,482	7.4	$52.4	$8.0	6.59
Heating & Cooling Program (SH&C/WH)	23,418	17.0	$90.3	$43.0	2.10
Home Energy Audit & Weatherization	40,898	9.5	$38.3	$18.3	2.09
Touchstone Energy Homes (New Construct	13,432	3.1	$14.1	$7.6	1.86
Second Appliance Turn-In Program	12,438	1.0	$4.6	$2.3	2.02
Energy Star Appliances	0	0.0	$0.0	$0.0	N/A
Geothermal Heat Pumps	0	0.0	$0.0	$0.0	N/A
Education Campaign	0	0.0	$0.0	$3.1	N/A
2 Commercial/Industrial Programs					
C/I Prescriptive - Existing Buildings	89,510	23.9	$68.1	$28.8	2.37
C/I Prescriptive - New Construction	3,170	0.9	$2.3	$0.8	2.96
C/I Custom	14,002	3.5	$10.4	$4.0	2.61
3 Residential Demand Response Programs					
Residential Air Conditioning Control	-	25.3	$7.2	$3.1	2.37
Residential Water Heating Control	-	18.1	$5.4	$5.5	0.99
4 C/I Demand Response Programs					
Commercial/Industrial AC Load Control	-	5.6	$1.6	$1.0	1.70
Commercial/Industrial Interruptable Rates	-	10.9	$3.3	$0.4	8.06
Total Savings (End-Consumer)	***269,351***	***126.2***	***$298.2***	***$125.7***	***2.37***
Total Savings (@ Generation)	***294,950***	***139***			

In the residential sector, the recommended programs focus primarily on improving lighting and upgrading HVAC equipment and building shell efficiency. The lighting program, as designed by Hoosier Energy, will provide Compact Fluorescent Light (CFL) bulbs to their members at no cost in exchange for incandescent bulbs. The Home Heating and Cooling Equipment program and Energy Audit and Weatherization program look to improve HVAC, water heating, and building shell efficiency by offering incentives of 35% (or greater) of incremental measure cost for replacing (or adding) efficient technologies in lieu of standard equipment. A portion of the financial burden associated with operating a home weatherization program is expected to be offset by federal stimulus bill funding. In addition, installing load control devices on water heating and air conditioning equipment is expected to help reduce the system summer peak by more than 43 MW in 2018.

In the commercial and industrial sector, a prescriptive program is proposed that includes incentives for purchasing and installing efficient equipment in existing facilities. Prescriptive incentives are offered for a schedule of measures in each end use (i.e. lighting, motors, hot water, HVAC). The prescriptive program is followed by a custom program offering incentives for the installation of innovative and non-standard energy-efficiency equipment and controls in existing facilities. A commercial new construction program is recommended to encourage the energy efficient technology during the construction of new buildings. Finally, there are two commercial/industrial demand response programs that are designed to encourage the reduction of electric consumption during times of high summer demand.

1.4 PROGRAM BUDGET SUMMARY

The 2009-2018 combined Hoosier budget (see figures 1-2 and Table1-2 below) for the 13 recommended programs is approximately $81.4 million. The recommended budget is set at $4.5 million in the first program year, and grows annually, reaching $10 million in 2018. As shown in Figure 2, energy efficiency programs in the residential sector represent Hoosier's greatest investment in demand-side management, followed by commercial/industrial energy efficiency. The four recommended residential and commercial/industrial demand response programs are estimated to cost approximately $7.8 million over the next decade. On average, incentives account for 75% of the total budget, while administrative costs (marketing, delivery, outside contractors, and evaluation) account for the remaining 25%. See summaries of program details attached in Appendix hereto.

Figure 1-2: 2009-2018 Hoosier Energy Budget by Sector Based on the 15 Recommended Programs (dollars in millions)

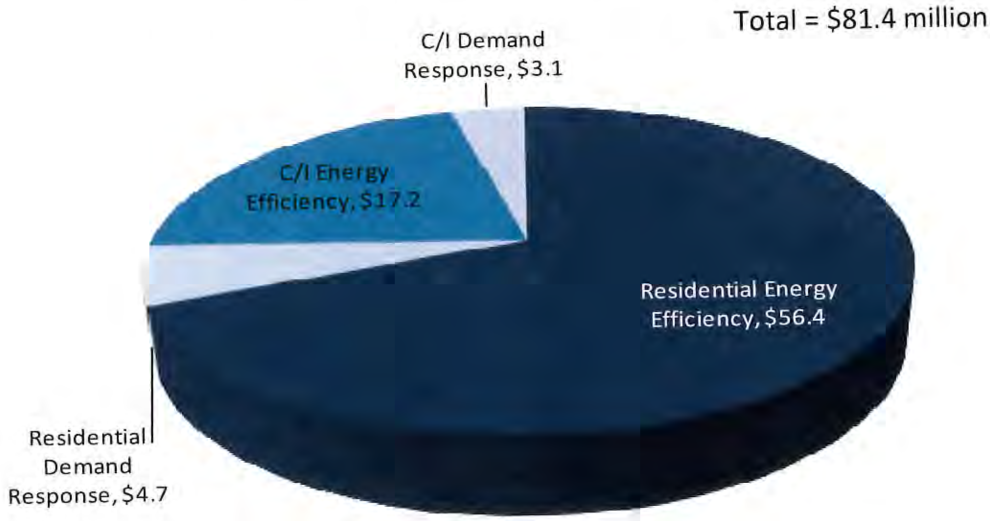


Table 1-2: 2009-2018 Energy Efficiency and Demand Response Program Budgets (Combined)
(dollars in thousands)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	TOTAL	NPV ($2009)
Residential Energy Efficiency												
Incentives	$3,298	$4,284	$4,299	$4,315	$4,046	$3,909	$4,305	$4,813	$5,225	$5,784	$44,278	$33,852
Administrative Costs	$804	$993	$1,128	$1,085	$1,095	$1,223	$1,254	$1,367	$1,592	$1,603	$12,143	$9,177
Hoosier Subtotal	*$4,102*	*$5,277*	*$5,427*	*$5,400*	*$5,141*	*$5,131*	*$5,559*	*$6,180*	*$6,817*	*$7,387*	*$56,421*	*$43,029*
Participant Costs	$3,540	$4,523	$4,479	$4,458	$4,346	$4,379	$5,187	$6,096	$7,015	$8,211	$52,232	$39,222
Total Costs	***$7,641***	***$9,799***	***$9,906***	***$9,858***	***$9,487***	***$9,511***	***$10,745***	***$12,276***	***$13,382***	***$15,598***	***$108,653***	***$82,250***
Commercial Energy Efficiency												
Incentives	$497	$524	$630	$840	$1,216	$1,481	$1,403	$1,272	$1,193	$1,148	$10,204	$7,161
Administrative Costs	$346	$356	$474	$611	$886	$962	$933	$834	$812	$756	$6,971	$4,913
Hoosier Subtotal	*$843*	*$880*	*$1,104*	*$1,451*	*$2,102*	*$2,443*	*$2,336*	*$2,106*	*$2,005*	*$1,904*	*$17,145*	*$12,073*
Participant Costs	$1,492	$1,571	$1,891	$2,520	$3,647	$4,442	$4,209	$3,816	$3,579	$3,444	$30,612	$21,482
Total Costs	**$2,335**	**$2,451**	**$2,995**	**$3,972**	**$5,749**	**$6,885**	**$6,545**	**$5,922**	**$5,584**	**$5,348**	**$47,786**	**$33,555**
Residential Demand Response												
Incentives	$0	$477	$477	$477	$477	$477	$477	$477	$477	$477	$4,295	$2,899
Administrative Costs	$0	$247	$23	$23	$24	$25	$26	$26	$27	$28	$449	$338
Hoosier Subtotal	*$0*	*$724*	*$500*	*$501*	*$501*	*$502*	*$503*	*$504*	*$504*	*$505*	*$4,744*	*$3,227*
Member System Costs	$0	$102	$315	$528	$741	$955	$1,170	$1,384	$1,599	$1,815	$8,610	$5,290
Total Costs	**$0**	**$826**	**$815**	**$1,029**	**$1,243**	**$1,457**	**$1,672**	**$1,888**	**$2,104**	**$2,320**	**$13,354**	**$8,517**
Commercial Demand Response												
Incentives	$0	$37	$46	$70	$135	$173	$161	$149	$138	$128	$1,036	$703
Administrative Costs	$0	$68	$85	$131	$254	$330	$313	$296	$280	$265	$2,021	$1,365
Hoosier Subtotal	*$0*	*$105*	*$130*	*$201*	*$389*	*$504*	*$473*	*$445*	*$418*	*$393*	*$3,057*	*$2,068*
Member System Costs	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Costs	**$0**	**$105**	**$130**	**$201**	**$389**	**$504**	**$473**	**$445**	**$418**	**$393**	**$3,057**	**$2,068**
EE & DR Programs COMBINED												
Incentives	**$3,795**	**$5,322**	**$5,452**	**$5,703**	**$5,874**	**$6,040**	**$6,346**	**$6,711**	**$7,033**	**$7,357**	**$59,813**	**$44,604**
Administrative Costs	**$1,150**	**$1,664**	**$1,709**	**$1,851**	**$2,259**	**$2,540**	**$2,525**	**$2,524**	**$2,712**	**$2,652**	**$21,584**	**$15,792**
Hoosier Subtotal	***$4,495***	***$6,986***	***$7,161***	***$7,553***	***$8,132***	***$8,580***	***$8,871***	***$9,235***	***$9,745***	***$10,189***	***$81,397***	***$60,397***
Participant Costs	**$5,031**	**$6,094**	**$6,370**	**$6,978**	**$7,993**	**$8,821**	**$9,396**	**$9,911**	**$10,593**	**$11,656**	**$82,844**	**$60,703**
Member System Costs	**$0**	**$102**	**$315**	**$528**	**$741**	**$955**	**$1,170**	**$1,384**	**$1,599**	**$1,815**	**$8,610**	**$5,290**
TOTAL COSTS	**$9,976**	**$13,182**	**$13,846**	**$15,059**	**$16,867**	**$18,356**	**$19,436**	**$20,530**	**$21,938**	**$23,660**	**$172,850**	**$126,390**

2 GLOSSARY OF TERMS[4]

The following list defines many of the key energy efficiency and demand response terms used throughout this study.

Achievable potential: the amount of energy use that efficiency can realistically be expected to displace assuming the most aggressive program scenario possible (e.g., providing end-users with payments for the entire incremental cost of more efficient equipment). This is often referred to as maximum achievable potential. Achievable potential takes into account real-world barriers to convincing end-users to adopt efficiency measures, the non-measure costs of delivering programs (for administration, marketing, tracking systems, monitoring and evaluation, etc.), and the capability of programs and administrators to ramp up program activity over time.

Applicability factor: the fraction of the applicable dwelling units that is technically feasible for conversion to the efficient technology from an *engineering* perspective (e.g., it may not be possible to install CFLs in all light sockets in a home because the CFLs may not fit in every socket in a home).

Base Case Equipment End Use Intensity: the electricity used per customer per year by each base-case technology in each market segment. This is the consumption of the electric energy using equipment that the efficient technology replaces or affects. For example purposes only, if the efficient measure were a high efficiency light bulb (CFL), the base end use intensity would be the annual kWh use per bulb per household associated with an incandescent light bulb that provides equivalent lumens to the CFL.

Base Case Factor: the fraction of the end use electric energy that is applicable for the efficient technology in a given market segment. For example, for residential lighting, this would be the fraction of all residential electric customers that have electric lighting in their household.

Coincidence factor: the fraction of connected load expected to be "on" and using electricity coincident with the system peak period.

Cost-effectiveness: a measure of the relevant economic effects resulting from the implementation of an energy efficiency measure. If the benefits outweigh the cost, the measure is said to be cost-effective.

Cumulative annual: refers to the overall savings occurring in a given year from both new participants and savings continuing to result from past participation with measures that are still in place. Cumulative annual does not always equal the sum of all prior year incremental values as some measures have relatively short measure lives and, as a result, their savings drop off over time.

Demand response: The ability to provide peak load capacity through demand management (load control) programs. This methodology focuses on curtailment of loads during peak demand times thus avoiding the requirement to find new sources of generation capacity.

[4] Potential definitions taken from "National Action Plan for Energy Efficiency (2007). Guide for Conducting Energy Efficiency Potential Studies. Prepared by Philip Mosenthal and Jeffrey Loiter, Optimal Energy, Inc.

Early replacement: refers to an efficiency measure or efficiency program that seeks to encourage the replacement of functional equipment before the end of its operating life with higher-efficiency units

Economic potential: the subset of the technical potential screen that is economically cost-effective as compared to conventional supply-side energy resources. Both technical and economic potential screens are theoretical numbers that assume immediate implementation of efficiency measures, with no regard for the gradual "ramping up" process of real-life programs. In addition, they ignore market barriers to ensuring actual implementation of efficiency.

End-use: a category of equipment or service that consumes energy (e.g., lighting, refrigeration, heating, process heat).

Energy efficiency: using less energy to provide the same or an improved level of service to the energy consumer in an economically efficient way. Sometimes "conservation" is used as a synonym, but that term is usually taken to mean using less of a resource even if this results in a lower service level (e.g., setting a thermostat lower or reducing lighting levels). This recognizes that energy efficiency includes using less energy at any time, including at times of peak demand through demand response and peak shaving efforts.

Free Driver: individuals or businesses that adopt an energy efficient product or service because of an energy efficiency program, but are difficult to identify either because they do not receive an incentive or are not aware of exposure to the program.

Free Rider: participants in an Energy Efficiency program who would have adopted an energy efficiency technology or improvement in the absence of a program of financial incentive.

Incremental: savings or costs in a given year associated only with new installations happening in year.

Lost-opportunity: refers to an efficiency measure or efficiency program that seeks to encourage the selection of higher-efficiency equipment or building practices than would typically be chosen at the time of a purchase or design decision.

Measure: any action taken to increase efficiency, whether through changes in equipment, control strategies, or behavior. Examples are higher-efficiency central air conditioners, occupancy sensor control of lighting, and retro-commissioning. In some cases, bundles of technologies or practices may be modeled as single measures. For example, an ENERGY STAR™ home package may be treated as a single measure.

MW: a unit of electrical output, equal to one million watts or one thousand kilowatts. It is typically used to refer to the output of a power plant.

MWh: one thousand kilowatt-hours, or one million watt-hours. One MWh is equal to the use of 1,000,000 watts of power in one hour.

Net-to-gross ratio: a factor representing net program savings divided by gross program savings that is applied to gross program impacts to convert them into net program load impacts

Portfolio: Either a collection of similar programs addressing the same market, technology, or mechanisms; or the set of all programs conducted by one organization.

Program: a mechanism for encouraging energy efficiency. May be funded by a variety of sources and pursued by a wide range of approaches. Typically includes multiple measures.

Program potential: the efficiency potential possible given specific program funding levels and designs. Often, program potential studies are referred to as "achievable" in contrast to "maximum achievable."

Remaining factor: the fraction of applicable units that have not yet been converted to the electric energy efficiency measure; that is, one minus the fraction of units that already have the energy efficiency measure installed.

Replace on burnout: a DSM measure is not implemented until the existing technology it is replacing fails. An example would be an energy efficient water heater being purchased after the failure of the existing water heater.

Retrofit: refers to an efficiency measure or efficiency program that seeks to encourage the replacement of functional equipment before the end of its operating life with higher-efficiency units (also called "early retirement") or the installation of additional controls, equipment, or materials in existing facilities for purposes of reducing energy consumption (e.g., increased insulation, low flow devices, lighting occupancy controls, economizer ventilation systems).

Savings factor: the percentage reduction in electricity consumption resulting from application of the efficient technology used in the formulas for technical potential screens.

Technical potential: the theoretical maximum amount of energy use that could be displaced by efficiency, disregarding all non-engineering constraints such as cost-effectiveness and the willingness of end-users to adopt the efficiency measures. It is often estimated as a "snapshot" in time assuming immediate implementation of all technologically feasible energy saving measures, with additional efficiency opportunities assumed as they arise from activities such as new construction.

Useful Life: The number of years (or hours) that the new energy efficient equipment is expected to function. Useful life is also commonly referred to as "measure life."

3 INTRODUCTION

The Hoosier Energy member territory is growing. From 1998 to 2007, the number of total consumers grew at a rate of 2.8% annually. This growth in consumers has been accompanied by rising electricity sales and demand (over 5% per year). The current forecast expects that the number of consumers will continue to increase at an average rate of 1.6% from 2009 through 2028 (the timeframe for this study) creating further growth in system electricity sales and demand. This report assesses the potential for energy efficiency and demand response programs to assist Hoosier Energy and its member systems in meeting future energy service needs.

3.1 INTRODUCTION TO ENERGY EFFICIENCY

Efficient energy use, often referred to as energy efficiency, is using less energy to provide the same level of energy service. An example would be insulating a home or business to use less heating and cooling energy to achieve the same temperature. Another example would be installing fluorescent lighting in place of incandescent lights to attain the same level of illumination. In general, energy efficiency is achieved primarily through more efficient technologies and/or processes rather than by changes in individual behavior.

3.1.1 ENERGY EFFICIENCY ACTIVITY

Making homes and buildings more energy efficient is seen as a largely untapped resource for addressing global warning, energy security, and fossil fuel depletion. Faced with rapidly increasing energy prices, constraints in energy supply and demand, and energy reliability concerns, states are turning to energy efficiency as the most reliable, cost-effective, and quickest resource to deploy. For example, the state of California began implementing energy-efficiency measures in the mid-1970s, including building code and appliance standards with strict efficiency requirements. During the following years, California's energy consumption has remained approximately flat on a per capita basis while national U.S. consumption doubled.[5] As part of its strategy, California implemented a three-step plan for new energy resources that puts energy efficiency first, renewable electricity supplies second, and new fossil-fired power plants last.

In 2004, The American Council for an Energy Efficient Economy (ACEEE) reviewed 11 studies on the technical, economic, and achievable potential for energy efficiency in the U.S. Overall, the findings suggest that substantial potential savings remain throughout the nation; the technical energy efficiency savings potential was estimated at 33% of total U.S. electric consumption. In early 2009, Electric Power Research Institute (EPRI) estimated the maximum achievable potential for energy savings at 8% of total U.S. electric consumption.[6] Table 3.1, below, provides the results from a review of several potential studies conducted throughout the Midwest.

[5] Mufson, Steven. "In Energy Conservation, California Sees the Light." Washington Post. February 17, 2007. Page A01.

[6] Assessment of Achievable Potential from Energy Efficiency and Demand Response Programs in the U.S. (2010-2030). Completed by the Electric Power Research Institute (EPRI). January 2009.

Table 3.1: Potential Savings in Other Areas of the Midwest

Organization	State	Year	Fuel	# Years	Technical Potential	Achievable Potential	Achievable Potential/Yr
Duke Energy	IN	2007	Electric	20	NA	15.0%	0.8%
Iowa Utility Assn	IA	2008	Electric	10	46.0%	NA	
Midwest EE Alliance	IL	2003	Electric	10	NA	5.0%	0.5%
Xcel Energy	MN	2003	Electric	20	3.9%	0.7%	0.0%
Utility Collaborative	MO	2006	Electric	10	NA	9.5%	1.0%
Energy Center of WI	WI	2005	Electric	5	NA	.9%-1.9%	0.2%-0.4%
Midwest EE Alliance	IL	2006	Electric	20	21.4%	8.9%	0.4%
Midwest EE Alliance	IN	2006	Electric	20	24.9%	10.9%	0.5%
Midwest EE Alliance	IA	2006	Electric	20	24.1%	10.3%	0.5%
Midwest EE Alliance	KY	2006	Electric	20	30.3%	14.2%	0.7%
Midwest EE Alliance	MI	2006	Electric	20	22.0%	9.6%	0.5%
Midwest EE Alliance	MN	2006	Electric	20	20.1%	8.3%	0.4%
Midwest EE Alliance	MO	2006	Electric	20	26.8%	12.3%	0.6%
Midwest EE Alliance	OH	2006	Electric	20	23.3%	10.1%	0.5%
Midwest EE Alliance	WI	2006	Electric	20	19.8%	8.2%	0.4%
Medians					*23.3%*	*9.5%*	*0.5%*

A more recent study by ACEEE offers information regarding the current savings and spending related to energy efficiency by state.[7] Based on self-reported data, the top states spend roughly 2% of electric sales revenue on energy efficiency programs. In addition, the top states are currently achieving annual energy efficiency savings of roughly 1% of total electric sales. In the same report, Indiana is reported as spending 0.1% of revenue, and saving 0.01% of sales from energy efficiency. These findings suggest additional opportunities remain for energy efficiency in the state of Indiana and throughout the U.S.

3.1.2 General Benefits of Energy Efficiency

There are a number of benefits for organizations that pursue energy efficiency programs. These benefits include energy and capacity cost savings, non-electric benefits such as water and heating fuel savings, environmental benefits, economic stimulus, job creation, risk reduction, and energy security.

Avoided energy and capacity costs are the costs an electric utility would generate, construct itself, or purchase from another source. These include both fixed and variable costs that can be directly avoided through a reduction in electricity usage. The energy component includes the costs associated with the production of electricity, while the capacity component includes costs associated with the capability to deliver energy and consists primarily of the capital costs of facilities.

At the consumer level, energy efficient products typically cost more than their standard efficiency counterparts, but this additional cost is balanced by lower energy bills. Over time, the money saved from energy efficient products will pay consumers back for their initial investment

[7] The 2008 State Energy Efficiency Scorecard. Report #E086. ACEEE. October 2008.

as well as save them money. Typical investments in energy efficiency can recoup the upfront costs invested in energy efficiency in less than five years, while payback period of one to two years are common. Although some energy efficient technologies are involved and expensive, such as installing new efficient windows or a high efficiency boiler, many are simple and inexpensive. Installing compact fluorescent lighting or low-flow water devices can be done by most individuals.

Although the reduction in energy and capacity costs is the primary benefit to be gained from investments in energy efficiency; the utility, its consumers, and society as a whole can also benefit in other ways. Many electric efficiency measures also deliver non-energy benefits. For example, low flow water devices and efficient clothes washers also reduce water consumption. Similarly, weatherization measures that improve the building shell not only save on air conditioning costs in the summer, but can save the customer money on heating fuels, such as natural gas or propane. Reducing electricity consumption also reduces harmful emissions, such as SO_X, NO_X, and CO_2, into the environment.

Energy efficiency creates both direct and indirect jobs, and because the focus of the effort is not only on manufacturing, but also in research and development, service, and installation, these are skilled positions that are not easily outsourced to other states and countries. The indirect jobs are more difficult to quantify, but result in households and businesses experiencing increased discretionary income from reduced energy bills. The savings produce increased investment in other goods and services, driving job creation in other market areas.

Energy efficiency reduces risks associated with fuel price volatility, unanticipated capital cost increases, more stringent regulations, supply shortages, and energy security. Aggressive energy efficiency helps eliminate or postpone the risk associated with committing to huge investments for generation facilities a decade or more before they are needed. Energy efficiency is also not subject to the same supply and transportation constraints that impact fossil fuels. Finally, energy efficiency reduces competition between states and utilities for fuels, and dependence on imported foreign oil, to support electricity production. Energy efficiency can help meet future demand increases and reduce dependence on out-of-state or overseas resources.

3.2 INTRODUCTION TO DEMAND RESPONSE

In an August 2006 report by staff to the Federal Energy Regulatory Commission ("FERC"), a definition of "demand response" was adopted by the Commission. This definition was used by the U.S. Department of Energy ("DOE") in its February 2006 report to Congress:

> *Changes in electric usage by end-use customers from their normal consumption patterns in response to changes in the price of electricity over time, or to incentive payments designed to induce lower electricity use at times of high wholesale market prices or when system reliability is jeopardized.*[8]

The changes in electricity use are designed to be short-term in nature, centered on critical hours when demand or market prices are high, or when reserve margins are low. This is contrasted to energy efficiency programs that are focused on longer-term responses or reduction in consumption through the investment in energy efficient equipment. In other words, demand

[8] U.S. Department of Energy, Benefits of Demand Response in Electricity Markets and Recommendations for Achieving Them: A Report to the United States Congress Pursuant to Section 1252 of the Energy Policy Act of 2005, February 2006 (February 2006 DOE EPAct Report).

response programs provide the mechanisms necessary to inform customers about market conditions, either through pricing or communications, in order for the customer to choose how much electricity they elect to use given such information. Demand response programs benefit all consumers by promoting efficiency and stability in electricity markets.

3.2.1 DEMAND RESPONSE ACTIVITY

Although national figures are inconsistent among the multitude of sources, there is no doubt that traditional load management, which includes direct load control programs as well as interruptible rates, provide a significant resource to reduce peak demand. Such peak demand reduction can provide the long-tem benefit of reducing the need for future generation construction, and provide the short-term benefits of reduced demand charges under purchased power arrangements as well as lower energy costs.

In a report released September 7, 2007 FERC said that demand response activities have increased across the nation. In its "2007 Summer Assessment," the North American Electric Reliability Corp. concluded that application of demand response programs increased to about 21,900 MW from the 2006 summer assessment estimate of about 20,700 MW. Using the 2006 peak demand of about 851 GW, FERC said this suggests that about 3% of peak demand in the United States and Canada can be reduced from interruptible demand and direct load control[9].

The National Rural Electric Cooperative Association (NRECA) estimates that nationwide, cooperatives can control approximately 6% of their peak load through demand response programs, including 1,440 MW of residential load control[10].

Interest in demand response has increased significantly in recent years, although programs have existed for decades. Two of the oldest forms of demand response have been interruptible and TOU rates. Since the late 1970's and early 1980's programs that provided the utility with direct control of certain end-uses such as air conditioning and water heaters have been in place. Demand-side management ("DSM") programs have been used by many utilities as a means to shape customer demand according to the needs of the system. DSM encompasses a broad spectrum of technologies and strategies designed to achieve specific load shape objectives including peak clipping, load shifting and reduction in the overall use of energy through improved efficiency.

A significant factor driving the emphasis on demand response today seem to revolve around the restructuring of the electric industry, as well as significant concerns being raised by environmental and consumer groups in regards to the construction of new generation facilities. Most importantly, many utilities recognize that demand response can provide an economic alternative to certain amounts of peaking generation and be an integral part of the overall mix of resources.

There is no doubt that environmental concerns that must be addressed with the construction of new generation are as significant as ever, and many groups are simply opposed to new construction. Further, the costs of material and labor have increased significantly in recent years causing construction costs to be much higher than plants completed in the 1990's. Given these

[9] Kathleen Hart, SNL Financial LC, September 2, 2007

[10] FERC Docket AD06-2-000, Statement of Jay Morrison, Senior Regulatory Counsel, NRECA for the Technical Conference on Demand Response and Advanced Metering

factors of new construction, it is certainly prudent for utilities to consider cost-effective demand response programs that can help defer the need for new generation construction for utilities that purchase capacity to meet their load growth requirements, demand response can reduce the size of capacity purchases and reduce exposure to market price volatility providing increased certainty in the cost of power supply.

As noted above, demand response programs, except for emergency operations, are focused on reducing load only during peak demand periods. Thus, the generation resources impacted by the implementation of demand response programs are peaking resources, such as natural gas-fired combustion turbines or capacity purchases with limited call option rights.

Demand response programs do not have a significant impact on the need for baseload generation; however, any impact may actually somewhat increase the need for intermediate and possibly base resources due to load shifted out of peak periods into shoulder or non-peak periods. The actual impact of demand response programs on baseload resources, if any, can only be evaluated with detailed production cost analysis.

3.2.2 TYPES OF DEMAND RESPONSE

Most of the literature describes two primary categories of demand response programs – incentive-based response and price-based response.

- Incentive-based demand response
- Price-based demand response

For incentive-based programs, generally the goal is for the load reduction to act as a resource, i.e., the demand reduction occurs via dispatch by the system operator. With this treatment, the demand reduction capability can be included in the resource portfolio. The resources can be dispatched for a number of reasons including peak load, low reserves, high energy costs, and transmission line loading concerns.

The goal with price-based incentives is to provide a price signal that is reflective of current market conditions and the demand reductions occur as a voluntary response to the price signal. Generally, these types of responses are embedded in the load forecast, and not explicitly modeled. While it is often a concern that the load response is not as "firm" as with incentive-based programs, the response can become more predictable based on weather, foreknowledge of prices, and experience.

3.2.3 GENERAL BENEFITS OF DEMAND RESPONSE

As a result of the information or signal provided by the utility under demand response programs, customer responses can either shift (load shifting) or reduce consumption (peak clipping) during high cost periods. Load-shifting and peak-clipping differ because the former shifts much of the energy use from one time to another, whereas the latter eliminates load without shifting it to another time period.

Also in the August 2006 report to FERC, it was noted that to a limited extent, generation, transmission, and demand response are substitutes, depending on the location of the generation or demand response. As a substitute for generation, demand response can serve as a local peaking resource and thereby assist resource adequacy. However, it should be recognized that besides location issues, demand response may not be perfectly interchangeable with a generation resource with differences including:

- Seasonal unavailability of demand response; e.g., direct control of air conditioners is limited to summer periods vs. generation with planned and forced outages

- The number of hours of demand response is ordinarily limited by the agreement with the customer, vs generation run-hours that is likely limited by the environmental permit for the resource or the limit on the number of call hours according to the terms and conditions of a capacity purchase.

- Demand response under utility control is often considered to be as firm and dependable as a generation resource, but price-incentive demand response usually is not as firm.

As a substitute for transmission and distribution infrastructure, demand response can reduce the need for new transmission or distribution expansion. The report also points out that demand response is typically only indirectly included in the transmission planning process by modifications to expected system loads. Generally, if demand response is explicitly considered, it may be a temporary solution until a permanent transmission enhancement is in place.

Under conditions of tight electricity supply, demand response also has the potential to reduce energy supply costs and, in general, electricity price volatility. For load shifting programs, energy cost savings are the difference between avoided energy cost during peak periods and the incurred energy cost during the energy recovery periods.

Demand response can also serve as operating reserves. Several demand response programs such as certain interruptible industrial load and direct load control can provide the timely response necessary to provide these reserves. The eligibility of demand response resources to provide operating reserves has been limited in most regions and typically is restricted to providing supplemental (non-spinning) reserves.

3.3 PROJECT HISTORY

In recent years Hoosier Energy has experienced rapid growth in electric demand of approximately 5% to 6% per year, although this rate of growth has slowed in 2009 due to the national economic recession. While HE currently has adequate power supply resources to meet electric demand, HE forecasts a need for baseload generation in the future. The HE system summer and winter peak loads are approximately 1,400 MW and 1,525 MW respectively. While HE is not regulated by the State, the State of Indiana and the Indiana Utility Regulatory Commission encourage the development and implementation of demand-side programs. HE has implemented both energy efficiency and primarily tariff-based demand response programs in the past, and HE believes that such programs make sense from a business perspective, so long as they are cost effective. HE's strategic objective is to provide incentives for end use customers to manage their power consumption and power costs. HE must also complete a new Integrated Resource Plan (IRP) during 2009 and energy efficiency and demand response programs will be reflected in this new Plan.

HE will continue to rely upon coal generating resources to meet customer needs for electricity over the next decade. The installed cost for new coal-fired generating stations is now projected to be as much as $3,500 per kW installed, compared to just $1,200 just a few years ago. This cost increase heightens the need to assess the costs and feasibility of other energy resources, including demand response programs and energy efficiency programs.

HE issued an RFP on November 21, 2007 for an outside contractor to use a systematic process to develop the short and long range integrated resource plans for Hoosier Energy by 2009. HE envisioned that this systematic process would ensure that supply and demand-side resources would be evaluated on a "level playing field" basis and would ensure that the energy resource plan meets the needs of Hoosier Energy members and the expectations of the State of Indiana and other key stakeholder groups. The RFP explained that HE desired to retain a contractor that would make this project a top priority, and who would manage the development of the new Integrated Resource Plan, and would provide technical support and analytical capabilities to HE throughout this integrated planning process. After reviewing the proposal that were submitted, HE selected GDS Associates to complete this IRP project.

The GDS Team included Summit Blue Consulting as a subcontractor. The GDS Team attended the project kick-off meeting at HE headquarters on January 11, 2008. At that meeting, GDS Team members worked with HE management to finalize the project objectives, scope of work, list of deliverables and the project schedule.

Data Collection: The GDS team worked with HE staff during all of 2008 to develop and collect the key data inputs including: costs of new supply-side resources, fuel costs, load forecasts, emissions and ancillary market costs, external energy and capacity market costs, demand side program impacts and costs, renewable portfolio standards requirements, inflation rate, discount rate, line losses, reserve margin for planning purposes, and corporate financial structure components. Significant coordination was needed between internal utility departments at HE and external consulting resources that were charged with developing or collecting much of this data.

Develop Resource Alternatives: The GDS Team worked with HE staff during 2008 to define the scope of supply and demand side alternatives to be explored through the IRP process. The characteristics and costs for these options were developed jointly by internal and external personnel participating in the project.

Portfolio Optimization: Integration of the supply and demand side resource alternatives was a key component of this project. This included the development of load and resource balances, modeling the alternative's operational and cost parameters, defining and modeling the optimization criteria and constraints, and conducting the resource expansion optimization. Ventyx's Strategist Resource Planning model was used to perform this integration.

Risk Assessment: The GDS Team worked with HE and Ventyx staff to identify sensitivity runs to be performed on the base case IRP scenario.

This stand alone energy efficiency and demand response report summarizes the results of the technical, economic and achievable potential analyses and summarizes the programs that the GDS Team recommends for implementation in the HE service area.

3.4 2008 RESIDENTIAL & COMMERCIAL ON-SITE SURVEYS

As part of the larger Hoosier Energy IRP project, Hoosier Energy commissioned GDS and Summit Blue to conduct 375 residential and 68 commercial on-site surveys in the first half of 2008. These surveys are a major enhancement to a majority of the technical potential studies that have been conducted across the country in the past. Rather than relying on best available information from existing secondary sources to estimate current levels of energy using equipment saturations and penetration of energy efficiency measures, significant primary data collection efforts were undertaken to help inform and derive Hoosier Energy-specific values. The results of the residential on-site surveys are detailed in a stand-alone report entitled "Hoosier Energy Residential On-Site Survey Report"; the results of the commercial and industrial surveys can be found in the report, "Hoosier Energy Non-Residential On-Site Survey Report."

In the residential survey, data was collected on the baseline energy efficiency characteristics of the home, space heating, space cooling, water heating, kitchen appliances, clothes washers and dryers, lighting, insulation, windows, and doors and miscellaneous appliances, as well as data on occupant demographics and conservation decision-making behavior. The findings from these surveys, paired with data collected from the Hoosier Energy 2007 Residential End-Use Survey (a telephone survey of 6,350 residential members), allowed for a detailed breakdown of appliance and other equipment saturations as well as an increased understanding of the current saturation of energy efficient equipment throughout the Hoosier Energy service area. The sample was a fair representation of Hoosier Energy customers with electric-powered heating, fossil-fuel powered heating, and new and existing construction.

The goal of the commercial and industrial customer survey was to gather on-site data from a sufficient number of customers to identify representative data on baseline energy efficiency levels and customer characteristics with 90 percent confidence and a margin of error of 10 percent at the non-residential sector level. Reaching this goal required that 68 non-residential customers receive an on-site survey. The population of non-residential customers is extremely diverse and care was taken to ensure that this diversity was captured within the approximately 68 on-site surveys. The purpose of the surveys was to gather virtually complete inventories of customers' major energy using equipment, to profile the customer facility building shells, and to collect information on customers' energy efficiency decision making practices. In general, the surveys collected data on all measure energy end-uses including: lighting, HVAC, cooking, refrigeration, motors and air compressors.

The results of these surveys present a wealth of information for the Hoosier Energy service area regarding the current saturation of energy efficient technologies in residential and commercial buildings and the availability of future opportunities through education and Energy Efficiency programs. Too often, this valuable information is unavailable and an analysis must rely on any available regional or national data to estimate building and equipment characteristics. The benefit of these on-site surveys permitted the development of more accurate Energy Efficiency potential estimates and the targeting of opportunities that are unique to the Hoosier member territory.

3.5 REPORT ORGANIZATION

The remainder of this report is organized in the following seven sections as follows:

Section 4: Characterization of Hoosier Energy Member Territory provides an overview of the Hoosier Energy member territory and a brief discussion of the historical and forecasted electric energy sales as well as peak demand.

Section 5: Overall Project Implementation Approach details the development of technical, economic, and achievable potential for energy efficiency and demand response savings

Section 6: Residential Energy Efficiency Potential Estimates (2009-2028) provides a breakdown of the technical, economic, and achievable potential in the residential sector

Section 7: Residential Demand Response Potential Estimates (2009-2028) presents detailed results on the peak demand savings and economics of load control on residential equipment.

Section 8: Commercial/Industrial Energy Efficiency Potential Estimates (2009-2028) provides a breakdown of the technical, economic, and achievable potential in the commercial/industrial sector

Section 9: Commercial/Industrial Demand Response Potential Estimates (2009-2028) reviews the potential for cost-effective demand savings from demand response programs designed for commercial and industrial facilities

Section 10: Recommended Programs and Program Potential Savings (2009-2018) provides program design summaries, implementation recommendations, and a discussion of the results for the program potential analyses

Section 11: Consideration of Revisions to the Hoosier Tariff to Support the Implementation of Demand Response Programs proposes revisions to the current wholesale rate tariff structure in an effort to ensure that the tariff contains appropriate incentives to the members for the implementation of DSM programs.

Section 12: Conclusions presents the final discussion regarding potential for EE&DR savings through 2028.

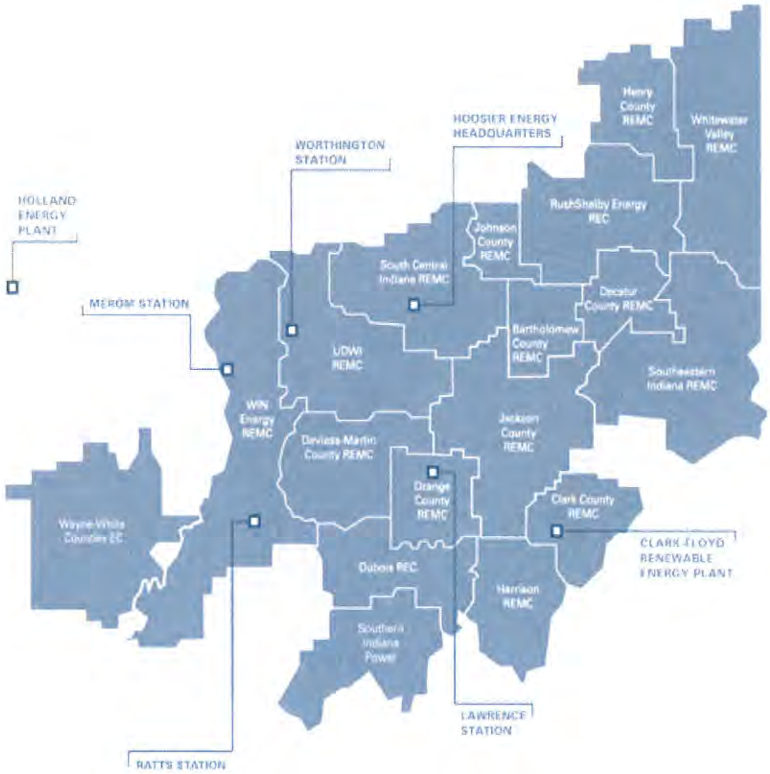
4 CHARACTERIZATION OF HOOSIER ENERGY MEMBER TERRITORY

DSM potential studies and other market assessment studies that have reappeared over the last five years are valuable sources of information for planning energy efficiency programs. In order to develop estimates of electricity savings potential, it is important to understand the extent to which electricity is used by households and businesses. This section provides a brief overview of the Hoosier Energy member territory, the historical and forecasted electric energy sales and system's peak demand, and the on-going DSM efforts of Hoosier Energy and the member systems.

4.1 HOOSIER ENERGY MEMBER SERVICE TERRITORY

Hoosier Energy, a Touchstone Energy cooperative, is a generation and transmission cooperative (G&T) providing wholesale electric power and services to 17 member electric distribution cooperatives in 48 central and southern Indiana counties and one cooperative in southeastern Illinois. As shown in Figure 4.1, the 18 member cooperatives serve a 15,000-square-mile service territory in the southern half of Indiana, and 11 southeastern Illinois counties. Collectively, Hoosier Energy provides electricity and related services to nearly 800,000 residents, businesses, industries and farms.

Figure 4.1: The Hoosier Energy Member Territory Map



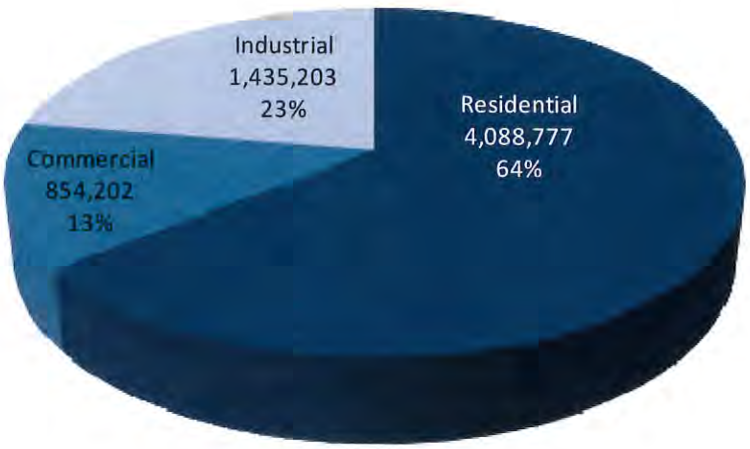
Headquartered in Bloomington, Ind., Hoosier Energy owns and operates two coal-fired electric power production facilities - the 1,000-megawatt Merom Generating Station and the 250-megawatt Ratts Generating Station. The G&T owns a 50% interest in the Holland generating station – a 600-megawatt combined cycle facility. Hoosier also owns and operates a 174-megawatt peaking plant at Worthington and 2/3 of the 258-megawatt natural gas-fired Lawrence County generating facility. Hoosier Energy owns and operates a 3.6-megawatt renewable energy landfill methane gas generation facility at the Clark-Floyd Landfill in Clark County.

High-voltage electric power is delivered over a system of 1,450 miles of transmission lines, 17 primary substation facilities and more than 300 distribution substations and delivery points. Interconnections link Hoosier Energy with other major utilities in Indiana and neighboring states.

4.2 CUSTOMER CLASS OVERVIEW

According to 2007 historical sales data, the residential sector accounts for 64% of total energy sales while the commercial and industrial sectors account for 13% and 22%, respectively. Although the residential sector constitutes the greatest portion of total kWh sales, the industrial sector consumes the most energy on a per customer basis. The average industrial facility consumes roughly 7.6 million kWh annually. Comparatively, the average commercial consumer uses approximately 70,000 kWh per year, while residential consumers use 15,500 kWh per year on average.

Figure 4.2: 2007 Historical Energy Sales by Customer Class (MWh)

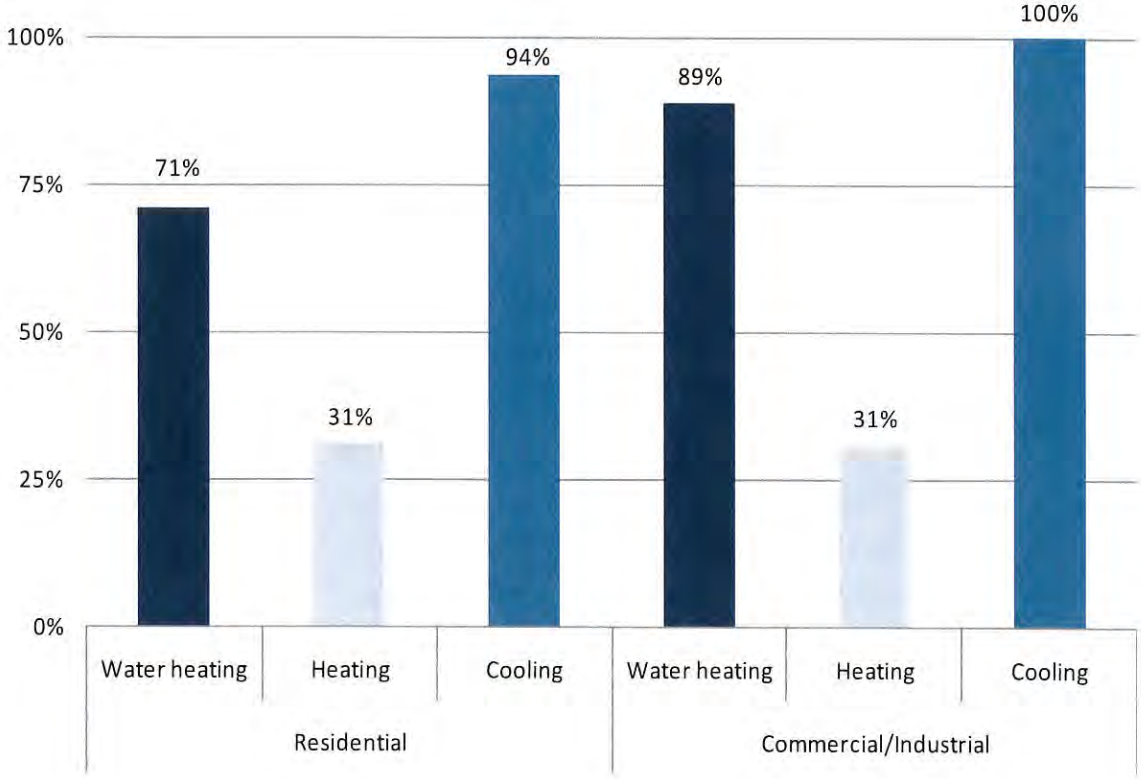


The residential sector is dominated by single-family household consumers. According to the Hoosier Energy 2007 Residential End-Use Survey 82% reside in single family homes, 16% in mobile or manufactured homes and 3% in multi-family homes. Electric cooling systems are present in 93.6% of all households. The most common type of electric cooling unit is the Central AC, representing 74.7% of homes; 6.3% are heat pumps; 7.5% are individual room AC units serving the whole household and 5.1% serve one room. Remaining households (6.5%) have no AC unit.

Meanwhile, only 31% of households report electric heating as the primary fuel source for space heating in the Hoosier Energy member territory.[11] However, the percent of homes using electricity as the primary heating fuel source has steadily grown since 2001. The two major electric heating appliances are electric furnaces (14.1%) and electric heat pumps (6.9%). Nearly 56% of homes are heated with either propane or natural gas. 71% of all homes use electric water heating.

According to the results of the Commercial-Industrial on site surveys, the end use saturation of electric water heaters is 89% and the saturation of electric space heating systems is 31%. Almost all (93%) of sites have direct expansion cooling equipment and 7% have chillers.

Figure 4.2: Major Electric End-Use Saturations for the Hoosier Energy Member Territory



4.3 HISTORICAL ENERGY SALES & PEAK DEMAND

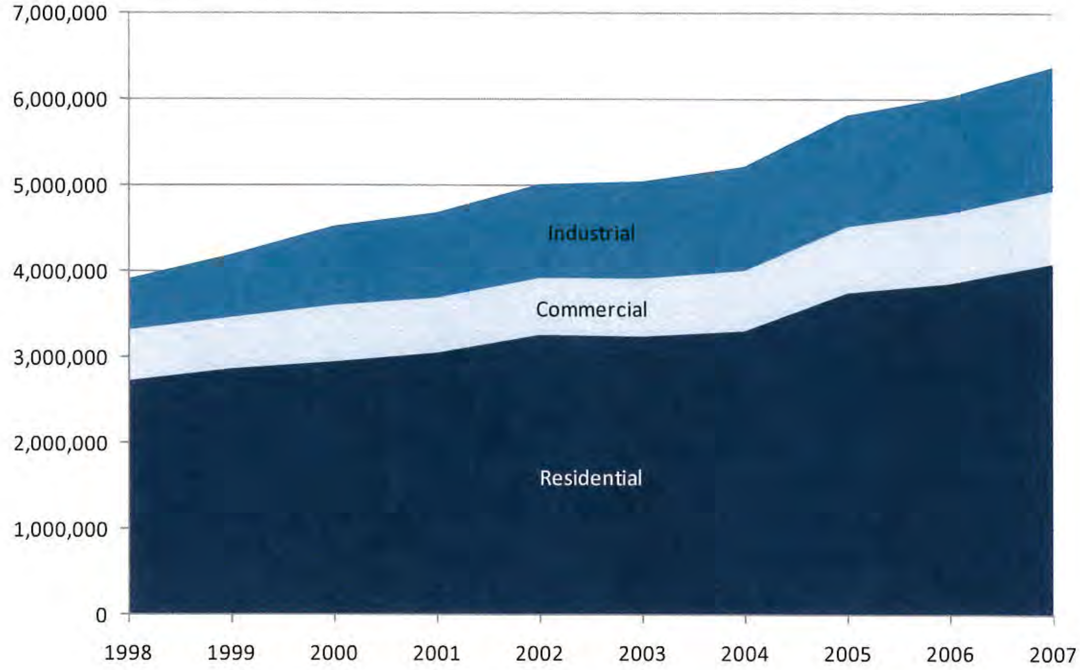
Figure 4.2 presents the combined historical MWh sales of all sectors for the member coops in the Hoosier Energy member territory.[12] Total sales increased from 3,940,800 MWH in 1998 to 6,412,400 MWH in 2007. Residential sales represent the biggest portion of total sales; 69% in 1998 and 64% in 2007. Industrial sales grew from 15% to 22% of total sales over the same time

[11] 2007 Residential End-Use Survey for the Hoosier Energy Power Network. Completed by Strategic Marketing and Research, Inc. 2007.

[12] Actual and forecasted consumer and sales figures are derived from the 2007 Hoosier Energy Power Requirements Study, 2006-2026. Appendix D: HEREC "Base" Case Scenario Tables, Page 8. Forecasted numbers are adjusted, beginning in 2011, to account for the introduction of the Wayne-White system.

period, and commercial represents between 13% and 15% of total sales. On average, total sales grew 5.6% annually from 1998 through 2007. Over the same time period, summer peak demand increased from 911 MW to 1,397 MW, or 4.9% annually.

Figure 4.3: Historical Sales Data from 1998 through 2007 (MWh)



4.4 Forecast of Consumers, Energy Sales & Peak Demand (2009-2028)

Table 4.1 displays a reference case of forecasted data for the number of electric consumers and Table 4.2 presents annual MWh sales by sector. In these tables, MWh sales for the commercial sector refer to small commercial/industrial loads. MWh sales for the industrial sector refer to large commercial/industrial loads, but exclude irrigation, public lighting, and other loads since those categories are outside the scope of this report. The Hoosier Energy load forecast for the member territory projects that total MWh sales will grow by 2,788,780 MWh over the next two decades, at a compound average annual growth rate of 1.93% a year (Table 4.2). The residential and commercial sectors are projected to grow at 2.07% a year and the industrial sector will grow at .83% a year.

Table 4.1: Forecast Number of Customers from 2009 through 2018

Year	Residential	Commercial	Industrial	Other	Total
2009	267,465	12,138	194	1,833	281,630
2010	269,661	12,234	197	1,833	283,925
2011	284,342	13,581	205	2,202	300,330
2012	286,840	13,681	204	2,202	302,927
2013	289,616	13,781	203	2,202	305,802
2014	293,101	13,982	202	2,202	309,487
2015	296,573	14,183	202	2,202	313,160
2016	300,117	14,384	202	2,202	316,905
2017	303,748	14,585	202	2,202	320,737
2023	330,817	16,201	202	2,202	349,422
2028	357,553	17,916	202	2,202	377,873
Compound Annual Average Rate of Growth	*1.54%*	*2.07%*	*0.21%*	*0.97%*	*1.56%*

Table 4.2: Forecast Sales Data from 2009 through 2018 (MWh)

Year	Residential	Commercial	Industrial	Other	Total	@ Generation
2009	4,096,465	865,953	1,362,053	33,198	6,357,669	6,961,766
2010	4,132,349	873,411	1,455,056	33,198	6,494,014	7,110,654
2011	4,332,337	924,241	1,579,654	38,844	6,875,076	7,528,257
2012	4,393,148	932,849	1,602,532	38,844	6,967,373	7,629,069
2013	4,463,276	944,085	1,672,506	38,844	7,118,711	7,794,592
2014	4,546,098	959,825	1,683,182	38,844	7,227,949	7,914,329
2015	4,629,253	975,594	1,688,449	38,844	7,332,140	8,028,505
2016	4,714,213	991,398	1,694,051	38,844	7,438,506	8,145,085
2017	4,801,351	1,007,228	1,700,006	38,844	7,547,429	8,264,473
2018	4,891,663	1,032,670	1,773,675	38,844	7,736,852	8,471,327
2023	5,401,581	1,143,556	1,784,279	38,844	8,368,260	9,162,593
2028	6,044,388	1,278,937	1,784,279	38,844	9,146,448	10,015,734
Compound Annual Average Rate of Growth	*2.07%*	*2.07%*	*1.43%*	*0.83%*	*1.93%*	*1.93%*

Electric system peak load, as shown in Table 4.3, is projected to grow from approximately 1,398 MW in 2009 to 2,012 MW by the year 2028 (an annual rate of 2.4 percent). The residential sector has the highest peak demand, approximately 74% (1,034 MW) in 2009, and an annual growth rate of 2.02 percent. During 2009 through 2028, demand is estimated to increase by 477 MW in the residential sector, with an additional 138 MW increase attributed to the C&I sector.

Table 4.3: Forecast Summer Peak Demand from 2009-2028 (MW)

Year	Residential	Commercial	Industrial	Other	Total	@ Generation
2009	934	141	194	3	1,272	1,398
2010	946	142	208	3	1,299	1,426
2011	991	151	225	3	1,370	1,505
2012	1,002	152	229	3	1,386	1,522
2013	1,016	154	239	3	1,412	1,551
2014	1,037	157	240	3	1,437	1,578
2015	1,055	159	241	3	1,458	1,602
2016	1,074	162	242	3	1,480	1,626
2017	1,093	164	243	3	1,502	1,650
2018	1,115	168	253	3	1,540	1,691
2023	1,225	186	255	3	1,669	1,832
2028	1,367	209	255	3	1,833	2,012
Compound Annual Average Rate of Growth	*2.02%*	*2.07%*	*1.43%*	*0.83%*	*1.94%*	*1.94%*

4.5 CURRENT DSM OFFERINGS

Hoosier Energy has previously offered rebate programs promoting energy efficient equipment such as air-source heat pumps, geothermal heat pumps, electric water heaters, and electric thermal storage systems. In addition, Hoosier Energy has also supported the Touchstone Energy Home program, which encourages the construction of efficient homes through improved building shell construction, energy efficient heating/cooling systems, and high efficient appliances throughout the home. Participation in the rebate and Touchstone Energy Home programs are at the discretion of the individual member systems. In addition, educational materials regarding simple energy efficient practices are provided to members through individual cooperative websites.

Currently, Hoosier Energy and member systems are actively pursuing research in other Energy Efficiency and demand response programs at the residential, commercial, and industrial levels. Some programs being examined include compact fluorescent lighting, commercial/industrial lighting improvements, consumer education, establishment of DSM-based tariffs, smart-thermostat use, appliance load control, power cost/load monitoring systems, and the replacement/removal of inefficient appliances. The results of this study will further guide Hoosier Energy and its member systems toward this goal.

5 OVERALL PROJECT IMPLEMENTATION APPROACH

This section describes the overall methodology used to conduct this study and explains the general steps and methods used at each stage of the analytical process necessary to produce the various estimates of energy efficiency and demand response potential. Specific changes in methodology from one sector, or between energy efficiency and demand response, have been noted throughout the report.

DSM potential studies involve carrying out a number of analytical steps to produce estimates of each type of potential. This study utilizes both the GDS Benefit/Cost Screening model and the Summit Blue DSM Resource Assessment model (DSM-RAM). Both models are Excel-based models that integrate technology-specific impacts and costs, customer characteristics, utility load forecasts, utility avoided forecasts and more. Excel was used as the modeling platform to provide transparency to the estimation process and allow for simple customization based on Hoosier Energy's unique characteristics and the availability of specific model input data.

5.1 MEASURE LIST DEVELOPMENT

DSM measure lists were based on the analysis team's existing knowledge and current databases of electric end-use technologies and energy efficiency measures, and were supplemented as necessary to include other technology areas of interest to Hoosier Energy staff and its members. The study scope was restricted to DSM measures and practices that are currently commercially available. These are measures that are of most immediate interest to Energy Efficiency and demand response program planners.

In addition, this study focused on measures that could be relatively easily substituted for or applied to existing technologies on a retrofit or replace on burnout basis. Replace on burnout applies to equipment replacements that are made normally in the market when a piece of equipment is at the end of its useful life. A retrofit measure is eligible to be replaced at any time in the life of the equipment or building. Replace on burnout measures are generally characterized by incremental measure costs and savings (e.g. the costs and savings of a high-efficiency versus standard efficiency air conditioner); whereas retrofit measures are generally characterized by full costs and savings (e.g. the full costs and savings associated with retrofitting ceiling insulation into an existing attic.)

Table 5.1 provides a basic overview of the building types and electric end-uses recognized throughout the analysis. In total, 171 energy efficiency technologies and 6 demand response programs were included in this analysis.

Table 5.1: Summary of Building Types and Energy End-Uses Analyzed

Sector	
Residential	Commercial/Industrial
Building Types/Considerations	
Single Family	Commercial - Existing
Mobile Homes	Commercial - New Construction
Multi-Family	Industrial
New Construction	
End-Use Measures	
Appliances/Electronics	Lighting
Lighting	HVAC & Shell
Space Conditioning (heating/cooling)	Motors
Building Shell Improvements	Hot Water
Water Heating	Custom
Other (ex: Pools)	
# of Unique Measures	
Energy Efficiency: 114	Energy Efficiency: 57
Demand Response: 4	Demand Response: 2

5.2 MEASURE CHARACTERIZATION

A significant variety of data is needed to estimate the average and total savings potential for individual measures or demand response programs across the entire existing residential, commercial and industrial populations. To this extent, a considerable amount of effort was expended to identify, review, and document all available data sources in order to develop reasonable assumptions regarding measure lives, installed incremental and full costs (where appropriate), and electric energy and demand savings associated with each of the measures included in the final lists.

Savings: Estimates of annual measure savings as a percentage of base equipment usage were developed from a variety of sources, including:

- Building energy modeling software and engineering analyses
- Secondary sources such as ACEEE, DOE, EIA, Energy Star and other technical potential studies
- Customer meter data

Measure Costs: Measure cost represent either incremental or full cost, and typically include the cost of installation. Cost estimates were derived from:

- California DEER database adjusted to the Southern Indiana area by regional cost factors from RS Means Cost Data.
- Retail store pricing and industry experts
- Evaluation reports

Measure Life: Represents the number of years (or hours) that energy-using equipment is expected to operate. Useful life estimates were derived from:

- Manufacturer data
- Savings calculators and Life-cycle cost analyses
- Secondary sources such as ACEEE, Energy Star, and other technical potential studies
- California DEER database
- Evaluation reports

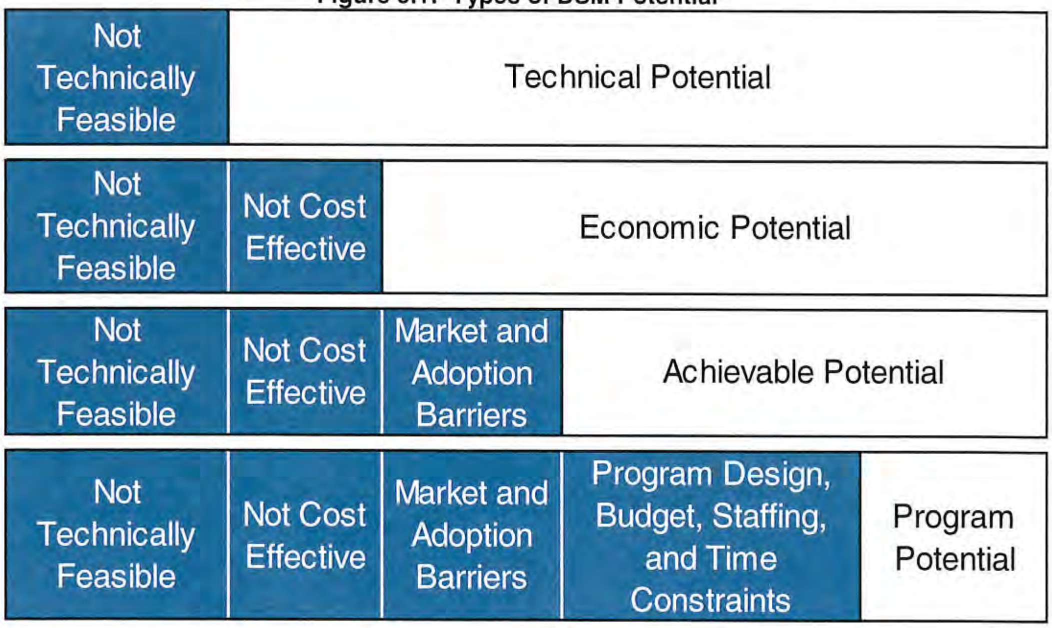
Baseline and Efficient Technology Saturations: In order to assess the amount of energy efficiency savings still available, estimates of the current saturation of baseline equipment and energy efficiency measures are necessary. Rather than relying on best available information from existing secondary sources to estimate the current market saturation levels of electric energy using equipment and the penetration of energy efficiency measures, the significant primary data collection efforts of the residential and commercial/industrial on-site surveys and the 2007 residential telephone survey helped to inform and derive technology saturations that were specific to the Hoosier Energy member territory.

Further detail regarding the development of measure assumptions for energy efficiency and demand response practices in the residential and commercial/industrial sectors can be found later in this report. Additionally, refer to the individual sector appendices for a comprehensive listing of all DSM measure assumptions and sources assessed in this report.

5.3 POTENTIAL SAVINGS OVERVIEW

Potential studies often distinguish between four different types of efficiency potential: technical, economic, achievable, and program. However, because there are often important definitional issues between studies, it is important to understand the definition and scope of each potential estimate as it applies to this analysis.

Figure 5.1: Types of DSM Potential[13]



[13] Reproduced from "Guide to Resource Planning with Energy Efficiency November 2007" written by the US EPA. Figure 2-1.

The first two types of studies- technical and economic- provide a theoretical upper bound for energy savings. Still, even the best designed portfolio of programs is unlikely to capture 100 percent of the technical or economic potential. Therefore, achievable and program potential tend to be more useful in that they attempt to estimate what may realistically be achieved, when it can be captured, and how much it would cost to do so. Figure 5.1 illustrates the four different types of efficiency potential. In this report, technical and economic savings potential estimates were developed solely for energy efficiency technologies and are not provided for demand response programs.[14] The estimates of achievable potential and program potential include both energy efficiency and demand response initiatives.

5.4 TECHNICAL POTENTIAL

Technical potential is the maximum amount of energy use that could be saved by efficiency measures, assuming immediate implementation of all energy saving measures that are technically feasible from an engineering standpoint. For example, this would include the replacement of every incandescent bulb with a compact fluorescent lamp or high-efficiency fixture, regardless of cost. Considerations of performance, willingness of end users to adopt the technology, initiative strategies, or budget do not affect this potential estimate.

In general, this study uses a "bottom-up" approach to calculating the potential of an energy efficiency measure or set of measures. A bottom-up approach first starts with the savings and costs associated with replacing one piece of equipment with its efficient counterpart, and then multiplies these values by the number of measures available to be installed throughout the life of the program. The bottom-up approach is often preferred in the residential sector because of better data availability and greater homogeneity of the building and equipment stock to which measures are applied, and was possible in the C&I sectors due to the results of the on-site surveys conducted in 2008. The savings estimates per base unit are determined by comparing the high efficiency equipment to current installed equipment for existing construction retrofits or to current equipment code standards for replace-on-burnout and new construction scenarios.

5.4.1 CORE EQUATION FOR THE RESIDENTIAL SECTOR

The core equation used in the residential sector technical potential analysis for each individual efficiency measure is shown below in Figure 5.2.

Figure 5.2: Core Equation for Residential Sector Technical Potential

Technical Potential of Efficient Measure	=	Total Number of Households or Buildings	X	Base Case Equipment End Use Intensity [kWh/unit]	X	Base Case Factor	X	Remaining Factor	X	Applicability Factor	X	Savings Factor

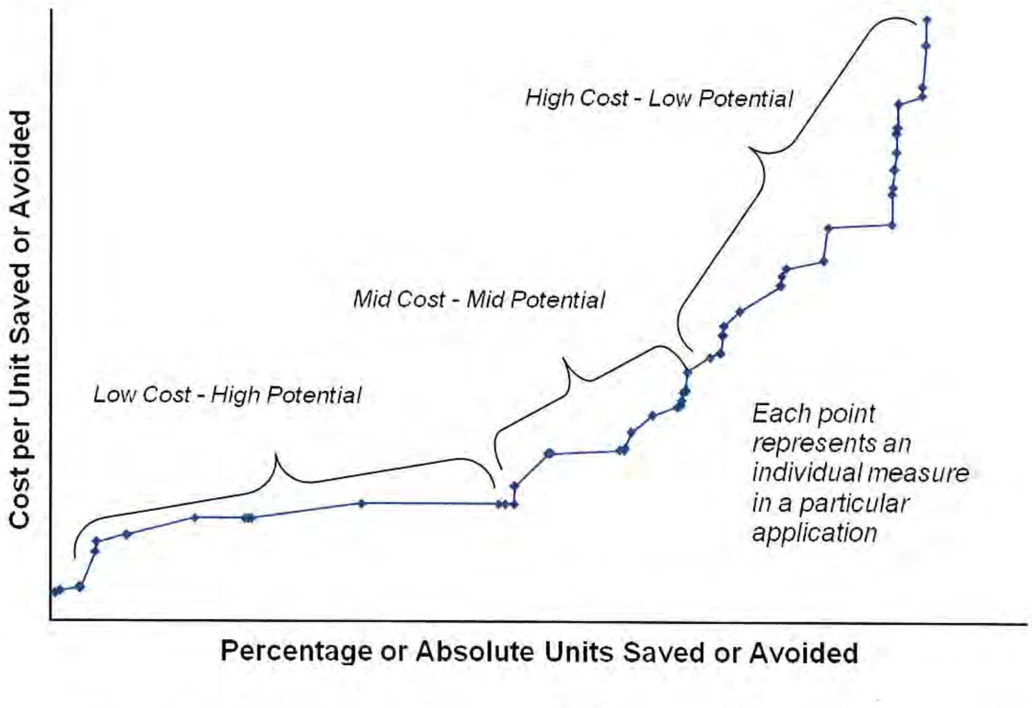
Technical energy efficiency potential in the residential sector is calculated in two steps. In the first step, all measures are treated *independently*; that is, the savings of each measure are not reduced or otherwise adjusted for overlap between competing or interacting measures. By analyzing measures independently, no assumptions are made about the combinations or order in

[14] For demand response, there is not sufficient data available to estimate technical and economic potential. The information relied upon for the achievable potential is based on the experience of other utilities throughout the United States, therefore the demand response analysis solely estimates an achievable potential.

which they might be installed in customer buildings. However, the cumulative technical potential cannot be estimated by adding the savings from the individual savings estimates because some savings would be double-counted. For example, the savings from a measure that reduces heat loss from a building, such as insulation, are partially dependent on other measures that affect the efficiency of the system being used to heat the building, such as a high-efficiency furnace; the more efficient the furnace, the less energy saved from the installation of the insulation.

In the second step, cumulative technical potential is estimated using an energy efficiency supply curve approach. This method eliminates the double-counting problem mentioned above. A generic example of a supply curve is shown in Figure 5.3. As shown in the figure, a supply curve typically consists of two axes; one that captures the cost per unit of saving a resource (e.g., dollars per kWh saved) and another that shows the amount of savings that could be achieved at each level of cost. The curve is typically built up across individual measures that are applied to specific base-case practices or technologies by market segment. Savings measures are sorted on a least-cost basis and total savings are calculated incrementally with respect to measures that precede them. Supply curves typically, but not always, end up reflecting diminishing returns, i.e., costs increase rapidly and savings decrease significantly at the end of the curve.

Figure 5.3: Generic Example of a Supply Curve



As noted above, the cost portion of this energy-efficiency supply curve is represented in dollars per unit of energy savings. Cost are annualized (often referred to as levelized) in supply curves. For example, energy-efficiency supply curves usually present levelized costs per kWh saved by multiplying the initial investment in an efficient technology or program by the capital recovery rate (CRR):

Therefore,

Levelized Cost per kWh Saved = Initial Cost x CRR/Annual kWh Savings

5.4.2 CORE EQUATION FOR THE COMMERCIAL SECTOR

The core equation used to conduct the technical potential analysis in the commercial and industrial sectors for each individual efficiency measure is fundamentally the same as the equation used for the residential sector. There are differences, however, in how some of the data is represented. For example, instead of establishing baselines by "Total Number of Households or Buildings," the commercial and industrial sectors are aggregated by total buildings square footage. Additionally, instead of the "Base Case Equipment End-Use Intensity" being described as kWh per unit as it is throughout the residential sector for all end-uses, the commercial and industrial sectors end-use intensities are represented as either kWh per unit, kWh per horsepower (motors), or kWh per ton of cooling (HVAC&Shell). Figure 5.4 below is the core equation used to determine the technical potential for the commercial and industrial sectors.

Figure 5.4: Core Equation for Commercial Sector Technical Potential

Technical Potential of Efficient Measure	=	Total Building Sq. Footage	X	Remaining Factor (Inefficient Units per 1,000 sq. ft.)	X	Savings Factor	X	Applicability Factor

5.5 ECONOMIC POTENTIAL

Economic potential is typically used to refer to the subset of the technical potential that is cost effective when compared to either supply-side alternatives or the price of energy. Economic potential, like technical potential, is a theoretical number that assumes immediate implementation of measures with no regard for the time it takes to ramp-up a program. Economic potential takes into account the fact that many energy efficiency measures cost more to purchase initially than standard-efficiency equipment.

In practice, most technical and economic potential estimates produce similar results. Many analysts generally pre-screen possible efficiency technologies and practices based on an understanding of which measures are likely to be cost-effective and an interest in conserving time and effort for other aspects of the analysis. All measures that were not found to be cost-effective, based primarily on the results of the Total Resource Cost Test (TRC), were excluded from future analysis. The TRC Test is defined in greater detail in Section 5.8.

5.6 ACHIEVABLE POTENTIAL

Achievable potential is the amount of energy use that efficiency and demand response can realistically be expected to save assuming an aggressive market penetration and budget scenarios. Achievable potential takes into account real-world barriers that hinder consumer adoption of EE&DR measures, the administrative and marketing costs associated with efficiency programs, and the capability of programs and administrators to ramp up activity over time.

Achievable potential can also vary with DSM program parameters, such as the magnitude of rebates or incentives offered to customers for installing DSM measures and thus, many different scenarios can be modeled.

For new construction, energy efficiency measures can be implemented when each new home or building is constructed, thus the rate of availability is a direct function of the rate of new construction. For existing homes and buildings, determining the annual rate of available savings is more complex. Achievable savings potential in the existing stock of buildings can be captured over time through two principle processes:

1) As equipment replacements are made normally in the market when a piece of equipment is at the end of its useful life (referred to as replace on burnout)

2) At any time in the life of the equipment or building (referred to as the retrofit case)

For the replace on burnout measures, existing equipment is assumed to be replaced with high efficiency equipment at the time a consumer is shopping for a new appliance or other energy consuming equipment, or if the consumer is in the process of building or remodeling. Using this approach, only equipment that needs to be replaced in a given year is eligible to be upgraded to energy efficient equipment. For the retrofit measures, savings can theoretically be captured at any time; however, in practice, it takes many years to retrofit an entire stock of buildings, even with the most aggressive of energy efficiency programs.

Because achievable potential factors in the necessity for energy efficiency and demand response programs to operate and impact markets over time, it is also important to recognize changing standards to energy-consuming equipment. When equipment is scheduled for federal or state code upgrades, these improvements to equipment performance result in decreased savings potential for the year the code is to be enacted and for all subsequent years. Consequently, it is important that equipment code changes, particularly planned improvements to incandescent lighting, be reflected in all achievable potential models for all sectors.[15]

In general, demand response programs are modeled as retrofit processes. Load control technologies can typically be installed on all types of new and existing equipment. Savings can theoretically be captured at any time, and are more dependent on program parameters, such as effective marketing and incentives, than the natural turnover of existing equipment.

5.7 PROGRAM POTENTIAL

Program potential refers to the potential DSM savings that is possible given specific program funding levels and designs. Elements of both energy efficiency and demand response are present in program potential. The starting point for analyzing the savings and costs resulting from the implementation of the program scenario is the achievable potential. The following steps were used to estimate the program scenario potential:

- Defining eligible measures within each recommended program and projecting future measure penetrations

- Developing program incentive costs based on program incentive structure and designs and estimated participation rates for each measure

[15] *"The transition to more efficient lighting, largely due to the newly enacted standards, is estimated to exceed the combined energy and monetary savings of all 21 federal appliance standards since 2000."* Alliance to Save Energy. H.R. 6, Energy Independence and Security Act of 2007: Summary of Key Provisions.

- Developing non-measure program budgets (costs for all programmatic activities except measure incentives)

- Analyzing the portfolio to develop estimates of overall costs, benefits, net benefits, and benefit cost ratios.

Program plans will include an overview of the program, the target market, eligible energy efficiency and demand response measures, and proposed financial incentives for participants. The plans also include program implementation and marketing strategies. These plans should also provide the following information for each program for the period:

- Incremental annual kWh and kW savings
- Cumulative annual kWh and kW savings
- Forecast of the number of program participants
- Annual financial incentive costs
- Annual administrative costs
- Total annual utility costs
- Total program benefits
- Program benefit/cost ratio

The program plans presented in this section are based on a targeted budget of $5 and $7 million in 2009 and 2010, followed by an increase of 5% annually from 2011-2018. It is important to note that the measure included in the program potential scenario are a subset of those included in the achievable potential and that measure penetrations, savings, and incentive levels are occasionally tailored to reflect the goals of the program design and fit the allowable budget. As a result, program assumptions may vary slightly from the assumptions utilized for the achievable base case scenario.[16]

5.8 Determining Cost-Effectiveness

For the economic and achievable potential, it is necessary to develop a method by which it can be determined that a measure or program is cost effective. There is a large body of literature debating the merits of different approaches to calculating whether an investment in DSM is cost effective. The test selected for a potential study should ensure that results are comparable to the criteria being used to evaluate other options, either for electric supply or public funds.

There are several tests for evaluating energy efficiency's cost-effectiveness, each reflecting a different stakeholder perspective on the impact of energy efficiency. The Total Resource Cost test, which measures the regional net benefits, is the most common test used to evaluate energy efficiency and is the appropriate test from a regulatory perspective. All energy efficiency that passes the TRC Test will reduce the total costs of energy in a region. In this report, we adopt a primary focus on the TRC Test as requested by Hoosier Energy.

In greater detail, the TRC Test measures the net costs of an energy efficiency measure or program as a resource option based on the total costs of the program, including both the participant's and the utility's costs. The benefits include the avoided electric supply costs, the

[16] Appendix E (Supporting Documents for Recommended Programs) presents the complete list of measure assumptions and sources for the recommended programs

reduction in transmission, distribution, generation, and capacity costs valued at marginal cost for the period when there is an electric load reduction, as well as savings of other resources such as fossil fuels and water. The costs are the program costs paid both by the utility and the participants. All equipment costs, installation, operation and maintenance, cost of removal, and administration costs are included in this test. The TRC test includes only direct costs and benefits, not externalities or non-monetized factors. Results are typically expressed as either net benefits or a benefit-to-cost ratio.

The TRC Test estimates the total costs of obtaining efficiency savings without considering who pays these costs. This approach does not address distributional equity, such as how costs and benefits would be shared among or within groups. In this regard, the TRC Test differs from other benefit-cost perspectives such as the utility test, participant test, and RIM Test.[17]

The primary screening tool for demand response programs is also the TRC test in which the generation and transmission (G&T) cooperative and participating member cooperative are treated as a combined utility (thereby ignoring the wholesale tariff). If the benefits of a program outweigh the costs in this test, then the program is one that should be considered for further study and/or implementation. The table below delineates the benefits and costs for a TRC test from the combined perspective.

Table 5.2: Benefits and Costs for Demand Response under a Combined Perspective (TRC Test)

Benefits	Costs
Avoided Generation Demand Costs	Carrying Cost on Equipment
Avoided Transmission Demand Cost	Administration, Operating, Marketing Costs
Value of Shifting Energy to Lower Cost Hours	

5.9 AVOIDED COSTS

Below is a description of the methodology used by GDS to develop the benefits of the DSM programs. The description is intended to be a general discussion of the production, transmission and distribution-related benefits that were used across all programs and is not intended to be descriptive of the benefits for an individual program. Details regarding the specific benefits of a particular program are best addressed by viewing the actual calculations within the GDS and Summit Blue Benefit-Cost models.

Generation Energy

Energy cost impacts for DSM programs were based on the MISO Locational Marginal Price (LMP) for the Cinergy Hub, provided by Hoosier, as well as projections of future market prices.

Generation Capacity

Some utilities use the "Peaker Method" as the basis for establishing the avoided costs of future generation capacity in the analysis of DSM programs. This method generally uses the costs of a simple cycle combustion turbine ("CT"), or other applicable peaking resource to establish the avoided cost. The method is intended to be consistent with DSM being viewed within the

[17] The utility test considers only avoided energy costs as benefits and counts only expenditures incurred by the utility. The participant test uses retail energy rates and incentives received to value the benefits of energy savings and count only costs paid directly by participants. The RIM Test uses the same benefits and costs as the utility test, but also counts the lost sales revenue as a cost.

context of long range generation planning and can consider multiple units that are contained in the planning horizon. For a utility that is planning for, and making commitments to, meeting its future load requirements through the construction of new generation resources, the approach of comparing DSM programs to new generation is the appropriate comparison.

However, it was concluded the Peaker Method alone does not provide the best measure of avoided cost for Hoosier, especially in the short-term planning horizon. Hoosier anticipates that market capacity prices will be below CT construction costs for a number of years but could escalate to the cost of a newly constructed CT. After considerable discussion with Hoosier staff, it was agreed that the estimated costs of market capacity purchases should provide the basis for avoided generation capacity costs since the use of the Peaker Method would likely over-state the value of the load control, especially in the short-term.

An important element of the analysis was the determination that Hoosier's' summer peak demands are the primary driver in determining the system's generation capacity requirements. While summer and winter peak demand are fairly balanced, differences in seasonal capacity prices cause summer to be the more critical period for generation planning. Due to the importance of the summer peak in generation planning, the Benefit-Cost analysis was conducted so that summer load reductions achieved an annual avoided cost benefit, while winter load reductions resulted in more limited, monthly capacity purchase reductions.

Also related to avoided generation capacity costs is the benefit of avoided planning reserve capacity. Planning reserve capacity is that additional capacity provided by the utility above the forecasted peak loads to ensure that load can be reliably served in the event that load is higher than anticipated and certain generation resources are unavailable. Planning reserve margins for the Hoosier system are currently 14-15% [18]of the summer peak demand. An additional benefit of avoided planning reserve capacity was included for programs with "firm" (utility controlled) load reductions such as direct load control. Other demand response programs, such as TOU rates, would not receive the benefit of avoided planning reserves. Since the TOU load reduction is a function of a voluntary reaction from the customer, it would not be considered to be a firm load reduction for purposes of this analysis.

In the residential demand response portion of the analysis, GDS also developed results for a second scenario ("Full Avoided Cost") using the Peaker Method as the methodology for determining avoided generation capacity cost. The avoided generation capacity costs for this scenario are also shown in Appendix ##.

Transmission
Most of Hoosier's load lies within two different MISO load areas – approximately 40% in the Hoosier load area and the remaining 60% in areas served by IOU's, with the greatest majority of that portion served in the Duke load area. In the Hoosier load area, the G&T provides network transmission service through the ownership of facilities. In the IOU load areas, Hoosier purchases transmission service under 12-CP billing demand methodologies.

Due to Hoosier's transmission arrangements, the avoided costs have been calculated as the combination of deferred investment on the Hoosier system and avoided purchases in the other load areas. Discussions with staff concluded that in the Hoosier load area, peak system demands

[18] This figure is comprised of the MISO Reserve Margin requirement, which is currently 5.35% for the June 2009 Planning Year and could change in the future, plus the forced outage rate of the generation capacity.

in the summer are the primary determinant in the capacity requirement of the network transmission system. As a result, summer load reductions on the Hoosier system could result in the deferral of load-growth related transmission capacity additions, while winter load reductions would not provide any such benefit. Hoosier staff provided GDS with their transmission work plan, and load-growth related projects were separated from projects focused on reliability, environmental, or contingency purposes. Based on the projected levels of investment, GDS developed the avoided cost per kW on the Hoosier system.

The peak demands on the Duke system were examined, and it was concluded that due to the diversity between the Duke and Hoosier systems and the lack of real-time information regarding when the Duke system peaks are occurring, it would not be feasible to manage load during the Duke system peaks. However, after examination of the distribution of the historic Duke system peak loads, it was determined that by targeting Hoosiers peaks for load management, it could also coincidentally result in load being controlled during two summer monthly peaks and one winter peak on the Duke system, thus reducing Hoosier's transmission purchases.

As a result, the avoided transmission cost was determined as the weighted average of the value of the deferred load-growth related transmission investment on the Hoosier system and the value of three months of reduced transmission service purchases. The weighted average transmission avoided cost was escalated at 3% annually to project future rate levels.

Distribution Facilities

Some G&T cooperatives consider the potential impact that DSM programs could have in delaying the construction of new substation facilities. In discussions with Hoosier staff, it was determined that this impact was not significant enough to consider in the Benefit-Cost analysis.

5.10 FREE-RIDERSHIP VERSUS FREE-DRIVERS

Free riders are defined as participants in a DSM program who would have implemented the program measure or practice in the absence of the program or monetary incentive. Free drivers, on the other hand, are those who adopt a program measure or practice as an indirect result of the program, but are difficult to identify either because they do not collect an incentive or are not aware of their exposure to the program. The presence of free riders in a program tends to overstate program energy savings results (because free riders would have taken the action in the absence of the program) and complicates the evaluation of the effectiveness of DSM programs. Conversely, if one does not assess the impact of free drivers, this can result in understating a program's energy savings and effectiveness. In determining whether a DSM program has had a direct impact on customer energy use, the focus should be on net savings – calculated by determining the share of free riders and free drivers and adjusting the associated energy savings accordingly.

Although the issue of free riders and free drivers is important, it is also one that is notoriously difficult to measure, and even more difficult to predict. Based on a review of the experiences and practices of energy efficiency program administrators and evaluators at NYSERDA, National Grid, Wisconsin Focus on Energy, the Minnesota Public Service Commission and other organizations, this analysis has adopted the approach that free-riders and free-drivers offset each other. The result is an assumed net to gross ratio of 1.0 for most measures or programs considered in this analysis, where the energy savings that are eventually measured and verified will align exactly with the savings claimed[19]. GDS has reviewed the results of free-rider and free-driver studies at such organizations and recommends this approach until programs can be implemented in the Hoosier Energy service area and follow-up studies conducted to assess these issues.

[19] The commercial/industrial sector analysis used a net to gross ratio of .90 and .80 for lighting and HVAC/shell, respectively. A net to gross ratio of .80 was also used for CFL bulbs in the residential recommended program scenario. All other measures and program used a net to gross ratio of 1.0.

6 RESIDENTIAL ENERGY EFFICIENCY POTENTIAL ESTIMATES (2009 TO 2028)

Figure 6.1 and Table 6.1 summarize the technical, economic, and achievable savings potential by 2028. The achievable potential estimates are based primarily on a market penetration scenario that targets the installation of energy efficient equipment in 40% of the available market by 2028. If 40% market penetration for all cost-effective measures can be reached over the next two decades, the achievable potential for electric energy efficiency savings in this sector is approximately 6.5% of projected residential sales (393,662 MWh). Energy efficiency measures and programs can also serve to lessen peak demand, creating a reduction of roughly 7.7% of 2028 summer peak in the base case achievable potential scenario.

Market penetration scenarios of 20% and 60% are included later in this section to demonstrate the impacts of lowered or increased energy efficiency measure adoption.

Figure 5.10: 2028 Summary of Residential Energy Efficiency Potential

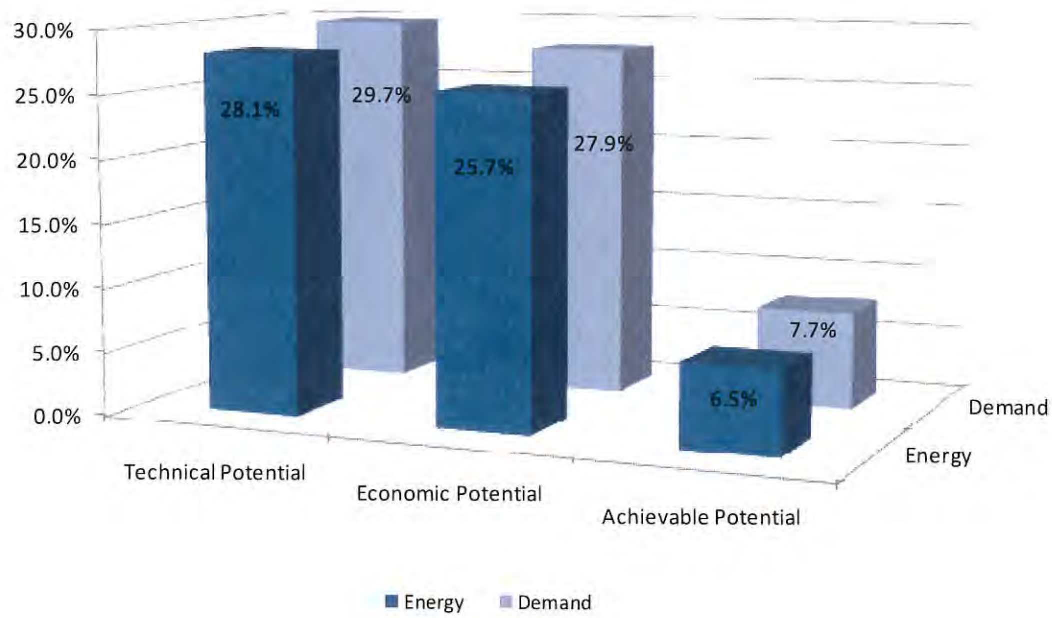


Table 6.1: 2028 Summary of Residential Energy and Demand Savings Potential

	Energy		Demand	
	MWh	% 2028 MWh Sales	MW	% 2028 MW Summer Peak
Technical Potential	1,699,320	28.1%	406	29.7%
Economic Potential	1,555,909	25.7%	381	27.9%
Achievable Potential	393,662	6.5%	105	7.7%

6.1 ENERGY EFFICIENCY MEASURES EXAMINED

Thirty-six residential electric energy efficiency programs or measures were included in the energy savings analysis for the residential sector.[20] Table 6.2 provides a brief listing of the various residential energy efficiency programs or measures considered in this analysis. The list of energy efficiency measures examined was developed based on a review of the measures and programs included by other technical potential studies in similar climate regions as well other energy efficiency technical potential studies that have been conducted throughout the US. This study also includes energy efficiency measures suggested by Hoosier Energy staff. The set of energy efficiency programs or measures considered was pre-screened to only include those measures that are currently commercially available. Thus, emerging technologies, or technologies with extremely low market availability were not included in the analysis. Appendix B provides a brief discussion of each measure or program as well as the savings, useful life, cost assumptions, and TRC benefit-cost ratios at the "measure" level.

Table 6.2: Measures and Programs Included in the Residential Sector Analysis

End-Use Type	End-Use Description	Measures/Program Included
Appliances	Home Appliances and Electronics	*Energy Star Refrigerators, Freezers, and Dehumidifiers *Second Refrigerator and Second Freezer Turn-In *Consumer Electronics and Home Computers
Lighting	Lighting	*CFL Bulbs *LED Security Lighting
Hot Water	Water Heating Upgrades and Water Heating Equipment	*Water Heater Blanket and Pipe Wrap *Low Flow Showerheads and Faucet Aerators *Energy Efficient Water Heaters *Heat Pump Water Heaters *Solar Water Heating w/ Electric Back-Up *Clothes Washers and Dishwashers
HVAC & Shell	Building Envelope Upgrades and Heating/Cooling Equipment	* Insulation (Ceiling, Wall, Floor) and Radiant Barriers *Programmable Thermostats *Air Infiltration and Duct Sealing *Energy Star Windows *HVAC Tune Up * Energy Star Room AC, Central AC, and Heat Pumps *Ground Source Heat Pumps *Replacing Electric Furnaces with Electric Heat Pumps
New Homes	New Homes Construction	*Energy Efficient New Homes (Gas Heated Homes) *Energy Efficient New Homes (Electric Heat Pumps) *Energy Efficient New Homes (Electric Resistance Heat) *LED Security Lighting
Other	Miscellaneous Energy Consumptions	*Multi Family Homes Package (includes: air sealing, programmable t-stats, HVAC tune-up, and hot water savings devices, and 5 CFL bulbs) *High Efficiency Pool Pump Motors

[20] After accounting for adjustments to different building types and housing characteristics, particularly for measures targeting the space heating and cooling end-use, the number grew to approximately 114 measure permutations.

6.2 RESIDENTIAL SECTOR SAVINGS METHODOLOGY OVERVIEW

The portfolio of measures includes retrofit and replace-on-burnout programmatic approaches to achieve energy efficiency savings. In the residential sector, retrofit measures are limited to the application of supplemental measures (such as the addition of a low-flow device to a showerhead), and do not include the replacement of operational equipment. Existing homes were divided into single family and mobile home markets in order to account for differing equipment saturations and heating/cooling consumption. Multi-family homes make up a small percent of the overall residential sector (2.6%) and were analyzed independently from rest of the existing housing stock. Finally, new homes were also included in the analysis based on a forecast of the number of new customers each year from Hoosier Energy. The analysis of the potential for energy efficiency savings is based on the most recent residential electric sales forecasts for the Hoosier Energy member territory for the years 2009 through 2028.

The residential sector analysis was modeled using what is considered a "bottom-up approach." The methodology is shown visually in Figure 6.2 below:

Figure 6.2: Residential Sector Savings Methodology – Bottom Up Approach

As shown in this figure, the methodology started at the bottom based on the number of residential customers (splitting them into single-family and mobile home customers as well as existing vs. new construction). From that point, estimates of the size of the eligible market in the Hoosier Energy member territory were developed for each efficiency measure. For example, energy efficiency measures that affect electric space heating are only applicable to those homes in the Hoosier Energy member territory that have electric space heating. To obtain up-to-date appliance and end-use saturation data, the study made extensive use of the 2007 Residential End-Use survey completed by the Hoosier Energy. As noted earlier in the report, estimates of energy efficient equipment saturations were based on results from the 375 residential on-site surveys completed in 2008. The full formula to determine savings at the measure level is shown below.

$$\text{Technical Potential of Efficient Measure} = \text{Total Number of Households or Buildings} \times \text{Base Case Equipment End Use Intensity [kWh/unit]} \times \text{Base Case Factor} \times \text{Remaining Factor} \times \text{Applicability Factor} \times \text{Savings Factor}$$

The goal of the formula is to determine how many households this measure applies to (base case factor), then of that group, how many already have the efficient version of the measure being installed (remaining factor). In instances where technical reasons did not permit the installation of the efficient equipment in all eligible households the applicability factor was used to limit the potential. The last factor to be applied was the savings factor, which is the percentage savings achieved from installing the efficient measure over a standard measure.

In developing the overall potential electricity savings, the analysis also took steps to account for the interactive effects of measures designed to impact the same end-use. For instance, if a home were to install Energy Star windows the overall space heating and cooling consumption in that home would decrease. As a result, the remaining potential for energy savings derived from additional thermal envelope efficiency measures would be reduced. In this analysis, it was assumed that for those measures designed to impact the same end-use, the measure or program with the lowest levelized cost per lifetime kWh saved would typically be installed first, followed by the measures with the next lowest levelized cost.

In instances where there were two (or more) competing technologies for the same electric end use, such as heat pump water heaters and high efficiency electric storage water heaters, a percent of the available population was assigned to each measure. In the event that one of the competing measures was not found to be cost-effective, the homes assigned to that measure were transitioned over to the cost effective alternative (if any).

Solar water heating for the residential sector was treated as a unique measure in this analysis. The technical potential was limited to 40% of the eligible market due to both technical and non-technical factors, including: roof orientation, shading, minimum roof size and load bearing capability, aesthetics, as well as local building codes and ordinances.[21] Additionally, the achievable potential was assumed to be 10% of the eligible market.[22] Alternative water heating technologies (efficient water heater tanks and heat pump water heaters) were utilized to meet the remaining market potential.

6.3 TECHNICAL AND ECONOMIC POTENTIAL SAVINGS

The technical potential represents the savings that could be captured if 100 percent of inefficient electric appliances and equipment were replaced instantaneously (where they are deemed to be technically feasible). As shown in Table 6.3, total technical potential savings for the Hoosier Energy residential sector are 1,699,320 MWh, or 28% of forecast residential MWh sales in 2028. HVAC and lighting represent the greatest technical potential for electric savings. The technical potential for summer peak demand savings is 406 MW, or 30% of 2028 forecast summer peak demand. The bulk of the demand savings opportunities could be achieved through HVAC or building shell improvements.

[21] The Technical Potential of Solar Water Heating to Reduce Fossil Fuel Use and Greenhouse Gas Emissions in the United States. National Renewable Energy Laboratory (NREL). March 2007. Pg. 8.

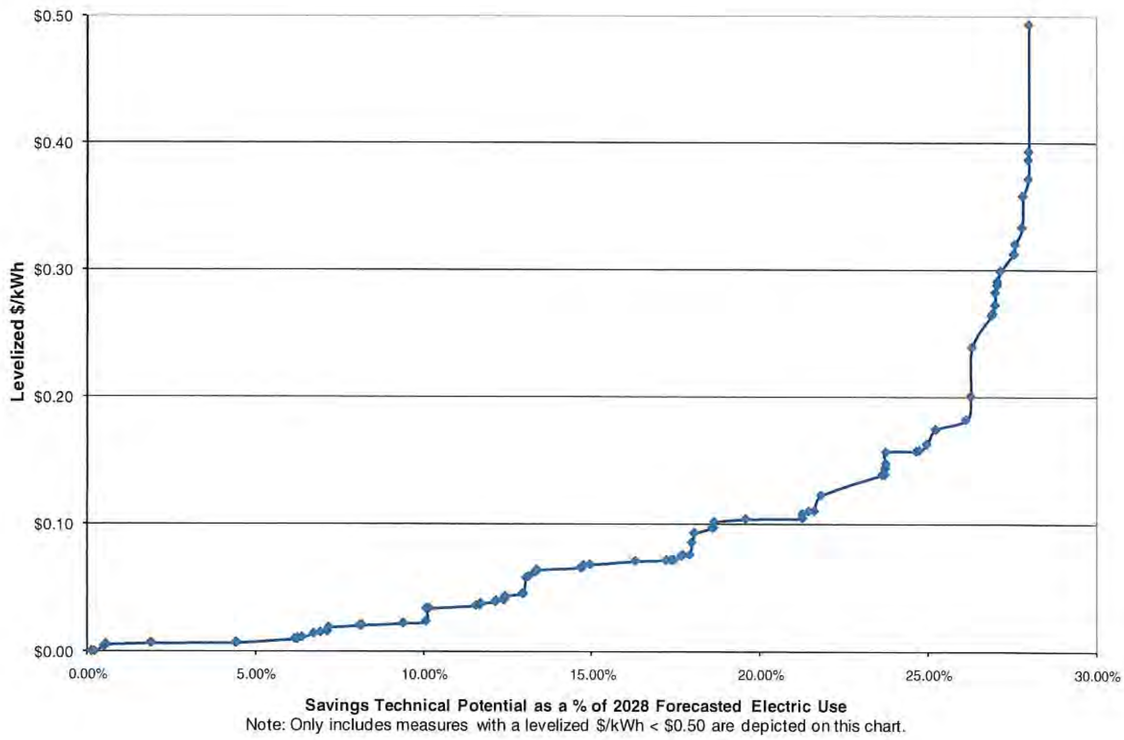
[22] GDS retained and held constant the 10% achievable potential for solar water heating in all three market penetration scenarios.

Table 6.3: Technical Energy and Demand Potential and Percentage Share of Residential Forecast Energy Sales and Summer Peak Demand in 2028

End Use	Technical Potential Energy (MWh)	Technical Potential Demand (MW)
HVAC & Shell	553,510	241
Lighting	370,375	54
Hot Water	283,175	25
New Homes	248,843	56
Appliances	224,971	24
Other	18,446	7
Total	**1,699,320**	**406**
Total as a % of 2028 Forecast	*28.1%*	*29.7%*

Figure 6.3 presents the electric energy efficiency technical potential results for the residential sector in the form of a supply curve. The supply curve demonstrates the technical potential savings (as a % of 2028 forecast kWh sales) at varied levelized costs per lifetime kWh saved amounts. For example, more than 17% savings can be achieved at a cost per lifetime kWh saved of $0.10 or less. To obtain increased economic electric energy from efficiency resources, it is necessary to move to the right on the curve and choose progressively more costly resources. It should be noted that the levelized cost amounts are based on electric savings and do not factor in associated non-electric benefits, nor do they include program administrative costs.

Figure 6.3: Residential Electric Efficiency Supply Curve for Hoosier Energy



The economic potential calculations were conducted by incorporating the various measure assumptions (savings, cost, and useful life, etc) into the cost-effectiveness screening tool.[23] In the residential sector, any programmatic costs (e.g., marketing, analysis, and administration) were ignored in the economic potential screen analysis in order to screen whether energy efficient technologies were cost-effective on their own merit prior to any assistance or marketing endeavors from utilities or other organizations.[24] For the economic potential scenario, the study assumed 100% of all cost-effective measures eligible for installation were installed. This results in an economic potential of 26% of forecast residential MWh sales in 2028. Economic summer peak demand savings are 381 MW, or 28% of forecast residential summer peak demand.

Table 6.4: Economic Energy and Demand Potential and Percentage Share of Residential Forecast Energy Sales and Summer Peak Demand in 2028

End Use	Economic Potential Energy (MWh)	Economic Potential Demand (MW)
HVAC & Shell	498,552	218
Lighting	344,992	54
Hot Water	238,781	24
New Homes	238,212	56
Appliances	216,926	23
Other	18,446	7
Total	**1,555,909**	**381**
Total as a % of 2028 Forecast	*25.7%*	*27.9%*

6.4 ACHIEVABLE POTENTIAL SAVINGS

The achievable potential is a subset of the economic potential and is limited by various market and adoption barriers.

6.4.1 ESTIMATING ACHIEVABLE SAVINGS IN THE RESIDENTIAL SECTOR

In the residential base case scenario, achievable potential represents the attainable savings if the market penetration of high efficiency electric appliances and equipment reaches 40% of the eligible market between 2009 and 2028. The time-frame in which the market penetration target is met, however, differs between replace on burnout and retrofit measures.

1) For replace on burnout measures, a fraction of the 40% market penetration target is achieved annually over the course of the technology's useful life. For example, if a measure has a 10 year useful life, all existing units would be expected to burnout during the initial 10 years of the 20-year analysis timeframe; thus the market penetration target would be achieved by 2018. In this example, all efficient measures installed in the first 10 years would be reintroduced during the second decade of the analysis time-frame. This allows the savings (and costs) to persist throughout the entire 20 year study. Similarly, for a measure with a 20 year useful life, the 40% market penetration would not be met

[23] The cost-effectiveness of a measure is based on each measure's full savings potential, before any adjustments for interactive impacts. After identifying which measures passed screening, we made an additional adjustment for interactive effects in order to finalize estimates of overall economic potential.

[24] In calculating the cost-effectiveness of commercial and industrial measures to determine economic potential, administrative costs were included and estimated at 5¢ per kWh saved.

until 2028 and there would be no need to reintroduce efficient measures installed early in the analysis as they would not be expected to burnout before the end of analysis period.

2) For all retrofit measures the analysis assumes fewer adoption barriers, and the target market penetration is achieved by 2018 regardless of measure lifetime. In order to allow the same persistent introduction of savings realized by the replace on burnout approach, market penetration levels were allowed to exceed the 40% target in the second decade of the analysis. Retrofit measures continued to exceed the market penetration target until it was necessary to reintroduce measures that had been installed early in the analysis and reached the end of their useful life.

Another limiting factor in the residential achievable potential scenario is the current saturation of energy efficient equipment. In the base case scenario, the maximum market penetration for each measure targets 40% of eligible equipment. For example, if a measure currently has an energy efficient saturation of 20%, the remaining potential in the base case scenario by 2028 is limited to another 20%. Additionally, a measure with an energy efficient saturation greater than 40% is deemed no longer eligible for the base case achievable scenario and was excluded in this portion of the analysis.

The methodology for estimating energy efficiency measure adoption each year from 2009 through 2028 in the residential sector is based on the following core equation:

*Program Adoption = [(Population * Base Case Factor * Market Penetration Factor) – (Population * Base Case Factor * Remaining Factor)] / (Measure Useful Life)*

Where

- Population = Total number of single family or mobile homes in the Hoosier Energy member territory.
- Base Case Factor = Percent of population with measure (standard or high efficiency).
- Market Penetration Factor = Desire market penetration over time. In the base case scenario, this factor was assumed to be 40%.
- Remaining Factor = Percent of population currently equipped with energy efficient technology
- Measure Useful Life = Useful life of Measure

This equation was used to calculate the annual adoption rate of energy efficient measures based on the replace on burnout approach and was altered slightly for retrofit measures to ensure the desired market penetration was achieved over a period of 10 years regardless of actual measure life. Again, this is due to the idea that retrofit measures do not require original equipment to reach the end of its useful life prior to the energy efficient upgrade. In both the replace on burnout and retrofit approach, this equation creates a linear annual adoption rate to estimate achievable savings. Although this equation simplifies what an adoption curve would look like in practice, it succeeds in providing a concise method for estimating achievable savings potential over a specified period of time.

Finally, the residential achievable savings potential also takes into account scheduled federal upgrades to incandescent lighting. Recently enacted federal standards (*Energy Independence and Security Act of 2007*) require incandescent bulbs to be approximately 30% more efficient beginning in 2012.[25] These improvements to equipment performance result in decreased savings potential for the year the code is to be enacted and for all subsequent years.

6.4.2 RESIDENTIAL BASE CASE SAVINGS POTENTIAL

Figure 6.4 is an area graph that illustrates the base case achievable potential over the 20 year study period and shows the shifting flow of measure group share over time. By 2028, the total residential energy efficiency achievable potential is 393,662 MWh, or 6.5% of forecast residential 2028 sales. Lighting represents the end-use with the highest initial potential for savings; HVAC and building shell improvements represent the largest opportunity for savings by 2028.

Figure 6.4: Residential Achievable Potential Energy Savings under the Base Case Scenario-Cumulative Annual (MWh)

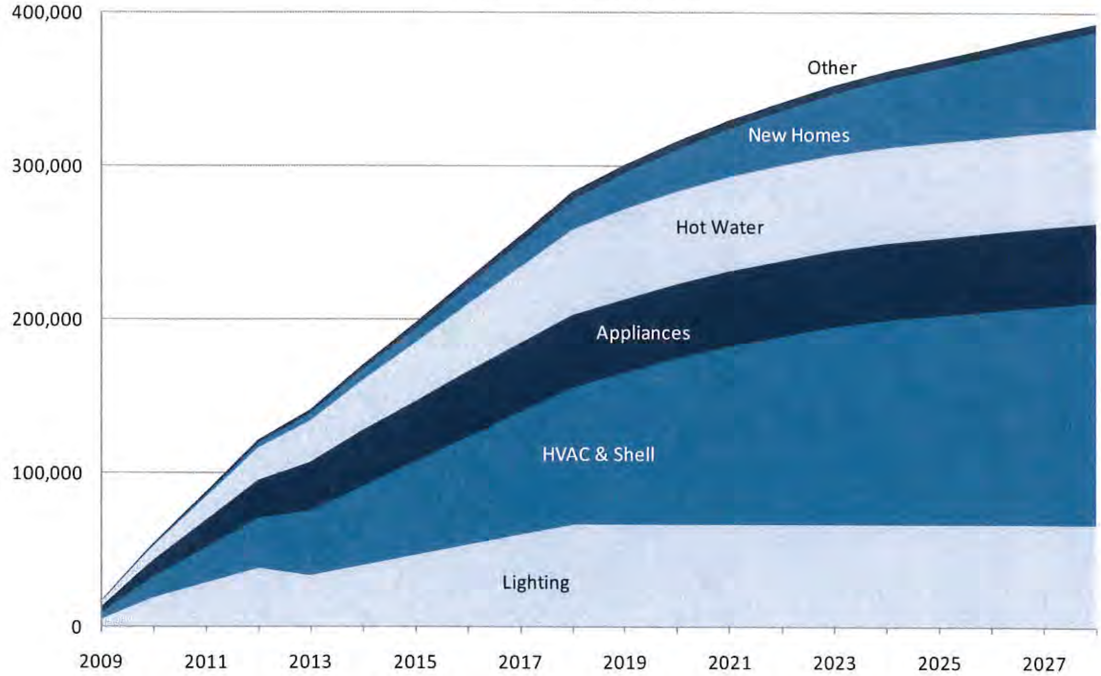
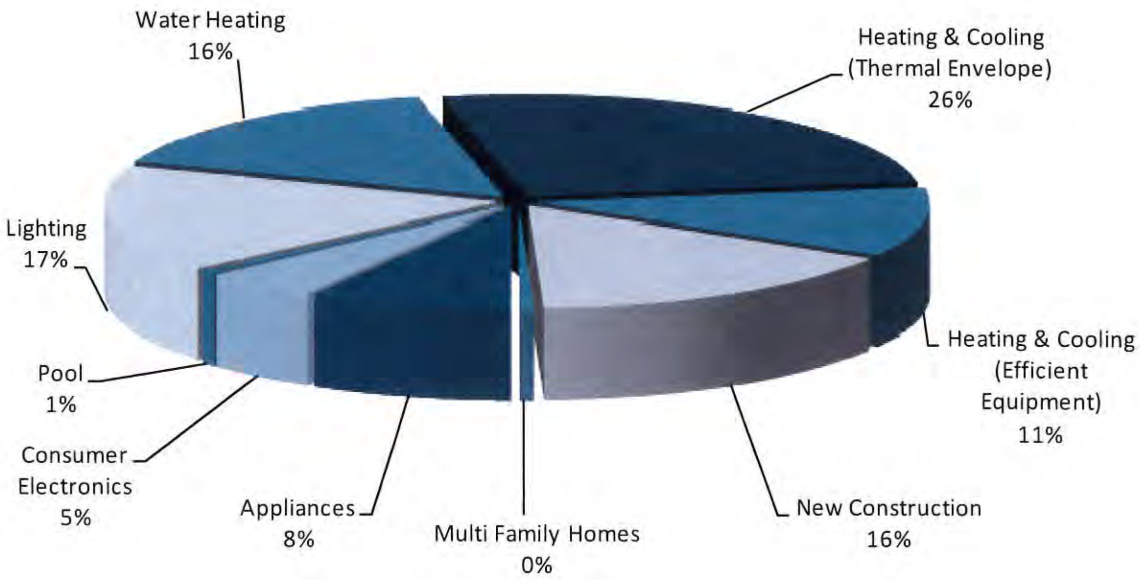


Figure 6.5 provides a more detailed breakdown of the electric end-use savings as a percent of the total achievable potential for the 40% market penetration scenario. The major opportunities for electricity efficiency resources are improved housing shell performance (i.e. insulation measures, reduced air infiltration, efficient windows, etc.) combined with more efficient heating and air conditioning equipment. As a fraction of total achievable savings potential in the residential sector, these efforts to reduce cooling and heating loads and improve HVAC system performance make up the largest majority – 37% of savings potential.

[25] The mandated increase in the efficiency of incandescent bulbs is phased in over a 3-year period: 100-watt bulbs must be 30% more efficient beginning in 2012, 75-watt bulbs in 2013, and 60-watt and 40-watt bulbs in 2014.

There is also a large potential for efficiency savings by replacing regularly used household incandescent light bulbs with more efficient compact fluorescent light bulbs (~ 17% of achievable potential in the residential sector), followed by water heating, new construction, home appliances and consumer electronics.

Figure 6.5: Residential Sector End Use Savings as a % of Total Achievable Potential



In addition to 393,662 MWh, the 40% market penetration base case scenario also achieves 105 MW savings, or 7.7% of the 2028 residential summer peak demand forecast. Similar to the technical and economic potential estimates, the bulk of the demand savings opportunities could be achieved through HVAC or building shell improvements.

Table 6.5: Base Case Achievable Energy and Demand Potential and Percentage Share of Residential Forecast Energy Sales and Summer Peak Demand in 2028

End Use	Achievable Potential Energy (MWh)	Achievable Potential Demand (MW)
HVAC & Shell	145,430	66
Lighting	66,497	12
New Homes	62,825	15
Hot Water	62,216	6
Appliances	51,385	6
Other	5,310	2
Total	**393,662**	**105**
Total as a % of 2028 Forecast	*6.5%*	*7.7%*

For the achievable potential, the 40% market penetration assumes that consumers would receive a financial incentive equal to approximately 35% of the incremental cost of the energy efficiency measure for most technologies. In addition, an overall non-incentive or administrative cost per kWh saved was assigned to each measure in order to run the achievable cost-effectiveness tests. In the residential sector, a cost of $0.06 per kWh saved was used for the first three years of the analysis for all appliances, water heating, and heating, ventilating, and air conditioning (HVAC) equipment measures. A cost of $0.12 per kWh was used in each of the first three years for all building envelope efficiency measures, and $0.40 per kWh was used in the first three years for new homes construction. These administrative costs were reduced by approximately 50% in years 4-10 for existing construction measures. In the second decade, administrative costs were estimated to be 1/3 of the first year costs. These costs per kWh saved are based on the experienced administrative costs of other energy efficiency programs in the US, but remain merely approximations used to examine the potential for cost-effective savings.

The overall benefit/cost screening results for the residential sector 40% market penetration scenario are shown below in Table 6.6. The net present value costs to Hoosier Energy of approximately $114 million dollars include both total incentive payments as well as the associated costs (i.e. marketing, labor, monitoring, etc) of administering energy efficiency programs between 2009 and 2028. The net present value benefits of $649.2 million dollars represent the lifetime benefits of all measures installed during the same time period. Although the base case achievable potential estimates would require a substantial investment in energy efficiency from both Hoosier Energy and its members ($258.5 million), the resulting energy and demand savings would result in a net savings of over $390 million dollars (present worth 2009).

Table 6.6: Overall Residential Sector Cost Effectiveness Screening Results
(dollars in millions)

Benefit Cost Test	Present Value of Total Benefits ($2009)	Present Value of Hoosier Costs ($2009)	Present Value of Participant Costs ($2009)	Present Value of Total Costs ($2009)	Benefit/Cost Ratio
TRC Test	$649.2	$114.1	$144.4	$258.5	2.51

6.4.3 RESIDENTIAL LOW/HIGH MARKET PENETRATION RESULTS VS. BASE CASE

In addition to the 40% market penetration scenario reported above, this report also includes a low case and high case market penetration scenario. The low case scenario achieves approximately 20% market penetration by 2028, while the high case achieves 60% market penetration. As noted earlier, the 40% market penetration assumed financial incentives equal to 35% of the measure incremental cost. The high up-front cost of energy efficient technologies is an important adoption barrier and altering incentive levels is likely to have an impact on market potential estimates. The low and the high scenarios illustrate the impacts of changing the incentive level. Financial incentives equal to 50% and 20% of the measure incremental cost were used in most programs for the 60% and 20% market penetration scenarios, respectively.

Table 6.8 (following page) presents the measure-level achievable savings, sorted by end-use, for all three market penetration scenarios by 2028. For each scenario, only energy efficiency measures that proved to be cost effective based on the results of the TRC test were included. As the target market potential was raised, the number of measures included in each scenario also increased. Meanwhile, Figure 6.6 illustrates the low and high case achievable savings by year, and compares it to the equivalent base case scenario savings.

Figure 6.6: 2028 Potential Savings Results for all Market Penetration Scenarios

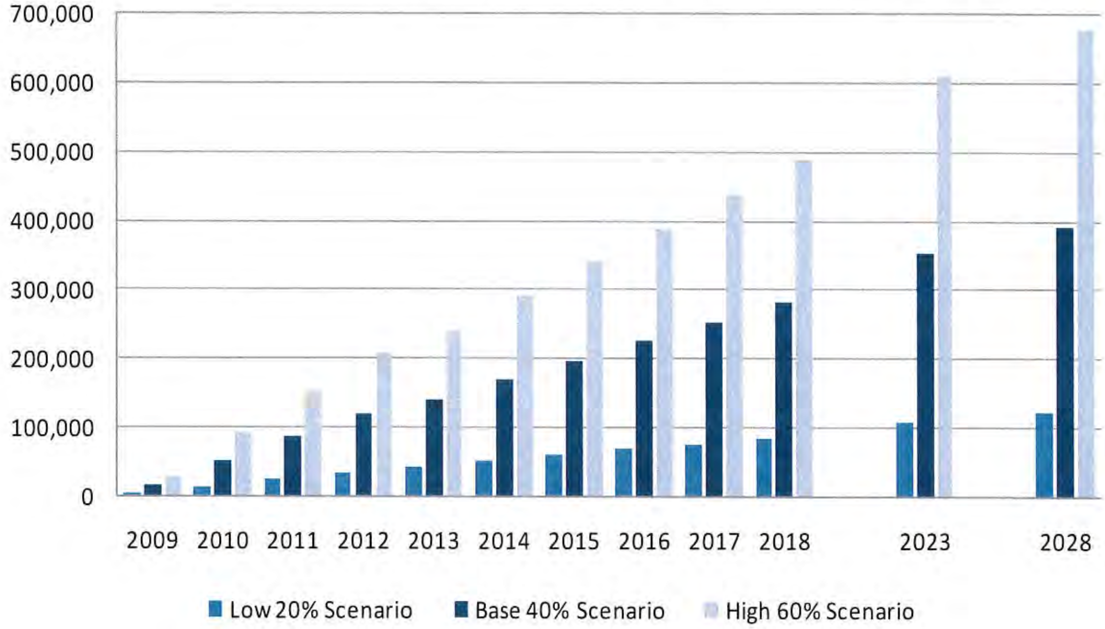


Table 6.7 shows that the achievable potential savings by 2028 range from a low of 2% in the low market penetration scenario to a high of 11.2% in the high market penetration scenario. Summer peak demand savings range from 35 MW in the low market penetration scenario to 184 MW in the high market penetration scenario. Table 6.7 also presents the total benefits and costs for the TRC Test in the 20%, 40%, and 60% market penetration scenarios. The net present value savings (benefits – costs) range from approximately $119 million in the 20% market penetration scenario to $687 million in the 60% market penetration scenario.

Table 6.7: Benefit/Cost Ratios for all Market Penetrations Using the TRC Test
(dollars in millions)

Market Penetration Scenario	MWH Savings in 2028	% of Forecasted 2028 Res. Sales	Summer Peak MW Savings in 2028	Present Value of Total Benefits ($2009)	Present Value of Total Costs ($2009)	Benefit/Cost Ratio
Low Case - 20%	123,407	2.0%	35.04	$214.4	$95.0	2.26
Base Case - 40%	393,662	6.5%	104.83	$649.2	$258.5	2.51
High Case - 60%	679,909	11.2%	184.28	$1,131.3	$444.0	2.55

Table 6.8: Low, Base, and High Scenario Residential Achievable Potential Savings in 2028, by Measure (MWh)

Measure Name	Achievable Potential (Low)	Achievable Potential (Base)	Achievable Potential (High)
Appliances and Electronics			
Second Refrigerator Turn In	7,328	16,213	25,094
Home Electronics	3,498	17,485	31,471
Second Freezer Turn In	3,235	6,467	9,702
Energy Star Compliant Refrigerator	1,704	8,022	14,338
Energy Star Dehumidifer	767	2,301	3,835
Energy Star Dishwasher	0	2,749	5,803
Energy Star Compliant Personal Computer	0	897	2,094
Energy Star Freezer	0	0	0
Hot Water			
Heat Pump Water Heater	16,823	44,866	72,911
Efficient Water Heater	1,937	5,166	8,394
Energy Star Clothes Washer	1,119	9,435	17,749
Low Flow Faucets	0	0	0
Low Flow Showerhead	0	0	0
Pipe Wrap	0	0	0
Solar Water Heating	0	0	0
Water Heater Blanket	0	0	0
HVAC & Shell			
Equipment Swapping: Electric Furnace to HP	18,613	34,619	42,405
Radiant Barriers	13,937	30,244	47,521
Energy Star Windows	11,327	37,547	64,472
Insulation - Wall	4,789	9,570	14,358
Insulation-Floor	4,402	8,769	13,172
High Efficiency Heat Pump	1,573	2,277	2,358
Insulation -Ceiling	1,083	2,014	2,748
High Efficiency Central AC	815	5,726	9,729
Programmable Thermostats	0	14,664	41,792
Duct Sealing	0	0	4,376
HVAC Tune-Up	0	0	3,578
Air Infiltration	0	0	1,310
Energy Star Room A/C	0	0	0
Equipment Swapping: Electric HP to Geothermal HP	0	0	0
Lighting			
CFL Bulbs	10,026	66,497	124,830
LED Exterior Lighting	0	0	0
New Homes			
Efficient New Construction	19,500	62,825	106,157
New Construction - LED Dusk til Dawn Lighting	0	0	0
Other			
Multi Family Homes Package	0	2,512	5,038
Pool Pump and Motor	932	2,797	4,675
Grand Total	***123,407***	***393,662***	***679,909***

Note: Measures with no achievable savings in all three market penetration scenarios were either 1) not cost effective, or 2) excluded due to competing technologies. Conversely, when measure savings are absent in only one or two of the market penetration columns, this represents that the energy efficient measure had already achieved the targeted penetration and no additional savings opportunities existed in that scenario.

7 RESIDENTIAL DEMAND RESPONSE POTENTIAL ESTIMATES (2009 TO 2028)

The achievable potential for peak demand savings in the residential sector from demand response programs is approximately 100 MW. Air conditioning and standard tank (40/50 gal) water heating load control combine to represent roughly 92 MW of controlled load, while large tank (70 gal.) water heating and pool pump load control represent the remaining 7.5 MW of achievable demand response potential. These four programs result in approximately $44.5 million of avoided capacity, transmission, and distribution costs to Hoosier and its member systems.

Table 7.1: Residential Sector Demand Response Potential Summary
(dollars in millions)

	MW Savings in 2028	% of 2028 Residential Peak Demand	NPV Benefits ($2009)	NPV Costs ($2009)	TRC Benefit/Cost Ratio
Residential DR Programs Combined	99.7	7.3%	$44.5	$31.9	1.39

7.1 DEMAND RESPONSE PROGRAMS EXAMINED

The initial step in a demand response study is to determine from a wide list of potential programs which are of interest to study. Since Hoosier's demand response efforts are currently limited to its interruptible rates and the Members' voluntary peak load control programs, it was decided that this study would focus only on several programs that have the largest potential impact on peak demand. The programs studies include[26]:

1) Direct control of air conditioners with a 33% cycling strategy
2) Direct control of air conditioners with a 50% cycling strategy
3) Direct control of standard water heaters (40/50 gallons)
4) Direct control of large capacity water heaters (80 gallons)
5) Direct control of residential swimming pool pumps

Load impacts for residential programs were developed using models that estimate average diversified consumption by appliance. Inputs into those models include average home size, weather, number of people per household, and appliance efficiencies. The models for air conditioning and space heating are from the Air Conditioner Contractors of America[27] ("ACCA") and models for water heating are from the Gas Appliance Manufacturers Association ("GAMA"). Home size and people per household data came from the residential surveys. Average device efficiencies on the Hoosier system were estimated using on-site survey data and information from the Energy Information Administration's *Annual Energy Outlook 2008*. Furthermore, the demand response analysis assumes implementation of energy efficiency replacement programs. For instance, the air conditioner efficiency assumed for load impacts is increased over time assuming an energy efficiency program is replacing old lower-SEER units

[26] Electric Thermal Storage is not included in the main body of this report due to its characterization as a load building program. A short description of this technology and the economics related to the installation of ETS systems in residential buildings is included as Appendix H.
[27] "Manual S – Residential Equipment Selection." Air Conditioning Contractors of America.

with higher SEER units. The result is that the demand response analysis is conservative with respect to load impacts.

Avoided cost assumptions are the key input into a demand response benefit/cost analysis. Therefore, development of these assumptions has been discussed in more detail in section 5.9 of this report.

Most of the programs considered in this study were load control programs, requiring purchase and installation of a physical control switch that can be "called" upon by Hoosier to interrupt (or cycle on and off) load to a specific appliance. There are several technologies available to control load that receive their instructions through various means. Radio control switches can be activated via a radio or pager transmission system. If a utility has implemented Advanced Metering Infrastructure ("AMI"), then the digital meter can be programmed and wired to run load control. Not all of Hoosier's member cooperatives have implemented or soon plan to implement AMI. Therefore, Hoosier would require a communications system capable of delivering control instructions to various technologies. Hoosier hired an independent consultant, through the NRECA – National Consulting Group, to investigate the technical and cost considerations for such a mixed system. The report from that study provided GDS Associates and Summit Blue with the average capital and install cost per control device specifically for the Hoosier System. We assumed a carrying cost factor of 21.76% per year on the cost of the equipment. The carrying cost factor includes interest, depreciation, O&M, and margins.

Administrative, marketing, and operating costs of the system (excluding incentives) were estimated on a per switch basis and escalated at 3%. The estimate (~$15 per switch) is based on GDS' knowledge of such costs from other establish G&Ts.

Incentives are excluded from the residential benefit/cost analysis because there are a myriad of ways in which a cooperative can incentivize its customers to join a particular program (in fact, some success can be had with no incentive by reflecting on the "cooperative spirit"). Therefore, the analysis is conducted with no incentive and the net value of the program in this way (benefits less costs) provides a level of "headroom" that is available to incent customers.

Like the energy efficiency potential approach, the demand response potential approach includes several analytical steps. However, due to the different nature of the two programs, the demand response approach focuses on benefits/cost analysis primarily and then analyzes achievable potential. Therefore, there are no sector-level estimates of technical and economic demand potential included in this report.

Appendix C exhibits all of the inputs and assumptions by program for the residential demand response analysis.

7.2 Demand Response Program Cost-Effectiveness

The table below summarizes the benefit/cost analysis results under the base case avoided cost assumptions. The standard water heater control program is the only program to not pass the base case screening analysis. Obviously, the 50% cycling strategy provides more benefit for air conditioners than does a 33% cycling strategy. For the 33% cycling case, only a NPV of $98 is available for incentives. Therefore, GDS recommends Hoosier Energy test cycling strategies during its load management pilot program to see what level is tolerable to homeowners.

Table 7.2: Benefit/Cost Ratios under Base Case Avoided Cost Assumptions (TRC Test)

Program	NPV Benefits	NPV Costs	Net Savings	Ben/Cost Ratio
AC – 33% Cycling	$553	$455	$98	1.22
AC – 50% Cycling	$831	$455	$376	1.83
Standard WH (40/50 Gal)	$410	$497	($87)	0.82
Large Cap WH (70/80 Gal)	$601	$497	$104	1.21
Swimming Pool Pump	$1,221	$605	$616	2.02

As described in Section 5.9 of the report, a full-avoided cost scenario was developed to see screening analysis results if the avoided cost of a CT were assumed for all years. The higher avoided cost leads to greater benefit/cost ratios, however, the standard water heater is still not quite worth pursuing in this scenario with a benefit/cost ratio (without incentives) of 0.99.

Table 7.3: Benefit/Cost Ratios under Full-Cost Avoided Cost Assumptions (TRC Test)

Program	NPV Benefits	NPV Costs	Net Savings	Ben/Cost Ratio
AC – 33% Cycling	$674	$455	$219	1.48
AC – 50% Cycling	$1,013	$455	$558	2.23
Standard WH (40/50 Gal)	$493	$497	($4)	0.99
Large Cap WH (70/80 Gal)	$684	$497	$187	1.38
Swimming Pool Pump	$1,523	$605	$918	2.52

7.3 ACHIEVABLE POTENTIAL SAVINGS

Once programs that are economically viable are identified, penetrations for program participation can be estimated. Performances of other utilities with mature programs (e.g. in place for 15-20 years) have been used to estimate potential impacts on the Hoosier system. This analysis assumed that demand response programs would not initiate until 2010, allowing additional time for proper program implementation. Estimated demand response penetrations and load impacts are presented below.

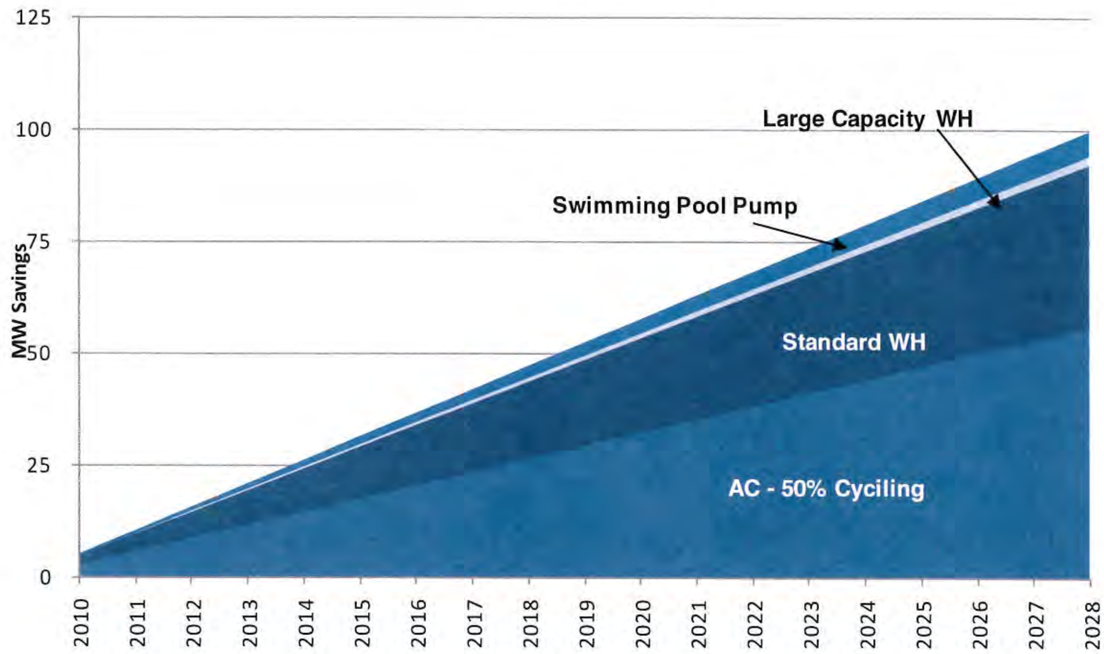
Table 7.4: Achievable Potential Savings for Residential Demand Response (2010-2028)
(dollars in millions)

Program	Number Controlled	MW Savings	NPV Benefits ($2009)	NPV Costs ($2009)	Benefit/Cost Ratio
AC - 50% Cycling	56,305	56.0	$24.3	$11.7	2.07
Standard WH (40/50 Gal)	79,316	36.2	$16.8	$18.4	0.91
Large Cap WH (70/80 Gal)	4,219	1.9	$1.3	$1.0	1.32
Swimming Pool Pump	3,275	5.5	$2.1	$0.8	2.76
Program Totals		***99.7***	***$44.5***	***$31.9***	***1.39***

In total, the four residential demand response programs result in 99.7 MW of achievable savings potential, or 7.3% of the forecasted 2028 summer peak demand in the residential sector. Note that the 50% cycling strategy was chosen to estimate the achievable potential in the Hoosier Energy member territory due to larger demand savings than those that would be achieved through the 33% cycling strategy. If the load management pilot suggests homeowners would be unwilling to participate at the 50% cycling level, the achievable savings and overall benefits would diminish somewhat under the 33% cycling strategy.

Also, the standard water heater (40/50 gal) was retained in the achievable potential scenario despite a benefit cost ratio below 1.0. Standard water heater load control is still recommended to allow Hoosier to have control over a greater proportion of their peak loads. With a benefit/cost ratio so close to one, the economic value of the standard water heaters may become apparent as key inputs to the analysis change, especially the value of avoided peak demand.

Figure 7.1: Achievable Potential Savings for Residential Demand Response by Year



8 COMMERCIAL/INDUSTRIAL ENERGY EFFICIENCY POTENTIAL ESTIMATES (2009 TO 2028)

Figure 8.1 and Table 8.1 summarize the technical, economic, and achievable savings potential by 2028. Both technical and economic potential estimate about 17% of the expected energy sales and about 25% of the expected peak demand by the year 2028. The achievable potential presented here is for the base case market penetration scenario which assumes that incentives are set at 25% of the DSM measure incremental cost and is calibrated to achieve savings that are similar to other high performing municipal and cooperative DSM programs in the Midwest. If Hoosier Energy can achieve similar levels of success, the achievable savings potential from energy efficient resources is estimated to be 7.5% of expected energy sales and 13.3% of peak demand for 2028.

Figure 8.1: 2028 Summary of Commercial/Industrial Energy Efficiency Potential

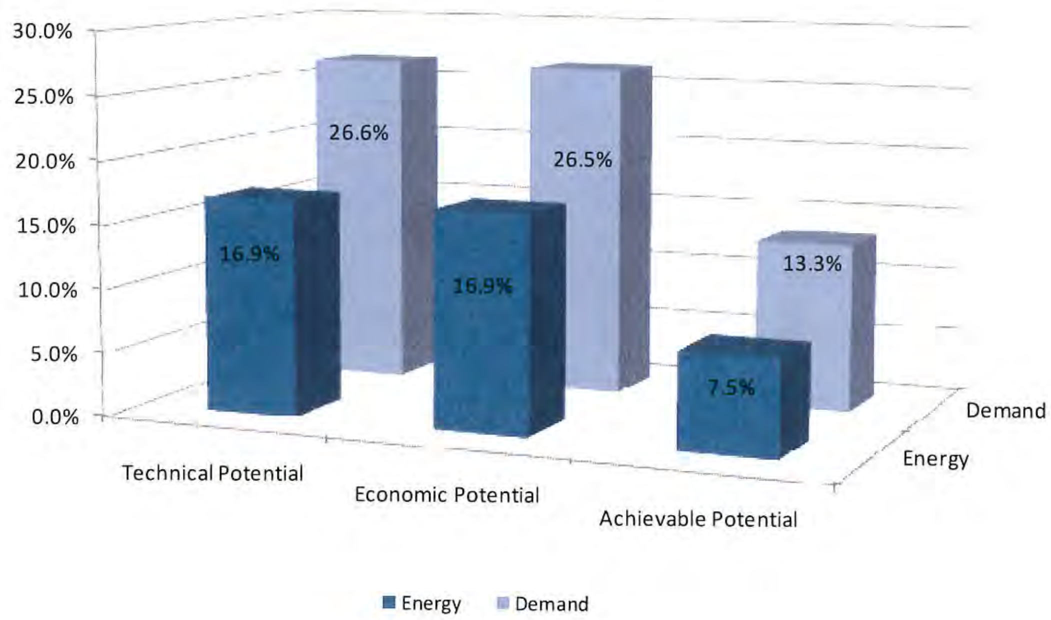


Table 8.1: 2028 Summary of Commercial/Industrial Energy and Demand Savings Potential

	Energy		Demand	
	MWh	% 2028 MWh Sales	MW	% 2028 MW Summer Peak
Technical Potential	518,162	16.9%	123	26.6%
Economic Potential	517,388	16.9%	123	26.5%
Achievable Potential	230,778	7.5%	61	13.3%

8.1 ENERGY EFFICIENCY MEASURES EXAMINED

Thirty-seven prescriptive commercial/industrial electric energy efficiency programs or measures were included in the energy savings analysis for the commercial/industrial sector. In addition, a custom measure category was included in the analysis to cover any further energy efficiency upgrades that may be possible in the commercial and industrial facilities that are not captured by the traditional measures. Table 8.2 provides a brief listing of the various commercial/industrial energy efficiency programs or measures considered in this analysis. The list of energy efficiency measures examined was constrained by what we found in the field with our 65 on-site surveys. For example, fluid chillers for process cooling and space conditioning were very rare and mostly less than 20 tons of capacity. The overall potential savings for this class of equipment is relatively small; therefore, the analysis focused on measures with greater overall potential. In the cases where high-efficiency fluid chillers might be installed we included their potential in the generic 'Custom Measures.' Appendix D provides a brief discussion of each measure or program as well as the savings, useful life, cost assumptions, and TRC benefit-cost ratios at the "measure" level.

Table 8.2: Measures and Programs Included in the Commercial/Industrial Sector Analysis

End-Use Type	Measures/Program Included
Lighting	*T8 and T5 Lamps and Electronic Ballasts
	*Screw-In CFL Bulbs and Fixtures
	*Occupancy and Daylight Sensors
	*Delamping
	*LED Exit Signs
	*High Bay Fluorescent Lights and Pulse-Start HIDs
Motor & Other	*Motors < 10 HP
	*Motors > 10 HP
	*Compressed Air
Hot Water	*Efficient Water Heaters
	*Tankless Water Heaters
	*Heat Pump Water Heaters
HVAC & Shell	*Variable Frequency Drives (VFDs)
	*Efficient Packaged Commercial A/C Systems
	*Economizers
	*Programmable Thermostats
Custom	*Any additional conservation measures not covered above

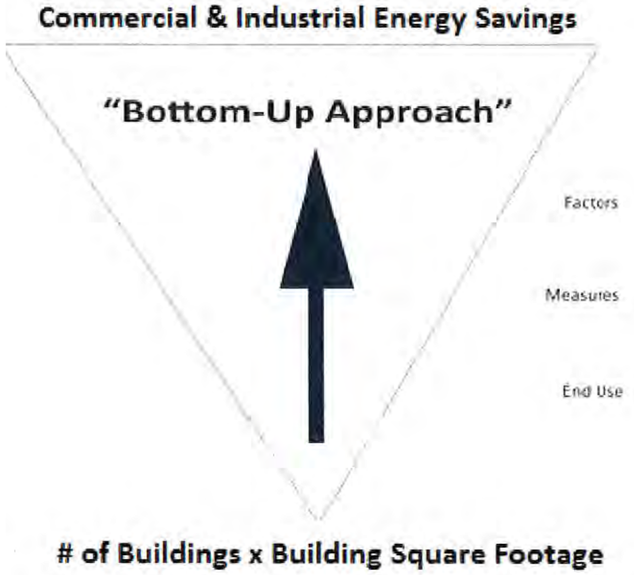
Prescriptive measures are generally simple measures that have largely uniform energy and peak demand savings on a per unit basis from application to application. However, even prescriptive measures' savings will have some variability, depending on the specific application and baseline equipment replaced. For this study, measure data has been based on a typical retail building with non-residential lighting fixtures and HVAC equipment.

Custom Measures have more variable energy and peak demand savings on a per unit basis from application to application. Calculating energy and peak demand savings for custom measures on a site-specific basis will significantly improve the accuracy of the energy and peak demand savings estimates, versus using standard per unit estimates for custom measures. In addition to the previously mentioned fluid chillers, custom measures might include process or control improvements and holistic renovations of systems.

8.2 COMMERCIAL/INDUSTRIAL SECTOR SAVINGS METHODOLOGY OVERVIEW

Similar to the residential sector, the portfolio of measures includes retrofit and replace-on-burnout programmatic approaches to achieve energy efficiency savings and impacts both existing structures and new construction. The analysis utilizes a "bottom-up" approach in that the starting points are the study area building stocks (by number and square footage) and equipment saturation estimates derived from the results of the on-site audits, and then utilizes forecasts of building stock decay and new construction, DSM technology data, past DSM program accomplishments, and decision maker variables that help drive the market potential scenarios to determine overall savings potential over the 20 year analysis period.

Figure 8.2: Commercial & Industrial Sector Savings Methodology – Bottom Up Approach



As shown Figure 8.2, the bottom-up method started with the number of commercial and industrial customers (each sector individually assessed and further segregated by existing and new construction building stock) and the average building square footage. Average building square footage was developed from the results of the on-site surveys. From there the customer numbers, average square footage, and saturation data were used to estimate the size of the eligible market in the Hoosier Energy member territory for each efficiency measure by sector. For example, energy efficiency measures that affect electric space heating are only applicable to those commercial and/or industrial customers in the Hoosier Energy member territory that have electric space heating. To obtain up-to-date equipment and end-use saturation data, the study made extensive use of the commercial on-site surveys completed by Hoosier Energy. As noted earlier in the report, estimates of energy efficient equipment saturations were based on results from the 368 commercial on-site surveys completed in 2008. Similar to the formula used in the residential sector, the full formula to determine savings at the measure level is shown below.

$$\text{Technical Potential of Efficient Measure} = \text{Total Building Sq. Footage} \times \text{Remaining Factor (Inefficient Units per 1,000 sq. ft.)} \times \text{Savings Factor} \times \text{Applicability Factor}$$

The goal of the formula is to determine the overall technical potential for electric savings by first determining the total building square footage in the commercial and industrial sectors, then how many inefficient units (fixtures/motor horsepower/tons of cooling) per 1,000 sq ft. remain (remaining factor). In instances where technical reasons did not permit the installation of the efficient equipment in all eligible households the applicability factor was used to limit the potential. The last factor to be applied was the savings factor, which is the savings achieved from installing the efficient measure over a standard measure. In the commercial/industrial sector, the economic potential was determined by comparing the economic benefit of a measure's energy and demand savings to the cost (measure cost and administrative costs) of implementing each measure. Only measures that were cost-effective, or the total benefits were greater than the total costs, were included in the economic potential.

8.3 TECHNICAL AND ECONOMIC POTENTIAL SAVINGS

The total technical potential savings for the Hoosier Energy commercial/industrial sector is 518,162 MWh, or 17% of forecast commercial and industrial MWh sales in 2028. As shown in Table 8.3, the greatest share of energy savings technical potential is expected from the Motors & Other category of measures and the Custom category of measures, providing 33% 28% of the technical potential respectively. HVAC and Shell measures are expected to constitute 21% of the technical potential, and lighting 18%. Hot Water measures are expected to constitute less than 1% of the technical energy potential.

The share of technical potential for peak demand savings from energy efficiency resources by measure group is relatively similar to that of energy savings. For peak demand savings, the greatest share of technical potential is provided by the Custom category of measures at 30%. The Motors & Other and Lighting categories of measures provide the second largest share at approximately 25% each. Hot Water measures provide less than 1% of the technical peak demand potential.

Table 8.3: Technical Energy and Demand Potential and Percentage Share of Commercial/Industrial Forecast Energy Sales and Summer Peak Demand in 2028

End-Use	Technical Potential Energy (MWh)	Technical Potential Demand (MW)
Total Lighting	92,988	31
Total Motor & Other	169,222	31
Total Hot Water	806	1
Total HVAC & Shell	109,453	24
Total Custom	145,695	36
Total All	**518,162**	**123**
Total as % of C&I Sales	*16.9%*	*26.6%*

For the economic potential scenario, the study assumed 100% of all cost-effective measures eligible for installation were installed. Cost-effectiveness was determined as all measures with a TRC benefit-cost ratio greater than 1.0. The economic potential, based on the result of the individual measure TRC tests, is 517,388 MWh, or 16.9% of forecast commercial and industrial

MWh sales in 2028. Economic summer peak demand savings is 123 MW, or 26.5% of forecast commercial and industrial summer peak demand.

Note that the economic potential practically equals the technical potential because measures that were known to typically fail the TRC cost-effectiveness by wide margins were prescreened out of the list of measures analyzed for the technical potential; thus, almost every measure analyzed for technical potential passed the TRC test.

Table 8.4: Economic Energy and Demand Potential and Percentage Share of Commercial/Industrial Forecast Energy Sales and Summer Peak Demand in 2028

End-Use	Economic Potential Energy (MWh)	Economic Potential Demand (MW)
Total Lighting	92,573	31
Total Motor & Other	169,222	31
Total Hot Water	446	0
Total HVAC & Shell	109,453	24
Total Custom	145,695	36
Total All	**517,388**	**123**
Total as % of C&I Sales	*16.9%*	*26.5%*

8.4 ACHIEVABLE POTENTIAL SAVINGS – BASE CASE SCENARIO

8.4.1 ESTIMATING ACHIEVABLE SAVINGS IN THE COMMERCIAL/INDUSTRIAL SECTOR

In the base case scenario, the commercial/industrial achievable potential represents the attainable savings if the market penetration is calibrated so that by the fifth or sixth year, the programs achieve annual energy savings, as a percentage of sales, which approximate the savings achieved by the better DSM programs in the Midwest, specifically 0.4% as identified in the benchmarking analysis. The process of calibrating on benchmarks produces a realistic starting point; intending to spend more initially may not be effective or practical. In other words, on the basis of benchmarking other Midwest DSM programs and from experience with new Midwest DSM programs and the years required to ramp up participant numbers, it is reasonable to expect that Hoosier Energy achieve 0.4% energy savings as a percentage of sales by year 6, and it is unlikely that Hoosier Energy can achieve that level of savings from year 1. The base market scenario also assumes that the initial DSM measure incentives are set at 25% of incremental capital cost, which is typical in the Midwest; for example, Xcel Energy (MN)'s 2007 incentives amounted to 23% of incremental capital cost for all its electric DSM programs.

The methodology for estimating energy efficiency measure adoption each year from 2009 through 2028 is based on an adoption curve formula that takes the following form:

*Program Adoption = Remaining Available Applications * Market Factor * exp (0.0 – Beta * measure payback) * (Consumer Awareness * Consumer Willingness + (1 + Consumer Awareness * Consumer Willingness) / (1+ exp (-1 + exp (-1 * Beta * Payback * (current program year – curve inflection point year)))*

Where:

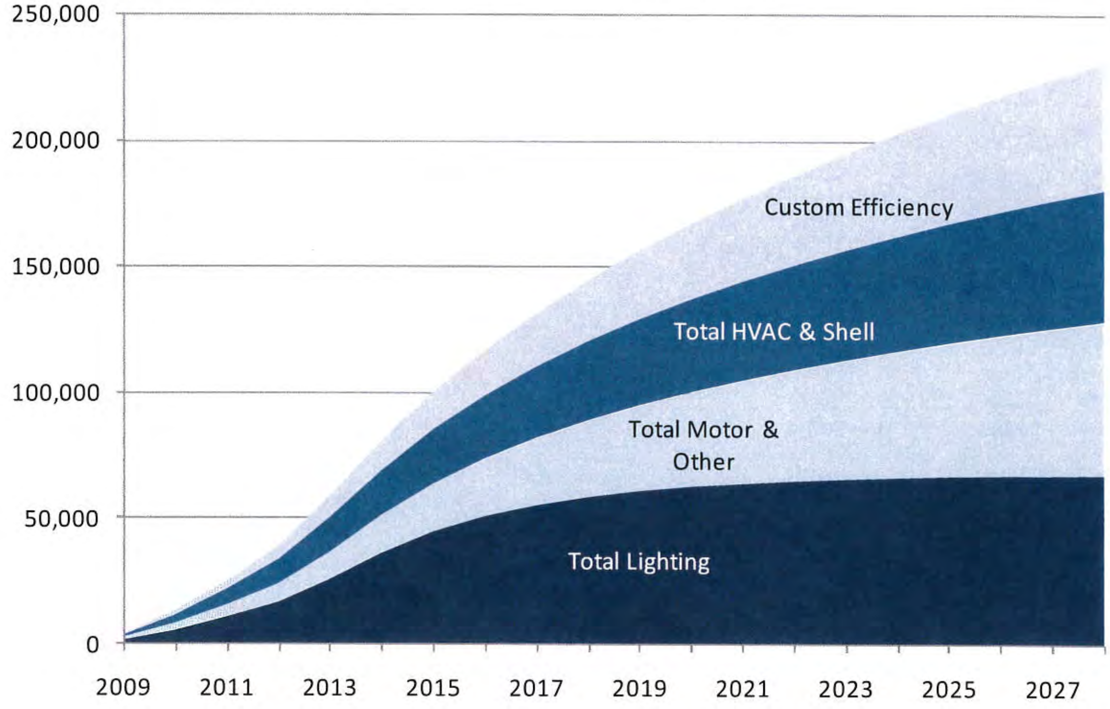
- Remaining available applications = Maximum saturation per adoption unit less the current saturation.
- Market Factor = Calibration factor based either on currently achieved levels of savings, or some appropriate starting value, such as "Best Practices" results or results from similar programs.
- Beta = Constant that changes the shape of the curve. A smaller Beta, such as 0.1, gives slower adoptions while a larger Beta, such as 0.4, gives faster adoptions.
- Measure payback = (Measure cost) / (incentive & vale of energy savings)
- Consumer Awareness = Percent of the population of eligible consumers who are aware of the technology.
- Consumer Willingness = Percent of the population of eligible consumers who are both aware of the technology and willing to purchase it.
- Program year = Year after program inception
- Curve inflection point year = Within a program's lifetime, the point of time on an "S" curve where the curve stops accelerating upward and starts decelerating toward saturation.

This formula creates an "S" curve adoption pattern for each measure that typically presents with low initial participation that ramps up over time before leveling off. With new technologies, there is often low awareness of the technology among consumers and there may be a hesitancy to purchase the technology because of its newness. A program could then be designed to not only provide incentives, but to increase awareness and promote the technology's reliability. In contrast, a mature technology may already have high willingness and awareness values and, thus, the adoption curve would likely follow a flatter trend over time.

8.4.2 COMMERCIAL/INDUSTRIAL BASE CASE SAVINGS POTENTIAL

Figure 8.3 is an area graph that illustrates the base case achievable potential over the 20 year study period and shows the shifting flow of measure group share over time. By 2028, the total commercial/industrial energy efficiency achievable potential is 230,778 MWh, or 7.5% of forecasted commercial/industrial 2028 sales. While the estimated savings may seem modest in the initial years, they are in line with Summit Blue's experience with new DSM programs.

Figure 8.3: Commercial/Industrial Achievable Potential Energy Savings under the Base Case Scenario- Cumulative Annual (MWh)



To illustrate the expected changing shares provided by each measure group over time, Figure 8.4 shows the measure group shares of the base case scenario potential in 2009, and Figure 8.5 shows these shares in 2028.

Figure 8.4: Commercial/Industrial Sector End Use Savings as a % of Total Achievable Potential - 2009

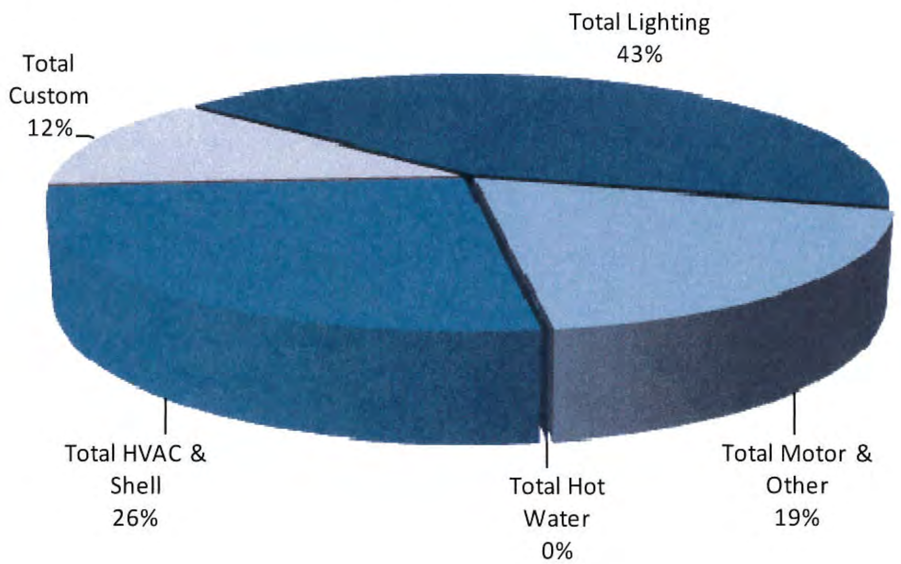
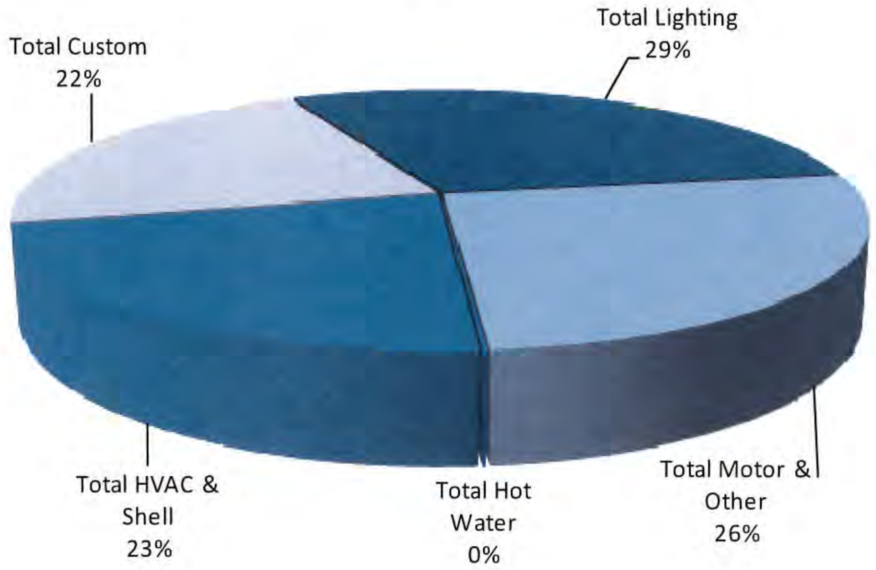


Figure 8.5: Commercial/Industrial Sector End Use Savings as a % of Total Achievable Potential - 2028



The shares provided by the lighting measures show the greatest change. In 2009, they contribute 43% of the potential for the Base scenario. By 2028, the light share fall to 29%; this reflects the model's accounting for expected market saturation and known upcoming energy efficient standards for lighting. Correspondingly, the share provided by the Motor & Other group of measures grows from 19% in 2009 to 26% in 2028. The group of Custom measures shows similar gains in share growing from 12% in 2009 to 22% in 2028. The contribution provided by the HVAC and Shell measures remains relatively constant: 26% in 2009 and 23% in 2028.

In addition to 230,778 MWh annual energy savings, the base case scenario also achieves 61 MW savings, or 13.3% of the 2028 commercial/industrial summer peak demand forecast. In contrast to the technical and economic potential estimates where custom measures provided the greatest opportunity for peak demand savings, the largest share of demand savings in the achievable base case scenario could be achieved through lighting efficiency measures.

Table 8.5: Base Case Achievable Energy and Demand Potential and Percentage Share of Commercial/Industrial Forecast Energy Sales and Summer Peak Demand in 2028

End-Use	Achievable Potential Energy (MWh)	Achievable Potential Demand (MW)
Total Lighting	67,612	23
Total Motor & Other	59,904	13
Total Hot Water	299	0
Total HVAC & Shell	51,934	12
Total Custom	51,029	13
Total All	**230,778**	**61**
Total as % of C&I Sales	*7.5%*	*13.3%*

Table 8.6: Existing Commercial, New Commercial, and Industrial Sector Achievable Potential Savings in 2028, by Measure (MWh)

Measure Name	Commercial -Existing-	Commercial -New-	Industrial
Lighting			
9-24W Screw-in CFL	3,822	568	2,357
Over 24W Pin-Based CFL	4	1	0
Premium T8/T5 w/Electronic Ballast	11,351	1,509	8,012
Delamping w/Reflectors (2 lamp)	18,509	2,549	5,939
LED Exit	876	121	128
Occupancy Sensor (8 hrs/day)	2,075	283	0
Daylighting (perimeter zone)	7,462	968	0
175W PS MH HID Indoor	232	32	0
250W PS MH HID Indoor	42	6	148
250W PS MH HID Outdoor	0	176	442
Motor & Other			
Prem Motor < =10 HP	506	25	6,560
Prem Motor > 10HP	7,820	285	32,303
Variable Speed Drives Added to HVAC Motors	3,057	429	0
Compressed Air	0	0	8,918
Hot Water			
High Efficiency Water Heater	0	0	0
Heat Pump Water Heater	0	0	0
Tankless Water Heat	143	3	153
HVAC & Shell			
Packaged Terminal A/C 12.2 EER	150	66	4,720
Programmable Thermostat	2,039	102	0
Integrated Economizer Control	19,925	1,004	0
High Efficiency HP 12.2 EER	22,789	1,120	19
Custom			
Custom Efficiency	12,717	705	37,606
Grand Total	***113,519***	***9,953***	***107,306***

Note: Measures with no achievable savings in all three market penetration scenarios were either 1) not cost effective, or 2) excluded due to competing technologies. Not all measures were included in both commercial and industrial facilities.

For the achievable potential, the base case market penetration assumes that consumers would receive a financial incentive equal to approximately 25% of the incremental cost of the energy efficiency measure for most technologies. In addition, an overall non-incentive or administrative cost per kWh saved was assigned to each measure in order to run the achievable TRC cost-effectiveness tests. A cost of $0.05 per kWh saved was used for all measures included in the commercial/industrial analyses. These costs per kWh saved are based on the experienced administrative costs of other energy efficiency programs in the US, but remain merely approximations used to examine the potential for cost-effective savings.

The overall benefit/cost screening results for the base case is shown below in Table 8.7. The net present value costs to Hoosier Energy of approximately $23.5 million include both total incentive payments as well as the associated costs (i.e. marketing, labor, monitoring, etc) of administering energy efficiency programs between 2009 and 2028. The net present value benefits of $154.8 million represent the lifetime benefits of all measures installed during the same time period. Although the base case achievable potential estimates would require a substantial investment in energy efficiency from both Hoosier Energy and its commercial and industrial members ($66 million), the resulting energy and demand savings would result in a net savings of over $89 million (present worth 2009).

Table 8.7: Overall Commercial/Industrial Sector Cost Effectiveness Screening Results
(dollars in millions)

Benefit Cost Test	Present Value of Total Benefits ($2009)	Present Value of Hoosier Costs ($2009)	Present Value of Participant Costs ($2009)	Present Value of Total Costs ($2009)	Benefit/Cost Ratio
TRC Test	$154.8	$23.5	$42.3	$65.9	2.35

8.4.3 LOW/HIGH MARKET PENETRATION RESULTS IN THE C&I SECTOR

In addition to the base case market penetration scenario reported above, this report also includes a low case and high case market penetration scenario. The low case scenario assumes that incentives are set at 10% of energy efficient measure incremental costs. First year measure adoption is calibrated to achieve slightly less than one-half the adoption rate in the base case scenario. After the first year, the methodology utilizes the lower incentive level and corresponding higher payback. This results in lower levels of estimated measure implementation. Similarly, the high market penetration scenario assumes that incentives are set at 50% of energy efficiency measure costs. Although first year savings are calibrated to achieve measure adoption rates similar to the base case scenario, all remaining years utilize the higher incentive level and corresponding lower payback, resulting in higher levels of estimated measure implementation. Again, the base case market penetration assumed financial incentives equal to 25% of the measure incremental cost. As in the case of the residential sector, the low and the high scenarios reflects the impacts of changing the incentive level on measure adoption rates. Figure 8.6 illustrates the low and high case achievable savings by year, and compares it to the equivalent base case scenario savings.

Figure 8.6: 2028 Potential Savings Results for all Market Penetration Scenarios

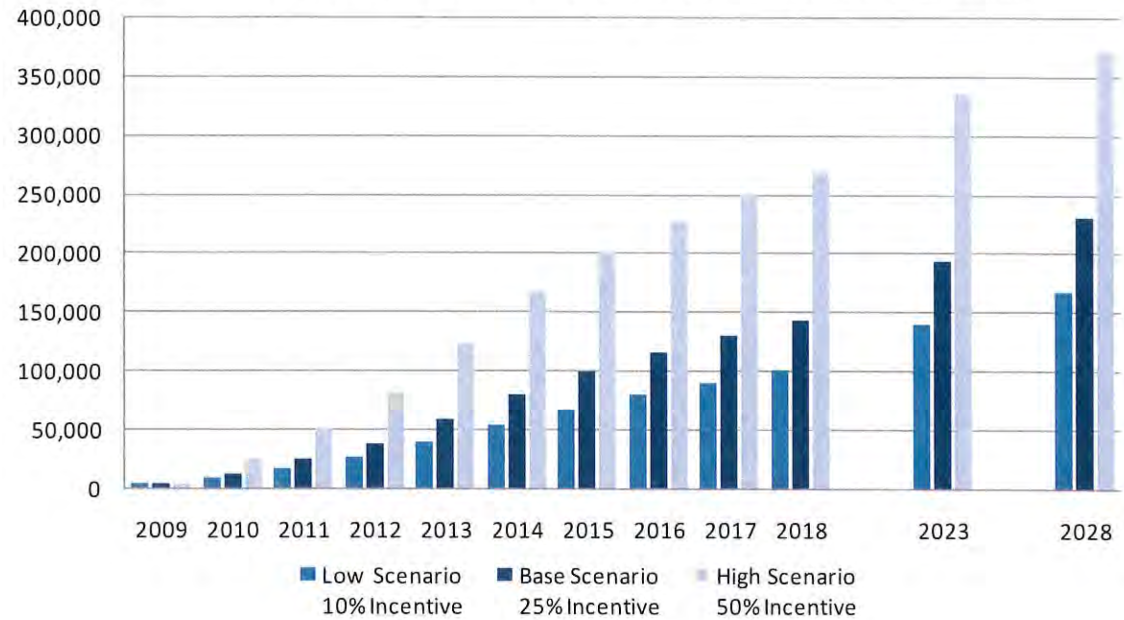


Table 8.8 shows that the achievable potential savings by 2028 range from a low of 5.5% in the low market penetration scenario to a high of 12.1% in the high market penetration scenario. Summer peak demand savings range from a low of 46 MW to a high of 95 MW. Table 8.8 also presents the total NPV benefits and costs for the three different market penetration scenarios.

The low market penetration case has the highest TRC benefit-cost ratio of 2.51, or $2.51 in avoided energy and demand costs for every $1 invested in energy efficiency programs. At 2.14, the high case has the lowest benefit cost-ratio. This suggests that without significant utility investment, commercial and industrial consumers will adopt energy efficient measures at a conservative rate and choose those technologies that maximize their economic investment. Conversely, as utility incentives are raised commercial/industrial consumers may be more likely to not only adopt energy efficient measures at a quicker adoption rate, but also invest in slightly less cost-effective energy efficient technologies.

Finally, Table 8.9 (following page) provides the achievable savings at the measure level for the low, base, and high market penetration scenarios. Whereas low-cost lighting measures appear to perform consistently across all three scenarios, motors and other custom projects appear to benefit most from increased incentive levels and adoption rates.

Table 8.8: Benefit/Cost Ratios for all Market Penetrations Using the TRC Test
(dollars in millions)

Market Penetration Scenario	MWH Savings in 2028	% of Forecasted 2028 Res. Sales	Summer Peak MW Savings in 2028	Present Value of Total Benefits ($2009)	Present Value of Total Costs ($2009)	Benefit/Cost Ratio
Low Case - 10% Incentive	168,366	5.5%	46.36	$110.2	$43.8	2.51
Base Case - 25% Incentive	230,778	7.5%	61.42	$154.8	$65.9	2.35
High Case - 50% Incentive	371,710	12.1%	94.96	$271.2	$126.7	2.14

Table 8.9: Low, Base, and High Scenario Residential Achievable Potential Savings in 2028, by Measure (MWh)

Measure Name	Achievable Potential (Low)	Achievable Potential (Base)	Achievable Potential (High)
Lighting			
9-24W Screw-in CFL	6,592	6,746	7,312
Over 24W Pin-Based CFL	5	5	5
Premium T8/T5 w/Electronic Ballast	20,196	20,872	22,366
Delamping w/Reflectors (2 lamp)	26,158	26,997	28,985
LED Exit	1,090	1,126	1,187
Occupancy Sensor (8 hrs/day)	2,280	2,359	2,475
Daylighting (perimeter zone)	8,101	8,430	8,831
175W PS MH HID Indoor	255	264	277
250W PS MH HID Indoor	191	196	211
250W PS MH HID Outdoor	588	618	637
Motor & Other			
Prem Motor < =10 HP	3,849	7,092	14,155
Prem Motor > 10HP	22,437	40,408	78,682
Variable Speed Drives Added to HVAC Motors	2,130	3,486	8,155
Compressed Air	4,860	8,918	17,216
Hot Water			
High Efficiency Water Heater	0	0	0
Heat Pump Water Heater	0	0	0
Tankless Water Heat	208	299	378
HVAC & Shell			
Packaged Terminal A/C 12.2 EER	4,176	4,936	5,610
Programmable Thermostat	1,724	2,141	2,729
Integrated Economizer Control	16,871	20,930	26,610
High Efficiency HP 12.2 EER	19,061	23,928	31,119
Custom			
Custom Efficiency	27,595	51,029	114,771
Grand Total	***168,366***	***230,778***	***371,710***

Note: Measures with no achievable savings in all three market penetration scenarios were either 1) not cost effective, or 2) excluded due to competing technologies. Not all measures were included in both commercial and industrial facilities.

9 COMMERCIAL/INDUSTRIAL DEMAND RESPONSE POTENTIAL ESTIMATES (2009 TO 2028)

The achievable potential for peak demand savings in the residential sector from demand response programs is approximately 31 MW. Interruptible rates (providing a rate incentive to reduce load during times of high demand) represent roughly 19.7 MW of controlled load, while the Direct AC Load Control represents the remaining 11.5 MW of achievable demand response potential. These two programs result in approximately $11.5 million of avoided capacity, transmission, and distribution costs to Hoosier and its member systems.

Table 9.1: Commercial/Industrial Sector Demand Response Potential Summary
(dollars in millions)

	MW Savings in 2028	% of 2028 Residential Peak Demand	NPV Benefits ($2009)	NPV Costs ($2009)	TRC Benefit/Cost Ratio
C/I DR Programs Combined	31.2	6.7%	$11,524,397.0	$2,205,990.2	5.22

9.1 DEMAND RESPONSE PROGRAMS EXAMINED

Two demand response programs were modeled. The first, an Interruptible/Curtailable Program, includes fixed rate discounts for non-residential customers who contract to reduce their loads to a specific and pre-determined level during peak demand periods. An incentive of approximately $86 per peak kW reduction is offered to participating members.

The second is a Direct Load Control (DLC) program to non-residential customers with central air conditioning or heat pump systems, specifically targeting small and medium sized C&I customers. This program is patterned after Xcel Energy Minnesota's Business Saver Switch program and offers customers a $5/ton summer time rate discount for each air conditioner that customers enroll in the program.

Similar to the residential sector, the demand response potential approach includes several analytical steps, but focuses on benefits/cost analysis primarily and then analyzes achievable potential. Therefore, there are no sector-level estimates of technical and economic demand potential included in this report. Appendix X exhibits all of the inputs and assumptions by program for the commercial/ industrial demand response analysis.

9.2 DEMAND RESPONSE PROGRAM COST-EFFECTIVENESS

The table below summarizes the benefit/cost analysis results under the base case assuming a single participant in each demand response program. Benefits are based on peak demand savings of approximately .46 kW per ton in the Direct AC Load Control program and 2.1 kW per participant in the Interruptible Rate program. Costs include the administrative cost associated with program implementation and operation. Incentive payments are viewed as a transfer payment and are not included in the measure costs. The net savings (benefits – costs) per participant are approximately $176 for the Direct AC Load Control program and nearly $1,235 per participant in the Interruptible Rates program.

Table 9.2: Benefit/Cost Ratios under Base Case Assumptions (TRC Test)

Program	NPV Benefits	NPV Costs	Net Savings	Ben/Cost Ratio
Direct AC Load Control	$292	$116	$176	2.52
Interruptable Rates	$1,350	$116	$1,234	11.69

9.3 Achievable Potential Savings

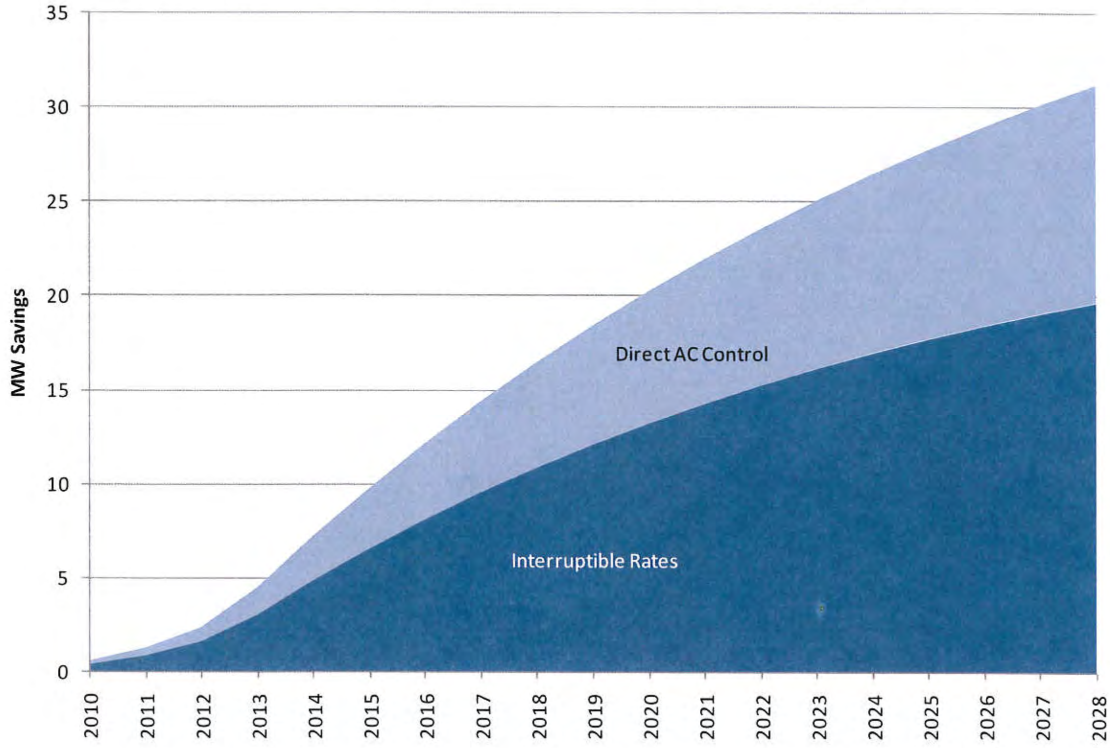
Once programs that are economically viable are identified, penetrations for program participation can be estimated. Similar to the commercial/ industrial energy efficiency measures, the commercial/industrial achievable potential for demand response represents the attainable savings if the market penetration is calibrated so that by the fifth or sixth year, the programs achieve annual demand savings which approximate the savings achieved by the better DSM programs in the Midwest. This analysis assumed that demand response programs would not initiate until 2010, allowing additional time for proper program implementation. Estimated demand response penetrations and load impacts are presented below.

Table 9.3: Achievable Potential Savings for C/I Demand Response (2010-2028)
(dollars in millions)

Program	Number Controlled	MW Savings	NPV Benefits	NPV Costs	Benefit/Cost Ratio
Direct AC Load Control	25,314	11.5	$3.9	$1.6	2.45
Interruptable Rates	9,370	19.7	$7.6	$0.6	12.45
Program Totals		***31.2***	***$11.5***	***$2.2***	***5.22***

In total, the two commercial/industrial demand response programs result in 31.2 MW of achievable savings potential, or 6.7% of the forecasted 2028 summer peak demand in the commercial/industrial sector. The Interruptible Rates program contributes the largest portion of kW savings and associated benefits, and has lower overall costs based on the TRC Test. Again, not reflected in the TRC costs are total incentive payments, which are significantly higher for the Interruptible Rates program than the Direct AC Load Control based on the projected participation. Figure 9.1 illustrates the annual growth in achievable demand savings as a esult of the two load control programs.

Figure 9.1: Achievable Potential Savings for C/I Demand Response by Year



10 RECOMMENDED PROGRAMS AND PROGRAM POTENTIAL SAVINGS (2009 TO 2018)

Based on the results of the DSM savings potential analysis, and based on a review of energy efficiency programs currently offered by other electric cooperatives, investor-owned electric utilities and energy efficiency organizations (e.g., Wisconsin Focus on Energy, Duke Energy, Midwest Energy Efficiency Alliance) located in the Midwest, GDS recommends that Hoosier Energy consider the following thirteen cost effective DSM programs for implementation:

Residential Energy Efficiency Programs

1) Residential Lighting Program
2) Home Efficient Heating and Cooling Equipment Program
3) Residential Home Weatherization and Audit Program
4) Residential Touchstone Energy Home Program (New Homes)
5) Residential Appliance Round-Up Program
6) Residential Energy Efficiency Education Campaign

Residential Demand Response Programs

7) Residential Water Heating Load Control Program
8) Residential Central A/C Load Control Program

Commercial/Industrial Energy Efficiency Programs

9) Commercial/Industrial Prescriptive Measures Program
10) Commercial/Industrial Custom Measures Program
11) Commercial New Construction Program

Commercial/Industrial Demand Response Programs

12) Commercial/Industrial Direct A/C Load Control
13) Commercial/Industrial Interruptible Rates

For each of the above programs GDS has developed a program plan that includes an overview of the program, the target market, eligible energy efficiency measures, and proposed financial incentives for participants, as well as implementation and marketing strategies. These plans also provide the following information for each program for the period 2009 through 2018:

- Incremental annual kWh and kW savings
- Cumulative annual kWh and kW savings
- Forecast of the number of program participants
- Annual financial incentive costs
- Annual administrative costs
- Total annual utility costs
- Total program benefits
- Program benefit/cost ratio

For most programs, financial incentives for eligible energy efficiency measures are based upon a percentage of the assumed incremental cost of purchasing and installing energy efficient equipment in lieu of the standard efficiency equipment. The program plans presented here are based upon a beginning allowable annual budget of $5 million in 2009. The budget increases to $7 million in 2010 and then increases annually by approximately 5% through 2018. Overall, this budget level is significantly less than the budget levels that would be needed to achieve the savings detailed in the base case achievable potential scenario reported in previous sections. It is important to note, then, that the program potential scenario is a subset of the achievable potential and that measure penetrations, savings, and incentive levels have occasionally been tailored to reflect the goals of the program design and fit the allowable budget. GDS has developed a customized projection of participation for each program, and has not used an "across the board" penetration assumption at the program level. As a result, program assumptions may vary slightly from the assumptions utilized for the base market penetration scenario in the residential and commercial/industrial sectors. All assumptions for the program potential scenario can be found in Appendix F.

In addition this report acknowledges that current energy efficiency technologies may become standard practice over time and that there will be new advancements in energy efficiency. As a result, the recommended programs below may need to adapt over time by changing the specific measures that are currently recommended for each program. As an example, compact fluorescent lighting may achieve high levels of market penetration over the next few years, but the emergence of LED lighting would allow for the continued operation of a residential lighting program.

Finally, Hoosier Energy should perform on-going program impact evaluations over the life of each program. An in-depth evaluation should be conducted once the program has been operating for a period of time so that energy savings can be reasonably and accurately evaluated. Other limited process evaluations should also be conducted to examine issues such as: the awareness level among residential members relating to each program and the included technologies, program adoption rates, changes in the market baseline and program ally and participant satisfaction with the program. Results from evaluations should be used to refine the program and increase program savings, participation and cost effectiveness.

10.1 RECOMMENDED RESIDENTIAL ENERGY EFFICIENCY PROGRAM PLANS

10.1.1 RESIDENTIAL LIGHTING PROGRAM

A Residential Lighting Program for homeowners in the Hoosier Energy service territory that encourages the installation of compact fluorescent light bulbs (CFL) is highly recommended. This program should be a top priority for Hoosier because efficient lighting is very cost effective, the electric energy savings potential is relatively large, and all households in the service area can benefit from such a program. Numerous other electric cooperatives, municipal utilities, and investor-owned electric utilities offer this program to their customers. [28]

Measure description: The objective of this program is to encourage residential customers to install high efficiency bulbs in their homes, replacing incandescent bulbs. The incentive for residential customers to install compact fluorescent bulbs is the lower energy use and lower operating costs over the life of the bulb and the much longer life of the CFL bulb.

CFL bulbs range in size and shape, and their appearance can be a spiral shaped fluorescent tube or they can appear as a standard shape, such as the R-30 floodlight for use in recessed cans. Dimmable CFL bulbs and 3-way CFL bulbs are also available. All lighting sockets not currently

[28] GDS has collected data on the program participation and electricity savings achieved by residential lighting programs across the US. GDS will provide this data to Hoosier Energy upon request.

equipped with halogen, CFL or other fluorescent tube lighting is eligible for compact fluorescent lighting.

LED holiday lighting markdowns will also be offered seasonally under the lighting program. In later years, LED bulbs are also expected to be offered as part of the Residential Lighting Program. LED bulbs present several advantages over both incandescent and CFL bulbs, including lower energy consumption, longer lifetimes, and smaller size. To date, however, they are relatively expensive and current bulb models are most suited for recessed or accent lighting and are not ideal for other residential applications. Over time, the initial cost of LED lighting and the number of residential applications are expected to become more palatable to consumers signifying this technology as a likely candidate for promotion through the lighting program.

Program incentives: There are various methods of promoting energy efficient lighting products. Incentives can be available at the point of sale, and can be in the form of mail-in rebates, instant rebates, and "at point-of-sale" markdowns. Of those programs providing incentives for the purchase of efficient lighting and other products the incentive for CFL bulbs are typically between $1 and $2 per bulb. In lieu of lighting rebate coupons or in-store markdowns, Hoosier Energy has chosen to offer a limited supply of CFL bulbs to their members at no cost. Under this design scenario, the incentive is the full cost of the compact fluorescent light bulb. In addition, Hoosier will begin to promote LED holiday lighting and LED bulbs (when available) through the use of partial incentives.

Measure	Annual Energy Savings (kWh)	Summer Peak Savings (kW)	Measure Cost (per unit)	Utility Incentive (per unit)
Compact Fluorescent Lighting	53	0.01	$1.85	$1.85
LED Holiday Lighting	17	0.00	$10.00	$3.00
LED Bulbs	62	0.01	$30.00	$10.00

Projected Program Participation: Approximately 350,000 CFL bulbs are expected to be moved as a direct result of a Residential Lighting Program during the first year of program operation. Beginning in 2012, the program is expected to slowly shift from the promotion of compact fluorescent technology to newer, more efficient technologies, such as LED lighting.

	Program Participants		
Year	Compact Fluorescent Lighting	LED Holiday Lighting	LED Bulbs
2009	350,000	1,300	0
2010	420,000	1,600	0
2011	455,000	2,000	0
2012	490,000	2,000	2,000
2013	420,000	2,000	3,500
2014	350,000	2,000	6,000
2015	280,000	2,000	10,000
2016	262,500	2,000	18,000
2017	245,000	2,000	25,000
2018	210,000	2,000	35,000

In total, nearly 3.5 million CFL bulbs are expected to be moved through the program from 2009 through 2018. An additional 19,000 LED holiday lights and 100,000 LED bulbs are also expected to be sold through the program in from 2009-2018.

Program Design and Implementation: Although offering CFL bulbs at no cost to residential members is not the most utilized programmatic approach (residential lighting program design commonly employs coupons or markdowns), there are several benefits that can be achieved from this blueprint. First, the primary market barrier to widespread consumer acceptance- the initial cost of a CFL bulb - is negated. Eliminating the cost significantly reduces the risk to a consumer trying an unfamiliar product, which helps overcome the barrier of performance uncertainties. Second, Hoosier Energy and its member systems eliminate the need to count coupons to determine sales and subsequent reimbursements to the retailer. This can result in lowered administrative costs and increased program cost-effectiveness. One caveat to this approach, however, is that offering CFL bulbs at no cost to residential consumers is essentially the utility purchasing load reduction. This may hinder the eventual goal of market transformation by confusing consumers as to the appropriate price points for energy-efficient products. This confusion could lead consumers to undervalue the energy-efficient features of the CFL bulbs and lead them to wait until additional "no-cost" CFL bulbs become available before purchasing the product through normal market channels. Consequently, it is also recommended that Hoosier Energy consider supplemental program strategies, such as advertising and education that can lead to market transformation and reach a greater number of consumers per dollar than full-cost rebates.

One way to implement a residential lighting program is to develop and issue an RFP for a lighting supplier to provide Hoosier Energy with a range of CFL bulbs at a fixed cost. The RFP solicitation allows Hoosier Energy to acquire significant quantities of CFL bulbs at competitive wholesale prices. After securing the desired quantity and price from the selected supplier, the bulbs can be distributed equitably to the member systems so that they are conveniently available to residential consumers throughout the member territory. In exchange for the compact fluorescent lighting, Hoosier Energy should encourage residential consumers to turn-in their incandescent lighting, resulting in high rates for installation for the CFL bulbs.

Hoosier Energy should also consider a "point of sale" markdown approach for its seasonal LED holiday lighting promotion. Under a markdown approach, consumers do not need any type of coupon or rebate form to buy the discounted products. The LED holiday lights are already marked down by the retailer when they are stocked. Once again, consumers do not need any type of coupon or rebate form to buy the discounted products. The LED lights are already marked down by the retailer when they are stocked on the shelves and the need to count coupons to determine retailer reimbursement is eliminated.

Effective media and marketing approaches are also a vital component for a residential lighting program in the Hoosier service territory. It is recommended that Hoosier Energy increase consumer awareness and education of high efficiency residential lighting products through strategically placed advertising messages in the following media: cooperative newsletters, local cable shows, public service announcements, radio, newspaper, trade shows, special events, community group presentations, advisory neighborhood commission meetings, booths at local county fairs and other events, Mayor's remarks (e.g., as introduction to a news conference), trade association newsletters, home shows, etc. The Hoosier web site (and the web sites of member distribution cooperatives) can also be updated to provide information on the range and effectiveness of the latest available high efficiency residential lighting products.

The December 2004 National Energy Efficiency Best Practices Study recommends that the following steps be taken to ensure control over the data collected in the program and to ensure customer satisfaction:

- Verify accuracy of rebates, coupons, and/or invoices to ensure that the reporting system is recording actual lighting product purchases by the target market
- Assure quality of rebated bulbs through independent testing procedures, such as PEARL
- Assess customer satisfaction with lighting product quality through evaluation activities

This study provides considerable information on the lessons learned from other successful residential lighting programs across the US.

Program Allies: For the CFL give-away being used by Hoosier, it is not necessary to involve program allies other than to inform such allies of this program through regular distribution cooperative marketing and communication channels.

Projected Savings: Approximately 72,500 MWh will be saved on a cumulative annual basis (once all bulbs are distributed and installed) based on the projected participation, with nearly 15,000 MWh saved in the first year. The MWh savings in 2018 reflect recently enacted federal standards that mandate incandescent bulbs to become 30% more efficient beginning in 2012. Additionally, projected participation will also result in a summer peak saving of 7.4 MW after 10 years.

Additional detail, including annual energy and demand savings for this program can be found in Section 10.3.

Projected Cost Effectiveness:

Program	MWh Savings in 2018	Summer Peak MW Savings in 2018	Present Value of Total Benefits ($2009)	Present Value of Total Costs ($2009)	Benefit/Cost Ratio
Residential Lighting Program	72,482	7.4	$52,423,265	$7,956,474	6.59

Projected Budgets: The Residential Lighting program has been assigned a budget of approximately $8.4 million from 2009-2018. As noted earlier, offering compact fluorescent lighting at no cost to consumers reduces some of the administrative costs associated with more traditional lighting programs that utilize point-of-sale coupons and/or instant markdowns. As a result, the incentives represent a larger fraction of the overall costs than traditional rebate programs. Nonetheless a portion of the budget ($880,000) is reserved for educating consumers about the energy and environmental benefits of efficient lighting and promoting the program through various media and marketing campaigns, associated labor, and program evaluation.

Section 10.3 provides additional detail.

	10 Year Totals			
Program	Utility Incentives	Administrative Costs	Total Hoosier Costs	% of Total DSM Budget
Residential Lighting Program	$7,494,325	$879,900	$8,374,225	10.3%

10.1.2 Efficient Home Heating & Cooling Equipment Program

Hoosier Energy should consider offering an Efficient Home Heating and Cooling Equipment Program to homeowners, heating contractors, and plumbers in the Hoosier Energy service territory and include incentives for installing measures designed to decrease the overall electric consumption of electric heating, cooling, and water heating in the home. Homes in the service territory with electric heating, electric cooling, and/or electric water heating are eligible to participate in this program.

Measure description: The objective of this program is to encourage residential customers to purchase high efficiency air conditioners, heat pumps, and/or electric water heaters in lieu of standard efficiency electric space and water heating equipment.

High Efficiency Electric Storage Water Heaters:
Homeowners can receive an incentive for purchasing and installing a high efficiency electric storage water heater in their homes. In order to qualify, electric water heaters must have an Energy Factor (EF) of .95 or greater. Qualifying electric water heaters will range from 50 gallons to 80 gallons in capacity.

Energy Efficient Central Air Conditioners:
Homeowners can receive an incentive for installing a properly sized energy efficient central AC having a Seasonal Energy Efficiency Rating (SEER) of 15 or greater.

Energy Efficient Electric Air Source Heat Pumps:
Homeowner receives an incentive for purchasing and installing a properly sized efficient heat pump with a Heating Season Performance Factor (HSPF) of 9.0 and a SEER of 15 or greater.

Electric Furnace Replacement:
Homeowner may be eligible to receive an incentive for purchasing and installing efficient a heat pump with a HSPF of 9.0 and a SEER of 15 or greater in lieu of their current central air conditioning/electric furnace system. The efficient heat pump would run more efficiently than a standard central air conditioning unit in the summer, and provide more efficient heating than an electric furnace system throughout much of the winter.

Duel Fuel Heat Pump:
Homeowner receives an incentive for purchasing and installing efficient a heat pump with a HSPF of 9.0 and a SEER of 15 or greater in homes traditionally equipped with non-electric heating systems. The efficient electric heat pump would run more efficiently than a standard central air conditioning unit in the summer, and provide the majority of the heating needs during the winter. The non-electric heating system would operate during periods where the outside temperature is below 25 degrees Fahrenheit.

Note that although the efficient heat pump would provide energy and demand savings in the summer in comparison to a standard central AC unit, this measure produces an overall increase in annual electric consumption. This increase in electric consumption is offset by a decrease in fossil fuel consumption during milder winter conditions.

Program incentives: Incentives are paid to the homeowner after all completed documentation for the measure is received by the program administrator and after the measure is installed. The incentive is paid in the form of a check. Incentives range from $75 for an efficient 50 gallon electric storage water heater to approximately $1000 for installing a high efficiency electric heat pump in lieu of a new electric furnace.

Measure	Annual Energy Savings (kWh)	Summer Peak Savings (kW)	Measure Cost (per unit)	Utility Incentive (per unit)
80 gal. Water Heater - High Efficiency	82	0.03	$200.00	$200.00
50 gal. Water Heater - High Efficiency	172	0.03	$75.00	$75.00
Central A/C (15 SEER)	357	0.26	$555.00	$200.00
Central A/C (16 SEER)	502	0.37	$835.00	$250.00
Central A/C (17 SEER)	630	0.46	$1,110.00	$300.00
Central A/C (17+ SEER)	744	0.55	$1,390.00	$300.00
Heat Pump (15 SEER)	985	0.26	$625.00	$300.00
Heat Pump (16 SEER)	1,195	0.37	$935.00	$350.00
Heat Pump (17 SEER)	1,275	0.46	$1,250.00	$400.00
Heat Pump (18 SEER)	1,460	0.55	$1,560.00	$400.00
Heat Pump (15 SEER) - Elec. Furnace Repl.	3,135	0.26	$2,325.00	$800.00
Heat Pump (16 SEER) - Elec. Furnace Repl.	3,345	0.37	$2,630.00	$900.00
Heat Pump (17 SEER) - Elec. Furnace Repl.	3,425	0.46	$2,950.00	$1,000.00
Heat Pump (17+ SEER) - Elec. Furnace Repl.	3,610	0.55	$3,260.00	$1,000.00
Heat Pump (15 SEER) - Dual Fuel Heat	-3,004	0.26	$880.00	$300.00
Heat Pump (16 SEER) - Dual Fuel Heat	-2,859	0.37	$1,190.00	$350.00
Heat Pump (17 SEER) - Dual Fuel Heat	-2,629	0.46	$1,505.00	$400.00
Heat Pump (17+ SEER) - Dual Fuel Heat	-2,362	0.55	$1,815.00	$400.00

Projected Program Participation: In the first year, the participation in the Home Heating and Cooling Equipment Program is projected to include approximately 3,000 electric storage tank water heaters, 1,600 central air conditioning units, and 1,300 heat pump units. Participation is expected to increase steadily on an annual basis. Over a ten year period, the program is estimated to reach over 46,000 electric water heaters (26% of remaining market) and 41,000 central air conditioning and electric heat pump systems (23% of remaining market).

	Program Participants					
Year	80 gal. Water Heater - High Efficiency	50 gal. Water Heater - High Efficiency	Energy Efficient Central A/C Units	Energy Efficient Air Source Heat Pump	Electric Furnace to Heat Pump Upgrade	Dual Fuel Heat Pump Installs
2009	750	2,250	1,600	400	400	500
2010	1,000	3,000	1,950	475	475	610
2011	1,000	3,000	1,950	475	475	610
2012	1,000	3,000	1,950	475	475	610
2013	1,000	3,000	1,950	475	475	610
2014	1,000	3,000	1,950	475	475	610
2015	1,200	3,600	2,340	570	570	730
2016	1,400	4,200	2,730	670	665	855
2017	1,500	4,500	3,125	715	715	980
2018	1,700	5,100	3,510	830	835	1,190

Program Design & Implementation: Under this program HVAC contractors and plumbers would perform the installations and submit all necessary paperwork while program staff would oversee the administration and outreach components. Promotion of the high efficiency equipment incentives should be done cooperatively with HVAC and water heating supply houses, distributors and contractors. To ensure the quality of installations and to increase awareness of high efficiency equipment, periodic training sessions would be provided by Hoosier Energy to the HVAC and water heating distributors, contractors, retailers, and consumers focusing on the benefits to the consumer of the high efficiency equipment and installation procedures.

Program staff should randomly sample and inspect a subset of installations to ensure that eligible equipment has been properly installed. The model numbers for each invoice should be checked to verify that the equipment meets the eligibility requirements.

Hoosier Energy should also undertake efforts to increase consumer awareness and education about high efficiency space heating and cooling equipment through strategically placed advertising messages in the following media: cooperative newsletters, local cable shows, public service announcements, radio, newspaper, trade shows, special events, community group presentations, advisory neighborhood commission meetings, booths at local county fairs and other events, Mayor's remarks (e.g., as introduction to a news conference), trade association newsletters, home shows, etc. The Hoosier Energy web site (and the web sites of member distribution cooperatives) can also be updated to provide information on the range and effectiveness of the latest available high efficiency heating and cooling equipment.

Program Allies: Partners and allies, referred to as program allies, are an important asset to any successful program. These allies assist the member systems with advertising and product promotion. Allies for this program include supply houses, distributors and contractors. These program allies are vital to long-term viability of program implementation. An emerging best practice is to leverage program ally resources with energy efficiency organization funds to facilitate product or retailer specific campaigns that increase efficient HVAC sales. Well maintained relationships with program allies can keep the program staff apprised of what is happening in the market and ensures that the marketing messages are effective and clear. Incentive applications would be processed and fulfilled by program staff.

Projected Savings: Approximately 23,400 MWh will be saved in 2018 based on the projected participation, with an estimated 1,600 MWh saved in the first year alone. Additionally, projected participation will also result in a summer peak saving of 17.1 MW after 10 years.

Additional detail, including annual energy and demand savings for this program can be found in Section 10.3.

Projected Cost Effectiveness:

Program	MWh Savings in 2018	Summer Peak MW Savings in 2018	Present Value of Total Benefits ($2009)	Present Value of Total Costs ($2009)	Benefit/Cost Ratio
Home Heating & Cooling Equipment Program	23,418	17.0	$90,281,699	$42,986,389	2.10

Projected Budgets: The Efficient Home Heating and Cooling Equipment Program has been assigned a budget of approximately $23 million dollars. The program has an initial budget of approximately $1.6 million in 2009 and increases annually to an estimated budget of approximately $3.6 million in 2018. In total, incentives account for roughly $20.2 million over 10 years with the remaining $2.8 million utilized for marketing, labor, and evaluation costs. The administrative budget will also allow Hoosier Energy to provide technical assistance to customers, program outreach with allies, data tracking and reporting, and incentive fulfillment. There is additional budget for a qualified HVAC and plumbing contractor to verify a sub-sample of installations through on-site visits and to engage in the training and education of program allies regarding qualifying technologies.

Section 10.3 provides additional detail.

	10 Year Totals			
Program	Utility Incentives	Administrative Costs	Total Hoosier Costs	% of Total DSM Budget
Home Heating & Cooling Equipment Program	$20,207,000	$2,830,200	$23,037,200	28.3%

10.1.3 HOME ENERGY AUDIT AND WEATHERIZATION PROGRAM

Hoosier Energy should consider offering a Home Energy Audit and Weatherization Program to their members and include financial incentives for installing energy efficiency measures designed to increase the thermal efficiency of a home's building envelope. This program is recommended for Hoosier Energy because this program is cost effective, the electric energy savings potential is relatively large, and all households in the service territory with electric heating and/or cooling can benefit from such a program.

Measure description: The objective of this program is to encourage residential customers to upgrade and install energy efficient building shell measures in homes that are currently inadequately insulated or weatherized. This program includes two primary components: home energy audits and rebates for weatherization measures. The most important energy efficiency measures for this program include air infiltration, sealing of heating/cooling ducts, HVAC tune-up, installing CFL bulbs, and installing water saving measures. In addition, Energy Star programmable thermostats are also encouraged through this program.

Over time, the individual components of this program may be altered, based on experience and evaluation, to maximize overall cost-effectiveness and target aspects of the building envelope that are likely to benefit the most from efficient technologies and practices.

Compact Fluorescent Light Bulbs:
Light bulbs currently equipped with incandescent light bulbs are replaced with compact fluorescent light bulbs. In total, 20 CFL light bulbs will be installed throughout the household targeting high (5 hr/day or more) and medium use sockets(~ 3 hr/day), followed by low use sockets (1 hr/day or less).

Air Sealing/Duct Sealing:
This measure includes air sealing and duct sealing to improve the loss of heated air through the building shell and space conditioning ductwork. Diagnostic tests are not included in this program as a means of keeping installation costs low and palatable. Additional energy efficiency improvements that homeowners might wish to address and information on how to contract with a qualified company are recommended by the contractor prior to leaving the residence.

Attic Insulation:
This measure includes installing attic insulation in homes that currently have either inadequate levels or no ceiling insulation. The installed insulation will meet an R-value of R-38 or greater.

HVAC Tune-Up:
A Tune-Up by a service professional can improve unit efficiency by as much as 20%. An annual HVAC tune-up includes: checking the unit's refrigerant pressure and tubing, checking and

adjusting belt tension, cleaning and lubricating the indoor blower unit, cleaning inside the "A" coil, and checking the thermostat, wiring, and other electric parts.

The HVAC Tune-Up is offered to homes with central air conditioning or an electric air-source heat pump. Eligible homes are offered an incentive of $100 to receive a tune-up by a qualified HVAC technician.

Programmable Thermostats:
Programmable thermostats automatically adjust the home's temperature setting on a set schedule, allowing for daily energy conservation during periods when normal heating is unnecessary (i.e. when the house is unoccupied, or when occupants are sleeping at night). However, programmable thermostats have to be set and used properly to deliver the advertised energy savings. Routine deviation from the programmed default settings and schedules can significantly lower actual energy savings.

Low Flow Showerheads:
This program includes the installation of low flow showerheads if a home does not currently have these devices. A low flow showerhead uses 2.5 gallons per minute or less.

Low Flow Faucet Aerators:
Existing faucets are retrofitted with a faucet aerator with a low-flow rate (< 1.0 gallon/minute).

Program incentives: Any incentives are paid to the homeowner after all completed documentation is received by the program administrator. The incentive is paid in the form of a check. Hoosier Energy will also assume the full cost of the CFL bulbs, water savings devices, attic insulation (if necessary) and HVAC Tune-Up. In addition, the program design also covers nearly all of initial energy audit contractor labor costs. Finally, incentives for the air sealing/duct sealing and optional programmable thermostat represent approximately 35% of the install cost.[29] In total, Hoosier Energy incentives can total up to $1,370 per home. The assumed installation cost for the efficiency upgrades is approximately $2,200.

Measure	Annual Energy Savings (kWh)	Summer Peak Savings (kW)	Measure Cost (per unit)	Utility Incentive (per unit)
CFLs (High Use) ; *Qty.=5 bulbs*	445	0.03	$9.25	$9.25
CFLs (Medium Use); *Qty.=10 bulbs*	530	0.05	$18.50	$18.50
CFLs (Low Use); *Qty.=5 bulbs*	90	0.03	$9.25	$9.25
Air Sealing/Duct Sealing	1,999	0.47	$1,150.00	$400.00
Attic Insulation	1,050	0.24	$600.00	$600.00
HVAC Tune-up	196	0.14	$100.00	$100.00
Programmable Thermostats	521	0.12	$92.00	$35.00
Low Flow Showerheads	263	0.03	$14.00	$14.00
Low Flow Faucets	105	0.03	$10.00	$10.00
Home Energy Audit	0	0.00	$200.00	$175.00

Projected Program Participation: The Home Energy Audit and Weatherization Program has aggressive participation targets, beginning in 2009 and extending through 2018. Assuming that the anticipated program goals and savings are met, the program is estimated to reach more than 13,000 homes; approximately 17% of all electrically heated and cooled homes, over the 10-year

[29] Hoosier may also elect to cover the full cost of installing air sealing/duct sealing and programmable thermostats in some, or all, participating homes based on the availability of federal stimulus funds.

period. It was estimated that only 10% of homes would possess inadequate levels of insulation and be eligible for the attic insulation component of the program. In addition, the analysis assumed 50% of homes would already be equipped with low flow faucet aerators and/or showerheads. Finally, only 50% of homes were assumed to agree to the installation of a programmable thermostat with a $35 incentive.

	Program Participants						
Year	CFL Bulbs (20 per program participant)	Air Sealing/Duct Sealing	Attic Insulation	HVAC Tune-up	Programmable Thermostats	Low Flow Showerheads & Faucets	Home Energy Audit
2009	1,300	1,300	260	1,300	650	650	1,300
2010	1,800	1,800	360	1,800	900	900	1,800
2011	1,650	1,650	330	1,650	825	825	1,650
2012	1,500	1,500	300	1,500	750	750	1,500
2013	1,250	1,250	250	1,250	625	625	1,250
2014	1,100	1,100	220	1,100	550	550	1,100
2015	1,100	1,100	220	1,100	550	550	1,100
2016	1,100	1,100	220	1,100	550	550	1,100
2017	1,100	1,100	220	1,100	550	550	1,100
2018	1,100	1,100	220	1,100	550	550	1,100

Program Design and Implementation: The program is designed to help customers save energy and money by making their homes more energy-efficient. Independent contractors will deliver the program in a way that maximizes participation and energy saving goals. The cooperatives and contractors will cooperatively market the program, address customer intake, schedule work, conduct the initial home visit, install energy efficient measures, and perform quality assurance.

Members who request an in-home audit may be requested to complete a basic questionnaire providing basic customer information and/or usage patterns. Audits may be screened and prioritized based on historical electric usage, income, or any other metric identified by Hoosier Energy if audit requests exceed the capabilities or funding levels predetermined by Hoosier Energy. The in-home audit will collect the following information:

- Building Shell Information (i.e. insulation levels, square footage, windows, air leakage)
- Electric appliance information (age, quantity, efficiency levels, etc.)
- Usage patterns (number of occupants, temperature set points, etc.)
- Heating/Cooling equipment information (age, size, model number, efficiency levels, etc.)
- Infiltration reduction opportunities (i.e. sealing, vents, electrical outlets, doors) identified through visual inspection.

Contractor selection can come from numerous sources, including: private for profit companies that provide home energy ratings and weatherization services or private/public companies that provide weatherization services to publicly-funded rehab programs or low income homes. Participating contractors are then trained with a focus on:

- Duct sealing
- Air sealing in the attic
- Observational diagnostics to create a list of possible energy efficiency measures the homeowner might want to address in the near future.

The program should also have a strong educational component designed to help customers better understand their home and the factors that affect energy use. Auditors will present homeowners with a short report that identifies the major opportunities for reducing energy consumption. Individuals who participate should also receive feedback on actual energy savings.

Auditors will install up to 20 compact fluorescent light bulbs throughout the house, and water savings devices when applicable. The auditors will also ensure proper air sealing and duct sealing throughout the house and upgrade attic insulation levels in homes that currently have little to no insulation protecting the roof of the home. Homes that qualify for an HVAC Tune-Up will receive instructions and a rebate form for receiving a $100 incentive upon completion of a tune-up by a qualified HVAC technician.

GDS also recommends increasing consumer awareness and education relating to the significant electricity savings due to weatherization and insulation measures by using strategically placed advertising messages in the following types of media: cooperative newsletters, local cable shows, public service announcements, radio, newspaper, trade shows, special events, community group presentations, advisory neighborhood commission meetings, booths at local county fairs and other events, Mayor's remarks (e.g., as introduction to a news conference), trade association newsletters, home shows, etc. The Hoosier web site (and the web sites of member distribution cooperatives) can also be updated to provide information on the range and effectiveness of the insulation and weatherization practices.

Program Allies: Allies for this project include energy service companies, Community Action Program agencies, the home builders association of Indiana, manufacturers and installers of weatherization products, and home remodeling contractors.

Projected Savings: Approximately 41,000 MWh will be saved in 2018 based on the projected participation, with an estimated 5,100 MWh saved in the first year alone. Additionally, projected participation will also result in a summer peak saving of 9.5 MW after 10 years.

Additional detail, including annual energy and demand savings for this program can be found in Section 10.3.

Projected Cost Effectiveness:

Program	MWh Savings in 2018	Summer Peak MW Savings in 2018	Present Value of Total Benefits ($2009)	Present Value of Total Costs ($2009)	Benefit/Cost Ratio
Home Energy Audit and Weatherization Program	40,898	9.5	$38,330,748	$18,342,950	2.09

Projected Budgets: The cost associated with a Home Energy Audit and Weatherization program can be extensive. The Home Energy Audit and Weatherization program has been assigned a budget of approximately $12.5 million over a 10-year timeframe. Incentives account for roughly $12.2 million with the remaining budget utilized for administrative costs. Program staff will function to enlist interested participants in the Hoosier Energy member territory and coordinate the scheduling for qualified contractors to install all measures included in the program. The program administrative budget also includes: providing technical assistance to customers, reporting, and incentive fulfillment.

Section 10.3 provides additional annual detail.

Program	10 Year Totals Utility Incentives	Administrative Costs	Total Hoosier Costs	% of Total DSM Budget
Home Energy Audit and Weatherization Program	$11,199,500	$1,319,500	$12,519,000	15.4%

10.1.4 RESIDENTIAL TOUCHSTONE ENERGY HOMES PROGRAM

Another potential program that Hoosier Energy should consider would expand the existing Touchstone Energy New Homes Construction program that serves to support energy efficient design and the installation of energy efficient appliances during the construction of new residences. The program will be targeted to the residential new construction market, particularly to residential customers and home builders in the process of designing and constructing new homes. The target for this program is to build new homes so that they are significantly more energy efficient than a standard new home built to meet the specifications of the current residential energy code in Indiana.

Measure description: The objective of this program is to help reduce customer energy consumption through the building of energy efficient new homes.

Touchstone Energy Homes:
Builders would also receive an incentive for constructing new homes designed to Energy Star standards: at least 15 percent more energy efficient than those built to the 2004 International Residential Code (IRC). Touchstone Energy Homes also incorporate other energy savings features that typically make them 20–30% more efficient than standard homes. The US Environmental Protection Agency reports that over 3,500 home builders have partnered with EPA to construct more than 750,000 Energy Star qualified homes across the US. By the end of the decade, more than 2 million homes are expected to earn the Energy Star rating across the US.

Energy savings are based on heating, cooling, and hot water energy use and are typically achieved through a combination of the following: high performance windows, controlled air infiltration, upgraded heating and air conditioning systems, tight duct systems, high efficiency water heating equipment, and high efficiency building envelope standards. Touchstone Energy Homes also encourage the use of energy-efficient lighting and appliances. These features contribute to improved home quality and homeowner comfort, and to lower energy demand and reduced air pollution.

Homes with both electric heating/cooling only are eligible to participate in the new homes program.

Program incentives: Incentives are paid to the homeowner after all completed documentation for the measure is received by the program administrator. The incentive is paid in the form of a check. The incentive is assumed to cover the full cost of receiving a HERS home rating, and approximately 35% of the incremental cost of installing efficient space and water heating equipment. In addition, the incentive also allows for installing compact fluorescent light bulbs in up to 50 light sockets.

Measure	Annual Energy Savings (kWh)	Summer Peak Savings (kW)	Measure Cost (per unit)	Utility Incentive (per unit)
Touchstone Energy Homes	4,259	0.99	$2,725.00	$1,242.50

In addition, Energy Star Home programs typically provide the following types of services to residential homeowners at no charges:

Design assistance:
The program administrator (Hoosier Energy) reviews building plans for new homes and shows the homeowner the projected energy use and costs for heating, cooling, hot water, lights and appliances for the planned home. Then the program administrator recommends ways to lower those costs with state-of-the art energy efficient construction techniques and by installing high efficiency HVAC equipment, high efficiency lighting and Energy Star rated appliances. The program administrator provides technical assistance with selecting energy-efficient HVAC equipment, lights and appliances.

Testing:
After the new home is built, the program administrator tests it for air-tightness. Building a tight home reduces drafts, heat loss, ice dams, energy costs and maintenance costs.

Home Energy Rating:
After testing is done, the program administrator develops a home energy rating (HERS rating) for the new home. The HERS rating provides the homeowner with confirmation of the quality and energy efficiency of the new home. Homes must achieve a Home Energy Rating score of 83 points or better to qualify as a Touchstone Home.

Projected Program Participation: The proposed program will attempt to re-energize the existing Touchstone Energy Homes program by increasing awareness and annual participation. In the first year, 100 homes are expected to be certified as Touchstone Energy Homes. In total 3,850 all-electric homes will be built to the Touchstone Energy Homes standards from 2009-2018, or approximately 15% of all electrically heated and cooled homes built over the next years.

	Program Participants
Year	Touchstone Energy Homes
2009	100
2010	160
2011	210
2012	250
2013	290
2014	360
2015	450
2016	520
2017	590
2018	640

Program Design and Implementation: The key components for program implementation include training for architects, home builders and contractors, technical assistance provide to homeowners and home builders, and the use of a home energy rating system (HERS) to ensure that participating homes meet program energy efficiency performance requirements.

The Touchstone Energy Homes program is a whole-house performance based program where the home is viewed and assessed as a single unit assembled from multiple energy-related components. This is opposed to a solely prescriptive program that only offers incentives to install individual components. Through the home energy rating (HERS Indexing) process, trade-offs are allowed. For example, a home's energy performance may be set back by using more glazing on one side of the home to take advantage of a view, but may compensate for this by installing a thicker layer of insulation in the attic or by installing a heat system with a higher efficiency.

In addition, a ventilation requirement should be included in the program. While the program should encourage builders, owners and architects to design buildings that are very tight and very well insulated, there is also a need to make sure that the homes are properly ventilated to avoid creating indoor air quality problems. Other benefits of Touchstone new home are the assurance of better building comfort, health and durability particularly when it includes the aforementioned ventilation requirement.

Builder training can be addressed through more than one venue. Training is often implemented through the initial meeting with a builder to explain the details of compliance with the program which will inevitably involve some explanation of building science (the basis for the program requirements). However, there are other opportunities to address training with builders in groups. Workshops and training sessions may also be coordinated with other meetings and conferences regularly attended by builders, developers, architects (e.g. AIA meetings, home builder association meetings and meetings of other trade allies).

Other strategies proposed to help reach potential customers and builders include participating in trade shows, attending and participating in home builder and home buyer seminars, presentations by program staff at meetings of home builder and electrician associations, sponsoring building code training sessions, leveraging of trade allies, and most importantly, direct outreach to builders (face-to-face meetings and contact). In addition, the program could be promoted through bill messages, customer newsletters, Company website, home shows, and other potential regional trade ally events and training sessions.

Major market barriers that could be addressed by this proposed program include:

- higher first cost of energy efficiency measures;
- builders reluctance to adopt newer building technologies;
- lack of knowledge by consumers, builders, appraisers, lenders, and other key actors of the full range of benefits of building energy efficient homes;
- lack of a competitive market for companies that provide Home Energy Ratings;
- lack of consideration of the value of efficiency in financing;
- limited access to education regarding technologies or benefits;
- limited product awareness by consumers, plumbing and heating contractors, supply houses, and other market actors;
- reluctance of consumers and contractors to purchase and install high efficiency equipment and/or consider new technologies; and

- incorrect installation techniques that result in suboptimal performance of energy efficient products.

The December 2004 National Energy Efficiency Best Practices Study recommends that the following steps be taken to ensure the reliability of energy savings from such a program:

- Treat inspection visits as partnership-building and learning events rather than just regulatory enforcement activities
- Require builder or builder's representative to be on-site during inspection
- Encourage home inspectors to organize their own professional organization to provide quality control for this program.
- Encourage home inspectors to organize their own professional organization
- Provide timely feedback to builders, home inspectors, and other parties
- Ensure that inspectors have plenty of hands-on construction experience
- Establish a streamlined inspection scheduling process
- Recognize the different inspection needs of experienced builders and builders who are new to the program
- Host pre-construction meetings with the builder, key subcontractors, and suppliers to review project specifications and program requirements

Program Allies: The primary program allies are homebuilders and contractors, residential electricians, residential architects, HVAC contractors and plumbers. However, the consumer market (end-users) is an important driver of participation. Based on experience gathered from the Energy Star Homes program, builders have commented that they would seek Energy Star certification for their homes if their buyers' were requesting this certification.

Projected Savings: Approximately 13,400 MWh will be saved in 2018 based on the projected participation, with an estimated 425 MWh saved in the first year alone. Additionally, projected participation will also result in a summer peak saving of 3.1 MW after 10 years.

Additional detail, including annual energy and demand savings for this program can be found in Section 10.3.

Projected Cost Effectiveness:

Program	MWh Savings in 2018	Summer Peak MW Savings in 2018	Present Value of Total Benefits ($2009)	Present Value of Total Costs ($2009)	Benefit/Cost Ratio
Touchstone Energy Homes Program	13,432	3.1	$14,120,787	$7,588,209	1.86

Projected Budgets: In the first year, the Touchstone Energy Homes (new construction) program has been assigned a budget of approximately $145,000 dollars. Both program participation and budget increase annually with an estimated budget of nearly $920,000 in 2018. Incentives account for roughly $4.8 million of the total budget with the remaining $935,000 utilized for marketing, labor, and evaluation costs. The program administrative budget is reserved for providing technical assistance to members, program outreach with home builders, education, on-site inspection, marketing, and incentive fulfillment.

Section 10.3 provides additional annual detail.

	10 Year Totals			
Program	Utility Incentives	Administrative Costs	Total Hoosier Costs	% of Total DSM Budget
Touchstone Energy Homes Program	$4,435,725	$857,700	$5,293,425	6.5%

10.1.5 APPLIANCE ROUND-UP

Hoosier Energy may also offer an Appliance Round-Up program to homeowners in the Hoosier service territory and include incentives for the removal of second (or more) refrigerators and/or freezers from a household. All homes with secondary refrigerators in the service territory are eligible to participate in this program.

Measure description: The objective of this program is to remove underutilized but operational second refrigerators and/or freezers out of service and ensure they are properly dismantled.

Refrigerator Turn-In:
Homeowners can receive an incentive for coordinating the removal of their secondary refrigerators from their homes. Only operational and utilized units that are greater than 10 years old qualify for an incentive.

Freezer Turn-In:
Homeowners can receive an incentive for coordinating the removal of their secondary freezers from their homes. Only operational and utilized units that are greater than 10 years old qualify for an incentive.

Program incentives: The participant is paid an incentive of $50 for every old refrigerator/freezer that is turned in. Hoosier Energy would also pay all costs to have the old unit hauled away (estimated to be $100 per refrigerator/freezer).

Measure	Annual Energy Savings (kWh)	Summer Peak Savings (kW)	Measure Cost (per unit)	Utility Incentive (per unit)
2nd Refrigerator	976	0.08	$50.00	$50.00
2nd Freezer	774	0.06	$50.00	$50.00

Projected Program Participation: Approximately 34% of homes in the Hoosier Energy member territory have second refrigerators, and 17% have secondary freezers. In the first year, the participation in the pilot program is limited to include approximately 400 second refrigerators. Assuming the pilot program achieves all anticipated savings goals and benefit-cost requirements, the program is expected to include secondary freezers in 2010. In total, the program is estimated to reach 15,700 refrigerators and just over 3,000 freezers from 2009-2018. This is equal to approximately 20% of all second refrigerators and 7.5% of all secondary freezers.

Year	Program Participants	
	2nd Refrigerator	2nd Freezer
2009	400	0
2010	800	100
2011	1,040	175
2012	1,200	240
2013	1,360	300
2014	1,520	330
2015	2,000	420
2016	2,240	450
2017	2,400	500
2018	2,800	550

Program Design and Implementation: The program should be designed to educate consumers concerning the increased inefficiency of older appliances and the corresponding cost associated with this inefficiency over time. For example, many refrigerators that were manufactured over 10 years ago use more than 1,000 kWh a year, while new refrigerators of the same size consume less than 500 kWh a year. Education would occur through the promotion of the program as well as at retailer stores.

The program could be marketed through member cooperative websites, newspapers, public relations efforts and through displays at retailers. Initial marketing may also be done with a direct mailing to explain the refrigerator turn-in offer, including details such as eligibility requirements, incentive to participate, and next step action. Residents who are interested in participating will be directed to contact a Hoosier Energy representative.

The representative will follow-up with a set of pre-screening questions to determine if the customer was eligible and likely had a high use refrigerator and/or freezer. Eligibility to participate in the second appliance turn-in program includes: being a resident in the Hoosier Energy service area, having an operational second refrigerator/freezer, and the unit must be 10 years of age or greater. If all eligibility requirements are met, the Hoosier Energy representative will provide the participants' information to the appliance removal contractor.

The program will subcontract (through a competitive bid) an appliance removal/recycling company to fulfill all other aspects of the program, including scheduling, collecting, transporting, and the recycling of old appliances. Hoosier Energy should seek a strong partnership with the local recycling vendors to ensure that the program is executed efficiently. Thus, an understanding concerning turn-around time from first contact by an interested party to final appliance pick-up, and then to incentive payout and finally recycling verification must be established.

In the first year, the program may be designed as a pilot program. This will allow Hoosier Energy to evaluate the program goals and partnerships. Additionally, Hoosier Energy may want to consider expanding the program to include additional "second" appliances existing in residences, such as freezer units.

Program Allies: Key program allies for this program include the State of Indiana Energy Office, appliance retailers, and energy service companies.

Projected Savings: Approximately 12,400 MWh will be saved in 2018 based on the projected participation, with an estimated 390 MWh saved in the pilot year. Additionally, projected participation will also result in a summer peak saving of 1.0 MW after 10 years.

Additional detail, including annual energy and demand savings for this program can be found in Section 10.3.

Projected Cost Effectiveness:

Program	MWh Savings in 2018	Summer Peak MW Savings in 2018	Present Value of Total Benefits ($2009)	Present Value of Total Costs ($2009)	Benefit/Cost Ratio
Appliance Round Up Program	12,438	1.0	$4,621,715	$2,289,982	2.02

Projected Budgets: Between 2009 and 2018, the Appliance Round Up program has been assigned a budget of approximately $3.2 million. Incentives account for roughly $940,000. In addition to the incentives, there is an administrative budget for outreach with allies, data tracking and reporting, and fulfillment. Program staff will also be responsible for and verifying that the second refrigerators and/or freezers meet all eligibility requirements. Outside contractor responsible for appliance pick-up, removal, and recycling are included as part of the administrative budget, and receive $100 per appliance from the utility for their services. In total, these administrative costs represent approximately $2.2 million over the next 10 years.

Section 10.3 provides additional annual detail.

	10 Year Totals			
Program	Utility Incentives	Administrative Costs	Total Hoosier Costs	% of Total DSM Budget
Appliance Round Up Program	$941,250	$2,243,100	$3,184,350	3.9%

10.1.6 Residential Energy Efficiency Education Campaign

Finally, Hoosier Energy should also invest annually in an on-going energy efficiency education campaign that promotes a culture of conservation throughout the member systems. The educational campaign should define specific goals and actions that can lead to an efficient use of energy that can be sustained over time. In general, any education effort should:

- Brand a consistent and clear message
- Be objective and should not endorse any specific product brands
- Tie directly to actions that can most easily be taken by the largest number of consumers
- Include information related to the environmental benefits of conserving energy consumption.
- Provide education to children in schools
- Support existing energy efficiency programs, but also promote additional opportunities and energy efficient technologies
- Borrow heavily from what has already been proven to work. Determine the "best practice" of other energy efficiency education campaigns that have been able to deliver successful education programs and follow their advice
- Coordinate with grassroots organizations that have credibility and knowledge of local communities

Finally, an energy efficiency education campaign should also possess a consistent and reliable funding stream. To this end, Hoosier Energy has reserved $370,000 as an educational budget in 2009. This figure increases annually by 3%, growing to approximately $390,000 in 2011. As more programs are offered (i.e. the Energy Star appliances program) and more measures are included in the initial portfolio of residential energy efficiency programs (i.e. heat pump water heaters, LED bulbs, etc.), the education campaign budget can be scaled back to an estimated $200,000 for the remaining 7 years.

10.2 RECOMMENDED RESIDENTIAL DEMAND RESPONSE PROGRAM PLANS

10.2.1 AIR CONDITIONING LOAD CONTROL WITH 50% CYCLING STRATEGY

Hoosier Energy should pursue an Air Conditioning Load Management program, offering to install load control devices on residential central electric air conditioners. Incentives can be paid by Hoosier to member cooperatives that enroll households and install the equipment. The member cooperatives may then incentivize the homeowners through various means including rate reductions, one-time upfront payments, or a schedule of payments. Homes in the service territory with central electric air conditioning are eligible to participate in the program, and Hoosier should also pursue marketing the load control switches in coordination with the Efficient Home Heating & Cooling Program.

Measure description: The objective of the program is to encourage residential homeowners to allow their electric cooperative to install a load control switch on their air conditioner. The switch (either through the AMI system or through a radio-controlled device) allows the member cooperative and Hoosier to control the load during peak loading conditions. With a 50% cycling strategy, the unit will be turned off 15 minutes out of every 30 minutes during a control hour. Hoosier should establish guidelines on how much control they will call on during a month and a season and the maximum number of continuous hours of control they will require. These guidelines are essential for marketing the program to homeowners and to continued participation in the program with minimal customer complaints.

Program incentives: Hoosier Energy will pay a one-time $65 to a participating member cooperative to help offset the capital cost of the control device. Incentives by the cooperatives to the homeowners are left up to the discretion of the cooperative management. This incentives can take on many forms including a one-time upfront payment (e.g., $50), a schedule of monthly payments (e.g., $3 per month), or even special rate reductions. Furthermore, some utilities have had success at attracting some participants in such a program with no incentive, by appealing to the "cooperative way" and to a sense of civic duty.

Measure	Summer Peak Savings (kW) (per unit)	Hoosier Incentive to Member Coop (per unit)
Existing Central AC	1.00	$65
Central A/C (15 SEER)	0.93	$65
Central A/C (16 SEER)	0.88	$65
Central A/C (17 SEER)	0.96	$65
Central A/C (18 SEER)	0.87	$65

Projected Program Participation: There is a high market-share of homes with central air conditioners, 82% in 2008; however there is typically some resistance to controlling air conditioners as people generally fear a lack of comfort on particularly hot summer days. Given the success of other mature programs at cooperatives throughout the U.S., an aggressive program should be able to attain 15% participation in 20 years. Given this assumption, Hoosier can expect to add roughly 3,000 AC switches per year over a 20-year horizon, totaling 26,500 by 2018 (if the program is implemented in 2010). Hoosier member cooperatives have had success in attracting residential homeowners to control both their air conditioners and their water heaters in a pilot program. Therefore, Hoosier can continue to expect to gain a high proportion of homes that control both appliances, thereby reducing the installation cost per appliance considerably.

Projected Savings: Given the level of penetration expected each year, Hoosier will gain control over an additional 2.8 MW every year. Therefore, 25.5 MW will be under control by 2018. These savings are the effective savings assuming half the switches are installed on homes with existing air conditioners and half are install on new air conditioners with higher efficiency ratings through the Efficient Home Heating & Cooling Equipment Program.

Additional detail, including annual demand savings for this program can be found in Section 10.3

Projected Cost Effectiveness:

Program	MWh Savings in 2018	Summer Peak MW Savings in 2018	Present Value of Total Benefits ($2009)	Present Value of Total Costs ($2009)	Benefit/Cost Ratio
Residential Air Conditioning Control	-	25.3	$7,242,295	$3,059,270	2.37

Projected Budgets: Hoosier's budget for the program totals $1.9 million, starting at $300,000 in year 1 and then averaging $203,000 in each subsequent year through 2018. $100,000 in the first year is for central communication equipment cost. The cost of the $65 incentive to member cooperatives totals nearly $200,000 per year and the balance is administrative, operating, and marketing costs. The member cooperatives will have costs totaling $4.8 million through 2018, $1.7 million of which is offset by payments from Hoosier.

Section 10.3 provides additional detail.

	10 Year Totals			
Program	Hoosier Incentive to Members	Administrative Costs	Total Hoosier Costs	% of Total DSM Budget
Residential Air Conditioning Control	$1,723,215	$180,217	$1,903,432	1.6%

10.2.2 Water Heater Control Strategy

Hoosier Energy should pursue a Water Heater Load Management program, offering to install load control devices on residential electric water heaters. Incentives can be paid by Hoosier to member cooperatives that enroll households and install the equipment. The member cooperatives may then incentivize the homeowners through various means including rate reductions, one-time upfront payments, or a schedule of payments. Homes in the service territory with electric water heaters with tank sizing ranging between 40 and 80 gallons are eligible to participate in the program, and Hoosier should also pursue marketing the load control switches in coordination with the Efficient Home Heating & Cooling Program.

Measure description: The objective of the program is to encourage residential homeowners to allow their electric cooperative to install a load control switch on their electric water heater. The switch (either through the AMI system or through a radio-controlled device) allows the member cooperative and Hoosier to control the load during peak loading conditions. The heating element would be turn off during the entire duration of a control hour. Hoosier should establish guidelines on how much control they will call on during a month and a season and the maximum number of continuous hours of control they will require. These guidelines are essential for marketing the program to homeowners and to continued participation in the program with minimal customer complaints. Two programs should be pursued simultaneously: a program for standard size water heaters and large capacity water heaters. Standard water heaters include 40 and 50 gallon tanks. Large capacity water heaters include 70 and 80 gallon tanks. Large capacity water heaters can be controlled for longer continuous durations and therefore have more value to Hoosier and in fact have higher benefit/cost ratios because of this additional value.

Program incentives: Hoosier Energy will pay a one-time $65 to a participating member cooperative to help offset the capital cost of the control device. Incentives by the cooperatives to the homeowners are left up to the discretion of the cooperative management. This incentives can take on many forms including a one-time upfront payment (e.g., $50), a schedule of monthly payments (e.g., $3 per month), or even special rate reductions. Furthermore, some utilities have had success at attracting some participants in such a program with no incentive, by appealing to the "cooperative way" and to a sense of civic duty.

Measure	Summer Peak Savings (kW) (per unit)	Hoosier Incentive to Member Coop (per unit)
50g WH	0.46	$65
80g WH	0.46	$65

Projected Program Participation: Roughly 68% of homes have standard electric water heaters and only 4% have large capacity electric water heaters. An aggressive marketing effort can be expected to sign up 30% of standard water heaters and 25% of large capacity water heaters over 20 years. Given these rates, Hoosier can target adding 4,175 standard switches and 220 large capacity switches to the system each year. By 2018, participation is expected to total to 37,600 standard water heaters and 2,000 large capacity water heaters.

Projected Savings: Given the level of penetration expected each year, Hoosier will gain control over an additional 1.9 MW for standard water heaters and 0.1 MW for large capacity water heaters every year. Therefore, a total of 18.1 MW will be under control by 2018 (17.2 MW for standard water heaters and 0.9 MW for large tank water heaters).

Additional detail, including annual demand savings for this program can be found in Section 10.3

Projected Cost Effectiveness:

Program	MWh Savings in 2018	Summer Peak MW Savings in 2018	Present Value of Total Benefits ($2009)	Present Value of Total Costs ($2009)	Benefit/Cost Ratio
Residential Water Heating Control	-	18.1	$5,425,857	$5,457,467	0.99

The benefit/cost ratio is less than one for a couple of reasons. First, the ratio for standard water heaters was just below one in the prior analysis noted in the potential study (see Section 7). Still, Hoosier should pursue this program because there are so few large capacity water heaters (for which the single unit benefit/cost ratio is greater than one). Standard water heaters are recommended to allow Hoosier to have control over a greater proportion of their peak loads. Further, a pilot study of demand response has indicated that as many as 2/3 of homes that agree to control of a water heater also agree to control of an air conditioner. The combined installation cost is $230, which is roughly half of the cost to control two appliances individually. The recommended program cost effectiveness assumes 2/3 of homes with a standard water heater control will also have air conditioning control.

With a benefit/cost ratio so close to one, the economic value of the standard water heaters may become apparent as key inputs to the analysis change, especially the value of avoided peak demand. A second reason the benefit/cost ratio for this program is less than one is that the full benefits of switches in later years are not realized by 2018 and the water heaters, with lower load impacts, accrue a high proportion of their benefits in the later years of the program.

Projected Budgets: Hoosier's budget for the program totals $2.8 million, starting at $430,000 in year 1 and then averaging $301,000 in each subsequent year through 2018. $145,000 in the first year is for central communication equipment cost. The cost of the $65 incentive to member cooperatives totals $285,000 per year and the balance is administrative, operating, and marketing costs. The member cooperatives will have costs totaling $8.3 million through 2018, $2.6 million of which is offset by payments from Hoosier.

Section 10.3 provides additional detail.

	10 Year Totals			
Program	Hoosier Incentive to Members	Administrative Costs	Total Hoosier Costs	% of Total DSM Budget
Residential Water Heating Control	$2,571,994	$268,967	$2,840,961	2.4%

10.3 RESIDENTIAL ENERGY EFFICIENCY AND DEMAND RESPONSE PROGRAM POTENTIAL SUMMARY

The following tables present detailed information regarding the annual participation, energy savings, demand savings, and Hoosier Energy budgets for each of the six recommended residential energy efficiency and two demand response programs. In total, the 8 residential DSM programs result in 162,668 MWh of annual energy savings in 2018, or 3.3% of forecasted residential energy sales. The programs are also estimated to achieve summer peak demand savings of 81.4 MW, or 7.3% of the forecast residential summer peak.

The Hoosier Energy budget for the complete portfolio of recommended residential DSM programs ranges from $4.1 million in 2009 to $7.9 million in 2018. The annual growth in budget dollars is impacted by a variety of factors including increased participation over time, new program offerings, and periodic program evaluation. In total, incentives account for 80% of the total budget, while administrative costs (marketing, program delivery, incentive fulfillment, and evaluation) account for the remaining 20%.

The benefits from the combined residential energy efficiency and demand response programs are greater than the total costs by a ratio of $2.34 to $1.

Table 10.1: Residential Energy Efficiency Program Portfolio Detail: Annual Participation, Savings, and Budgets by Program

Residential Lighting Program	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Incremental Annual Bulbs	351,300	421,600	457,000	494,000	425,500	358,000	292,000	282,500	272,000	247,000
Cumulative Annual Bulbs	351,300	772,900	1,229,900	1,723,900	2,149,400	2,507,400	2,799,400	2,731,900	2,583,900	2,375,900
Cumulative Annual MWh Savings	15,048	33,106	52,673	73,867	64,550	75,362	84,245	82,431	78,291	72,482
% of Annual Residential Sales	*0.37%*	*0.80%*	*1.22%*	*1.68%*	*1.45%*	*1.66%*	*1.82%*	*1.75%*	*1.63%*	*1.48%*
Cumulative Annual MW Savings	1.5	3.4	5.4	7.5	6.6	7.7	8.6	8.4	8.0	7.4
% of Annual Residential Summer Peak Demand	*0.16%*	*0.36%*	*0.54%*	*0.75%*	*0.65%*	*0.74%*	*0.81%*	*0.78%*	*0.73%*	*0.66%*
Incentives	$651,400	$781,800	$847,750	$932,500	$818,000	$713,500	$624,000	$671,625	$709,250	$744,500
Administration	$72,400	$86,900	$106,300	$103,600	$91,000	$94,300	$69,300	$74,700	$98,700	$82,700
Total Program Costs	*$723,800*	*$868,700*	*$954,050*	*$1,036,100*	*$909,000*	*$807,800*	*$693,300*	*$746,325*	*$807,950*	*$827,200*

Home Heating & Cooling Equipment Program	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Incremental Annual Participants	5,900	7,510	7,510	7,510	7,510	7,510	9,780	10,520	11,535	13,165
Cumulative Annual Participants	5,900	13,410	20,920	28,430	35,940	43,450	53,230	62,980	74,515	87,680
Cumulative Annual MWh Savings	1,632	3,620	5,607	7,595	9,583	11,570	13,979	16,830	19,927	23,418
% of Annual Residential Sales	*0.04%*	*0.09%*	*0.13%*	*0.17%*	*0.21%*	*0.25%*	*0.30%*	*0.36%*	*0.42%*	*0.48%*
Cumulative Annual MW Savings	1.2	2.6	4.0	5.4	6.8	8.2	9.9	11.9	14.3	17.0
% of Annual Residential Summer Peak Demand	*0.12%*	*0.27%*	*0.40%*	*0.54%*	*0.67%*	*0.79%*	*0.94%*	*1.11%*	*1.31%*	*1.53%*
Incentives	$1,382,500	$1,707,750	$1,707,750	$1,707,750	$1,707,750	$1,707,750	$2,053,500	$2,412,750	$2,690,250	$3,129,250
Administration	$188,500	$232,800	$252,800	$232,800	$232,800	$257,800	$280,000	$329,100	$396,800	$426,800
Total Program Costs	*$1,571,000*	*$1,940,550*	*$1,960,550*	*$1,940,550*	*$1,940,550*	*$1,965,550*	*$2,333,500*	*$2,741,850*	*$3,087,050*	*$3,556,050*

Home Energy Audit and Weatherization Program	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Incremental Annual Participants	1,300	1,800	1,650	1,500	1,250	1,100	1,100	1,100	1,100	1,100
Cumulative Annual Participants	1,300	3,100	4,750	6,250	6,200	5,500	4,950	4,550	4,400	4,400
Cumulative Annual MWh Savings	5,089	12,135	18,594	24,466	26,558	29,951	33,137	35,789	38,363	40,898
% of Annual Residential Sales	*0.12%*	*0.29%*	*0.43%*	*0.56%*	*0.60%*	*0.66%*	*0.72%*	*0.76%*	*0.80%*	*0.84%*
Cumulative Annual MW Savings	1.1	2.7	4.1	5.4	6.2	7.0	7.7	8.3	8.9	9.5
% of Annual Residential Summer Peak Demand	*0.12%*	*0.28%*	*0.41%*	*0.54%*	*0.61%*	*0.68%*	*0.73%*	*0.77%*	*0.81%*	*0.85%*
Incentives	$1,119,950	$1,550,700	$1,421,475	$1,292,250	$1,076,875	$947,650	$947,650	$947,650	$947,650	$947,650
Administration	$124,400	$172,300	$178,000	$143,600	$119,700	$130,300	$105,300	$105,300	$135,300	$105,300
Total Program Costs	*$1,244,350*	*$1,723,000*	*$1,599,475*	*$1,435,850*	*$1,196,575*	*$1,077,950*	*$1,052,950*	*$1,052,950*	*$1,082,950*	*$1,052,950*

Touchstone Energy Homes Program	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Incremental Annual Participants	100	160	210	250	290	360	450	520	590	640
Cumulative Annual Participants	100	260	470	720	1,010	1,370	1,820	2,340	2,930	3,570
Cumulative Annual MWh Savings	426	1,107	2,002	3,066	3,800	5,155	6,848	8,804	11,024	13,432
% of Annual Residential Sales	*0.01%*	*0.03%*	*0.05%*	*0.07%*	*0.09%*	*0.11%*	*0.15%*	*0.19%*	*0.23%*	*0.27%*
Cumulative Annual MW Savings	0.1	0.3	0.5	0.7	0.9	1.2	1.6	2.1	2.6	3.1
% of Annual Residential Summer Peak Demand	*0.01%*	*0.03%*	*0.05%*	*0.07%*	*0.09%*	*0.12%*	*0.15%*	*0.19%*	*0.24%*	*0.28%*
Incentives	$124,250	$198,800	$260,925	$310,625	$360,325	$447,300	$559,125	$646,100	$733,075	$795,200
Administration	$21,800	$35,200	$66,100	$54,800	$63,700	$103,800	$98,600	$114,000	$159,400	$140,300
Total Program Costs	*$146,050*	*$234,000*	*$327,025*	*$365,425*	*$424,025*	*$551,100*	*$657,725*	*$760,100*	*$892,475*	*$935,500*

Table 10.1 (cont'd): Residential Energy Efficiency Program Portfolio Detail: Annual Participation, Savings, and Budgets by Program

Appliance Round Up Program	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Incremental Annual Participants	400	900	1,215	1,440	1,660	1,850	2,420	2,690	2,900	3,350
Cumulative Annual Participants	400	1,300	2,515	3,955	5,615	7,065	8,585	10,060	11,520	13,210
Cumulative Annual MWh Savings	390	1,249	2,399	3,756	5,316	6,664	8,083	9,467	10,840	12,438
% of Annual Residential Sales	*0.01%*	*0.03%*	*0.06%*	*0.09%*	*0.12%*	*0.15%*	*0.17%*	*0.20%*	*0.23%*	*0.25%*
Cumulative Annual MW Savings	0.0	0.1	0.2	0.3	0.4	0.6	0.7	0.8	0.9	1.0
% of Annual Residential Summer Peak Demand	*0.00%*	*0.01%*	*0.02%*	*0.03%*	*0.04%*	*0.05%*	*0.06%*	*0.07%*	*0.08%*	*0.09%*
Incentives	$20,000	$45,000	$60,750	$72,000	$83,000	$92,500	$121,000	$134,500	$145,000	$167,500
Administration	$46,600	$105,000	$153,700	$168,000	$193,600	$230,800	$282,400	$313,800	$358,400	$390,800
Total Program Costs	***$66,600***	***$150,000***	***$214,450***	***$240,000***	***$276,600***	***$323,300***	***$403,400***	***$448,300***	***$503,400***	***$558,300***

Energy Efficiency Education Campaign	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Incremental Annual Participants	-	-	-	-	-	-	-	-	-	-
Cumulative Annual Participants	-	-	-	-	-	-	-	-	-	-
Cumulative Annual MWh Savings	-	-	-	-	-	-	-	-	-	-
% of Annual Residential Sales	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Cumulative Annual MW Savings	-	-	-	-	-	-	-	-	-	-
% of Annual Residential Summer Peak Demand	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.00%*
Incentives	-	-	-	-	-	-	-	-	-	-
Administration	$350,000	$360,500	$371,315	$382,454	$393,928	$405,746	$417,918	$430,456	$443,370	$456,671
Total Program Costs	***$350,000***	***$360,500***	***$371,315***	***$382,454***	***$393,928***	***$405,746***	***$417,918***	***$430,456***	***$443,370***	***$456,671***

Table 10.2: Residential Demand Response Program Portfolio Detail: Annual Participation, Savings, and Budgets by Program

Residential Water Heating Control	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Incremental Annual Participants	0	4,397	4,397	4,397	4,397	4,397	4,397	4,397	4,397	4,397
Cumulative Annual Participants	0	4,397	8,793	13,190	17,586	21,983	26,379	30,776	35,173	39,569
Cumulative Annual MWh Savings	-	-	-	-	-	-	-	-	-	-
% of Annual Residential Sales	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*
Cumulative Annual MW Savings	0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.1	18.1
% of Annual Residential Summer Peak Demand	*0.00%*	*0.21%*	*0.40%*	*0.60%*	*0.79%*	*0.97%*	*1.14%*	*1.31%*	*1.47%*	*1.62%*
Incentives (to member systems)	$0	$285,777	$285,777	$285,777	$285,777	$285,777	$285,777	$285,777	$285,777	$285,777
Administration	$0	$147,938	$13,611	$14,019	$14,439	$14,872	$15,319	$15,778	$16,251	$16,739
Total Program Costs	***$0***	***$433,716***	***$299,388***	***$299,796***	***$300,216***	***$300,649***	***$301,096***	***$301,555***	***$302,028***	***$302,516***

Residential Air Conditioning Control	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Incremental Annual Participants	0	2,946	2,945	2,946	2,946	2,946	2,945	2,946	2,946	2,945
Cumulative Annual Participants	0	2,946	5,891	8,837	11,783	14,729	17,674	20,620	23,566	26,511
Cumulative Annual MWh Savings	-	-	-	-	-	-	-	-	-	-
% of Annual Residential Sales	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*
Cumulative Annual MW Savings	0.0	2.8	5.6	8.4	11.2	14.0	16.9	19.7	22.5	25.3
% of Annual Residential Summer Peak Demand	*0.00%*	*0.30%*	*0.57%*	*0.84%*	*1.11%*	*1.35%*	*1.60%*	*1.83%*	*2.06%*	*2.27%*
Incentives (to member systems)	$0	$191,490	$191,425	$191,490	$191,490	$191,490	$191,425	$191,490	$191,490	$191,425
Administration	$0	$99,129	$9,119	$9,392	$9,674	$9,965	$10,263	$10,571	$10,889	$11,215
Total Program Costs	***$0***	***$290,619***	***$200,544***	***$200,882***	***$201,164***	***$201,455***	***$201,688***	***$202,061***	***$202,379***	***$202,640***

Table 10.3: Combined Residential Energy Efficiency and Demand Response Program Portfolio Detail: Annual Participation, Savings, and Budgets by Program

All Residential DSM (EE & DR) Combined	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Incremental Annual Participants	359,000	439,313	474,927	512,043	443,553	376,163	313,092	304,673	295,468	272,597
Cumulative Annual Participants	359,000	798,313	1,273,239	1,785,282	2,227,534	2,601,497	2,912,038	2,863,226	2,736,004	2,550,840
Cumulative Annual MWh Savings	22,585	51,216	81,275	112,750	109,806	128,702	146,292	153,321	158,445	162,668
% of Annual Residential Sales	*0.55%*	*1.24%*	*1.88%*	*2.57%*	*2.46%*	*2.83%*	*3.16%*	*3.25%*	*3.30%*	*3.33%*
Cumulative Annual MW Savings	3.9	13.8	23.7	33.8	40.1	48.8	57.4	65.2	73.1	81.4
% of Annual Residential Summer Peak Demand	*0.42%*	*1.46%*	*2.39%*	*3.37%*	*3.95%*	*4.70%*	*5.44%*	*6.07%*	*6.69%*	*7.30%*
Incentives	$3,298,100	$4,761,317	$4,775,852	$4,792,392	$4,523,217	$4,385,967	$4,782,477	$5,289,892	$5,702,492	$6,261,302
Administration	$803,700	$1,239,767	$1,150,944	$1,108,666	$1,118,842	$1,247,583	$1,279,100	$1,393,705	$1,619,110	$1,630,525
Total Program Costs	*$4,101,800*	*$6,001,084*	*$5,926,796*	*$5,901,058*	*$5,642,059*	*$5,633,550*	*$6,061,577*	*$6,683,597*	*$7,321,602*	*$7,891,827*

Total NPV Benefits ($2009) for Residential DSM:	$212,446,366
Total NPV Costs ($2009) for Residential DSM:	$90,767,016
TRC Benefit Cost Ratio:	2.34

10.4 Recommended Commercial/Industrial Energy Efficiency Program Plans

10.4.1 Commercial/Industrial Prescriptive Measures Program

Summit Blue is proposing a Commercial and Industrial Prescriptive Program (CIP) to commercial and industrial (C&I) customers in the Hoosier Energy service territory that includes incentives for purchasing and installing efficient commercial equipment in existing facilities only[30]. The end-uses addressed in the CIP program include:

- Lighting & Controls
- Motors, VFDs, and Compressed Air systems
- Hot water heating
- HVAC & Shell

Prescriptive incentives are offered for a schedule of measures in each of these categories.

This program should be a top priority for Hoosier because replacing equipment at the end of its useful life or retrofitting inefficient equipment with high efficiency units is very cost effective, the electric energy savings potential is relatively large, and all commercial and industrial facilities in the service area can benefit from such a program. Numerous other electric cooperatives, municipal utilities, and investor-owned electric utilities offer this program to their customers.[31]

The objective of this program is to encourage commercial and industrial customers to purchase and install high efficiency equipment when replacing existing systems. The incentive for commercial and industrial customers to purchase high efficiency commercial equipment is the lower energy use and lower operating costs over the useful equipment life and equal or improved performance.

Measure Descriptions: A brief description for each measure included in the prescriptive measures program is presented below.

Lighting

Compact Fluorescent Lamp – Hard-Wired and Fixtures:

Compact fluorescent lamps (CFLs) are the most common alternatives to standard incandescent lamps. CFLs are generally about four times as efficient as incandescent lamps, and last about 10 times as long. CFLs can either be screw-in replacements for incandescent lamps or plug-in lamps in fixtures specifically designed around CFL technology. Only hard-wired CFLs or CFLs installed in special fixtures qualify for the program.

T8 Lamps and Electronic Ballasts- Premium:

Premium T8 lamps and electronic ballasts have the same market as regular T8 systems. They gain efficiency over regular T8 systems by the co-development of lamps and ballasts that optimize the efficiency of both when used together.

T5 Lamps and Electronic Ballasts:

[30] Innovative and custom measures will be covered as part of the separate C&I Custom Program. New Construction measures are covered by a separate Commercial New Construction Program.

[31] See Summit Blue Consulting Benchmarking Analysis and Best Practices Assessment, for Hoosier Energy, September 2008.

T5 lamps and electronic ballasts are a newer alternative linear fluorescent lighting system. T5 fluorescent lamps are 5/8 of an inch in diameter, thinner than both T8 lamps and T12 lamps. T5 lighting systems are primarily used in new construction, and are not appropriate for most retrofit situations, as the lamps are only generally available in metric lengths.

Lighting Reflectors/Delamping:
The definition of delamping used for this project is replacing a four lamp, four foot fluorescent lighting fixture with a similar two lamp or three lamp fixtures. This measure is intended for areas that are currently over-lit. Lighting reflectors are often used as part of delamping projects.

LED Exit Signs:
Light emitting diode (LED) exit signs are one of the most efficient types of exit signs on the market. They generally only draw about two to three watts of power, compared to 10 watts or more for CFLs, or 20 watts or more for incandescent exit signs.

Occupancy Sensors:
Occupancy sensors automatically turn off the lights in a room or an area when the area is unoccupied. Occupancy sensors are an alternative to standard wall mounted on/off lighting switches.

Daylight Sensors:
Lighting systems are designed assuming no contribution from ambient daylight. In areas where daylight is available, artificial light is unnecessary and possibly detrimental to occupant comfort. Daylight sensors measure the contribution of ambient daylight and either turn-off or dim the lamps of the artificial lighting system.

Pulse-Start Metal Halide and High Pressure Sodium Systems:
Metal Halide pulse-start technology is a slightly more efficient type of HID lighting compared to traditional metal halide and high-pressure sodium high intensity discharge systems. High pressure sodium systems are very efficient, but the yellow/orange light color produced by the lamps is not suitable for most indoor applications. Special lamps and ballasts generate equivalent illumination in the same light fixture at lower power requirements.

High-Bay Fluorescent Lights:
High-bay lighting is used in industrial settings for general ambient light. T5 and T8 fluorescent lamps can be used in place of more traditional high-intensity discharge (HID) lamps in specially designed fixtures. The advantages include higher efficacy (lumens/Watt), greater lumen maintenance over the lamp life and better controllability. Savings are determined with engineering calculations, no interactive effects and 20% fewer operating hours due to control benefits.

<u>Motors & Other</u>
Premium Efficiency Motors:
Motor efficiency improvements can be achieved effectively during system specification and installation when new motors are purchased. Premium efficiency motors can be installed in place of motors that only meet minimum federal efficiency standards detailed in the Energy Policy Act (EPACT). Since many larger motors (greater than 30 HP) are rewound after failure rather than replaced, an additional opportunity exists by ensuring rewinds are performed to maintain motor efficiency. Steps like close control of baking temperatures, careful winding removal, and use of

high-quality materials will help ensure that efficiency will not diminish during rewinds. Premium efficiency motors typically exceed mandated EPACT efficiencies by 1-3% depending on the motor size.

Variable Speed Drives Added to HVAC Motors:
VFDs for HVAC applications are listed separately because they take advantage of the fluid affinity laws that show a cube relationship between speed and power. These applications also have a more predictable use pattern than VFDs in industrial processes and conveyance applications. The latter examples would be included with custom measures. The baseline technologies for HVAC VFDs are flow throttling for liquid systems and vortex dampers for air applications.

Compressed Air:
Frequently call the fourth utility (after electricity, gas, and water), compressed air systems have many savings opportunities, including: leak repair, efficient motors and compressors, pressure optimization and receiver installation. These measures could be legitimately included in "Custom" due to the site specific nature of savings. We have estimated savings for Compressed air with benchmarks from the Compressed Air Challenge program run by the U.S. Department of Energy, and on a Midwestern utility custom compressed air program results and conservation plan[32]. Savings are listed per system horsepower.

Hot Water
Efficient Water Heaters:
Traditional electric water heaters have an overall efficiency of about 90% including standby and distribution losses. High efficiency units achieve 94% efficiency with improved insulation and heat traps that minimize convection into under insulated distribution pipes. The savings estimate for the high-efficiency unit is calculated from the total hot water energy use and the unit efficiencies.

Heat Pump Water Heaters:
Heat pump water heaters use compressed refrigerants to extract heat from ambient air (or water) and move that heat to stored hot water. During warm weather these machines can move four units of heat for every one comparable unit of input energy, thus achieving a coefficient of performance (COP) up to 4.0. COP decreases as ambient air temperature decreases. At about 10-20°F, heat pumps become ineffective. At cold ambient temperatures, traditional electric resistance heating elements back-up the heat pump compressor. Savings was determined using engineering estimates with a linear relationship between COP and outdoor air temperature until 20°F at which point we assumed electric resistance heat would take over. Because refrigerant coils are cooler than electric resistance coils, the heat pump equipment lasts longer than a traditional heater.

Tankless Water Heaters:
Tankless water heaters are more efficient than standard water heaters since they avoid the energy lost from the hot water that is stored in conventional tanks. Tankless water heaters have "energy factors" of about 98%. The savings estimate for the high-efficiency unit is calculated from the total hot water energy use and the unit efficiencies. This equipment is likely replaced with another tankless heater because of the cost hurdle for re-piping water distribution for reverting to the standard tank water heater.

[32] Xcel Energy – Minnesota Conservation Improvement Plan 2007-2009.

HVAC & Shell

Efficient Packaged Commercial Air Conditioning Systems (Rooftop Air Conditioners):
Standard efficiency units are specified as units with EER ratings of 9.0. Efficient units are specified as units with EER ratings of 10.4-13.0 depending on the equipment size. Summit Blue characterized a high efficiency unit with an EER of 12.2.

Efficient Heat Pumps:
Air source heat pumps have the same efficiency requirements as air conditioners. Standard efficiency units are specified as units with EER ratings of 9.0. Efficient units are specified as units with EER ratings of 10.4-13.0 depending on the equipment size. Summit Blue characterized a high efficiency unit with an EER of 12.2. For ground source heat pumps, efficient units are defined as having minimum EERs of 16.2 EER for closed loop systems and 14.1 EER for open loop systems.

Efficient Chillers:
Efficient chillers cover efficient reciprocating, screw, and centrifugal units. Air cooled units with condensers will have a minimum efficiency of 1.25 kW/unit to qualify. Water cooled units with minimum efficiencies of 0.58 kW/ton to 0.70 kW/ton (depending on size) will be required to qualify.

Packaged Terminal Air Conditioners and Heat Pumps:
Packaged terminal air conditioners (PTAC) and heat pumps units are most commonly used in hotel rooms. Efficient units are defined as those having an efficiency of 10.5 EER or higher.

Economizers:
Economizers use outside air for cooling instead of operating the air conditioning compressors on mild days, particularly during the spring and early fall seasons. The analysis assumed an integrated economizer where 100% outdoor air is used up to 65°F ambient temperature. During peak summer conditions economizers produce no peak demand savings.

Programmable Thermostats:
Programmable thermostats allow temperatures to be automatically set warmer or colder during unoccupied periods to reduce heating and cooling energy use when facilities are unoccupied. We analyzed 5°F setbacks (set-ups in the summer). Since the impact of set-backs is typically off-peak, these thermostats do not have discernable peak benefits.

Program Incentives: The CIP program is a customer incentive program that provides incentives for the installation of energy efficiency measures in existing non-residential facilities. The following table outlines the incentive structure, set at 25% of the incremental measure cost, for each of the measures available under the CIP program.

Measure	Units	Annual Energy Savings (kWh) (per unit)	Summer Peak Savings (kW) (per unit)	Measure Cost (per unit)	Utility Incentive (per unit)
Lighting					
9-24W Screw-in CFL	lamp	229	0.08	$6.00	$1.50
Over 24W Pin-Based CFL	lamp	280(C)	0.09(C)	$10.50	$2.63
Premium T8/T5 w/Electronic Ballast	fixture	157(C) / 188(I)	0.05(C) / 0.06(I)	$51.00	$12.75
Delamping w/Reflectors (2 lamp)	fixture	174	0.06	$30.00	$7.50
LED Exit	fixture	206(C) / 181(I)	0.03(C) / 0.02(I)	$40.00	$10.00
Occupancy Sensor (8 hrs/day)	sensor	443(C)	0.11(C)	$85.00	$21.25
Daylighting (perimiter zone)	sensor	1545(C)	0.82(C)	$800.00	$200.00
175W PS MH HID Indoor	fixture	1189(C)	0.40(C)	$197.00	$49.25
250W PS MH HID Indoor	fixture	651	0.22	$220.00	$55.00
250W PS MH HID Outdoor	fixture	651	0.00	$220.00	$55.00
T5 High Bay Fluorescent	fixture	570(I)	0.06(I)	$580.00	$145.00
Motor & Other					
Prem Motor < =10 HP	horsepower	75(C) / 57(I)	0.02	$50.00	$12.50
Prem Motor > 10HP	horsepower	35(C) / 40(I)	0.01	$30.00	$7.50
Variable Speed Drives Added to HVAC Motors	horsepower	760(C)	0.00(C)	$199.00	$49.75
Compressed Air	horsepower	375(I)	0.08(I)	$199.00	$49.75
Hot Water					
High Efficiency Water Heater	tank	55	0.06	$83.00	$20.75
Heat Pump Water Heater	tank	105(C)	0.11(C)	$910.00	$227.50
Tankless Water Heat	tank	359	0.36	$300.00	$75.00
HVAC & Shell					
Packaged Terminal A/C 12.2 EER	ton of cooling	196(C) / 235(I)	0.18	$101.00	$25.25
Programable Thermostat	per 1,000 sq.ft	891(C)	0.00(C)	$80.00	$20.00
Integrated Economizer Control	ton of cooling	582(C)	0.00(C)	$12.00	$3.00
High Efficiency HP 12.2 EER	ton of cooling	675(C) / 810(I)	0.23	$170.00	$42.50

Note: (C) refers to commercial measures only; (I) refers to industrial measures only

Projected Program Participation: In the commercial sector, the lighting end-use is projected to have the highest amount of program participation. Nearly 191,000 different fixtures, lamps, or sensors are expected to become energy efficient units from 2009-2018. In the industrial sector, motors and other is the end-use with the highest projected participation. However, note that the approximate 420,000 units refer to horsepower, and not individual motor systems. Similarly, the projected participation for the HVAC and Shell end-use is provided in tons of cooling and not individual HVAC systems.

Measure End-Use	Units	10-year Program Participants	
		Commercial	Industrial
Lighting	lamps/fixtures	190,924	130,383
Motor & Other	horsepower	73,412	418,777
Hot Water	tanks	122	123
HVAC & Shell	tons of cooling	35,932	10,701

Program Design and Implementation: The primary goal of the program is to encourage Hoosier Energy's C&I customers to install energy efficient equipment in existing facilities. More specifically, the program is designed to:

- Provide incentives to facility owners and operators for the installation of high-efficiency equipment and controls.
- Provide a marketing mechanism for equipment contractors and distributors to promote energy efficient equipment to end users.

- Overcome market barriers, including:
  - Customers' lack of awareness and knowledge about the benefits and costs of energy efficiency improvements.
  - Performance uncertainty associated with energy efficiency projects.
  - Additional first costs for energy efficient measures.
- Ensure that the participation process is clear, easy to understand and simple.

Certain barriers exist to the adoption of energy efficiency measures, including lack of investment capital, competition for funds with other capital improvements, lack of awareness/knowledge about the benefits and costs of energy efficiency measures, high transaction and information search costs, and technology performance uncertainties. This program is designed to help overcome these market barriers and encourage greater adoption of energy efficiency measures in the C&I market.

In addition to helping customers reduce and mange their energy costs, this program provides other societal and customer benefits. These include reduced greenhouse gas emissions, improved levels of service for energy expenditures, and lower overall rates and energy costs compared to other resource options.

The program is structured as a broadly applicable commercial/industrial prescriptive program since the energy and demand savings for many common energy efficiency measures are similar across many C&I market segments. Having a simple program structure and incentive schedule provides customers with certainty and ease of use regarding the incentives they will receive for installing a wide variety of efficiency measures.
The program's actual energy and demand savings will be determined through the program evaluation strategy discussed in a subsequent section. Evaluation activities should be planned at the same time as overall program planning, and implemented when the overall program is being implemented, as will be discussed in more detail in the evaluation section.

The C&I Prescriptive program is a customer incentive program that provides incentives for the installation of energy efficiency measures in existing non-residential facilities. More specifically, the program offers the following products and services:

- Education and promotional materials aimed at building owners and operators about the benefits of energy efficiency improvements and improved systems performance, including educational brochures, program promotional material, and website content.
- Educational and promotional efforts aimed at trade allies such as equipment contractors, installers, building supply firms, and equipment distributors to help them promote efficiency measures to their customers.
- Incentives for building owners and managers to adopt the measures recommended by the program. Specific incentives for each size and type of DSM measure will be developed.

Designated Hoosier Energy staff person(s) will provide program administration, marketing, vendor referrals, application and incentive processing, coordination of education and training activities, participation tracking and reporting, quality control, and technical support. Hoosier Energy account representatives are expected to promote the program to their customers. Alternatively, Hoosier Energy could outsource the program to an "implementation contractor".

Program Allies: The program includes customer educational and promotional pieces designed to assist facility owners, operators and decision makers with the information necessary to improve the energy efficiency of the systems in their facilities. The program also includes customer and trade ally education to assist with understanding the technologies that are being promoted, the incentives that are offered, and how the program functions.

The marketing and communications strategy will be designed to inform customers of the availability and benefits of the program and how they can participate in the program. The strategy will include outreach to key partners and trade allies including the architecture/engineering and contractor community, relevant professional and trade associations and other parties of interest in the market. An important part of the marketing plan will be content and functionality on the Hoosier Energy website, which will direct customers to information about the program. More specifically, the marketing and communications plan will include:

- Education seminars implemented in each market to provide details about how to participate in the program. The seminars will be tailored to the needs of business owners, building managers, architects, engineers, vendors, and contractors;
- A combination of strategies including major media advertising, outreach and presentations at professional and community forums and events, and through direct outreach to key customers and customer representatives. Marketing activities will include:
    - Brochures that describe the benefits and features of the program including program application forms and worksheets. The brochures will be mailed upon demand and distributed through the call center and the Hoosier Energy website and will be available for various public awareness events (presentations, seminars etc).
    - Targeted direct mailings used to educate customers on the benefits of the program and explaining how they can apply.
    - Customer and trade partner outreach and presentations (e.g. BOMA and other customer organizations) informing interested parties about the benefits of the program and how to participate.
    - Print advertisements to promote the program placed in selected local media including area newspapers and trade publications.
    - Hoosier Energy website content providing program information resources, contact information, downloadable application forms and worksheets, and links to other relevant service and information resources.
    - Hoosier Energy customer account representatives trained to promote the program to their customers.
    - Presence at conferences and public events used to increase general awareness of the program and distribute program promotional materials.
    - Presentations by the program manager to key customers and customer groups to actively solicit their participation in the program.
- The marketing strategy will identify key customer segments and groups for target marketing, and will prepare specific outreach activities for these customers.
- Hoosier Energy will design and develop the content, messaging, branding, and calls to action of all of the marketing and collateral materials used to promote the program.

Projected Savings: Approximately 89,500 MWh will be saved after 10 years based on the projected participation, with approximately 4,980 MWh saved in the first year. Additionally, projected participation will also result in a summer peak saving of 24 MW after 10 years. Summit Blue conducted a DSM benchmarking analysis for Hoosier Energy, including C&I prescriptive programs, and used the benchmarking results to set the DSM potential calibration MWh energy savings targets as a percent of sector sales.[33]

Additional detail, including annual energy and demand savings for this program can be found in Section 10.6.

Projected Cost Effectiveness:

Program	MWh Savings in 2018	Summer Peak MW Savings in 2018	Present Value of Total Benefits ($2009)	Present Value of Total Costs ($2009)	Benefit/Cost Ratio
Commercial/Industrial Prescriptive Program	89,510	23.9	$68,128,525	$28,782,516	2.37

Projected Budgets: In the first year, the Commercial and Industrial Prescriptive program has been assigned a budget of approximately $672,000. As program participation rises, the budget also increases. In 2018, the commercial and industrial prescriptive program budget is estimated at nearly $1.6 million. Over the 10 year program period, the total budget for the C/I Prescriptive program is expected to total nearly $14.8 million. Incentives account for roughly 60% of the overall budget ($8.8 million). The remaining $6 million is utilized for program administration and management, marketing, labor, data tracking and reporting and evaluation costs. A base program administration (for non-incentive costs) cost of $0.05 per kWh was used based on the DSM benchmarking analysis conducted by Summit Blue for Hoosier Energy.[34] Suggested initial Hoosier Energy staffing might include a program manager, an administrative/data support person, a trade ally liaison, and the equivalent of about one FTE of account representative time to promote the program to their customers.

Section 10.6 provides additional annual detail.

	10 Year Totals			
Program	Utility Incentives	Administrative Costs	Total Hoosier Costs	% of Total DSM Budget
Commercial/Industrial Prescriptive Program	$8,753,819	$6,020,905	$14,774,724	18.2%

10.4.2 COMMERCIAL/INDUSTRIAL CUSTOM MEASURES PROGRAM

Summit Blue is proposing a Commercial and Industrial Custom Program (CICP) to commercial and industrial (C&I) customers in the Hoosier Energy service territory that includes custom incentives for the installation of innovative and non-standard energy-efficiency equipment and controls in existing facilities only[35]. This program should be a top priority for Hoosier because installing efficient custom equipment is very cost effective, the electric energy savings potential is relatively large, and large commercial and industrial facilities in the service area can benefit from

[33] Ibid.

[34] Ibid.

[35] Standard equipment replacement in existing facilities (except for major remodeling projects) will be covered by the C&I Prescriptive program. New Construction measures will be covered by a separate C&I New Construction Program.

such a program. Numerous other electric cooperatives, municipal utilities, and investor-owned electric utilities offer this program to their customers.[36]

The objective of this program is to encourage large commercial and industrial customers to install high efficiency custom equipment in existing facilities. The incentive for commercial and industrial customers to purchase high efficiency commercial equipment is the lower energy use and lower operating costs over the useful equipment life and equal or improved performance.

Program incentives: The C&I Custom program is a customer incentive program that provides incentives for the installation of energy efficiency measures in existing non-residential facilities. The following table summarizes the program incentive structures which is set at 25% of the incremental measure cost or capped at $1,750 per customer for custom projects.

Measure	Units	Annual Energy Savings (kWh) (per unit)	Summer Peak Savings (kW) (per unit)	Measure Cost (per unit)	Utility Incentive (per unit)
Custom Efficiency	per application	20000	5.00	$7,000.00	$1,750.00

Projected Program Participation: In total, 700 custom projects are expected to be completed as part of the Custom Measures program between 2009 and 2018. Participation is expected to start slowly (15 commercial and 44 industrial projects in 2009) and ramp up over time.

Measure End-Use	Units	10-year Program Participants	
		Commercial	Industrial
Custom Efficiency	per application	112	588

Program Design and Implementation: Designated Hoosier Energy staff person(s) will provide program administration, marketing, vendor referrals, application and incentive processing, coordination of education and training activities, participation tracking and reporting, quality control, and technical support. Hoosier Energy account representatives are expected to promote the program to their customers. Alternatively, Hoosier Energy could outsource the program to an "implementation contractor".

The primary goal of the program is to encourage Hoosier Energy's C&I customers to install energy efficient process, refrigeration, and controls measures in existing facilities. More specifically, the program is designed to:

- Provide incentives to facility owners and operators for the installation of high-efficiency process, refrigeration and other equipment and controls.
- Provide a marketing mechanism for consulting engineers, process and refrigeration vendors and distributors to promote energy efficient equipment to end users.
- Overcome market barriers, including:
    - Customers' lack of awareness and knowledge about the benefits and cost of energy efficiency improvements.
    - Performance uncertainty associated with energy efficiency projects.
    - Additional first costs for energy efficient measures.

[36] See Summit Blue Consulting Benchmarking Analysis and Best Practices Assessment, for Hoosier Energy, September 2008.

- Ensure that the participation process is clear, easy to understand and simple.

The C&I Custom program includes customer educational and promotional pieces designed to assist facility owners, operators and decision makers with the information necessary to improve the energy efficiency of the process, refrigeration and other energy using systems in their facilities. The program also includes customer and trade ally education to assist with understanding the technologies that are being promoted, the incentives that are offered, and how the program functions.

Certain barriers exist to the adoption of energy efficiency measures, including lack of investment capital, competition for funds with other capital improvements, lack of awareness/knowledge about the benefits and costs of energy efficiency measures, high transaction and information search costs, and technology performance uncertainties. This program is designed to help overcome these market barriers and encourage greater adoption of process, refrigeration, and other types of energy efficiency measures in the C&I market.

In addition to helping customers reduce and manage their energy costs, this program provides other societal and customer benefits. These include reduced greenhouse gas emissions, improved levels of service from energy expenditures, and lower overall rates and energy costs compared to other resource options.

The program is structured as a broadly applicable C&I custom incentive program since the energy and demand savings for many common energy efficiency measures vary considerably across C&I market segments and between customers. Having a simple program structure and incentive schedule provides customers with ease of use regarding the incentives they will receive for installing a wide variety of efficiency measures.

The program offers the following products and services:

- Education and promotional materials aimed at building owners and operators about the benefits of energy efficiency improvements and improved systems performance, including educational brochures, program promotional material, and website content.
- Educational and promotional efforts aimed at trade allies such as consulting engineers, process and refrigeration vendors and distributors to help them promote efficiency measures to their customers.
- Incentives for building owners and managers to adopt the measures recommended by the program.

Program Allies: The marketing and communications strategy will be designed to inform customers of the availability and benefits of the program and how they can participate in the program. The strategy will include outreach to key partners and trade allies including consulting architects and engineering firms, process and refrigeration contractors and distributors, relevant professional and trade associations and other parties of interest in the market. An important part of the marketing plan will be content and functionality on the Hoosier Energy website, which will direct customers to information about the program. More specifically, the marketing and communications plan will include:

- Education seminars implemented in each market to provide details about how to participate in the Program. The seminars will be tailored to the needs of business owners, building managers, architects, engineers, vendors, and contractors;
- A combination of strategies including major media advertising, outreach and presentations at professional and community forums and events, and through direct outreach to key customers and customer representatives. Marketing activities will include:
    - Brochures that describe the benefits and features of the program including program application forms and worksheets. The brochures will be mailed upon demand and distributed through the call center and the Hoosier Energy website will be available for various public awareness events (presentations, seminars etc).
    - Targeted direct mailings used to educate customers on the benefits of the program and explaining how they can apply.
    - Customer and trade partner outreach and presentations (e.g. BOMA and other customer organizations) informing interested parties about the benefits of the program and how to participate.
    - Print advertisements to promote the program placed in selected local media including area newspapers and trade publications.
    - Hoosier Energy website content providing program information resources, contact information, downloadable application forms and worksheets, and links to other relevant service and information resources.
    - Hoosier Energy customer account representatives trained to promote the program to their customers.
    - Presence at conferences and public events used to increase general awareness of the program and distribute program promotional materials.
    - Presentations by the program manager to key customers and customer groups to actively solicit their participation in the program.
- The marketing strategy will identify key customer segments and groups for target marketing, and will prepare specific outreach activities for these customers.
- Hoosier Energy will design and develop the content, messaging, branding, and calls to action of all of the marketing and collateral materials used to promote the program.

Projected Savings: Approximately 14,000 MWh will be saved after 10 years based on the projected participation, with approximately 1,200 MWh saved in the first year. Additionally, projected participation will also result in a summer peak saving of 3.5 MW in 2018. Summit Blue conducted a DSM benchmarking analysis for Hoosier Energy, including C&I custom programs, and used the benchmarking results to set the DSM potential calibration MWh energy savings targets as a percent of sector sales.[37]

Additional detail, including annual energy and demand savings for this program can be found in Section 10.6.

Projected Cost Effectiveness:

Program	MWh Savings in 2018	Summer Peak MW Savings in 2018	Present Value of Total Benefits ($2009)	Present Value of Total Costs ($2009)	Benefit/Cost Ratio
Commercial/Industrial Custom Program	14,002	3.5	$10,409,138	$3,986,885	2.61

[37] Ibid.

Projected Budgets: In the first year, the Commercial and Industrial Custom program has been assigned a budget of approximately $163,000. Incentives account for 64% of the overall budget ($104,000). The remaining $59,000 is utilized for program administration. A base program administration (for non-incentive costs) cost of $0.05 per kWh was used based on the DSM benchmarking analysis conducted by Summit Blue for Hoosier Energy.[38] As program participation rises, the budget also increases. In total, the 10-year commercial and industrial custom program budget is estimated at $1.9 million.

Section 10.6 provides additional annual detail.

	10 Year Totals			
Program	Utility Incentives	Administrative Costs	Total Hoosier Costs	% of Total DSM Budget
Commercial/Industrial Custom Program	$1,225,216	$701,216	$1,926,432	2.4%

10.4.3 Commercial New Construction Program

Summit Blue is proposing a Commercial New Construction (CNC) Program to commercial customers in the Hoosier Energy service territory that includes incentives to commercial customers for building more efficient new buildings, additions to existing buildings, and major remodeling projects, and installing energy-efficient commercial equipment and controls that are not required by building energy codes. [39]

Although the potential savings from commercial new construction are relatively minor compared to the opportunities that exist from existing commercial and industrial facilities, this program should be considered because initially installing high efficiency equipment is very cost effective, it may be cost prohibitive to retrofit existing equipment at a later date, and all newly-constructed commercial and industrial facilities in the service area can benefit from such a program. Numerous other electric cooperatives, municipal utilities, and investor-owned electric utilities offer this program to their customers.[40]

The objective of this program is to encourage commercial customers to design and construct more efficient buildings, and install high efficiency equipment in new facilities, additions to existing facilities and major remodeling projects. The incentive for commercial customers to purchase high efficiency commercial equipment is the lower energy use and lower operating costs over the useful equipment life and equal or improved performance.

Program incentives: The Commercial New Construction program is a customer incentive program that provides design assistance for architects and engineers designing new buildings and customer incentives for the installation of energy efficiency measures in new commercial facilities. The following table summarizes the incentives available for the energy efficiency measure covered under the CNC program.

[38] Ibid.

[39] Equipment replacement in existing facilities (except for major remodeling projects) will be covered by the C&I Prescriptive and C&I Custom programs.

[40] See Summit Blue Consulting Benchmarking Analysis and Best Practices Assessment, for Hoosier Energy, September 2008.

Measure	Units	Annual Energy Savings (kWh) (per unit)	Summer Peak Savings (kW) (per unit)	Measure Cost (per unit)	Utility Incentive (per unit)
Lighting					
9-24W Screw-in CFL	lamp	229	0.08	$6.00	$1.50
Over 24W Pin-Based CFL	lamp	280	0.09	$10.50	$2.63
Premium T8/T5 w/Electronic Ballast	fixture	157	0.05	$51.00	$12.75
Delamping w/Reflectors (2 lamp)	fixture	174	0.06	$30.00	$7.50
LED Exit	fixture	206	0.03	$40.00	$10.00
Occupancy Sensor (8 hrs/day)	sensor	443	0.11	$85.00	$21.25
Daylighting (perimiter zone)	sensor	1545	0.82	$800.00	$200.00
175W PS MH HID Indoor	fixture	1189	0.40	$197.00	$49.25
250W PS MH HID Indoor	fixture	651	0.22	$220.00	$55.00
250W PS MH HID Outdoor	fixture	651	0.00	$220.00	$55.00
Motor & Other					
Prem Motor < =10 HP	horsepower	75	0.02	$50.00	$12.50
Prem Motor > 10HP	horsepower	35	0.01	$30.00	$7.50
Variable Speed Drives Added to HVAC Motors	horsepower	760	0	$199.00	$49.75
Hot Water					
High Efficiency Water Heater	tank	55	0.06	$83.00	$20.75
Heat Pump Water Heater	tank	105	0.11	$910.00	$227.50
Tankless Water Heat	tank	359	0.36	$300.00	$75.00
HVAC & Shell					
Packaged Terminal A/C 12.2 EER	ton of cooling	196	0.18	$101.00	$25.25
Programable Thermostat	per 1,000 sq.ft	891	0	$80.00	$20.00
Integrated Economizer Control	ton of cooling	582	0	$12.00	$3.00
High Efficiency HP 12.2 EER	ton of cooling	675	0.23	$170.00	$42.50

Projected Program Participation: The following table summarizes the projected participation for the commercial new construction program, by end-use, from 2009-2018.

		10-year Program Participants
Measure End-Use	Units	Commercial New Construction
Lighting	lamps/fixtures	13,063
Motor & Other	horsepower	4,030
Hot Water	tanks	9
HVAC & Shell	tons of cooling	1,769

Program Design and Implementation: Designated Hoosier Energy staff person(s) will provide program administration, marketing, vendor referrals, application and incentive processing, coordination of education and training activities, participation tracking and reporting, quality control, and technical support. Hoosier Energy account representatives are expected to promote the program to their customers. Hoosier Energy should strongly consider outsourcing building simulation modeling to a firm that specializes in providing this service. Several of the top-performing utility new construction DSM programs in the Midwest also outsource a lot of program promotion and marketing to architects and engineers at the modeling firm.

The C&I New Construction program is designed to:

- Provide design assistance to the architects and engineers that are designing new buildings. The key design assistance tool is building simulation modeling of more efficient building designs.

- Provide incentives to new facility owners for the installation of high-efficiency lighting, HVAC, building envelope, refrigeration and other equipment and controls.
- Provide a marketing mechanism for architects and engineers to promote energy efficient new buildings and equipment to end users.
- Overcome market barriers, including:
    - Customers' lack of awareness and knowledge about the benefits and costs of energy efficiency improvements.
    - Performance uncertainty associated with energy efficiency projects.
    - Additional first costs for energy efficient measures.
- Ensure that the participation process is clear, easy to understand and simple.

Program Allies: The program offers the following products and services:

- Education and promotional materials aimed at building owners and operators about the benefits of energy efficiency improvements and improved systems performance, including educational brochures, program promotional material, and website content.
- Educational and promotional efforts aimed at trade allies such as architect and engineers to help them promote efficiency measures to their customers.
- Incentives for building owners and managers to adopt the measures recommended by the program.

The program includes customer educational and promotional pieces designed to assist facility owners, operators and decision makers with the information necessary to improve the energy efficiency of the lighting, HVAC, building envelope, refrigeration, and other energy using systems in their new facilities. The program also includes customer and trade ally education to assist with understanding the technologies that are being promoted, the incentives that are offered, and how the program functions.

The marketing and communications strategy will be designed to inform customers of the availability and benefits of the program and how they can participate in the program. The strategy will include outreach to key partners and trade allies including architects and engineering firms, contractors and distributors, relevant professional and trade associations and other parties of interest in the market. An important part of the marketing plan will be content and functionality on the Hoosier Energy website, which will direct customers to information about the program. More specifically, the marketing and communications plan will include:

- Education seminars implemented in each market to provide details about how to participate in the program. The seminars will be tailored to the needs of business owners, building managers, architects, engineers, vendors, and contractors.
- A combination of strategies including major media advertising, outreach and presentations at professional and community forums and events, and through direct outreach to key customers and customer representatives. Marketing activities will include:
    - Brochures that describe the benefits and features of the program including program application forms and worksheets. The brochures will be mailed upon demand and distributed through the call center and http://www.hepn.com/ and will be available for various public awareness events (presentations, seminars etc).
    - Targeted direct mailings used to educate customers on the benefits of the program and explaining how they can apply.

  - o Customer and trade partner outreach and presentations (e.g. BOMA and other customer organizations) informing interested parties about the benefits of the program and how to participate.
  - o Print advertisements to promote the program placed in selected local media including local area newspapers and trade publications.
  - o Hoosier Energy website content providing program information resources, contact information, downloadable application forms and worksheets, and links to other relevant service and information resources.
  - o Hoosier Energy customer account representatives trained to promote the program to their customers.
  - o Presence at conferences and public events used to increase general awareness of the program and distribute program promotional materials.
  - o Presentations by the program manager to key customers and customer groups to actively solicit their participation in the program.
- The marketing strategy will identify key customer segments and groups for target marketing, and will prepare specific outreach activities for these customers.
- Hoosier Energy will design and develop the content, messaging, branding, and calls to action of all of the marketing and collateral materials used to promote the program.

Projected Savings: Approximately 3,170 MWh will be saved after 10 years based on the projected participation, with approximately 65 MWh saved in the first year. Additionally, projected participation will also result in a summer peak saving of 0.9 MW after 10 years. Summit Blue conducted a DSM benchmarking analysis for Hoosier Energy, including C&I new construction programs, and used the benchmarking results to set the DSM potential calibration MWh energy savings targets as a percent of sector sales.[41]

Additional detail, including annual energy and demand savings for this program can be found in Section 10.6.

Projected Cost Effectiveness:

Program	MWh Savings in 2018	Summer Peak MW Savings in 2018	Present Value of Total Benefits ($2009)	Present Value of Total Costs ($2009)	Benefit/Cost Ratio
Commercial New Construction	3,170	0.9	$2,322,549	$785,281	2.96

Projected Budgets: In the first year, the Commercial New Construction program has been assigned a small budget of approximately $8,000 that reflects relatively light levels of initial program participation. As program participation rises, the budget also increases. Over the 10 year program period, the total budget for the Commercial New Construction program is expected to total nearly $475,000. Incentives account for roughly 47% of the overall budget ($225,000). The remaining $249,000 is utilized for program administration (i.e. management, marketing, labor, data tracking and reporting and evaluation costs). A base program administration (for non-incentive costs) cost of $0.05875 per kWh was used based on the DSM benchmarking analysis conducted by Summit Blue for Hoosier Energy.[42]

Section 10.6 provides additional annual detail.

[41] Ibid.
[42] Ibid.

	10 Year Totals			
Program	Utility Incentives	Administrative Costs	Total Hoosier Costs	% of Total DSM Budget
Commercial New Construction	$224,824	$248,762	$473,586	0.6%

10.5 Recommended Commercial/Industrial Demand Response Program Plans

10.5.1 Commercial/Industrial Direct Load Control Program

Hoosier Energy should consider offering a Commercial and Industrial Direct Load Control (DLC) program to non-residential customers in the Hoosier service territory with central air conditioning or heat pump systems, specifically targeting small C&I customers, with Key Account customers being the secondary target market.

Program incentives: The DLC program provides rate discounts to participants who allow Hoosier Energy to cycle its customer's air conditioners or heat pumps during periods of peak system demand. A rate discount of approximately $5 per ton of air conditioning per summer month is the primary incentive for this program, although specific cycling strategies that achieve higher savings and provide a higher incentive may be arranged.

Measure	Units	Summer Peak Savings (kW) (per unit)	Utility Incentive (per unit)
Business Saver Switch (AC Load Control)	Tons	0.93	$5

Program Design and Implementation: Designated Hoosier Energy staff person(s) will provide program administration, marketing, vendor referrals, application and incentive processing, coordination of education and training activities, participation tracking and reporting, quality control, and technical support. Hoosier Energy account representatives are expected to promote the program to their customers. Alternatively, Hoosier Energy could outsource the program to an "implementation contractor". Hoosier Energy will likely want to sub-contract the DLC switch installations to HVAC or electrical contractors.

The primary goal of the program is to encourage Hoosier Energy's C&I customers to both shift their load away from peak demand periods and to reduce overall demand on the system during that peak period. This program also aims to increase the knowledge of the benefits of demand response within the non-residential customer base.

More specifically, the program is designed to:

- Install the enabling technologies used for this program, including installed switches to the air conditioning system and/or enhanced programmable thermostats.
- Provide incentives to facility owners and operators for the installation of the enabling technologies.
- Provide a marketing mechanism for HVAC equipment vendors, distributors and contractors to promote direct load control technologies to end users.
- Overcome market barriers, including:
  - Customers' lack of awareness and knowledge about the benefits and cost of DLC.
  - Performance uncertainty associated with DLC projects.
- Ensure that the participation process is clear, easy to understand and simple.

Certain barriers exist to the adoption of DLC equipment, including lack of awareness/knowledge about the benefits and costs of DLC technologies and technology performance uncertainties. This program is designed to help overcome these market barriers and encourage greater adoption of DLC equipment in the C&I market.

In addition to helping customers reduce and manage their demand costs, this program provides other societal and customer benefits. These include reduced greenhouse gas emissions, improved levels of service from energy expenditures, and lower overall rates and energy costs compared to other resource options.

The program is structured as a broadly applicable C&I DLC program since the demand savings for HVAC equipment is similar across many C&I market segments. Hoosier Energy could make participating in this program a condition of service for new construction customers. Having a simple program structure and rate discount provides customers with certainty and ease of use regarding the rate discount they will receive for installing en enabling technology.

The program's actual demand and energy savings will be determined through the program evaluation strategy discussed in a subsequent section. Evaluation activities should be planned at the same time as overall program planning, and implemented when the overall program is implemented, as will be discussed in more detail in the evaluation section.

The C&I DLC program includes customer educational and promotional pieces designed to assist facility owners, operators and decision makers with the information necessary to install DLC in their facilities. The program also includes customer and trade ally education to assist with understanding the enabling technologies that are being promoted, the incentives that are offered, and how the program functions. More specifically, the program offers the following products and services:

- Education and promotional materials aimed at building owners and operators about the benefits of DLC, including educational brochures, program promotional material, and website content.
- Educational and promotional efforts aimed at trade allies such as consulting engineers, HVAC vendors, distributors and contactors to help them promote DLC technologies to their customers.
- Rate discounts for building owners and managers to adopt the DLC technologies recommended by the program.

In addition to helping customers reduce and manage their demand costs, this program provides other societal and customer benefits. These include reduced greenhouse gas emissions, and lower overall rates and demand costs.

The program's actual demand savings will be determined through the program evaluation strategy discussed in the subsequent section. Evaluation activities should be planned at the same time as overall program planning, and implemented when the overall program is implemented, as will be discussed in more detail in the evaluation section.

Designated Hoosier Energy staff person(s) will provide program administration, marketing, vendor referrals, application and incentive processing, coordination of education and training activities, participation tracking and reporting, quality control, and technical support. Hoosier Energy account representatives are expected to promote the program to their customers. Alternatively, Hoosier Energy could outsource the program to an "implementation contractor".

Program Allies: The program includes customer educational and promotional pieces designed to assist facility owners, operators and decision makers with the information necessary to promote enlisting their facilities in the program. The program also includes customer education to assist with understanding the equipment needed to participate in the program, the rate discounts that are offered, and how the program functions.

The marketing and communications strategy will be designed to inform customers of the availability and benefits of the program and how they can participate in the program. The strategy will include outreach to customers directly and via HVAC companies. The Hoosier Energy website will direct customers to information about the program. More specifically, the marketing and communications plan will include:

- Direct mail and outreach to customers and customer representatives. Marketing activities will include:
    - Brochures that describe the benefits and features of the program including program application forms and worksheets. The brochures will be mailed upon demand.
    - Targeted direct mailings used to educate customers on the benefits of the program and explaining how they can apply.
    - Hoosier Energy website content providing program information resources, contact information, downloadable application forms and worksheets, and links to other relevant service and information resources.
    - Presentations by the program manager to key customers and customer groups to actively solicit their participation in the program.
- The marketing strategy will identify key customer segments and groups for target marketing, and will prepare specific outreach activities for these customers.
- Hoosier Energy will design and develop the content, messaging, branding, and calls to action of all of the marketing and collateral materials used to promote the program.

Projected Savings: Approximately 5.6 MW will be saved based on the projected participation, with 0.2 MW saved in the first year (2010). Summit Blue conducted a DSM benchmarking analysis for Hoosier Energy, including C&I demand response programs, and used the benchmarking results to set the DSM potential calibration MW energy savings targets as a percent of sector sales.[43]

Additional demand savings detail for this program can be found in Section 10.6.

Projected Cost Effectiveness:

Program	MWh Savings in 2018	Summer Peak MW Savings in 2018	Present Value of Total Benefits ($2009)	Present Value of Total Costs ($2009)	Benefit/Cost Ratio
Commercial/Industrial AC Load Control	-	5.6	$1,629,332	$959,048	1.70

[43] See Summit Blue Consulting Benchmarking Analysis and Best Practices Assessment, for Hoosier Energy, September 2008.

Projected Budgets: In 2010 the Commercial and Industrial Direct Load Control program has been assigned a budget of approximately $50,000 and $1.5 million from 2010-2018. Rate discounts account for about 7% of the overall budget ($100,000). The remaining $1.4 million is utilized for program administration and management, marketing, labor, data tracking and reporting and evaluation costs. A base program administration (for non-incentive costs) cost of $255 per kW was used based on the Xcel Minnesota's program costs.[44]

	10 Year Totals			
Program	Utility Incentives	Administrative Costs	Total Hoosier Costs	% of Total DSM Budget
Commercial/Industrial AC Load Control	$100,461	$1,423,191	$1,523,651	1.3%

10.5.2 COMMERCIAL/INDUSTRIAL INTERRUPTIBLE RATE

A Commercial and Industrial Interruptible/Curtailable Rates Program is proposed for non-residential customers in the Hoosier Energy service territory that includes fixed rate discounts for non-residential customers who contract to reduce their loads to a specific and pre-determined level during peak demand periods. This program should be a top priority for Hoosier because successful DR programs act as a cost-effective (and often less expensive) resource alternative to traditional supply-side peak capacity, and the program helps to provide customers with greater control over their electricity bills. Numerous other electric cooperatives, municipal utilities, and investor-owned electric utilities offer this program to their customers.

Hoosier Energy's existing Interruptible Power Tariffs and Voluntary Curtailment Rider that is available to member cooperative customers shall continue as a part of Hoosier Energy's DR portfolio, although modification or incorporation vis-á-vis new programming may be recommended. The current programs offer a discounted rate in order to compensate voluntary customer service interruption or to incite the customer to curtail load to a specified level when determined necessary by the utility. The following table shows Hoosier's current DR programs and incentive levels.

Table 10.4: Hoosier Energy Existing DR Programs[45]

Program	Customer Class	Demand Charge	Energy Charge	Pricing Level
Interruptible Power Tariff 1	Min. 30-minute rolling demand of 1000 kW	$8.94/kW of Billing Demand $6.54/kW of Interruptible Demand	$0.033/kWh for all kWh	N/A
Interruptible Power Tariff 2	Min. 30-minute rolling demand of 500 kW	$8.94/kW of Firm Contract Demand $4.94/kW of Interruptible Demand	$0.03268/kWh for all kWh	N/A
Voluntary Curtailment Rider	Min. 30-minute rolling demand of 500 kW	N/A	N/A	Level A: $0.15 Level B: $0.25 Level C: $0.40

Program incentives: The primary incentive is an electric rate(s) that is lower than the traditional rate paid by the non-residential customer. This discounted rate is only available during times of system peak demand, as determined in the contract between Hoosier Energy and the participant.

[44] See Summit Blue Consulting Benchmarking Analysis and Best Practices Assessment, for Hoosier Energy, September 2008.
[45] Current programs approved by the Hoosier Energy Board of Directors. November 2006 & 2007.Hoosier Energy REC, Inc.

Of those programs providing discounted (time-differentiated) rates, the median IR rate discount is about $36/kW-year, or $3/kW-month, a bit higher than Hoosier is currently offering.

Measure	Units	Summer Peak Savings (kW) (per unit)	Utility Incentive per kW
Interruptable Rates	per application	0.87	$86

Program Design and Implementation: The primary goal of the program is to encourage Hoosier Energy's C&I customers to agree to reduce their electricity load to a pre-determined level during times of utility-determined system peak demand, in exchange for a discount in its electricity rates during that same period. This program also aims to educate and raise awareness on the benefits of demand response within the non-residential customer base.

Participating customers will sign contracts committing their companies to meeting the requirements for the programs they sign up for. Customers will initiate the load reductions themselves, and customers' loads will be monitored with interval data recorders to verify that they reduced their loads to the contracted levels.

This program would entail a discount rate during times of peak system demand and a default rate, used if participants decide to "opt-out" during times of a contracted "peak event". The utility determines when to call a "peak event" and the customer reduces their load accordingly.

Highly targeted marketing approaches are also a vital component for an Interruptible/Curtailable Rates program in the Hoosier service territory. Summit Blue recommends education and promotional efforts aimed at Hoosier Energy's Key Account customers about the benefits of demand response programs, including educational brochures and program promotional material to be distributed by key account representatives. The Hoosier web site (and the web sites of trade associations) can also be updated to provide information on the program.

Certain barriers exist to the enactment of interruptible/curtailable rates, including lack of awareness/knowledge about the benefits of reducing loads during specified times, and performance uncertainty associated with reducing loads when directed to do so by Hoosier Energy. Based on the surveys conducted by Summit Blue on behalf of Hoosier Energy's key account customers, only 20% knew about the IR programs, so awareness building should be a major initial program focus. This program is designed to help overcome these market barriers and encourage greater adoption of interruptible/curtailable rates in the C&I market. Hoosier Energy should ensure that the participation process is clear, easy to understand and simple.

In addition to helping customers reduce and manage their demand costs, this program provides other societal and customer benefits. These include reduced greenhouse gas emissions, and lower overall rates and demand costs.

The program's actual demand savings will be determined through the program evaluation strategy discussed in a subsequent section. Evaluation activities should be planned at the same time as overall program planning, and implemented when the overall program is implemented, as will be discussed in more detail in the evaluation section.

Designated Hoosier Energy staff person(s) will provide program administration, marketing, application and rate processing, determining when to call a "peak event", participation tracking and reporting, quality control, and technical support. Hoosier Energy account representatives are expected to promote the program to their customers.

Program Marketing: The program includes customer educational and promotional pieces designed to assist facility owners, operators and decision makers with the information necessary to promote enlisting their facilities in the program. The program also includes customer education to assist with understanding the equipment needed to participate in the program, the rate discounts that are offered, and how the program functions.

The marketing and communications strategy will be designed to inform customers of the availability and benefits of the program and how they can participate in the program. The strategy will include outreach to customers directly and via their key account representative. The Hoosier Energy website will direct customers to information about the program. More specifically, the marketing and communications plan will include:

- Seminars to provide details about how to participate in the program.
- Direct outreach to key customers and customer representatives. Marketing activities will include:
  - Brochures that describe the benefits and features of the program including program application forms. The brochures will be provided upon demand and distributed through key account representatives.
  - Hoosier Energy website content providing program information resources, contact information, downloadable application forms, and links to other relevant service and information resources.
  - Hoosier Energy customer account representatives trained to promote the program to their customers.
  - Presentations by the program manager to key customers and customer groups to actively solicit their participation in the program.
- The marketing strategy will identify key customer segments and groups for target marketing, and will prepare specific outreach activities for these customers by key account representatives.
- Hoosier Energy will design and develop the content, messaging, branding, and calls to action of all of the marketing and collateral materials used to promote the program.

Projected Savings: Approximately 11 MW will be saved after 10 years based on the projected participation, with approximately 0.4 MW saved in the first year of program implementation (2010). Summit Blue conducted a DSM benchmarking analysis for Hoosier Energy, including C&I demand response programs, and used the benchmarking results to set the DSM potential calibration MW energy savings targets as a percent of sector sales.[46]

Additional demand savings detail for this program can be found in Section 10.6.

Projected Cost Effectiveness:

[46] See Summit Blue Consulting Benchmarking Analysis and Best Practices Assessment, for Hoosier Energy, September 2008.

Program	MWh Savings in 2018	Summer Peak MW Savings in 2018	Present Value of Total Benefits ($2009)	Present Value of Total Costs ($2009)	Benefit/Cost Ratio
Commercial/Industrial Interruptable Rates	-	10.9	$3,274,711	$406,131	8.06

Projected Budgets: In 2010, the Commercial and Industrial Interruptible/Curtailable Rates program has been assigned a budget of approximately $55,000 and $1.53 million from 2010-2018. Rate discounts account for more than 61% of the overall budget ($935,000). The remaining $600,000 is utilized for program administration and management, marketing, labor, data tracking and reporting and evaluation costs. A base program administration (for non-incentive costs) cost of $55 per kW was used based on Xcel Minnesota's program costs.[47]

	10 Year Totals			
Program	Utility Incentives	Administrative Costs	Total Hoosier Costs	% of Total DSM Budget
Commercial/Industrial Interruptable Rates	$935,454	$598,256	$1,533,710	1.3%

10.6 Commercial/Industrial Energy Efficiency and Demand Response Program Potential Summary

The following tables present detailed information regarding the annual participation, energy savings, demand savings, and Hoosier Energy budgets for each of the three recommended commercial/industrial energy efficiency and two demand response programs. In total, the 5 commercial/industrial DSM programs result in 106,683 MWh of annual energy savings in 2018, or 3.8% of forecasted C/I energy sales. The programs are also estimated to achieve summer peak demand savings of 44.8 MW, or 10.6% of the forecast C/I summer peak.

The Hoosier Energy budget for the complete portfolio of recommended commercial /industrial DSM programs ranges from $843,000 in 2009 to $2.3 million in 2018. The annual growth in budget dollars is impacted by a variety of factors including increased participation over time, new program offerings, and periodic program evaluation. In total, incentives account for approximately 55% of the total budget, while administrative costs (marketing, program delivery, incentive fulfillment, and evaluation) account for the remaining 45%.

The benefits from the combined commercial/industrial energy efficiency and demand response programs are greater than the total costs by a ratio of $2.46 to $1.

[47] See Summit Blue Consulting Benchmarking Analysis and Best Practices Assessment, for Hoosier Energy, September 2008.

Table 10.5: Commercial/Industrial Energy Efficiency Program Portfolio Detail: Annual Participation, Savings, and Budgets by Program

C/I Prescriptive Measures - Existing Buildings	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Incremental Annual Participants	35,795	43,160	54,607	67,105	101,010	124,007	120,433	108,819	104,382	101,056
Cumulative Annual Participants	35,795	78,955	131,181	195,285	288,537	404,518	512,905	610,287	699,950	787,535
Cumulative Annual MWh Savings	4,979	10,606	17,535	25,338	36,646	49,629	61,407	71,717	80,906	89,510
% of Annual C/I Sales	*0.22%*	*0.46%*	*0.70%*	*1.00%*	*1.40%*	*1.88%*	*2.31%*	*2.67%*	*2.99%*	*3.19%*
Cumulative Annual MW Savings	1.2	2.5	4.3	6.3	9.5	13.1	16.4	19.2	21.6	23.9
% of Annual C/I Summer Peak Demand	*0.35%*	*0.72%*	*1.13%*	*1.66%*	*2.42%*	*3.30%*	*4.09%*	*4.75%*	*5.32%*	*5.67%*
Incentives	$389,882	$462,651	$542,584	$689,902	$1,042,724	$1,305,954	$1,228,999	$1,102,047	$1,013,565	$975,511
Administration	$282,137	$315,620	$415,243	$511,916	$776,240	$848,672	$819,225	$721,553	$690,099	$640,200
Total Program Costs	*$672,019*	*$778,271*	*$957,827*	*$1,201,818*	*$1,818,964*	*$2,154,626*	*$2,048,224*	*$1,823,600*	*$1,703,664*	*$1,615,711*

C/I Custom Measures	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Incremental Annual Participants	59	30	43	73	85	84	83	81	80	83
Cumulative Annual Participants	59	89	132	205	290	374	457	538	618	700
Cumulative Annual MWh Savings	1,185	1,790	2,649	4,099	5,798	7,478	9,139	10,750	12,352	14,002
% of Annual C/I Sales	*0.05%*	*0.08%*	*0.11%*	*0.16%*	*0.22%*	*0.28%*	*0.34%*	*0.40%*	*0.46%*	*0.50%*
Cumulative Annual MW Savings	0.3	0.4	0.7	1.0	1.4	1.9	2.3	2.7	3.1	3.5
% of Annual C/I Summer Peak Demand	*0.09%*	*0.13%*	*0.18%*	*0.27%*	*0.37%*	*0.47%*	*0.57%*	*0.67%*	*0.76%*	*0.83%*
Incentives	$103,722	$52,861	$75,177	$126,917	$148,648	$146,962	$145,342	$141,020	$140,122	$144,446
Administration	$59,332	$30,263	$43,061	$72,656	$85,045	$84,094	$83,172	$80,703	$80,233	$82,656
Total Program Costs	*$163,054*	*$83,124*	*$118,238*	*$199,572*	*$233,693*	*$231,056*	*$228,514*	*$221,723*	*$220,355*	*$227,102*

Commercial New Construction	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Incremental Annual Participants	304	737	1,087	1,968	1,909	2,262	2,343	2,471	3,241	2,548
Cumulative Annual Participants	304	1,041	2,096	3,939	5,675	7,651	9,696	11,740	14,538	16,514
Cumulative Annual MWh Savings	65	219	438	793	1,117	1,491	1,879	2,266	2,796	3,170
% of Annual C/I Sales	*0.00%*	*0.01%*	*0.02%*	*0.03%*	*0.04%*	*0.06%*	*0.07%*	*0.08%*	*0.10%*	*0.11%*
Cumulative Annual MW Savings	0.0	0.1	0.1	0.2	0.3	0.4	0.5	0.6	0.8	0.9
% of Annual C/I Summer Peak Demand	*0.00%*	*0.01%*	*0.03%*	*0.05%*	*0.08%*	*0.10%*	*0.13%*	*0.16%*	*0.19%*	*0.21%*
Incentives	$3,683	$8,271	$12,617	$23,302	$24,255	$27,689	$28,686	$28,877	$39,296	$28,148
Administration	$4,466	$10,436	$15,215	$26,607	$24,991	$29,327	$30,386	$32,107	$42,047	$33,180
Total Program Costs	*$8,149*	*$18,707*	*$27,832*	*$49,909*	*$49,246*	*$57,016*	*$59,071*	*$60,984*	*$81,343*	*$61,328*

Table 10.6: Commercial/Industrial Demand Response Program Portfolio Detail: Annual Participation, Savings, and Budgets by Program

Commercial/Industrial AC Load Control	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Incremental Annual Participants	0	402	502	777	1,512	1,984	1,897	1,814	1,734	1,658
Cumulative Annual Participants	0	402	904	1,681	3,193	5,177	7,074	8,888	10,622	12,280
Cumulative Annual MWh Savings	-	-	-	-	-	-	-	-	-	-
% of Annual C/I Sales	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*
Cumulative Annual MW Savings	0.0	0.2	0.4	0.8	1.5	2.4	3.2	4.0	4.8	5.6
% of Annual C/I Summer Peak Demand	*0.00%*	*0.05%*	*0.11%*	*0.20%*	*0.37%*	*0.59%*	*0.80%*	*1.00%*	*1.19%*	*1.32%*
Incentives (to C/I Consumers)	$0	$3,288	$4,110	$6,354	$12,367	$16,233	$15,521	$14,839	$14,187	$13,562
Administration	$0	$46,576	$58,225	$90,021	$175,202	$229,963	$219,875	$210,220	$200,978	$192,132
Total Program Costs	*$0*	*$49,863*	*$62,335*	*$96,375*	*$187,570*	*$246,195*	*$235,396*	*$225,059*	*$215,164*	*$205,694*

Commercial/Industrial Interruptable Rates	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Incremental Annual Participants	0	185	230	353	679	869	988	972	1,038	1,312
Cumulative Annual Participants	0	185	415	768	1,447	2,316	3,119	3,861	4,546	5,180
Cumulative Annual MWh Savings	-	-	-	-	-	-	-	-	-	-
% of Annual C/I Sales	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*
Cumulative Annual MW Savings	0.0	0.4	0.9	1.6	3.0	4.9	6.5	8.1	9.5	10.9
% of Annual C/I Summer Peak Demand	*0.00%*	*0.11%*	*0.23%*	*0.42%*	*0.77%*	*1.23%*	*1.64%*	*2.01%*	*2.35%*	*2.58%*
Incentives (to C/I Consumers)	$0	$33,442	$41,552	$63,748	$122,563	$156,944	$145,028	$134,004	$123,804	$114,368
Administration	$0	$21,388	$26,574	$40,769	$78,384	$100,371	$92,751	$85,700	$79,177	$73,142
Total Program Costs	*$0*	*$54,830*	*$68,126*	*$104,517*	*$200,947*	*$257,315*	*$237,779*	*$219,704*	*$202,981*	*$187,510*

Table 10.7: Combined Commercial/Industrial Energy Efficiency and Demand Response Program Portfolio Detail: Annual Participation, Savings, and Budgets by Program

All C/I DSM (EE & DR) Combined	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Incremental Annual Participants	36,158	44,515	56,470	70,276	105,194	129,206	125,744	114,157	110,476	106,656
Cumulative Annual Participants	36,158	80,672	134,729	201,878	299,142	420,035	533,251	635,313	730,273	822,208
Cumulative Annual MWh Savings	6,230	12,614	20,622	30,230	43,561	58,598	72,424	84,734	96,053	106,683
% of Annual C/I Sales	*0.28%*	*0.54%*	*0.82%*	*1.19%*	*1.66%*	*2.22%*	*2.72%*	*3.16%*	*3.55%*	*3.80%*
Cumulative Annual MW Savings	1.5	3.6	6.3	9.9	15.7	22.6	28.9	34.6	39.9	44.8
% of Annual C/I Summer Peak Demand	*0.44%*	*1.03%*	*1.68%*	*2.61%*	*4.01%*	*5.70%*	*7.23%*	*8.58%*	*9.80%*	*10.62%*
Incentives (to C/I Consumers)	$497,287	$560,513	$676,041	$910,222	$1,350,558	$1,653,782	$1,563,575	$1,420,787	$1,330,974	$1,276,035
Administration	$345,936	$424,283	$558,317	$741,969	$1,139,862	$1,292,427	$1,245,409	$1,130,283	$1,092,534	$1,021,309
Total Program Costs	*$843,222*	*$984,795*	*$1,234,358*	*$1,652,191*	*$2,490,420*	*$2,946,209*	*$2,808,985*	*$2,551,071*	*$2,423,508*	*$2,297,344*

Total NPV Benefits ($2009) for Comm/Ind DSM:	$85,764,256
Total NPV Costs ($2009) for Comm/Ind DSM:	$34,919,861
TRC Benefit Cost Ratio:	2.46

10.7 ALL RECOMMENDED PROGRAMS – COMBINED PROGRAM POTENTIAL RESULTS AT GENERATION

The following tables present detailed information regarding the energy savings, demand savings, and Hoosier Energy budgets for all energy efficiency and demand response programs and include energy and demand savings at the generation level. In total, the DSM programs result in 269,351 MWh of annual energy savings in 2018, or 3.5% of forecasted total energy sales in 2018. Residential energy efficiency programs achieve approximately 163,000 MWh (58% of projected energy savings), while the three commercial energy efficiency programs are projected to save approximately 117,000 MWh in 2018. After accounting for system losses, the total energy savings at the generation level is 294,921 MWh.

The programs are also estimated to achieve summer peak demand savings of 126 MW (end-consumer level) / 139 MW (generation level). These savings represent 8.2% of the forecast 2018 summer peak. The residential and commercial/industrial energy efficiency programs combined to save nearly 66 MW of peak demand in 2018, and the residential and commercial/industrial demand response programs add an additional 60 MW of peak demand savings.

The Hoosier Energy budget for the complete portfolio of recommended DSM programs ranges from $4.95 million in 2009 to $10.2 million in 2018. Over the 10 year time period in which recommended programs were analyzed, the total budget for all DSM programs sums to $81.4 million. The annual growth in budget dollars is impacted by a variety of factors including increased participation over time, new program offerings, and periodic program evaluation. In total, incentives account for approximately 75% of the total budget, while administrative costs (marketing, program delivery, incentive fulfillment, and evaluation) account for the remaining 25%.

Residential energy efficiency programs require the largest investment from Hoosier Energy. Roughly 69% of the Hoosier budget is reserved for residential energy efficiency initiatives. Approximately 21% of the Hoosier budget is reserved for commercial/industrial energy efficiency programs, with the remaining 10% invested in demand response programs.

While the initial investments in energy efficiency and demand response required by Hoosier and its members are significant, the benefits are even greater. In total, the benefits from the combined DSM energy efficiency and demand response programs are greater than the costs by a ratio of $2.37 to $1.

Table 10.8: Cumulative Annual MWh Savings by Program (Residential & Commercial/Industrial Sectors) and Benefit/Cost Results

	Cumulative Annual MWH Savings by Program									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
1 Residential Energy Efficiency Programs										
Residential Lighting Program	15,048	33,106	52,673	73,867	64,550	75,362	84,245	82,431	78,291	72,482
Heating & Cooling Program (SH&C/WH)	1,632	3,620	5,607	7,595	9,583	11,570	13,979	16,830	19,927	23,418
Home Energy Audit & Weatherization	5,089	12,135	18,594	24,466	26,558	29,951	33,137	35,789	38,363	40,898
Touchstone Energy Homes (New Construction)	426	1,107	2,002	3,066	3,800	5,155	6,848	8,804	11,024	13,432
Second Appliance Turn-In Program	390	1,249	2,399	3,756	5,316	6,664	8,083	9,467	10,840	12,438
Education Campaign	0	0	0	0	0	0	0	0	0	0
Energy Star Appliances	0	0	0	0	0	0	0	0	0	0
Geothermal Heat Pumps	0	0	0	0	0	0	0	0	0	0
2 Commercial/Industrial Programs										
C/I Prescriptive - Existing Buildings	4,979	10,606	17,535	25,338	36,646	49,629	61,407	71,717	80,906	89,510
C/I Prescriptive - New Construction	65	219	438	793	1,117	1,491	1,879	2,266	2,796	3,170
C/I Custom	1,185	1,790	2,649	4,099	5,798	7,478	9,139	10,750	12,352	14,002
Program Savings Totals in MWh										
Residential Energy Efficiency Programs	22,585	51,216	81,275	112,750	109,806	128,702	146,292	153,321	158,445	162,668
Commercial/Industrial Programs	6,230	12,614	20,622	30,230	43,561	58,598	72,424	84,734	96,053	106,683
Subtotal MWh Savings	**28,815**	**63,831**	**101,897**	**142,980**	**153,367**	**187,300**	**218,716**	**238,055**	**254,498**	**269,351**
Subtotal MWh @ Generation	**31,553**	**69,892**	**111,578**	**156,559**	**167,928**	**205,087**	**239,489**	**260,667**	**278,677**	**294,921**
Annual Sales Forecast @ Generation	*6,961,766*	*7,110,654*	*7,528,257*	*7,629,069*	*7,794,592*	*7,914,329*	*8,028,505*	*8,145,085*	*8,264,473*	*8,471,327*
Savings as a % of Annual Sales	*0.5%*	*1.0%*	*1.5%*	*2.1%*	*2.2%*	*2.6%*	*3.0%*	*3.2%*	*3.4%*	*3.5%*

Total NPV Benefits ($2009) for All Sectors DSM:	$298,210,622
Total NPV Costs ($2009) for All Sectors DSM:	$125,686,877
TRC Benefit Cost Ratio:	2.37

Table 10.9: Cumulative Annual Peak Demand Savings (MW) by Program (Residential & Commercial/Industrial Sectors)

	Cumulative Annual Summer Peak Savings by Program									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
1 Residential Energy Efficiency Programs										
Residential Lighting Program	1.5	3.4	5.4	7.5	6.6	7.7	8.6	8.4	8.0	7.4
Heating & Cooling Program (SH&C/WH)	1.2	2.6	4.0	5.4	6.8	8.2	9.9	11.9	14.3	17.0
Home Energy Audit & Weatherization	1.1	2.7	4.1	5.4	6.2	7.0	7.7	8.3	8.9	9.5
Touchstone Energy Homes (New Construction)	0.1	0.3	0.5	0.7	0.9	1.2	1.6	2.1	2.6	3.1
Second Appliance Turn-In Program	0.0	0.1	0.2	0.3	0.4	0.6	0.7	0.8	0.9	1.0
Education Campaign	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Energy Star Appliances	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Geothermal Heat Pumps	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2 Commercial/Industrial Programs										
C/I Prescriptive - Existing Buildings	1.2	2.5	4.3	6.3	9.5	13.1	16.4	19.2	21.6	23.9
C/I Prescriptive - New Construction	0.0	0.1	0.1	0.2	0.3	0.4	0.5	0.6	0.8	0.9
C/I Custom	0.3	0.4	0.7	1.0	1.4	1.9	2.3	2.7	3.1	3.5
3 Residential Demand Response Programs										
Residential Water Heating Control	0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.1	18.1
Residential Air Conditioning Control	0.0	2.8	5.6	8.4	11.2	14.0	16.9	19.7	22.5	25.3
Residential Pool Control	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3 C/I Demand Response Programs										
Commercial	0.0	0.2	0.4	0.8	1.5	2.4	3.2	4.0	4.8	5.6
Commercial	0.0	0.4	0.9	1.6	3.0	4.9	6.5	8.1	9.5	10.9
Program Savings Totals in MW										
Residential Energy Efficiency Programs	3.9	9.0	14.1	19.3	20.9	24.7	28.5	31.5	34.6	38.0
Commercial/Industrial Programs	1.5	3.0	5.0	7.6	11.3	15.4	19.2	22.5	25.5	28.3
Residential Demand Response Programs	0.0	4.8	9.6	14.4	19.3	24.1	28.9	33.7	38.5	43.4
C/I Demand Response Programs	0.0	0.6	1.3	2.4	4.5	7.2	9.8	12.1	14.4	16.5
Subtotal Summer MW Savings	**5.4**	**17.4**	**30.0**	**43.7**	**55.9**	**71.4**	**86.3**	**99.8**	**113.0**	**126.2**
Subtotal MW @ Generation	**5.9**	**19.1**	**33.0**	**48.0**	**61.4**	**78.4**	**94.8**	**109.7**	**124.1**	**138.6**
Annual Summer Peak Demand Forecast @ Generation	*1,398*	*1,426*	*1,505*	*1,522*	*1,551*	*1,578*	*1,602*	*1,626*	*1,650*	*1,691*
Savings as a % of Summer Peak Demand	*0.4%*	*1.3%*	*2.2%*	*3.2%*	*4.0%*	*5.0%*	*5.9%*	*6.7%*	*7.5%*	*8.2%*

Table 10.10: Annual Utility Budget Summary for Residential and Commercial/Industrial DSM Recommended Programs (Dollars in thousands)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total	NPV ($2009)
Residential Energy Efficiency												
Incentives	$3,298	$4,284	$4,299	$4,315	$4,046	$3,909	$4,305	$4,813	$5,225	$5,784	$44,278	$33,852
Administrative Costs	$804	$993	$1,128	$1,085	$1,095	$1,223	$1,254	$1,367	$1,592	$1,603	$12,143	$9,177
Hoosier Subtotal	*$4,102*	*$5,277*	*$5,427*	*$5,400*	*$5,141*	*$5,131*	*$5,559*	*$6,180*	*$6,817*	*$7,387*	*$56,421*	*$43,029*
C/I Energy Efficiency												
Incentives	$497	$524	$630	$840	$1,216	$1,481	$1,403	$1,272	$1,193	$1,148	$10,204	$7,161
Administrative Costs	$346	$356	$474	$611	$886	$962	$933	$834	$812	$756	$6,971	$4,913
Hoosier Subtotal	*$843*	*$880*	*$1,104*	*$1,451*	*$2,102*	*$2,443*	*$2,336*	*$2,106*	*$2,005*	*$1,904*	*$17,175*	*$12,073*
Residential Demand Response												
Incentives	$0	$477	$477	$477	$477	$477	$477	$477	$477	$477	$4,295	$2,889
Administrative Costs	$0	$247	$23	$23	$24	$25	$26	$26	$27	$28	$449	$338
Hoosier Subtotal	*$0*	*$724*	*$500*	*$501*	*$501*	*$502*	*$503*	*$504*	*$504*	*$505*	*$4,744*	*$3,227*
C/I Demand Resposne												
Incentives	$0	$37	$46	$70	$135	$173	$161	$149	$138	$128	$1,036	$703
Administrative Costs	$0	$68	$85	$131	$254	$330	$313	$296	$280	$265	$2,021	$1,365
Hoosier Subtotal	*$0*	*$105*	*$130*	*$201*	*$389*	*$504*	*$473*	*$445*	*$418*	*$393*	*$3,057*	*$2,068*
EE & DR Programs COMBINED												
Incentives	$3,795	$5,322	$5,452	$5,703	$5,874	$6,040	$6,346	$6,711	$7,033	$7,537	$59,813	$44,604
Administrative Costs	$1,150	$1,664	$1,709	$1,851	$2,259	$2,540	$2,525	$2,524	$2,712	$2,652	$21,584	$15,792
Hoosier Subtotal	*$4,945*	*$6,986*	*$7,161*	*$7,553*	*$8,132*	*$8,580*	*$8,871*	*$9,235*	*$9,745*	*$10,189*	*$81,397*	*$60,397*

11 CONSIDERATION OF REVISIONS TO THE HOOSIER TARIFF TO SUPPORT THE IMPLEMENTATION OF DEMAND RESPONSE PROGRAMS

(Note: The below discussion of the Hoosier Standard Tariff is reflective of the structure as approved by the Board of Directors at its March 31, 2009 meeting.)

Concurrent with the screening evaluation of DSM measures and the IRP process, GDS worked with Hoosier to evaluate the structure of the Standard Tariff applicable for sales between Hoosier and its member systems. In addition to the "traditional" ratemaking objectives of meeting the G&T revenue requirements in a manner that is current, stable, predictable, and fair (matches cost recovery with cost causation), the primary purpose of GDS' involvement in the effort was to ensure that the tariff contains appropriate incentives to the members for the implementation of DSM programs with a focus on demand response. The Hoosier members had determined that this evaluation should be conducted at this time to ensure that the right incentives were in place prior to their evaluation of the programs at the local level.

As described throughout this report, potential benefits from DSM programs have been quantified and compared to the expected costs for new generation resources. Selected DSM programs, with a focus on residential load control, were determined to offer the benefit of being a more economic alternative than building or buying capacity to meet some future needs. The evaluation of incentives was conducted to ensure that the benefits of the DSM measures are appropriately flowed through to the members.

Besides the evaluation of DSM incentives, other matters addressed in the process of revising the tariff structure included the update of the Cost of Service study as well as shifting costs to base rates from the power cost tracker. All of these issues created an opportunity in 2008 to begin a broad review of tariffs leading to an April 1, 2010 implementation date.

11.1 SUMMARY EVALUATION OF PRESENT TARIFF

Efficiency programs can function well under current G&T wholesale tariffs but current tariffs offer less support to members for residential load control programs. Residential load control requires an investment in control technology. Member system participation is voluntary, and a program that successfully promotes participation requires a tariff design that enables members to recover investments over a reasonable period of time through wholesale cost savings, enables Hoosier Energy to recover related costs, and allows all members to collectively and proportionally share in savings from avoided generation costs. Current tariffs work well in many respects but were not designed to distribute load control benefits.

Analysis of Hoosier's present tariff structure concluded that more of the power supply benefits resulting from the implementation of demand response should be provided to the member that has made the investment in the demand response measure. That is, under the present tariff most of the demand response benefits are shared among all of the Hoosier members and not flowed through to the individual member that has made the investment. Without sufficient incentive provided through the Standard Tariff structure, the members would be unlikely to make the investment in load control technology even though the programs are beneficial for the overall system. Figures 9.1 and 9.2 below demonstrate the estimated benefit-cost ratios from the perspective of the average REMC for the direct control of air conditioning and water heating under the present tariff structure[48] and the revised tariff structure[49]. The charts clearly demonstrate that under the present tariff, the benefits are not sufficient to incent the member to pursue direct control programs, while under the revised tariff, the benefits are significantly improved.

Figure 11.1: Benefit-Cost Ratio Average REMC: Direct Control AC – 50% Cycling

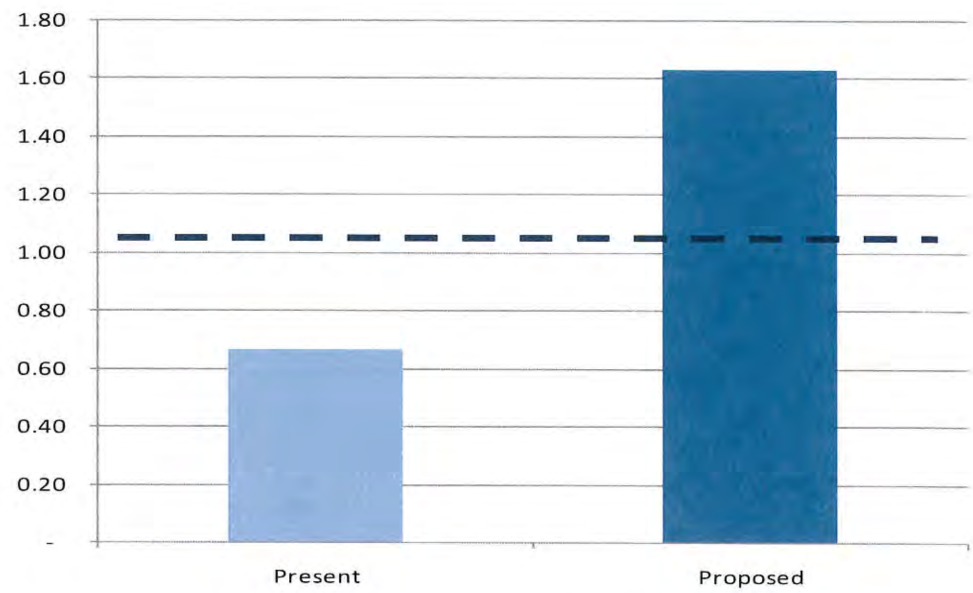
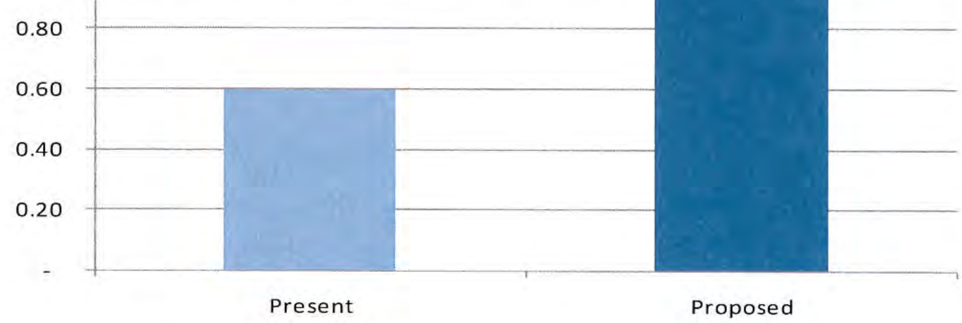


Figure 11.2: Benefit-Cost Ratio Average REMC: Direct Control of Water Heating



[48] The Standard Tariff that became effective January 1, 2009
[49] The revised Standard Tariff structure as approved at the March 31, 2009 meeting of the Hoosier Board of Directors

11.2 Process

Member CEO's/Managers and G&T staff worked closely in 2008 and early 2009 to determine how best to incorporate DSM considerations into the terms, conditions and rates in updated wholesale tariffs. During these meetings, a number of alternative tariff components and overall tariff structures were evaluated to determine their effectiveness in providing appropriate demand response incentives. In addition, meetings were held with the Marketing Committee, the Finance Committee and the Board of Directors to ensure that the process was open and provided the opportunity for all members to participate.

The Hoosier Board of Directors approved the revised tariff at its March 31, 2009 meeting, with tariff becoming effective April 1, 2010. Key revisions to the Standard Tariff related to the implementation of demand response programs are summarized below.

11.3 Revised Tariff Structure

It was concluded during the tariff evaluation that the tariff structure could be modified to provide more cost based signals than the present structure which in turn, would result in appropriate (and increased) incentives to the members. Cost-based price incentives not only provide the right price signal to the member that pursues load control but also helps ensure that some of the beneficial impacts of demand response are retained at the Hoosier level and are proportionally shared among all Members.

Although not explicitly referenced in revised tariffs, the proposed load control program shall be centrally controlled by Hoosier Energy. Control criteria will be primarily based upon reduction in Hoosier Energy system peaks demands, but load control will also be operated for purposes of emergency demand response within MISO and opportunities to avoid costly market energy purchases. Load control protocols will also consider the impact on consumer satisfaction. Based on these load control criteria, the primary mechanism for the flow through of power supply benefits to the members will be the Production Demand Charge. Revisions to the Energy Charge and Transmission Demand Charge also impact the benefits available to the member.

1) <u>Production Demand Charge</u> - To support residential control programs, significant changes have been developed for recovering production and demand-related costs in the new Standard Tariff design. Charges are currently based upon demand (kW) at a delivery point during each month's 60-minute coincident peak period (i.e. a "12-CP" basis). The $/kW rate is the same in July when system peak loads and market costs may be highest and April or September when system loads costs may be very low. Maximizing load control savings under the current tariff, and supporting members ability to recover investments, would require that switches be operated in all 12 monthly peak hours including off-peak months when loads and market prices are low, load reduction has minimal system value, and with potential negative impacts on consumer satisfaction.

   The revised tariff better aligns the G&T tariff and system capacity costs through higher seasonal demand charges that more accurately reflect the greater cost of capacity in summer and winter peak months. The tariff bases production demand in off-peak periods on average use in peak periods. Charges are calculated based on metered demand in June, July and August with demand in September, October and November based on the average of these three peak months. To better ensure that the members are able to earn a return on their load control investment, the metered, coincident demands used for member billing will be based on the Hoosier monthly system maximum load during which load control was operated. A similar mechanism at a lower rate is developed for the peak winter months of December, January and February with demand in March, April and May based on averages from the three peak months.

The tariff revisions better support load control by reducing the number of months in which load must be controlled to achieve savings, increases the number of months in which members benefit from peak load reductions, restricts control to months when reductions will most likely produce system benefits, mitigates impacts on consumers, and provides additional protection from cost shifting to members that don't participate in load control programs.

2) Energy Charge - The revised tariffs also include significant changes in energy charges. Currently, all of Hoosier's tariffs include a standard, flat energy charge (plus tracker charges). Revised tariffs include new and different on-peak and off-peak energy charges (plus tracker charges) with on-peak rates set much higher than off-peak energy rates. On-peak periods for energy charges are narrowly defined as including ten hours per day on summer weekdays and two, three-hour periods on winter weekdays. All weekend days and all days in "valley" months of March through May and September through November are defined as off-peak for energy charges. This change is intended to recover energy costs in a manner more consistent with the way that they are incurred and provide a clear price signal and incentive to members and end consumers to support and promote load shifting to off-peak periods.

3) Transmission Demand Charge - Costs related to 69 kV radial transmission lines were shifted from transmission to substation/radial line demand charges to achieve a more consistent treatment of radial line costs. Transmission charges remain unbundled in the revised Standard Tariff. Current transmission charges are based on non-coincidental (NCP) demand at each point of delivery during the highest "rolling 30-minute interval" in the month. Charges in the new Standard Tariff are based upon system coincident demand (CP) or the 60-minute clock hour during the month between 7:00 a.m. and 11:00 p.m. (EST) in which total system demand reaches its highest point.

The revision in the Transmission Demand Charge can reduce the members' cost to serve Electric Thermal Storage (ETS) heating loads under certain circumstances. Under the present tariff, it is possible for a member to incur additional cost under the Transmission Demand Charge if the ETS load on a delivery point causes a monthly peak demand on the substation during the over-night hours when the heating system is charging the bricks for heat storage. Under the revised tariff, the billing demand has been modified to a demand coincident with the Hoosier system monthly peak, which is very unlikely to occur during the hours that the ETS is charging.

One of the significant outcomes of the revised tariff structure is that it results in minimal cost shifting between the Members. It was concluded during the rate development process that the amount of cost shifting was small enough to not cause the need for any special treatment, such as a phase-in period to the revised tariff structure. With no phase-in, the revised demand response incentives can be implemented in 2010 without delay.

12 OVERALL CONCLUSIONS AND RECOMMENDATIONS

In summary, the potential for electric energy efficiency and demand response in the Hoosier Energy member service territory by 2028 is significant. The estimated achievable potential electricity savings would amount to 624,440 MWh a year (a 7% reduction in projected 2028 MWh sales). Energy efficiency resources combined with expanded demand response can also serve to reduce the overall summer peak demand over the same period by 297 MW, or 15% of the forecasted 2028 summer peak.

Based on these results, a portfolio of DSM programs was designed for Hoosier Energy that could achieve significant energy and demand savings at a pre-determined level of spending. The program portfolio is based on a targeted budget of $5 and $7 million in 2009 and 2010, respectively, followed by an increase of 5% annually from 2011-2018. In total, the combined budget from 2009-2018 under this scenario is approximately $81.4 million. The result is 13 suggested programs that demonstrate electric energy efficiency and demand response resources can play an expanded role in Hoosier Energy's resource mix over the next decade.

Table 12.1: Recommended Program Summary

	Cumulative Annual MWh Savings - 2018	Cumulative Annual MW Savings - 2018	NPV Benefits $2009	NPV Costs (Utility + Participants) $2009	TRC B/C Ratio
1 Residential Energy Efficiency Programs			*$ in millions*		
Residential Lighting Program	72,482	7.4	$52.4	$8.0	6.59
Heating & Cooling Program (SH&C/WH)	23,418	17.0	$90.3	$43.0	2.10
Home Energy Audit & Weatherization	40,898	9.5	$38.3	$18.3	2.09
Touchstone Energy Homes (New Construct	13,432	3.1	$14.1	$7.6	1.86
Second Appliance Turn-In Program	12,438	1.0	$4.6	$2.3	2.02
Energy Star Appliances	0	0.0	$0.0	$0.0	N/A
Geothermal Heat Pumps	0	0.0	$0.0	$0.0	N/A
Education Campaign	0	0.0	$0.0	$3.1	N/A
2 Commercial/Industrial Programs					
C/I Prescriptive - Existing Buildings	89,510	23.9	$68.1	$28.8	2.37
C/I Prescriptive - New Construction	3,170	0.9	$2.3	$0.8	2.96
C/I Custom	14,002	3.5	$10.4	$4.0	2.61
3 Residential Demand Response Programs					
Residential Air Conditioning Control	-	25.3	$7.2	$3.1	2.37
Residential Water Heating Control	-	18.1	$5.4	$5.5	0.99
4 C/I Demand Response Programs					
Commercial/Industrial AC Load Control	-	5.6	$1.6	$1.0	1.70
Commercial/Industrial Interruptable Rates	-	10.9	$3.3	$0.4	8.06
Total Savings (End-Consumer)	*269,351*	*126.2*	*$298.2*	*$125.7*	*2.37*
Total Savings (@ Generation)	*294,921*	*139*			

These programs achieve estimated savings in 2018 of 269,350 MWh and summer peak load reductions of 126 MW at the end-consumer level. This represents approximately 3.5% of total energy sales and 8.2% of summer peak demand in 2018. Table 12.1 also shows the present value of benefits and costs associated with implementing the program potential energy and demand savings as well as the overall Total Resource Cost Test benefit/cost ratio of 2.37. The potential net present value savings to Hoosier Energy member systems for implementation of cost-effective DSM programs over the next decade is approximately **$172.5 million** in 2009 dollars.

The DSM potential estimates provided in this report are based upon the 2009 planning load forecast provided by Hoosier Energy as well as appliance saturation data, data on energy efficiency measure costs and savings, and measure lives available at the time of this study. Additional research was conducted through the collection of residential and commercial/industrial on-site surveys to attain a better understanding of the market saturation of various energy efficiency measures already being utilized throughout the territory. Over time, additional and emerging technologies may serve to increase the potential for additional energy and demand savings and warrant additional attention at the program level.

Appendix A2

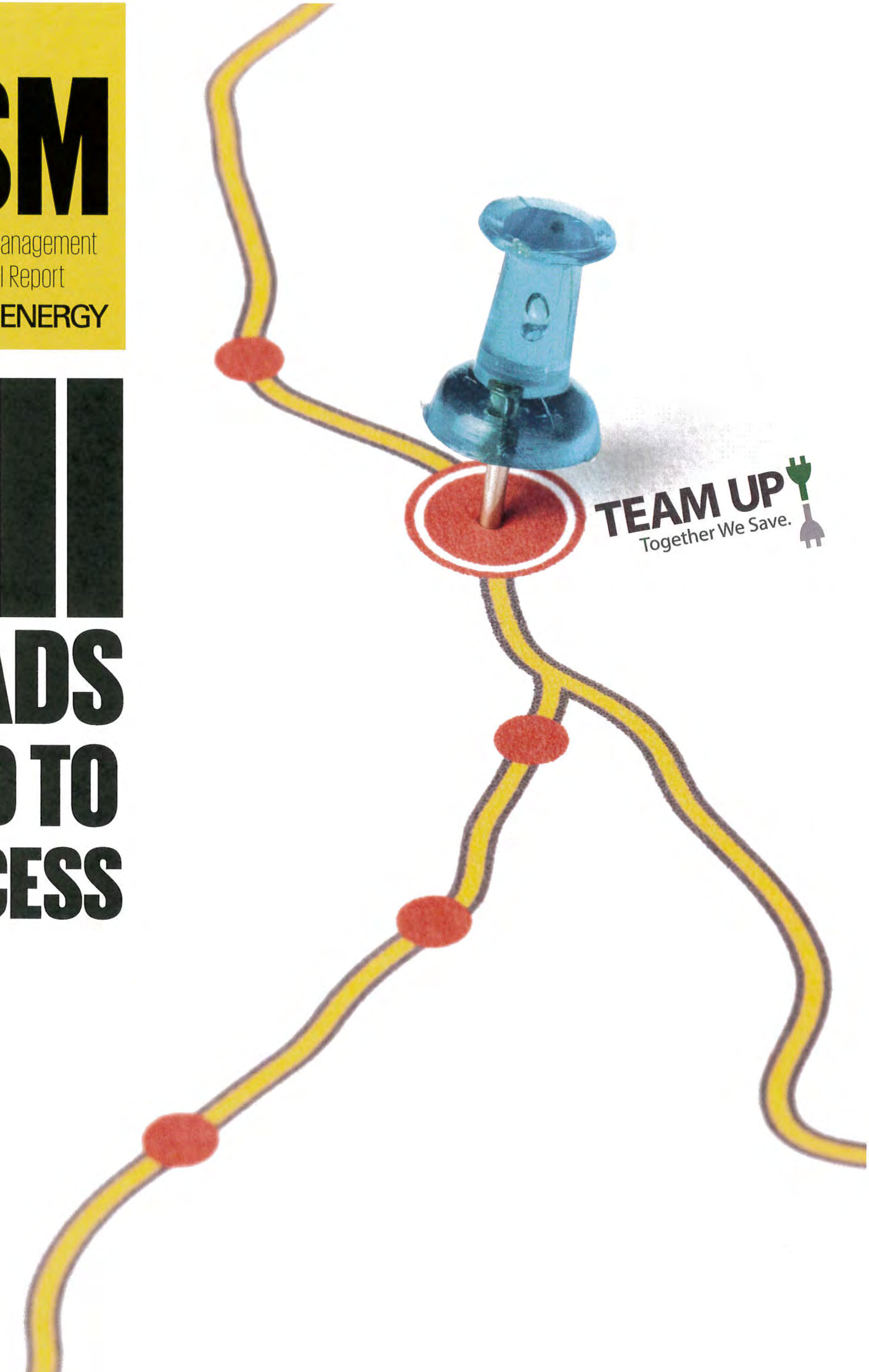
2013 Demand Side Management Annual Report

DSM

Demand Side Management
2013 Annual Report

HOOSIERENERGY

All ROADS LEAD TO SUCCESS



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Teaming up for success

2013 marks the fifth year of the Hoosier Energy Power Network Demand Side Management (DSM) program. Member system efforts produced positive results during that period including a peak savings of 51 megawatts (MW) of demand and 134,400 megawatt hours (MWh) of energy at a cost below the estimated long-term price of building or buying new generation. Results summarized in this report indicate consumers, member systems and Hoosier Energy will save $2.32 in long term costs for each dollar invested in DSM programs.

Consumers have reduced electric bills during the five-year period by installing nearly 1.5 million compact fluorescent bulbs and recycling 5,139 low-efficiency refrigerators and freezers.

More than 4,000 homes have been made more comfortable and efficient through weatherization efforts.

Nearly 22,000 incentives for high-efficiency heating, cooling and water heating equipment have been provided to consumers and more than 300 energy efficiency Touchstone Energy Homes have been completed.

More than 13,000 water heater and air conditioning switches have been installed as part of the load control program that enables member systems to reduce cumulative summer and winter peak demand by 31 MW and 51 MW respectively.

Additional peak reductions are attributable to commercial and industrial accounts that participate in load control efforts on a voluntary basis. Businesses and industries also reduced energy costs by implementing efficiency measures throughout their facilities. Incentives for lighting, motors, heating and cooling systems, and other improvements have been provided to 260 businesses.

Five years, one mission

The fifth anniversary of the DSM program provides an opportunity to reflect on progress to date and plan for the next generation of efficiency programs. As we look to the future, **power network DSM programs will continue to build upon a team approach to achieve greater demand and energy savings.**

LOAD CONTROL

PEAK SAVINGS

Pilot program meets goals

Hoosier Energy implemented **a pilot program in the summer of 2013 to reduce the number of control events and hours** resulting in a 40 percent reduction in events compared to the previous summer.

PROGRAM SUMMARY

Since 2009, participating cooperatives have installed load control switches on 7,300 water heaters and 6,000 air conditioners and heat pumps. More than 10 megawatts are subject to control during the summer and 7 megawatts in the winter leading to lower member costs and strengthened reliability in times of high demand.

THE PILOT DETAILS

- Hoosier Energy provided members with at least four hours advance notification prior to non-emergency control sessions.
- Load control sessions have been limited to 5-8 p.m. on weekdays.
- Load control events on weekends and holidays were eliminated.

WINNING COMPARISON

The pilot resulted in a 40 percent reduction in the number of load control events and a 33 percent reduction in the number of hours controlled compared to the summer of 2012. Member load in the three-month summer peak period was controlled a total of 39 hours or 1.8 percent of all eligible hours.

RESIDENTIAL LIGHTING

SHINING RESULTS

1.5 million CFLs and counting

It's been five years since the residential Compact Fluorescent Lamp (CFL) program was launched. **A study was completed in 2013 to identify where and how consumers are using the nearly 1.5 million lamps distributed** to date.

Hoosier Energy staff completed visits and interviews with 100 consumers comprised of low, medium and high energy users. The purpose of the survey was to answer the question "where are all those CFL bulbs?" The analysis provided an opportunity to ask consumers how CFLs are being used and discuss satisfaction with the lamps. Information collected includes lamp type, wattage and location in member homes.

In 2013 member systems distributed 109,017 CFLs that are expected to reduce annual energy usage by 4,491 MWh and result in 1.32 MW in peak demand savings.

WHAT WE FOUND

The team expected to find a 33 percent adoption rate of CFLs among members, the nationally accepted standard rate among DSM programs. Interviews revealed the current adoption rate among Power Network consumers is 37 percent.

MOST POPULAR

Results indicate members are most commonly using 13-15 watt (W) CFLs throughout their homes in place of 60-75 W incandescent lamps. Consumer preference for light color is split among soft white and bright white.

ENERGY EFFICIENT TECHNOLOGY

Targeting largest residential energy costs

The Heating Ventilation and Air Conditioning (HVAC) system is the single largest component of residential energy use making it a primary target for energy savings.

Consumer homes include a mix of electric resistance heat such as baseboard or electric furnaces and more efficient electric heating options including air source heat pumps and geothermal systems. Electric resistance heating can result in high retail bills for consumers, high wholesale demand costs for member systems, and contribute to a need for generation and transmission capacity purchases or additions.

The 2009 residential end-use survey indicated that 32 percent of consumers relied on an electric technology as their primary heating source with 60 percent of those consumers using some type of resistance heat.

As reported in the 2013 end use survey, homes utilizing electric resistance heating dropped 4 percent from 2009 reflecting consumer interest in more efficient electric heating sources.

HE photo

TOGETHER WE SAVE: Harrison REMC Energy Services representative Bob Geswein talks about how to better manage energy by effectively using a HVAC system.

REBATE STATISTICS

Rebate programs are designed to encourage consumers to install higher efficiency HVAC systems including replacement of resistance heating systems with more efficient options. Hoosier Energy provided a total of 3,545 rebates valued at $1,052,915 to members in 2013 for heating systems. Included in the total are 242 rebates for heat pumps replacing electric resistance heat sources totaling more than $217,000.

BUILDING STRONG

Program reports record results

Touchstone Energy Home **certified homes are highly efficient and comfortable** because of quality design and craftsmanship.

Construction and installation methods combined with quality equipment result in lower Home Energy Rating System (HERS) scores, a commonly used energy efficiency metric where a lower score indicates better efficiency. To qualify for certification, a HERS score must fall below 75. Builders are embracing the program as they build for the lowest HERS scores. In 2013, the average home score was 51 with two builders accomplishing a score of 33 and one home earning a score of 31, the best rating to date.

HE photo

NEW MILESTONE FOR REGISTERED HOMES

A record 72 homes were built to Touchstone Energy Home standards in 2013 which exceeded the 2012 total by eight homes. The increase in registered homes resulted from an improving economy and member marketing efforts that encouraged consumer consideration of Touchstone Energy Homes and builder attendance at training seminars.

MORE HABITAT FOR HUMANITY HOMES

Two member systems partnered with Habitat for Humanity in 2013 to build to certified Touchstone Energy Home quality. These partnerships demonstrate a commitment to support efficient heating and cooling in affordable housing.

2013 STATISTICS

The Touchstone Energy Home program contributed an estimated 343 MWh of energy savings and 0.08 MW of peak demand savings.

ROUNDING UP SAVINGS

Analysis shows increased energy savings

The Appliance Recycling program provides consumers an environmentally responsible way to dispose of inefficient secondary refrigerators and freezers. **The program is a reliable, inexpensive means for achieving energy savings** while increasing environmental stewardship.

Hoosier Energy reviewed the Appliance Recycling program in 2013 to confirm savings per unit and determine the appropriate number of years to count savings from each recycled appliance. Results indicated annual energy savings for each retired refrigerator or freezer should increase an average of 200 kWh and that five years of savings can be expected from a recycled unit. Administration costs and incentive levels have remained unchanged since program inception making appliance recycling one of the most attractive programs in the DSM portfolio.

PROGRAM RESULTS

Data suggests that about one half of 1 percent of residential consumers participate annually in the appliance recycling program. The program collected 1,003 refrigerators and freezers contributing an estimated 1,017 MWh of energy savings and 0.07 MW of peak demand savings.

ENVIRONMENTAL ADVANTAGES

Hoosier Energy reports annual recycling program totals to the Environmental Protection Agency's Responsible Appliance Disposal (RAD) program. According to RAD, an estimated 10.4 million refrigerators and freezers were recycled nationally in 2012.

COMFORT & PERFORMANCE

Weatherization program finishes with impressive numbers

Members have successfully helped consumers identify and correct efficiency problems in their homes. Evaluations conducted by a professional energy auditor also identified health and safety issues in thousands of member homes.

Health and safety concerns identified during initial audits were subsequently corrected by homeowners so weatherization improvements could be made. Over the past five years the program provided nearly 13,000 members with a comprehensive audit and blueprint that identified energy saving opportunities.

Approximately 800 homes qualified for weatherization measures in each of the three program years. Each home is a success story and consumer feedback reflects high satisfaction from improved comfort and significant cost reductions.

HE photo

MEMBER FOCUSED: Sherlock Homes Inspection Service employees, left, talk with co-op homeowners during the inspection phase of their home evaluation.

WHAT WAS TARGETED

Eligible homes could receive up to $4,000 in improvements including air sealing, duct sealing, water treatment measures such as low-flow showerheads and faucet aerators, up to 20 compact fluorescent lights (CFLs), foam or blown-in insulation and a vapor barrier for sealing foundations.

REQUIREMENTS MET

Hoosier Energy established a baseline to measure kWh savings from weatherized homes. Based on analysis of completed projects, the goal of 20 percent kWh savings per home was surpassed.

PROGRAM RESULTS

Homes weatherized in 2013 resulted in savings of 3,771 MWh of energy and one MW of peak demand savings. Deferred homes – homes that received only "base" measures including CFLs and water treatment – contributed an additional 1,378 MWh of energy savings and 0.30 MW peak demand savings.

"Getting an energy audit is like getting a check-up at the doctor. The audit is a preventative measure that provides details or vitals about how your home is operating. When homeowners know the vitals of their home, they can take action to ensure their home's comfort and safety."

Tom Lott, residential energy consultant

REPEAT CUSTOMERS

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Program helps businesses increase efficiency - again and again

Successful businesses and successful DSM programs share a common feature - repeat customers. The DSM program for Commercial and Industrial (C&I) accounts is helping businesses reduce operating costs and provide a safer environment for employees.

Serious about energy efficiency

Dot Foods Indiana distribution center, served by Whitewater Valley REMC, slashed energy usage by 15 percent during the past two years. Warehouses and distribution centers rely on energy to power forklift and pallet trucks, overhead lighting, air conditioning and refrigeration units. Cold storage accounts for roughly 50 percent of Dot Foods' total energy consumption. To date, the facility has earned nearly $40,000 in energy incentives.

Projects:

2011: Insulate freezer doors and refrigeration technology upgrades.

2012: Lighting upgrade and electric forklift charging stations.

2013: Design of Light Emitting Diode (LED) lighting system to be installed 2014.

Lighting upgrade reduces electric costs, improves workplace safety

Timber Harvest Inc., served by Southern Indiana Power, was formed in 1983 by owners Phil and JoAnn Etienne. Recognizing the need to update lighting fixtures for operational safety and to reduce power bills, the owners began lighting retrofits in 2012. To date, five projects have been completed to replace 114 fixtures throughout the mill. Timber Harvest received more than $6,000 in rebates covering 50 percent of project costs.

Projects:

2012: Three interior lighting upgrade projects.

2013: Two additional interior lighting upgrades and a lighting study for an exterior LED project to be installed in 2014.

Warehouse expansion built with energy efficiency in mind

Interstate Warehousing constructed a 157,000 square-foot refrigerated warehouse served by Johnson County REMC in 2005. Utilizing the most efficient lighting source for food cold storage facilities available at the time, Interstate Warehousing installed 400 watt metal halide fixtures throughout the facility. The facility has subsequently expanded three times adding more than 400,000 square-feet of additional space. During that time, Interstate Warehousing utilized the C&I program to install lighting.

Projects:

2008: Lighting upgrade from high intensity discharge fixtures to T5 fluorescent technology.

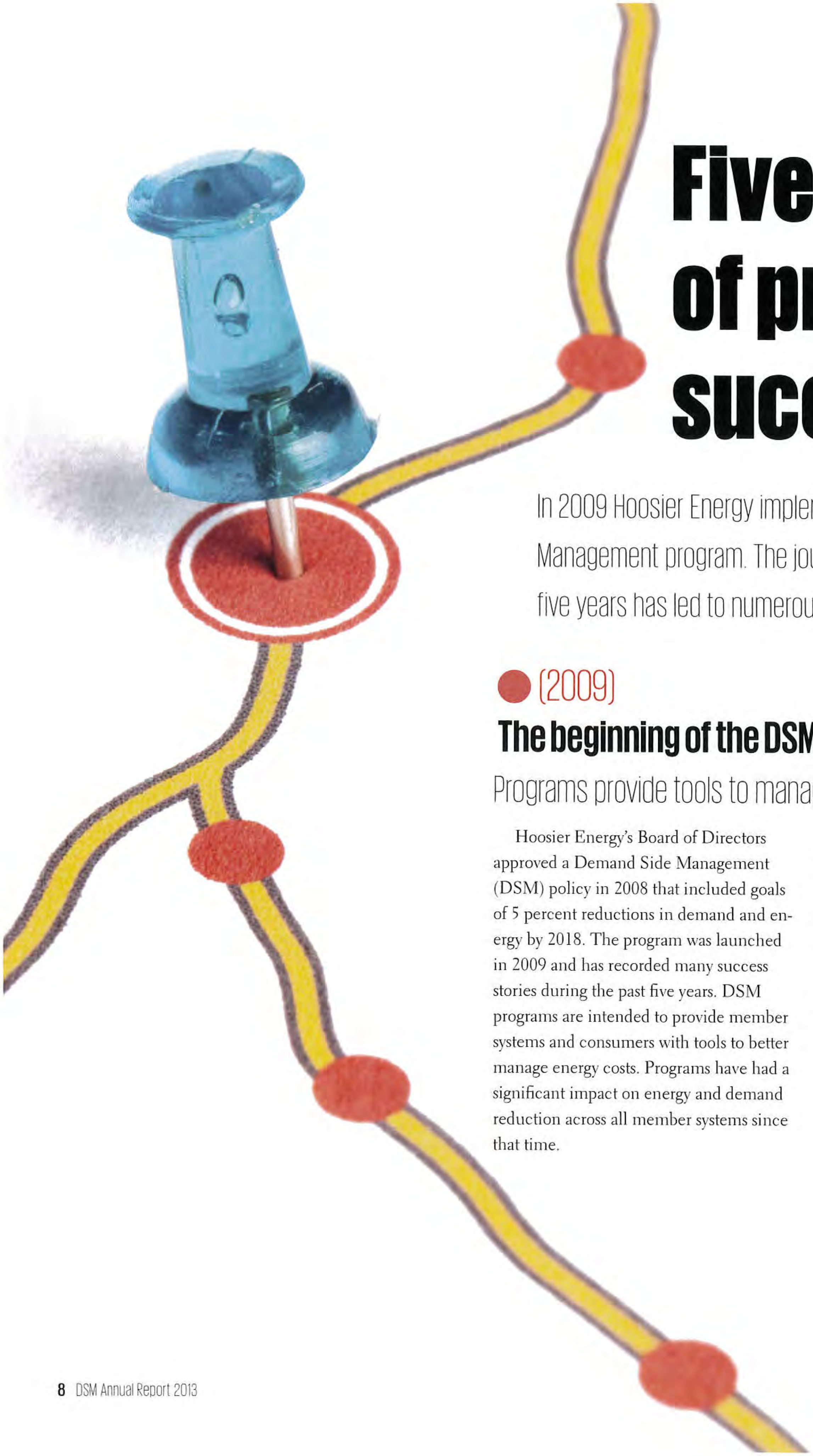
2010: Lighting upgrade and pilot of LED technology with internet protocol (IP) addressable controls.

2012: Lighting upgrade to LED technology with IP controls.

2013: Review of additional cold storage energy efficiency technologies for future investment.

2013 STATISTICS

The C&I efficiency program accounted for 5,549 MWh of energy and 0.50 MW of peak demand savings in 2013.



Five years of program successes

In 2009 Hoosier Energy implemented a Demand Side Management program. The journey throughout the past five years has led to numerous success stories.

(2009)

The beginning of the DSM program

Programs provide tools to manage energy costs

Hoosier Energy's Board of Directors approved a Demand Side Management (DSM) policy in 2008 that included goals of 5 percent reductions in demand and energy by 2018. The program was launched in 2009 and has recorded many success stories during the past five years. DSM programs are intended to provide member systems and consumers with tools to better manage energy costs. Programs have had a significant impact on energy and demand reduction across all member systems since that time.

Program results (2009-2013)

- Energy savings (cumulative) 134,400 MWh
- Reduced summer demand (cumulative) 30.63 MW
- Lower winter demand (cumulative) 51.05 MW

(2010)

Energy management

Load control program diversifies DSM efforts

Participating member cooperatives encouraged consumers to reduce peak demands by installing switches that cycle air conditioning, heat pumps and water heaters.

Most cooperatives marketed the program by offering one-time cash incentives or monthly bill credits for equipment controlled.

Each controlled air conditioner or heat pump was estimated to reduce demand by one kilowatt (kW).

Each controlled water heater was estimated to reduce demand by 0.8 kW in winter months and 0.4 kW in summer months.

(2011)

1 million CFL bulbs

CFL bulb distribution exceeds expectations

Distribution of compact fluorescent lamps (CFLs) by members reached 1 million bulbs in 2011, a milestone achieved four years ahead of initial expectations.

Consumers received traditional spiral CFLs at no charge through the program and many cooperatives utilized the program to offer consumer gifts at annual meetings and other events. Consumers have also had access to free lamps at their co-ops.

Residential lighting has contributed 15 MW of peak demand savings and 61,517 MWh of energy savings in five years and continues to be a cornerstone of the program.

(2012)

The year of upgrades

C&I customers embrace energy efficiency

The Commercial and Industrial (C&I) program surpassed the previous year's project total by 25 percent. The program moved beyond prescriptive lighting projects to address the specific needs of members by incentivizing compressed air applications, HVAC control systems and building-envelope measures.

C&I customers have invested more than $3 million in energy efficient upgrades.

(2013)

Energy education

Energy wall provides value for cooperatives

Member cooperatives began utilizing an educational wall and trailer to demonstrate ways to save energy using proper weatherization and construction techniques.

The energy wall includes six freestanding panels and two rolling floor displays, all portable in a 16-foot trailer, identifiable by colorful Touchstone Energy graphics and messages.

Daviess-Martin County REMC Manager of Communications and Member Services Janet Chestnut said the display is a welcome addition. "I think seeing the wall will help members visualize ways to improve their homes," Chestnut said.

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(2014 and beyond)

The future game plan

DSM efforts help consumers better manage energy costs

The Power Network's portfolio of DSM programs is designed to empower members to better manage energy use and cost. Members and Hoosier Energy will continue to explore new opportunities for efficiency gains through technology advances, such as lower cost and more flexible LED lighting, and through effective communications that inform and educate consumers about savings opportunities.

TEAM UP TOGETHER WE SAVE

The power network's award-winning Team Up communication program expanded its game plan in 2013 to add energy efficiency and demand side management messages to its established playbook.

Team Up – Together We Save is the new campaign that will bring together coordinated marketing, demand side management and Team Up communication resources under a single theme.

Team Up – Together We Save is a coordinated effort by Hoosier Energy and member systems to create greater consumer understanding of industry issues.

Communication materials include bill inserts, print ads and social media photos, banners and messages.

Website brings marketing, DSM resources under single theme

At TeamUptoSave.com consumers can become a "Most Valuable Player" when they use energy saving programs offered by their cooperative. The site provides a winning game plan that helps consumers use electricity wisely and keep the cost of power affordable.

Appendix A (2013 Savings)

2013 DSM program savings summary for member systems

	Measures Installed	Annual MWh Savings	Summer Peak MW Savings	Winter Peak MW Savings
Residential Lighting	109,017	4,491	0.57	1.32
Commercial & Industrial Energy Efficiency	98	5,549	0.50	0.29
Weatherization	794	3,771	0.96	0.64
Load Control	1,440	0	1.11	0.71
Other Savings	1,950	1,378	0.14	0.30
Residential HVAC Incentive	3,545	3,799	1.09	3.96
Touchstone Energy Home	72	343	0.08	0.04
Appliance Recycling	1,003	1,017	0.07	0.06
2013 Total	*117,919*	*20,348*	*4.52*	*7.32*

NOTES:

- Annual MWh savings and summer and winter peak MW savings are the savings accumulated for one year from measures installed in 2013.
- The Residential Lighting Program includes the Residential CFL traditional program and CFLs installed in deferred weatherized homes.
- Measures for the C&I Energy Efficiency Program are listed in terms of rebate applications paid.
- Other savings are deferred weatherization projects that received baseload water treatment measures. Other savings includes energy efficiency kits.

2013 Residential Compact Fluorescent Light Program

Co-op	Total Measures Installed	MWh Savings	Summer Peak MW Savings	Winter Peak MW Savings
Bartholomew County REMC	3,487	144	0.13	0.30
Clark County REMC	1,790	74	0.01	0.02
Daviess-Martin County REMC	4,935	203	0.02	0.05
Decatur County REMC	3,937	162	0.02	0.04
Dubois REC, Inc.	3,569	147	0.01	0.03
Harrison REMC	9,884	407	0.04	0.10
Henry County REMC	2,424	100	0.01	0.02
Jackson County REMC	6,557	270	0.03	0.06
Johnson County REMC	7,207	297	0.03	0.07
Orange County REMC	5,790	239	0.02	0.06
RushShelby Energy	4,436	183	0.02	0.04
South Central Indiana REMC	6,419	265	0.03	0.06
Southeastern Indiana REMC	12,445	513	0.05	0.12
Southern Indiana Power	4,155	171	0.02	0.04
Utilities District of Western Indiana REMC	15,295	630	0.06	0.15
Wayne-White Counties Electric Cooperative	6,827	280	0.03	0.06
Whitewater Valley	4,858	200	0.02	0.05
WIN Energy	5,002	206	0.02	0.05
Total	*109,017*	*4,491*	*0.57*	*1.32*

NOTE: Data reflects CFLs ordered through residential lighting program and lamps installed in deferred weatherization homes in 2013.

2013 Commercial and Industrial Energy Efficiency Program

Co-op	Rebate Applications	MWh Savings	Summer Peak MW Savings	Winter Peak MW Savings
Bartholomew County REMC	4	54	0.00	0.00
Clark County REMC	7	275	0.03	0.02
Daviess-Martin County REMC	3	105	0.01	0.00
Decatur County REMC	3	240	0.09	0.05
Dubois REC, Inc.	10	106	0.07	0.09
Harrison REMC	2	1	0.00	0.00
Henry County REMC	4	69	0.01	0.00
Jackson County REMC	9	30	0.00	0.00
Johnson County REMC	6	137	0.08	0.02
Orange County REMC	5	124	0.01	0.01
RushShelby Energy	4	3335	0.09	0.01
South Central Indiana REMC	8	314	0.02	0.06
Southeastern Indiana REMC	5	23	0.00	0.00
Southern Indiana Power	8	234	0.03	0.02
Utilities District of Western Indiana REMC	5	262	0.01	0.01
Wayne-White Counties Electric Cooperative	5	172	0.04	0.00
Whitewater Valley REMC	3	67	0.01	0.00
WIN Energy REMC	7	1	0.00	0.00
Total	*98*	*5,549*	*0.50*	*0.29*

2013 Weatherization Program

Co-op	Homes Completed	MWh Savings	Summer Peak MW Savings	Winter Peak MW Savings
Bartholomew County REMC	29	138	0.03	0.02
Clark County REMC	60	285	0.07	0.05
Daviess-Martin County REMC	28	133	0.03	0.02
Decatur County REMC	29	138	0.03	0.02
Dubois REC, Inc.	40	190	0.06	0.03
Harrison REMC	24	114	0.03	0.02
Henry County REMC	60	285	0.07	0.05
Jackson County REMC	70	332	0.08	0.06
Johnson County REMC	56	266	0.07	0.05
Orange County REMC	25	119	0.03	0.02
RushShelby Energy	38	180	0.05	0.03
South Central Indiana REMC	80	380	0.09	0.06
Southeastern Indiana REMC	72	342	0.09	0.06
Southern Indiana Power	25	119	0.03	0.02
Utilities District of Western Indiana REMC	55	261	0.07	0.04
Wayne-White Counties Electric Cooperative	32	152	0.04	0.03
Whitewater Valley REMC	31	147	0.04	0.03
WIN Energy REMC	40	190	0.05	0.03
Total	*794*	*3,771*	*0.96*	*0.64*

2013 Load Control Program

Co-op	Total Devices Controlled	MWh Savings	Summer Peak MW Savings	Winter Peak MW Savings
Bartholomew County REMC	0	0	0.00	0.00
Clark County REMC	0	0	0.00	0.00
Daviess-Martin County REMC	90	0	0.07	0.04
Decatur County REMC	0	0	0.00	0.00
Dubois REC, Inc.	0	0	0.00	0.00
Harrison REMC	174	0	0.14	0.07
Henry County REMC	56	0	0.05	0.02
Jackson County REMC	172	0	0.14	0.08
Johnson County REMC	0	0	0.00	0.00
Orange County REMC	221	0	0.15	0.14
RushShelby Energy	68	0	0.05	0.03
South Central Indiana REMC	287	0	0.20	0.18
Southeastern Indiana REMC	57	0	0.05	0.02
Southern Indiana Power	259	0	0.22	0.10
Utilities District of Western Indiana REMC	55	0	0.04	0.03
Wayne-White Counties Electric Cooperative	0	0	0.00	0.00
Whitewater Valley REMC	0	0	0.00	0.00
WIN Energy REMC	1	0	0.00	0.00
Total	*1,440*	*0*	*1.11*	*0.71*

2013 Other Savings

Co-op	Total Measures Installed	MWh Savings	Summer Peak MW Savings	Winter Peak MW Savings
Bartholomew County REMC	60	42	0.00	0.01
Clark County REMC	92	65	0.01	0.02
Daviess-Martin County REMC	74	52	0.01	0.01
Decatur County REMC	81	57	0.01	0.01
Dubois REC, Inc.	85	60	0.01	0.01
Harrison REMC	141	100	0.01	0.02
Henry County REMC	113	80	0.01	0.02
Jackson County REMC	223	158	0.02	0.03
Johnson County REMC	19	13	0.00	0.00
Orange County REMC	69	49	0.00	0.01
RushShelby Energy	186	131	0.01	0.03
South Central Indiana REMC	195	138	0.01	0.03
Southeastern Indiana REMC	180	127	0.01	0.03
Southern Indiana Power	63	45	0.00	0.01
Utilities District of Western Indiana REMC	137	97	0.01	0.02
Wayne-White Counties Electric Cooperative	18	13	0.00	0.00
Whitewater Valley REMC	116	82	0.01	0.02
WIN Energy REMC	98	69	0.01	0.02
Total	*1,950*	*1,378*	*0.14*	*0.30*

NOTE: Data reflects the number of deferred homes weatherized in 2013.

2013 Residential HVAC Incentives Program

Co-op	Total Measures Installed	MWh Savings	Summer Peak MW Savings	Winter Peak MW Savings
Bartholomew County REMC	209	172	0.05	0.11
Clark County REMC	508	568	0.22	0.37
Daviess-Martin County REMC	101	118	0.03	0.19
Decatur County REMC	58	124	0.03	0.21
Dubois REC, Inc.	181	151	0.04	0.24
Harrison REMC	344	389	0.16	0.32
Henry County REMC	59	94	0.02	0.12
Jackson County REMC	255	347	0.09	0.26
Johnson County REMC	175	152	0.05	0.12
Orange County REMC	119	59	0.02	0.05
RushShelby Energy	52	89	0.02	0.14
South Central Indiana REMC	357	384	0.06	0.36
Southeastern Indiana REMC	315	295	0.06	0.31
Southern Indiana Power	93	120	0.03	0.15
Utilities District of Western Indiana REMC	194	203	0.06	0.28
Wayne-White Counties Electric Cooperative	168	184	0.07	0.29
Whitewater Valley REMC	124	140	0.03	0.24
WIN Energy REMC	233	210	0.05	0.20
Total	*3,545*	*3,799*	*1.09*	*3.96*

2013 Touchstone Energy Home Program

Co-op	Homes Registered	MWh Savings	Summer Peak MW Savings	Winter Peak MW Savings
Bartholomew County REMC	0	0	0.00	0.00
Clark County REMC	7	34	0.01	0.00
Daviess-Martin County REMC	1	5	0.00	0.00
Decatur County REMC	3	14	0.00	0.00
Dubois REC, Inc.	15	71	0.02	0.01
Harrison REMC	26	123	0.03	0.02
Henry County REMC	0	0	0.00	0.00
Jackson County REMC	9	43	0.01	0.01
Johnson County REMC	0	0	0.00	0.00
Orange County REMC	1	5	0.00	0.00
RushShelby Energy	1	5	0.00	0.00
South Central Indiana REMC	2	9	0.00	0.00
Southeastern Indiana REMC	1	5	0.00	0.00
Southern Indiana Power	5	24	0.01	0.00
Utilities District of Western Indiana REMC	1	5	0.00	0.00
Wayne-White Counties Electric Cooperative	0	0	0.00	0.00
Whitewater Valley REMC	0	0	0.00	0.00
WIN Energy REMC	0	0	0.00	0.00
Total	*72*	*343*	*0.08*	*0.04*

2013 Appliance Recycling Program

Co-op	Total Units Collected	MWh Savings	Summer Peak MW Savings	Winter Peak MW Savings
Bartholomew County REMC	29	30	0.00	0.00
Clark County REMC	108	109	0.01	0.01
Daviess-Martin County REMC	30	30	0.00	0.00
Decatur County REMC	24	24	0.00	0.00
Dubois REC, Inc.	94	96	0.01	0.01
Harrison REMC	98	99	0.01	0.01
Henry County REMC	36	36	0.00	0.00
Jackson County REMC	107	109	0.01	0.01
Johnson County REMC	0	0	0.00	0.00
Orange County REMC	3	3	0.00	0.00
RushShelby Energy	57	58	0.00	0.00
South Central Indiana REMC	81	83	0.01	0.01
Southeastern Indiana REMC	118	119	0.01	0.01
Southern Indiana Power	44	45	0.00	0.00
Utilities District of Western Indiana REMC	61	61	0.01	0.00
Wayne-White Counties Electric Cooperative	24	24	0.00	0.00
Whitewater Valley REMC	55	56	0.00	0.00
WIN Energy REMC	34	35	0.00	0.00
Total	*1,003*	*1,017*	*0.07*	*0.06*

Appendix B (Analysis of measures installed 2009-2013)

The average cost of energy conserved to date through DSM measures is approximately $0.02 per kWh, well below the cost to provide power from traditional resources.

DSM programs are evaluated using a Total Resource Cost (TRC) test that compares avoided energy and capacity savings to the costs of the efficiency measure or program including costs borne by consumers. Benefits detailed in the TRC test include avoided supply costs such as reductions in capital and O&M costs for generation, transmission and distribution facilities and operations.

A TRC ratio value of 1.0 or higher indicates the benefits of the program exceed its cost. For all programs to date, lifetime economic benefits from DSM measures, or the total dollar value of avoided electricity consumption from installed DSM measures outweighed combined costs by a ratio of 2.32 to 1.

That ratio suggests that consumers avoided $2.32 in long-term costs for each dollar invested in efficiency programs.

Estimated benefit-cost analysis for all measures installed 2009-2013

	Total Measures Installed to Date	Cumulative MWh Savings to Date	Estimated Lifetime MWh Savings	Cumulative Summer Peak MW Savings to Date	Cumulative Winter Peak MW Savings to Date
Residential Lighting	1,484,922	61,517	434,756	6.32	15.29
Commercial & Industrial Energy Efficiency	301	23,128	319,320	2.85	2.81
Weatherization	4,061	19,287	479,330	4.82	3.28
Load Control	13,460	0	0	10.03	6.63
Other Savings	5,372	2,625	18,381	0.89	1.25
Residential HVAC Incentive	21,747	21,088	369,374	4.94	21.21
Touchstone Energy Home	310	1,474	29,436	0.34	0.21
Appliance Recycling	5,139	5,281	26,405	0.44	0.38
Total	***1,535,312***	***134,400***	***1,677,002***	***30.63***	***51.06***

	Hoosier Energy Costs	Participant Costs	Lifetime Economic Benefits	Cost/kWh	Total Resource Cost (TRC)
Residential Lighting	$2,665,397	$0	$19,035,634	0.01	7.14
Commercial & Industrial Energy Efficiency	1,119,253	4,383,166	11,794,071	0.02	3.05
Weatherization	9,078,275	0	15,136,387	0.02	1.67
Load Control	2,400,429	0	8,146,013	0.00	3.39
Other Savings	825,259	0	1,173,435	0.00	1.42
Residential HVAC Incentive	6,038,182	8,538,085	26,872,263	0.04	1.84
Touchstone Energy Home	347,773	414,948	1,556,453	0.03	2.04
Appliance Recycling	669,325	0	954,986	0.03	1.43
Total	***$23,143,893***	***$13,336,199***	***$84,669,242***	***0.02***	***2.32***

NOTES:

- Appendix B measures are shown at generation levels. A 9.5 percent transmission and distribution loss has been factored in from Appendix C assumptions.
- Cumulative MWh Savings and Summer & Winter Peak MW Savings displayed are the cumulative savings from measures installed from each programs inception through Dec. 13, 2013.
- The Weatherization Program includes 1,393 member-served homes weatherized through the ARRA program from 2009-2011.
- The Residential Lighting Program includes the Residential CFL Program and the LED Holiday Lighting Program.
- Measures for the C&I Rebates program are listed in terms of rebate applications paid.
- Other savings include deferred weatherization projects that received water treatment baseload measures (2012-2013), energy efficiency kits (2013) and distribution cooperative energy and demand response initiatives (2009-2011).

Residential CFL Program

Co-op	Total Measures Installed	Cumulative MWh Savings	Estimated Lifetime MWh Savings	Cumulative Summer Peak MW Savings	Cumulative Winter Peak MW Savings	Hoosier Energy Costs	Participant Costs	Lifetime Economic Benefits	Cost/kWh	Total Resource Cost (TRC)
Bartholomew County REMC	99,686	4,113	28,859	0.43	1.23	$173,261	$0	$1,237,664	0.01	7.14
Clark County REMC	285,285	11,851	84,157	1.19	2.97	526,003	0	3,762,438	0.01	7.15
Daviess-Martin County REMC	90,995	3,777	26,778	0.38	0.94	171,453	0	1,247,374	0.01	7.28
Decatur County REMC	34,248	1,420	10,051	0.14	0.35	62,227	0	445,147	0.01	7.15
Dubois REC, Inc.	93,753	3,866	27,086	0.40	0.90	163,399	0	1,174,572	0.01	7.19
Harrison REMC	101,897	4,222	29,842	0.43	1.03	179,081	0	1,263,532	0.01	7.06
Henry County REMC	59,446	2,459	17,330	0.25	0.59	107,285	0	773,452	0.01	7.21
Jackson County REMC	96,768	4,032	28,785	0.40	1.04	175,863	0	1,231,949	0.01	7.01
Johnson County REMC	67,808	2,799	19,644	0.28	0.66	119,437	0	858,303	0.01	7.19
Orange County REMC	51,241	2,131	15,176	0.21	0.54	92,443	0	649,247	0.01	7.02
RushShelby Energy	56,331	2,341	16,640	0.24	0.59	103,484	0	739,930	0.01	7.15
South Central Indiana REMC	34,083	1,411	9,958	0.14	0.34	61,626	0	443,935	0.01	7.20
Southeastern Indiana REMC	83,295	3,466	24,701	0.35	0.89	151,855	0	1,074,809	0.01	7.08
Southern Indiana Power	106,313	4,383	30,690	0.44	1.01	187,152	0	1,352,676	0.01	7.23
Utilities District of Western Indiana REMC	82,046	3,397	23,991	0.34	0.83	142,993	0	1,006,950	0.01	7.04
Wayne-White Counties Electric Cooperative	44,416	1,830	12,816	0.22	0.42	76,621	0	548,200	0.01	7.15
Whitewater Valley	72,097	2,980	20,976	0.35	0.71	129,111	0	929,176	0.01	7.20
WIN Energy	25,214	1,039	7,276	0.13	0.24	42,094	0	296,271	0.01	7.04
Total	*1,484,922*	*61,517*	*434,756*	*6.32*	*15.29*	*$2,665,388*	*$0*	*$19,035,625*	*0.01*	*7.14*

C&I Energy Efficiency Program

Co-op	Rebate Applications	Cumulative MWh Savings	Estimated Lifetime MWh Savings	Cumulative Summer Peak MW Savings	Cumulative Winter Peak MW Savings	Hoosier Energy Costs	Participant Costs	Lifetime Economic Benefits	Cost/kWh	Total Resource Cost (TRC)
Bartholomew County REMC	11	991	15,863	0.17	0.16	$84,133	$295,631	$700,942	0.02	1.85
Clark County REMC	26	1,582	26,389	0.28	0.21	96,224	386,302	1,112,108	0.02	2.30
Daviess-Martin County REMC	13	531	8,336	0.06	0.05	32,503	70,335	297,852	0.01	2.90
Decatur County REMC	14	1,302	20,664	0.19	0.17	90,217	296,516	878,535	0.02	2.27
Dubois REC, Inc.	20	2,229	31,691	0.13	0.18	95,451	306,249	847,349	0.01	2.11
Harrison REMC	25	2,064	32,936	0.27	0.28	92,158	111,913	1,296,063	0.01	6.35
Henry County REMC	16	422	6,750	0.07	0.09	53,840	51,546	304,239	0.02	2.89
Jackson County REMC	36	1,379	23,310	0.20	0.20	70,221	85,202	896,967	0.01	5.77
Johnson County REMC	23	2,866	45,471	0.46	0.50	140,868	404,943	1,877,559	0.01	3.44
Orange County REMC	7	207	3,304	0.03	0.03	11,419	12,252	129,447	0.01	5.47
RushShelby Energy	9	4,273	21,103	0.18	0.17	82,796	357,340	730,218	0.02	1.66
South Central Indiana REMC	17	1,037	14,738	0.06	0.06	79,369	236,270	298,534	0.02	0.95
Southeastern Indiana REMC	19	1,704	28,250	0.27	0.28	27,977	81,580	1,183,133	0.00	10.80
Southern Indiana Power	19	437	7,706	0.28	0.26	52,047	1,167,462	239,827	0.16	0.20
Utilities District of Western Indiana REMC	11	450	7,515	0.04	0.04	18,138	132,267	213,192	0.02	1.42
Wayne-White Counties Electric Cooperative	13	402	4,867	0.04	0.00	44,392	148,150	153,960	0.04	0.80
Whitewater Valley REMC	9	1,063	16,198	0.11	0.11	40,527	148,777	552,606	0.01	2.92
WIN Energy REMC	13	191	4,229	0.03	0.02	6,973	90,431	81,539	0.02	0.84
Total	*301*	*23,130*	*319,320*	*2.85*	*2.81*	*$1,119,253*	*$4,383,166*	*$11,794,071*	*0.02*	*3.05*

Weatherization Program

Co-op	Total Measures Installed	Cumulative MWh Savings	Estimated Lifetime MWh Savings	Cumulative Summer Peak MW Savings	Cumulative Winter Peak MW Savings	Hoosier Energy Costs	Participant Costs	Lifetime Economic Benefits	Cost/kWh	Total Resource Cost (TRC)
Bartholomew County REMC	143	679	18,521	0.17	0.12	$401,363	$0	$566,627	0.02	1.41
Clark County REMC	226	1,073	29,491	0.28	0.18	639,093	0	946,228	0.02	1.48
Daviess-Martin County REMC	189	898	22,510	0.22	0.15	432,294	0	706,662	0.02	1.63
Decatur County REMC	117	556	14,959	0.14	0.09	315,398	0	455,624	0.02	1.44
Dubois REC, Inc.	207	983	24,504	0.25	0.17	464,634	0	770,394	0.02	1.66
Harrison REMC	283	1,344	25,858	0.34	0.23	270,765	0	891,384	0.01	3.29
Henry County REMC	200	950	27,282	0.24	0.16	618,228	0	811,997	0.02	1.31
Jackson County REMC	373	1,771	44,735	0.44	0.30	872,951	0	1,407,402	0.02	1.61
Johnson County REMC	189	898	23,507	0.22	0.15	473,052	0	716,675	0.02	1.52
Orange County REMC	177	841	19,019	0.21	0.14	307,794	0	617,571	0.02	2.01
RushShelby Energy	205	974	23,792	0.24	0.17	437,653	0	752,172	0.02	1.72
South Central Indiana REMC	597	2,835	62,115	0.71	0.48	937,829	0	2,064,576	0.02	2.20
Southeastern Indiana REMC	277	1,315	33,978	0.33	0.22	671,916	0	1,041,979	0.02	1.55
Southern Indiana Power	137	651	17,096	0.16	0.11	353,420	0	533,549	0.02	1.51
Utilities District of Western Indiana REMC	300	1,425	34,477	0.36	0.24	626,740	0	1,095,006	0.02	1.75
Wayne-White Counties Electric Cooperative	115	546	16,384	0.14	0.09	395,331	0	487,982	0.02	1.23
Whitewater Valley REMC	116	551	14,959	0.14	0.09	321,235	0	456,737	0.02	1.42
WIN Energy REMC	210	997	26,143	0.25	0.17	538,577	0	813,820	0.02	1.51
Total	*4,061*	*19,287*	*479,330*	*4.82*	*3.28*	*$9,078,275*	*$0*	*$15,136,387*	*0.02*	*1.67*

NOTE: Total includes 1,393 weatherization projects completed at member-served residences from 1/1/09 - 12/31/11 through the ARRA program.

Load Control Program

Co-op	Total Devices Controlled	Cumulative MWh Savings	Estimated Lifetime MWh Savings	Cumulative Summer Peak MW Savings	Cumulative Winter Peak MW Savings	Hoosier Energy Costs	Participant Costs	Lifetime Economic Benefits	Cost/kWh	Total Resource Cost (TRC)
Bartholomew County REMC	197	0	0	0.15	0.10	$35,936	$0	$119,155	$0	3.32
Clark County REMC	0	0	0	0.00	0.00	0	0	0	0	0.00
Daviess-Martin County REMC	1,001	0	0	0.85	0.38	184,840	0	686,694	0	3.72
Decatur County REMC	200	0	0	0.09	0.18	37,736	0	69,989	0	1.85
Dubois REC, Inc.	0	0	0	0.00	0.00	0	0	0	0	0.00
Harrison REMC	1,785	0	0	1.42	0.75	318,044	0	1,153,445	0	3.63
Henry County REMC	921	0	0	0.75	0.36	166,591	0	604,489	0	3.63
Jackson County REMC	246	0	0	0.19	0.11	40,150	0	161,110	0	4.01
Johnson County REMC	0	0	0	0.00	0.00	0	0	0	0	0.00
Orange County REMC	1,372	0	0	0.93	0.79	246,285	0	753,309	0	3.06
RushShelby Energy	1,110	0	0	0.89	0.45	196,724	0	721,945	0	3.67
South Central Indiana REMC	1,967	0	0	1.15	1.41	353,872	0	935,268	0	2.64
Southeastern Indiana REMC	1,820	0	0	1.43	0.81	320,008	0	1,181,236	0	3.69
Southern Indiana Power	1,569	0	0	1.25	0.67	275,255	0	1,020,259	0	3.71
Utilities District of Western Indiana REMC	1,263	0	0	0.91	0.62	223,407	0	735,282	0	3.29
Wayne-White Counties Electric Cooperative	0	0	0	0.00	0.00	0	0	0	0	0.00
Whitewater Valley REMC	8	0	0	0.00	0.01	1,424	0	3,464	0	2.43
WIN Energy REMC	1	0	0	0.00	0.00	158	0	367	0	0.00
Total	*13,460*	*0*	*0*	*10.03*	*6.63*	*$2,400,429*	*$0*	*$8,146,014*	*$0*	*3.39*

Other savings

Co-op	Total Measures Installed	Cumulative MWh Savings	Estimated Lifetime MWh Savings	Cumulative Summer Peak MW Savings	Cumulative Winter Peak MW Savings	Hoosier Energy/Co-op Costs	Participant Costs	Lifetime Economic Benefits	Cost/kWh	Total Resource Cost (TRC)
Bartholomew County REMC	103	86	599	0.01	0.01	$22,668	$0	$22,215	0.00	0.98
Clark County REMC	159	131	920	0.01	0.03	34,607	0	33,797	0.00	0.98
Daviess-Martin County REMC	115	97	678	0.01	0.02	25,287	0	24,581	0.00	0.97
Decatur County REMC	115	98	688	0.01	0.02	25,780	0	25,124	0.00	0.97
Dubois REC, Inc.	122	104	727	0.01	0.02	27,291	0	26,606	0.00	0.97
Harrison REMC	570	184	1,291	0.10	0.12	48,165	0	110,616	0.00	2.30
Henry County REMC	178	149	1,044	0.02	0.03	38,992	0	37,929	0.00	0.97
Jackson County REMC	378	313	2,191	0.03	0.07	81,887	0	79,666	0.00	0.97
Johnson County REMC	29	25	173	0.00	0.01	6,644	0	6,554	0.00	0.99
Orange County REMC	119	98	688	0.01	0.02	26,090	0	25,600	0.00	0.98
RushShelby Energy	313	260	1,820	0.03	0.06	68,031	0	66,198	0.00	0.97
South Central Indiana REMC	2,206	272	1,904	0.57	0.64	207,585	0	507,666	0.00	2.45
Southeastern Indiana REMC	289	242	1,692	0.02	0.06	63,283	0	61,602	0.00	0.97
Southern Indiana Power	92	78	544	0.01	0.02	20,364	0	19,828	0.00	0.97
Utilities District of Western Indiana REMC	215	180	1,261	0.02	0.04	47,404	0	46,258	0.00	0.98
Wayne-White Counties Electric Cooperative	32	26	183	0.00	0.01	6,831	0	6,641	0.00	0.97
Whitewater Valley REMC	166	141	989	0.01	0.03	36,830	0	35,754	0.00	0.97
WIN Energy REMC	171	141	989	0.01	0.03	37,520	0	36,801	0.00	0.98
Total	*5,372*	*2,625*	*18,381*	*0.89*	*1.25*	*$825,259*	*$0*	*$1,173,435*	*0.00*	*1.42*

NOTE: Other savings include deferred weatherization projects that received baseload measures (2012-2013), or energy efficiency kits (2013).

Residential HVAC Incentives Program

Co-op	Total Measures Installed	Cumulative MWh Savings	Estimated Lifetime MWh Savings	Cumulative Summer Peak MW Savings	Cumulative Winter Peak MW Savings	Hoosier Energy Costs	Participant Costs	Lifetime Economic Benefits	Cost/kWh	Total Resource Cost (TRC)
Bartholomew County REMC	1,103	967	17,485	0.26	0.59	$276,806	$408,251	$1,277,139	0.04	1.86
Clark County REMC	2,664	2,528	39,634	0.69	1.67	607,212	953,784	2,961,719	0.04	1.90
Daviess-Martin County REMC	611	601	10,799	0.16	0.84	187,001	256,820	826,293	0.04	1.86
Decatur County REMC	321	614	10,853	0.09	1.03	189,336	275,991	816,166	0.04	1.75
Dubois REC, Inc.	1,323	1,165	20,933	0.26	1.69	388,301	537,536	1,747,263	0.04	1.89
Harrison REMC	1,734	1,899	30,839	0.66	1.24	451,501	694,261	2,193,327	0.04	1.91
Henry County REMC	420	595	11,070	0.12	0.79	182,519	274,322	810,839	0.04	1.77
Jackson County REMC	1,386	1,771	31,521	0.36	0.75	457,489	680,075	1,988,953	0.04	1.75
Johnson County REMC	912	898	16,667	0.24	0.72	275,258	377,642	1,216,441	0.04	1.86
Orange County REMC	667	351	6,275	0.09	0.28	98,869	119,612	433,906	0.03	1.99
RushShelby Energy	541	689	12,724	0.16	0.94	217,887	307,383	967,916	0.04	1.84
South Central Indiana REMC	3,184	2,478	42,370	0.43	2.18	699,626	902,888	2,970,456	0.04	1.85
Southeastern Indiana REMC	2,136	1,985	34,952	0.34	2.58	599,415	793,519	2,582,526	0.04	1.85
Southern Indiana Power	679	617	11,826	0.18	0.64	191,233	278,313	855,666	0.04	1.82
Utilities District of Western Indiana REMC	1,247	1,200	22,646	0.34	1.77	389,468	523,968	1,703,897	0.04	1.87
Wayne-White Counties Electric Cooperative	644	599	10,632	0.16	1.09	195,200	265,388	788,826	0.04	1.71
Whitewater Valley REMC	622	744	13,577	0.15	1.22	238,875	325,424	1,002,552	0.04	1.78
WIN Energy REMC	1,553	1,387	24,571	0.28	1.20	392,188	562,906	1,728,378	0.04	1.81
Total	*21,747*	*21,088*	*369,374*	*4.94*	*21.21*	*$6,038,182*	*$8,538,085*	*$26,872,263*	*0.04*	*1.84*

Touchstone Energy Home Program

Co-op	Homes Registered	Cumulative MWh Savings	Estimated Lifetime MWh Savings	Cumulative Summer Peak MW Savings	Cumulative Winter Peak MW Savings	Hoosier Energy Costs	Participant Costs	Lifetime Economic Benefits	Cost/kWh	Total Resource Cost (TRC)
Bartholomew County REMC	3	19	379	0.00	0.00	$4,833	$5,767	$20,553	0.03	1.94
Clark County REMC	33	156	3,123	0.04	0.02	36,662	43,744	164,810	0.03	2.05
Daviess-Martin County REMC	4	19	379	0.00	0.00	4,434	5,291	19,955	0.03	2.05
Decatur County REMC	9	43	852	0.01	0.01	9,603	11,458	44,369	0.02	2.11
Dubois REC, Inc.	55	260	5,205	0.06	0.04	61,568	73,460	275,299	0.03	2.04
Harrison REMC	76	360	7,193	0.08	0.05	80,463	96,005	373,809	0.02	2.12
Henry County REMC	3	14	284	0.00	0.00	3,728	4,448	15,555	0.03	1.90
Jackson County REMC	39	185	3,691	0.04	0.03	44,656	53,282	196,662	0.03	2.01
Johnson County REMC	0	0	0	0.00	0.00	0	0	0	0.00	0.00
Orange County REMC	3	14	284	0.00	0.00	3,329	3,971	14,956	0.03	2.05
RushShelby Energy	31	147	2,934	0.03	0.02	36,845	43,962	158,369	0.03	1.96
South Central Indiana REMC	12	57	1,136	0.01	0.01	13,858	16,535	60,697	0.03	2.00
Southeastern Indiana REMC	8	38	757	0.01	0.01	9,338	11,142	40,614	0.03	1.98
Southern Indiana Power	20	95	1,893	0.02	0.01	22,476	26,818	100,231	0.03	2.03
Utilities District of Western Indiana REMC	12	57	1,136	0.01	0.01	13,702	16,349	60,499	0.03	2.01
Wayne-White Counties Electric Cooperative	0	0	0	0.00	0.00	0	0	0	0.00	0.00
Whitewater Valley REMC	1	5	95	0.00	0.00	1,172	1,399	5,079	0.03	1.98
WIN Energy REMC	1	5	95	0.00	0.00	1,106	1,319	4,999	0.03	2.06
Total	*310*	*1,474*	*29,436*	*0.34*	*0.21*	*$347,773*	*$414,948*	*$1,556,454*	*0.03*	*2.04*

Note: Data reflects homes registered between 1/1/2006 - 12/13/2013.

Appliance Recycling Program

Co-op	Total Units Collected	Cumulative MWh Savings	Estimated Lifetime MWh Savings	Cumulative Summer Peak MW Savings	Cumulative Winter Peak MW Savings	Hoosier Energy Costs	Participant Costs	Lifetime Economic Benefits	Cost/kWh	Total Resource Cost (TRC)
Bartholomew County REMC	167	173	864	0.01	0.01	$21,347	$0	$30,108	0.02	1.41
Clark County REMC	538	553	2,767	0.05	0.04	71,445	0	104,535	0.03	1.46
Daviess-Martin County REMC	177	183	915	0.02	0.01	22,652	0	31,960	0.02	1.41
Decatur County REMC	147	151	753	0.01	0.01	18,864	0	26,445	0.03	1.40
Dubois REC, Inc.	524	540	2,700	0.04	0.04	67440	0	95,434	0.02	1.42
Harrison REMC	373	382	1,908	0.03	0.03	47,729	0	66,575	0.03	1.39
Henry County REMC	145	147	736	0.01	0.01	18,383	0	25,165	0.02	1.37
Jackson County REMC	419	428	2,139	0.04	0.03	53,519	0	74,332	0.03	1.39
Johnson County REMC	0	0	0	0.00	0.00	0	0	0	0.00	0.00
Orange County REMC	3	10	50	0.00	0.00	1,238	0	1,609	0.02	1.30
RushShelby Energy	321	327	1,635	0.03	0.02	41,261	0	57,589	0.03	1.40
South Central Indiana REMC	470	482	2,408	0.04	0.03	61,614	0	88,492	0.03	1.44
Southeastern Indiana REMC	855	881	4,407	0.07	0.06	114,741	0	170,498	0.03	1.49
Southern Indiana Power	301	307	1,536	0.03	0.02	40,062	0	58,334	0.03	1.46
Utilities District of Western Indiana REMC	253	258	1,288	0.02	0.02	32,320	0	44,784	0.03	1.39
Wayne-White Counties Electric Cooperative	141	146	732	0.01	0.01	18,199	0	26,040	0.02	1.43
Whitewater Valley REMC	210	216	1,081	0.02	0.02	26,789	0	37,481	0.02	1.40
WIN Energy REMC	95	97	486	0.01	0.01	11,722	0	15,605	0.02	1.33
Total	*5,139*	*5,281*	*26,405*	*0.44*	*0.38*	*$669,325*	*$0*	*$954,986*	*0.03*	*1.43*

Note: Data reflects units collected from 3/1/2010 - 12/13/2013.

Appendix C (Basic program assumptions)

Residential Lighting

MEASURE: CFL

Annual kWh Saved:	53
Winter Demand Savings:	0.048
Summer Demand Savings:	0.048
Annual Avoided Maintenance Cost:	$2.25
Winter Peak Coincidence Factor:	26%
Summer Peak Coincidence Factor:	11%
Installation Rate:	70%

Appliance Recycling Program

MEASURE: Refrigerator/freezer

Annual kWh Saved:	976
Winter Demand Savings:	0.1114
Summer Demand Savings:	0.1114
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	62.3%
Summer Peak Coincidence Factor:	73%
Installation Rate:	100%

C&I Energy Efficiency Program

All Commercial & Industrial lighting replacement savings are calculated for each individual rebate claim based on the estimated existing and replacement wattages and time used. Therefore, the savings estimates are more accurate than using an estimated average savings per replacement.

MEASURE: Agriculture lighting

Annual kWh Saved:	229
Winter Demand Savings:	0.076
Summer Demand Savings:	0.076
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	100%
Summer Peak Coincidence Factor:	100%
Installation Rate:	100%

MEASURE: Occupancy sensors

Annual kWh Saved:	443
Winter Demand Savings:	0.111
Summer Demand Savings:	0.111
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	100%
Summer Peak Coincidence Factor:	100%
Installation Rate:	90%

MEASURE: Motor >10HP

Annual kWh Saved:	35
Winter Demand Savings:	0.009
Summer Demand Savings:	0.009
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	100%
Summer Peak Coincidence Factor:	100%
Installation Rate:	100%

MEASURE: Variable speed on motors

Annual kWh Saved:	760
Winter Demand Savings:	0.000
Summer Demand Savings:	0.000
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	100%
Summer Peak Coincidence Factor:	100%
Installation Rate:	100%

MEASURE: Programmable thermostat

Annual kWh Saved:	891.5
Winter Demand Savings:	0.000
Summer Demand Savings:	0.000
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	100%
Summer Peak Coincidence Factor:	100%
Installation Rate:	80%

MEASURE: Heat pump 12.2 SEER

Annual kWh Saved:	675
Winter Demand Savings:	0.232
Summer Demand Savings:	0.232
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	100%
Summer Peak Coincidence Factor:	100%

MEASURE: Air conditioner 12.2

Annual kWh Saved:	196
Winter Demand Savings:	0.182
Summer Demand Savings:	0.182
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	100%
Summer Peak Coincidence Factor:	100%
Installation Rate:	100%

Weatherization Program (Hoosier Energy & ARRA)

MEASURE: Weatherized home

Annual kWh Saved:	4274
Winter Demand Savings:	.7260
Summer Demand Savings:	1.066
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	100%
Summer Peak Coincidence Factor:	100%
Installation Rate:	100%

Residential HVAC Incentives Program

MEASURE: 80 gallon hot water heater

Annual kWh Saved:	82
Winter Demand Savings:	0.03
Summer Demand Savings:	0.03
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	100%
Summer Peak Coincidence Factor:	100%
Installation Rate:	100%

MEASURE: 50 gallon hot water heater

Annual kWh Saved:	172
Winter Demand Savings:	0.03
Summer Demand Savings:	0.03
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	100%
Summer Peak Coincidence Factor:	100%
Installation Rate:	100%

MEASURE: 14/15 SEER air conditioner

Annual kWh Saved:	356.87
Winter Demand Savings:	0.358
Summer Demand Savings:	0.358
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	0%
Summer Peak Coincidence Factor:	73%
Installation Rate:	100%

MEASURE: 16 SEER air conditioner

Annual kWh Saved:	501.97
Winter Demand Savings:	0.504
Summer Demand Savings:	0.504
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	0%
Summer Peak Coincidence Factor:	73%
Installation Rate:	100%

MEASURE: 17 SEER air conditioner

Annual kWh Saved:	675.45
Winter Demand Savings:	0.678
Summer Demand Savings:	0.678
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	0%
Summer Peak Coincidence Factor:	73%
Installation Rate:	100%

MEASURE: 15 SEER heat pump

Annual kWh Saved:	985.21
Winter Demand Savings:	0.358
Summer Demand Savings:	0.358
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	45.4%
Summer Peak Coincidence Factor:	73%
Installation Rate:	100%

MEASURE: 16 SEER heat pump

Annual kWh Saved:	1,194.99
Winter Demand Savings:	0.325
Summer Demand Savings:	0.504
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	45.4%
Summer Peak Coincidence Factor:	73%
Installation Rate (Accounts for Free Ridership):	100%

MEASURE: 17 SEER heat pump

Annual kWh Saved:	1,348.99
Winter Demand Savings:	0.3160
Summer Demand Savings:	0.6780
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	45.4%
Summer Peak Coincidence Factor:	73%
Installation Rate:	100%

MEASURE: 15 SEER heat pump – electric furnace replacement

Annual kWh Saved:	3,135.21
Winter Demand Savings:	5.09
Summer Demand Savings:	0.358
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	0%
Summer Peak Coincidence Factor:	73%
Installation Rate:	100%

MEASURE: 16 SEER heat pump – electric furnace replacement

Annual kWh Saved:	3,344.99
Winter Demand Savings:	5.15
Summer Demand Savings:	0.504
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	0%
Summer Peak Coincidence Factor:	73%
Installation Rate:	100%

MEASURE: 17 SEER heat pump – electric furnace replacement

Annual kWh Saved:	3,498.99
Winter Demand Savings:	5.21
Summer Demand Savings:	0.678
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	0%
Summer Peak Coincidence Factor:	73%
Installation Rate:	100%

MEASURE: Geothermal heat pump

Annual kWh Saved:	2,248
Winter Demand Savings:	6.1
Summer Demand Savings:	0.3
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	100%
Summer Peak Coincidence Factor:	100%
Installation Rate:	100%

Touchstone Energy Home Program

MEASURE: Touchstone Energy Home

Annual kWh Saved:	4,259
Winter Demand Savings:	0.726
Summer Demand Savings:	1.361
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	45.4%
Summer Peak Coincidence Factor:	73%
Installation Rate:	100%

Load Control Program

MEASURE: <80 gallon water heater

Annual kWh Saved:	0
Winter Demand Savings:	0.8
Summer Demand Savings:	0.456
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	100%
Summer Peak Coincidence Factor:	100%
Installation Rate:	100%

MEASURE: >80 gallon water heater

Annual kWh Saved:	0
Winter Demand Savings:	0.8
Summer Demand Savings:	0.0456
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	100%
Summer Peak Coincidence Factor:	100%
Installation Rate:	100%

MEASURE: Air conditioner

Annual kWh Saved:	0
Winter Demand Savings:	0
Summer Demand Savings:	0.995
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	100%
Summer Peak Coincidence Factor:	100%
Installation Rate:	100%

MEASURE: Geothermal

Annual kWh Saved:	0
Winter Demand Savings:	0
Summer Demand Savings:	0.93
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	100%
Summer Peak Coincidence Factor:	100%
Installation Rate:	100%

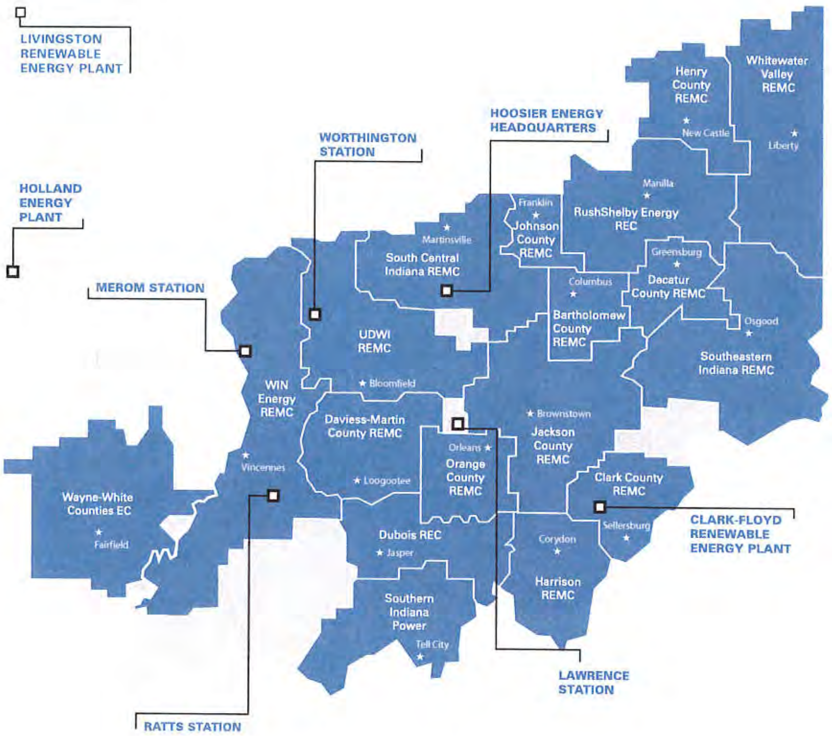
MEASURE: Heat pump

Annual kWh Saved:	0
Winter Demand Savings:	0
Summer Demand Savings:	0.88
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	100%
Summer Peak Coincidence Factor:	100%
Installation Rate:	100%

Other savings

MEASURE: Deferred weatherization (Received baseload measures)

Annual kWh Saved:	795
Winter Demand Savings:	0.72
Summer Demand Savings:	0.72
Annual Avoided Maintenance Cost:	$0
Winter Peak Coincidence Factor:	25.5%
Summer Peak Coincidence Factor:	11.2%
Installation Rate:	100%



The Hoosier Energy Power Network

Hoosier Energy is a generation and transmission cooperative providing electric power to 18 member electric distribution cooperatives in central and southern Indiana and one member cooperative in Illinois. Based in Bloomington, Hoosier Energy operates coal, natural gas and renewable energy power plants and delivers power through a 1,700-mile transmission network.

Hoosier Energy | P.O. Box 908 | Bloomington, IN, 47402

HOOSIERENERGY

Appendix B

Historical/Forecast Annual Values Summary Base Case

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 34 YEARS)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* BASE SCENARIO WITH DSM IMPACTS ******* | ******* BASE SCENARIO WITH DSM IMPACTS *******

		Aggregated Member System Data NUMBER OF CONSUMERS					Aggregated Member System Data SYSTEM ENERGY SALES TO END CONSUMERS (MWH)				
	YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL
ACTUAL	2001	253,162	12,265	155	1,444	267,026	3,522,968	729,098	1,261,060	113,891	5,627,017
ACTUAL	2002	257,347	12,533	163	1,501	271,544	3,772,856	750,481	1,372,372	117,598	6,013,307
ACTUAL	2003	261,300	12,711	176	1,654	275,841	3,744,229	760,700	1,406,637	112,443	6,024,009
ACTUAL	2004	265,436	12,930	173	1,793	280,332	3,816,332	797,926	1,498,284	112,624	6,225,166
ACTUAL	2005	269,261	13,031	173	1,934	284,399	4,087,081	833,664	1,583,193	44,652	6,548,590
ACTUAL	2006	272,892	13,211	177	2,070	288,350	3,997,738	859,810	1,632,862	37,999	6,528,409
ACTUAL	2007	275,983	13,481	199	2,186	291,849	4,235,636	896,961	1,706,767	41,253	6,880,617
ACTUAL	2008	277,143	13,424	208	2,202	292,977	4,225,769	896,208	1,712,574	38,855	6,873,406
ACTUAL	2009	277,179	13,547	200	2,204	293,130	4,049,085	862,271	1,638,530	36,404	6,586,290
ACTUAL	2010	277,915	13,683	201	2,219	294,018	4,313,613	889,903	1,783,519	40,028	7,027,063
ACTUAL	2011	277,750	13,765	210	2,498	294,223	4,093,232	901,705	1,806,351	40,873	6,842,161
FRCST	2012	278,966	13,865	199	2,563	295,593	3,989,581	917,278	1,889,973	46,873	6,843,705
FRCST	2013	280,670	13,956	196	2,563	297,385	3,983,222	920,003	1,902,644	46,873	6,852,742
FRCST	2014	282,590	14,047	193	2,563	299,393	3,997,211	928,879	2,033,668	46,873	7,006,631
FRCST	2015	284,673	14,138	192	2,563	301,566	4,012,283	935,762	2,176,840	46,873	7,171,758
FRCST	2016	286,859	14,229	192	2,563	303,843	4,053,719	942,801	2,268,128	46,873	7,311,521
FRCST	2017	289,262	14,320	191	2,563	306,336	4,101,451	949,908	2,359,681	46,873	7,457,912
FRCST	2018	291,878	14,460	188	2,563	309,089	4,143,638	957,578	2,370,001	46,873	7,518,090
FRCST	2019	294,498	14,600	188	2,563	311,849	4,183,274	966,007	2,397,344	46,873	7,593,498
FRCST	2020	297,165	14,740	188	2,563	314,656	4,225,357	974,512	2,414,360	46,873	7,661,102
FRCST	2021	299,756	14,880	188	2,563	317,387	4,267,958	983,121	2,430,404	46,873	7,728,356
FRCST	2022	302,394	15,020	188	2,563	320,165	4,313,354	991,829	2,446,995	46,873	7,799,051
FRCST	2023	305,241	15,200	188	2,563	323,192	4,351,843	1,002,860	2,446,995	46,873	7,848,572
FRCST	2024	308,091	15,380	188	2,563	326,222	4,397,369	1,015,342	2,446,995	46,873	7,906,579
FRCST	2025	310,985	15,560	188	2,563	329,296	4,446,161	1,031,372	2,446,995	46,873	7,971,401
FRCST	2026	313,956	15,740	188	2,563	332,447	4,500,201	1,045,814	2,446,995	46,873	8,039,883
FRCST	2027	316,958	15,920	188	2,563	335,629	4,560,874	1,061,611	2,446,995	46,873	8,116,353
FRCST	2028	320,105	16,142	188	2,563	338,998	4,619,479	1,080,333	2,446,995	46,873	8,193,680
FRCST	2029	323,359	16,364	187	2,563	342,473	4,683,226	1,099,167	2,411,086	46,873	8,240,352
FRCST	2030	326,738	16,586	187	2,563	346,074	4,750,067	1,118,034	2,411,086	46,873	8,326,060
FRCST	2031	330,231	16,808	187	2,563	349,789	4,822,419	1,136,863	2,411,086	46,873	8,417,242
FRCST	2032	333,793	17,030	187	2,563	353,573	4,896,486	1,155,730	2,411,086	46,873	8,510,174

***** BASE SCENARIO WITH DSM IMPACTS ***** | ***** BASE SCENARIO WITH DSM IMPACTS *****

	AGGREGATED NUMBER OF CONSUMERS					AGGREGATED SYSTEM ENERGY SALES				
TIME PERIOD	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (ACT.CHG.)	OTHER (ACT.CHG.)	TOTAL (% CHG.)	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (% CHG.)	OTHER (% CHG.)	TOTAL (% CHG.)
2001 -2006	1.51%	1.50%	22	626	1.55%	2.56%	3.35%	5.30%	-19.71%	3.02%
2006 -2011	0.35%	0.82%	33	428	0.40%	0.47%	0.96%	2.04%	1.47%	0.94%
2012 -2017	0.73%	0.65%	-8	0	0.72%	0.55%	0.70%	4.54%	0.00%	1.73%
2017 -2022	0.89%	0.96%	-3	0	0.89%	1.01%	0.87%	0.73%	0.00%	0.90%
2022 -2027	0.95%	1.17%	0	0	0.95%	1.12%	1.37%	0.00%	0.00%	0.80%
2027 -2032	1.04%	1.36%	-1	0	1.05%	1.43%	1.71%	-0.30%	0.00%	0.95%
2001 -2011	0.93%	1.16%	55	1054	0.97%	1.51%	2.15%	3.66%	-9.74%	1.97%
2012 -2032	0.90%	1.03%	-12	0	0.90%	1.03%	1.16%	1.23%	0.00%	1.10%

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

		***** BASE SCENARIO WITH DSM IMPACTS *****					***** BASE SCENARIO WITH DSM IMPACTS *****			
		AGGREGATED TOTAL MEMBER ENERGY PURCHASED	TOTAL ENERGY GENERATED for H.E. MEMBERS	HE SYSTEM AVERAGE MONTHLY LOSS FACTORS due to MEMBER SYSTEM LOAD (excludes pass-throughs)		H.E. AVERAGE WHOLESALE POWER COSTS	AGGREGATED MEMBER SYSTEM DEMANDS (WITHOUT LOSSES, 30 MINUTE DEMAND)			
							NONCOINCIDENT (MW)		COINCIDENT (MW) (EST. BEFORE 1984)	
	YEAR	(MWH)	(MWH)	FOR ENERGY	FOR DEMAND	(MILLS/MWH)	WINTER	SUMMER	WINTER	SUMMER
ACTUAL	2001	5,864,880	6,120,565	4.27%	4.53%	*****	1,285	1,274	1,164	1,186
ACTUAL	2002	6,314,792	6,601,076	4.45%	4.78%	*****	1,211	1,346	1,139	1,224
ACTUAL	2003	6,320,460	6,593,765	4.26%	4.26%	*****	1,354	1,313	1,264	1,219
ACTUAL	2004	6,549,574	6,831,967	4.25%	4.81%	*****	1,381	1,321	1,268	1,243
ACTUAL	2005	6,850,535	7,115,875	3.83%	4.22%	*****	1,429	1,472	1,325	1,392
ACTUAL	2006	6,802,245	7,090,943	4.19%	4.47%	*****	1,413	1,502	1,324	1,400
ACTUAL	2007	7,215,322	7,532,943	4.33%	4.84%	*****	1,532	1,558	1,415	1,413
ACTUAL	2008	7,193,537	7,470,277	3.80%	5.10%	*****	1,576	1,442	1,440	1,289
ACTUAL	2009	6,898,809	7,173,589	3.93%	4.86%	*****	1,674	1,453	1,519	1,307
ACTUAL	2010	7,338,210	7,656,457	4.25%	4.73%	*****	1,539	1,577	1,369	1,450
ACTUAL	2011	7,133,534	7,429,606	4.07%	4.19%	*****	1,552	1,579	1,394	1,435
FRCST	2012	7,158,340	7,400,256	3.35%	3.77%	74.770	1,524	1,513	1,401	1,382
FRCST	2013	7,167,691	7,450,170	3.88%	4.53%	76.120	1,523	1,516	1,400	1,384
FRCST	2014	7,328,519	7,617,491	3.88%	4.53%	76.260	1,553	1,559	1,425	1,422
FRCST	2015	7,502,107	7,798,087	3.88%	4.53%	79.660	1,585	1,586	1,454	1,446
FRCST	2016	7,648,363	7,950,249	3.88%	4.53%	82.730	1,606	1,620	1,472	1,475
FRCST	2017	7,801,707	8,109,784	3.88%	4.53%	86.790	1,639	1,639	1,501	1,492
FRCST	2018	7,864,934	8,175,563	3.88%	4.53%	88.520	1,645	1,649	1,507	1,501
FRCST	2019	7,943,773	8,257,585	3.88%	4.53%	90.290	1,657	1,661	1,517	1,512
FRCST	2020	8,014,459	8,331,125	3.88%	4.53%	92.100	1,669	1,676	1,528	1,525
FRCST	2021	8,084,788	8,404,293	3.88%	4.53%	93.940	1,680	1,690	1,538	1,538
FRCST	2022	8,158,722	8,481,212	3.88%	4.53%	95.820	1,692	1,704	1,548	1,550
FRCST	2023	8,210,630	8,535,215	3.88%	4.53%	97.740	1,698	1,713	1,554	1,558
FRCST	2024	8,271,447	8,598,489	3.88%	4.53%	99.690	1,707	1,725	1,562	1,569
FRCST	2025	8,339,445	8,669,231	3.88%	4.53%	101.680	1,718	1,738	1,571	1,581
FRCST	2026	8,411,300	8,743,987	3.88%	4.53%	103.710	1,729	1,752	1,581	1,593
FRCST	2027	8,491,554	8,827,481	3.88%	4.53%	105.780	1,744	1,768	1,595	1,608
FRCST	2028	8,572,678	8,911,881	3.88%	4.53%	105.780	1,761	1,784	1,611	1,623
FRCST	2029	8,622,041	8,963,237	3.88%	4.53%	105.780	1,771	1,793	1,621	1,632
FRCST	2030	8,712,015	9,056,843	3.88%	4.53%	105.780	1,789	1,811	1,638	1,649
FRCST	2031	8,807,740	9,156,433	3.88%	4.53%	105.780	1,809	1,831	1,656	1,667
FRCST	2032	8,905,325	9,257,958	3.88%	4.53%	105.780	1,828	1,851	1,674	1,685

	***** BASE SCENARIO WITH DSM IMPACTS *****					***** BASE SCENARIO WITH DSM IMPACTS *****			
	AGGREGATED TOTAL ENERGY PURCHASED	H.E. ENERGY GENERATED FOR MEMBERS	AVG. MONTHLY LOSS FACTORS due to MEMBERS		H.E. AVERAGE WHOLESALE POWER COSTS	AGGREGATED MEMBER PEAK SEASONAL DEMANDS (WITHOUT LOSSES, 30 MINUTE DEMAND)			
			ENERGY	DEMAND		Non-Coincident (% Chg)		Coincident (% Chg)	
TIME PERIOD	(% CHG.)	(% CHG.)	(AVERAGE)	(AVERAGE)	(% CHG.)	WINTER	SUMMER	WINTER	SUMMER
2001 -2006	3.01%	2.99%	4.21%	4.51%	*****	1.91%	3.34%	2.61%	3.37%
2006 -2011	0.96%	0.94%	4.10%	4.70%	*****	1.89%	1.00%	1.03%	0.51%
2012 -2017	1.74%	1.85%	3.79%	4.40%	3.03%	1.46%	1.61%	1.40%	1.55%
2017 -2022	0.90%	0.90%	3.88%	4.53%	2.00%	0.63%	0.78%	0.62%	0.76%
2022 -2027	0.80%	0.80%	3.88%	4.53%	2.00%	0.61%	0.74%	0.60%	0.74%
2027 -2032	0.96%	0.96%	3.88%	4.53%	0.00%	0.95%	0.92%	0.97%	0.94%
2001 -2011	1.98%	1.96%	4.15%	4.62%	*****	1.90%	2.17%	1.81%	1.93%
2012 -2032	1.10%	1.13%	3.86%	4.49%	1.75%	0.91%	1.01%	0.90%	1.00%

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

***** BASE SCENARIO WITH DSM IMPACTS ***** | ***** BASE SCENARIO WITH DSM IMPACTS *****

		HOOSIER ENERGY SYSTEM PEAK SEASONAL COINCIDENT DEMAND (MW) (All values are estimated 60 minute values)				H.E. ANNUAL LOAD FACTOR Due To COINCIDENT PEAK	HOOSIER ENERGY SYSTEM PEAK SEASONAL NON-COINCIDENT DEMAND (MW) (All values are estimated 60 minute values)				H.E. ANNUAL LOAD FACTOR Due To NON-COIN. PEAK
		(WITHOUT LOSSES)		(WITH LOSSES)			(WITHOUT LOSSES)		(WITH LOSSES)		
	YEAR	WINTER	SUMMER	WINTER	SUMMER		WINTER	SUMMER	WINTER	SUMMER	
ACTUAL	2001	1,150	1,171	1,204	1,226	57.0%	1,270	1,258	1,329	1,317	52.6%
ACTUAL	2002	1,092	1,211	1,146	1,271	59.3%	1,164	1,332	1,220	1,397	53.9%
ACTUAL	2003	1,237	1,205	1,291	1,257	58.3%	1,331	1,296	1,389	1,353	54.2%
ACTUAL	2004	1,252	1,223	1,314	1,283	59.2%	1,361	1,300	1,428	1,364	54.5%
ACTUAL	2005	1,292	1,377	1,347	1,436	56.6%	1,393	1,457	1,453	1,519	53.5%
ACTUAL	2006	1,292	1,380	1,351	1,443	56.1%	1,379	1,481	1,442	1,549	52.3%
ACTUAL	2007	1,381	1,410	1,450	1,480	58.1%	1,496	1,555	1,570	1,632	52.7%
ACTUAL	2008	1,425	1,269	1,500	1,336	56.7%	1,559	1,419	1,641	1,493	51.8%
ACTUAL	2009	1,517	1,304	1,593	1,370	51.4%	1,672	1,450	1,756	1,522	46.6%
ACTUAL	2010	1,358	1,443	1,424	1,513	57.8%	1,526	1,570	1,600	1,646	53.1%
ACTUAL	2011	1,379	1,429	1,438	1,491	56.9%	1,536	1,573	1,601	1,640	51.7%
FRCST	2012	1,391	1,376	1,445	1,429	58.3%	1,514	1,507	1,572	1,565	53.6%
FRCST	2013	1,390	1,379	1,455	1,443	58.4%	1,513	1,510	1,584	1,580	53.7%
FRCST	2014	1,416	1,416	1,482	1,483	58.6%	1,543	1,553	1,614	1,626	53.5%
FRCST	2015	1,444	1,440	1,512	1,508	58.9%	1,575	1,580	1,648	1,653	53.8%
FRCST	2016	1,462	1,470	1,531	1,538	58.8%	1,596	1,614	1,670	1,689	53.6%
FRCST	2017	1,491	1,487	1,561	1,556	59.3%	1,628	1,633	1,704	1,709	54.2%
FRCST	2018	1,497	1,495	1,567	1,565	59.6%	1,634	1,642	1,710	1,719	54.3%
FRCST	2019	1,507	1,506	1,578	1,577	59.8%	1,646	1,655	1,722	1,732	54.4%
FRCST	2020	1,518	1,519	1,589	1,590	59.6%	1,658	1,669	1,735	1,747	54.3%
FRCST	2021	1,528	1,532	1,599	1,604	59.8%	1,669	1,684	1,747	1,762	54.4%
FRCST	2022	1,538	1,544	1,610	1,616	59.9%	1,680	1,697	1,758	1,776	54.5%
FRCST	2023	1,544	1,552	1,616	1,625	60.0%	1,687	1,707	1,766	1,786	54.5%
FRCST	2024	1,552	1,563	1,624	1,636	59.8%	1,696	1,718	1,775	1,798	54.4%
FRCST	2025	1,561	1,574	1,634	1,648	60.0%	1,706	1,731	1,786	1,812	54.6%
FRCST	2026	1,571	1,587	1,644	1,662	60.1%	1,717	1,745	1,797	1,827	54.6%
FRCST	2027	1,585	1,602	1,659	1,677	60.1%	1,732	1,761	1,813	1,843	54.7%
FRCST	2028	1,600	1,616	1,675	1,692	60.0%	1,749	1,777	1,831	1,860	54.6%
FRCST	2029	1,610	1,626	1,686	1,702	60.1%	1,759	1,786	1,841	1,869	54.7%
FRCST	2030	1,627	1,642	1,703	1,719	60.1%	1,777	1,804	1,860	1,888	54.8%
FRCST	2031	1,645	1,660	1,722	1,738	60.1%	1,797	1,824	1,880	1,909	54.8%
FRCST	2032	1,663	1,679	1,741	1,757	60.0%	1,816	1,843	1,901	1,929	54.6%

***** BASE SCENARIO WITH DSM IMPACTS ***** | ***** BASE SCENARIO WITH DSM IMPACTS *****

	HOOSIER ENERGY COINCIDENT PEAK DEMAND (60 MINUTE VALUE, ALL VALUES EST.)				H.E. ANNUAL COINCIDENT LOAD FACTOR (AVERAGE)	HOOSIER ENERGY NON-COINCIDENT PEAK DEMAND (60 MINUTE VALUE, ALL VALUES EST.)				H.E. ANNUAL NON-COIN. LOAD FACTOR (AVERAGE)
	Without Losses (% Chg)		With Losses (% Chg)			Without Losses (% Chg)		With Losses (% Chg)		
TIME PERIOD	WINTER	SUMMER	WINTER	SUMMER		WINTER	SUMMER	WINTER	SUMMER	
2001 -2006	2.36%	3.33%	2.34%	3.32%	57.74%	1.66%	3.32%	1.64%	3.30%	53.48%
2006 -2011	1.31%	0.70%	1.25%	0.65%	56.16%	2.17%	1.21%	2.11%	1.15%	51.37%
2012 -2017	1.40%	1.55%	1.56%	1.71%	58.74%	1.46%	1.61%	1.62%	1.77%	53.73%
2017 -2022	0.62%	0.76%	0.62%	0.76%	59.66%	0.63%	0.78%	0.63%	0.78%	54.36%
2022 -2027	0.60%	0.74%	0.60%	0.74%	59.98%	0.61%	0.74%	0.61%	0.74%	54.57%
2027 -2032	0.97%	0.94%	0.97%	0.94%	60.07%	0.95%	0.92%	0.95%	0.92%	54.69%
2001 -2011	1.83%	2.01%	1.80%	1.98%	57.03%	1.91%	2.26%	1.88%	2.22%	52.44%
2012 -2032	0.90%	1.00%	0.94%	1.04%	59.59%	0.91%	1.01%	0.95%	1.05%	54.32%

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* BASE SCENARIO WITH DSM IMPACTS ******* | ******* BASE SCENARIO WITH DSM IMPACTS *******

		**** EXTREME TEMPERATURE CONDITIONS **** HOOSIER ENERGY SYSTEM PEAK SEASONAL COINCIDENT DEMAND (MW); 60 MINUTE VALUE				H.E. ANNUAL LOAD FACTOR Due to EXTREME COINCIDENT PEAK	**** EXTREME TEMPERATURE CONDITIONS **** HOOSIER ENERGY SYSTEM PEAK SEASONAL NON-COINCIDENT DEMAND (MW); 60 MINUTE VALUE				H.E. ANNUAL LOAD FACTOR Due To EXTREME NON-COIN. PEAK
		(WITHOUT LOSSES)		(WITH LOSSES)			(WITHOUT LOSSES)		(WITH LOSSES)		
	YEAR	WINTER	SUMMER	WINTER	SUMMER		WINTER	SUMMER	WINTER	SUMMER	
ACTUAL	2001	******	******	******	******	******	******	******	******	******	******
ACTUAL	2002	******	******	******	******	******	******	******	******	******	******
ACTUAL	2003	******	******	******	******	******	******	******	******	******	******
ACTUAL	2004	******	******	******	******	******	******	******	******	******	******
ACTUAL	2005	******	******	******	******	******	******	******	******	******	******
ACTUAL	2006	******	******	******	******	******	******	******	******	******	******
ACTUAL	2007	******	******	******	******	******	******	******	******	******	******
ACTUAL	2008	******	******	******	******	******	******	******	******	******	******
ACTUAL	2009	******	******	******	******	******	******	******	******	******	******
ACTUAL	2010	******	******	******	******	******	******	******	******	******	******
ACTUAL	2011	******	******	******	******	******	******	******	******	******	******
FRCST	2012	1,538	1,512	1,597	1,571	52.7%	1,671	1,654	1,736	1,718	48.5%
FRCST	2013	1,537	1,515	1,609	1,586	52.9%	1,671	1,657	1,749	1,735	48.6%
FRCST	2014	1,566	1,557	1,639	1,630	53.0%	1,704	1,705	1,784	1,784	48.7%
FRCST	2015	1,597	1,582	1,672	1,657	53.3%	1,739	1,734	1,820	1,815	48.9%
FRCST	2016	1,617	1,614	1,693	1,690	53.5%	1,762	1,770	1,844	1,853	48.8%
FRCST	2017	1,648	1,632	1,725	1,709	53.7%	1,796	1,791	1,880	1,874	49.2%
FRCST	2018	1,655	1,642	1,732	1,719	53.9%	1,804	1,801	1,888	1,885	49.4%
FRCST	2019	1,666	1,655	1,744	1,732	54.0%	1,817	1,816	1,901	1,900	49.6%
FRCST	2020	1,678	1,669	1,757	1,747	54.0%	1,830	1,832	1,916	1,917	49.5%
FRCST	2021	1,690	1,683	1,769	1,762	54.2%	1,843	1,848	1,929	1,934	49.6%
FRCST	2022	1,702	1,697	1,781	1,777	54.4%	1,856	1,863	1,943	1,950	49.7%
FRCST	2023	1,709	1,707	1,789	1,787	54.5%	1,865	1,874	1,952	1,961	49.7%
FRCST	2024	1,718	1,719	1,799	1,799	54.4%	1,875	1,887	1,963	1,975	49.6%
FRCST	2025	1,729	1,732	1,810	1,813	54.6%	1,887	1,901	1,975	1,990	49.7%
FRCST	2026	1,741	1,746	1,822	1,828	54.6%	1,900	1,917	1,989	2,007	49.7%
FRCST	2027	1,756	1,762	1,839	1,845	54.6%	1,917	1,934	2,006	2,025	49.8%
FRCST	2028	1,774	1,779	1,857	1,862	54.5%	1,935	1,952	2,026	2,043	49.7%
FRCST	2029	1,785	1,789	1,869	1,873	54.6%	1,947	1,963	2,038	2,055	49.8%
FRCST	2030	1,804	1,808	1,889	1,893	54.6%	1,967	1,983	2,059	2,076	49.8%
FRCST	2031	1,824	1,828	1,910	1,914	54.6%	1,989	2,005	2,082	2,098	49.8%
FRCST	2032	1,845	1,848	1,931	1,935	54.5%	2,011	2,027	2,105	2,121	49.7%

***** BASE SCENARIO WITH DSM IMPACTS ***** | ***** BASE SCENARIO WITH DSM IMPACTS *****

	***** EXTREME TEMPERATURE CONDITIONS ***** HOOSIER ENERGY COINCIDENT PEAK (60 MIN.)				EXTREME COIN. H.E. ANNUAL LOAD FACTOR (AVERAGE)	***** EXTREME TEMPERATURE CONDITIONS ***** HOOSIER ENERGY NON-COINCIDENT PEAK (60 MIN.)				EXT.NON-COIN H.E. ANNUAL LOAD FACTOR (AVERAGE)
	Without Losses (% Chg)		With Losses (% Chg)			Without Losses (% Chg)		With Losses (% Chg)		
TIME PERIOD	WINTER	SUMMER	WINTER	SUMMER		WINTER	SUMMER	WINTER	SUMMER	
2001 -2006	******	******	******	******	******	******	******	******	******	******
2006 -2011	******	******	******	******	******	******	******	******	******	******
2012 -2017	1.39%	1.54%	1.55%	1.70%	53.17%	1.45%	1.59%	1.61%	1.75%	48.82%
2017 -2022	0.65%	0.78%	0.65%	0.78%	54.02%	0.66%	0.80%	0.66%	0.80%	49.50%
2022 -2027	0.63%	0.76%	0.63%	0.76%	54.51%	0.64%	0.76%	0.64%	0.76%	49.69%
2027 -2032	0.99%	0.96%	0.99%	0.96%	54.57%	0.96%	0.94%	0.96%	0.94%	49.76%
2001 -2011	******	******	******	******	******	******	******	******	******	******
2012 -2032	0.91%	1.01%	0.95%	1.05%	54.05%	0.93%	1.02%	0.97%	1.06%	49.43%

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

		***** BASE SCENARIO WITH DSM IMPACTS *****					***** BASE SCENARIO WITH DSM IMPACTS *****				
		**** Adjusted for IN #72, IN #16, IN#92, and IL#002 **** Aggregated Member System Data NUMBER OF CONSUMERS					**** Adjusted for IN #72, IN #16, IN#92, and IL#002 **** Aggregated Member System Data SYSTEM ENERGY SALES TO END CONSUMERS (MWH)				
	YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL
ACTUAL	2001	219,228	10,003	132	1,093	230,456	3,052,360	639,446	1,164,603	31,271	4,887,680
ACTUAL	2002	223,044	10,265	139	1,144	234,592	3,261,617	663,738	1,272,906	32,441	5,230,702
ACTUAL	2003	226,749	10,462	151	1,293	238,655	3,243,405	673,235	1,316,094	32,150	5,264,884
ACTUAL	2004	230,760	10,690	151	1,429	243,030	3,305,807	706,497	1,403,535	33,098	5,448,937
ACTUAL	2005	257,250	11,810	165	1,573	270,798	3,749,514	774,714	1,484,489	33,634	6,042,351
ACTUAL	2006	260,854	11,986	169	1,707	274,716	3,856,899	824,354	1,545,582	32,678	6,259,513
ACTUAL	2007	263,908	12,246	191	1,821	278,166	4,088,777	855,093	1,620,151	34,240	6,598,261
ACTUAL	2008	265,071	12,166	200	1,833	279,270	4,080,904	856,375	1,630,203	33,209	6,600,691
ACTUAL	2009	265,137	12,281	192	1,836	279,446	3,904,139	818,798	1,564,440	31,738	6,319,115
ACTUAL	2010	265,890	12,407	193	1,851	280,341	4,158,336	843,557	1,712,254	33,075	6,747,222
ACTUAL	2011	277,750	13,765	210	2,498	294,223	4,093,232	901,705	1,806,351	40,873	6,842,161
FRCST	2012	278,966	13,865	199	2,563	295,593	3,989,581	917,278	1,889,973	46,873	6,843,705
FRCST	2013	280,670	13,956	196	2,563	297,385	3,983,222	920,003	1,902,644	46,873	6,852,742
FRCST	2014	282,590	14,047	193	2,563	299,393	3,997,211	928,879	2,033,668	46,873	7,006,631
FRCST	2015	284,673	14,138	192	2,563	301,566	4,012,283	935,762	2,176,840	46,873	7,171,758
FRCST	2016	286,859	14,229	192	2,563	303,843	4,053,719	942,801	2,268,128	46,873	7,311,521
FRCST	2017	289,262	14,320	191	2,563	306,336	4,101,451	949,908	2,359,681	46,873	7,457,912
FRCST	2018	291,878	14,460	188	2,563	309,089	4,143,638	957,578	2,370,001	46,873	7,518,090
FRCST	2019	294,498	14,600	188	2,563	311,849	4,183,274	966,007	2,397,344	46,873	7,593,498
FRCST	2020	297,165	14,740	188	2,563	314,656	4,225,357	974,512	2,414,360	46,873	7,661,102
FRCST	2021	299,756	14,880	188	2,563	317,387	4,267,958	983,121	2,430,404	46,873	7,728,356
FRCST	2022	302,394	15,020	188	2,563	320,165	4,313,354	991,829	2,446,995	46,873	7,799,051
FRCST	2023	305,241	15,200	188	2,563	323,192	4,351,843	1,002,860	2,446,995	46,873	7,848,572
FRCST	2024	308,091	15,380	188	2,563	326,222	4,397,369	1,015,342	2,446,995	46,873	7,906,579
FRCST	2025	310,985	15,560	188	2,563	329,296	4,446,161	1,031,372	2,446,995	46,873	7,971,401
FRCST	2026	313,956	15,740	188	2,563	332,447	4,500,201	1,045,814	2,446,995	46,873	8,039,883
FRCST	2027	316,958	15,920	188	2,563	335,629	4,560,874	1,061,611	2,446,995	46,873	8,116,353
FRCST	2028	320,105	16,142	188	2,563	338,998	4,619,479	1,080,333	2,446,995	46,873	8,193,680
FRCST	2029	323,359	16,364	187	2,563	342,473	4,683,226	1,099,167	2,411,086	46,873	8,240,352
FRCST	2030	326,738	16,586	187	2,563	346,074	4,750,067	1,118,034	2,411,086	46,873	8,326,060
FRCST	2031	330,231	16,808	187	2,563	349,789	4,822,419	1,136,863	2,411,086	46,873	8,417,242
FRCST	2032	333,793	17,030	187	2,563	353,573	4,896,486	1,155,730	2,411,086	46,873	8,510,174

	***** BASE SCENARIO WITH DSM IMPACTS *****					***** BASE SCENARIO WITH DSM IMPACTS *****				
	Adjusted for Systems -- AGGREGATED NUMBER OF CONSUMERS					Adjusted for Systems -- AGGREGATED ENERGY SALES				
TIME PERIOD	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (ACT.CHG.)	OTHER (ACT.CHG.)	TOTAL (% CHG.)	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (% CHG.)	OTHER (% CHG.)	TOTAL (% CHG.)
2001 -2006	3.54%	3.68%	37	614	3.58%	4.79%	5.21%	5.82%	0.88%	5.07%
2006 -2011	1.26%	2.81%	41	791	1.38%	1.20%	1.81%	3.17%	4.58%	1.80%
2012 -2017	0.73%	0.65%	-8	0	0.72%	0.55%	0.70%	4.54%	0.00%	1.73%
2017 -2022	0.89%	0.96%	-3	0	0.89%	1.01%	0.87%	0.73%	0.00%	0.90%
2022 -2027	0.95%	1.17%	0	0	0.95%	1.12%	1.37%	0.00%	0.00%	0.80%
2027 -2032	1.04%	1.36%	-1	0	1.05%	1.43%	1.71%	-0.30%	0.00%	0.95%
2001 -2011	2.39%	3.24%	78	1405	2.47%	2.98%	3.50%	4.49%	2.71%	3.42%
2012 -2032	0.90%	1.03%	-12	0	0.90%	1.03%	1.16%	1.23%	0.00%	1.10%

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

***** BASE SCENARIO WITH DSM IMPACTS ***** ***** BASE SCENARIO WITH DSM IMPACTS *****

Energy and Demand Values Adjusted for IN #72, IN # 16, IN#92, and IL#002

	YEAR	AGGREGATED TOTAL MEMBER ENERGY PUR-CHASED (MWH)	ENERGY GEN-ERATED FOR MEMBERS (MWH)	AGGREGATED MEMBER 30 MIN. COINCIDENT PEAK W/O LOSSES (MW) WINTER	SUMMER	HE COINCIDENT 60 MINUTE DEMAND (MW) (EST. BEFORE 1984) (WITHOUT LOSSES) WINTER	SUMMER	(WITH LOSSES) WINTER	SUMMER	ANNUAL LOAD FACTOR
ACTUAL	2001	5,106,079	5,327,900	1,015	1,031	1,002	1,018	1,049	1,065	57.1%
ACTUAL	2002	5,499,105	5,747,381	1,000	1,071	959	1,060	1,006	1,112	59.0%
ACTUAL	2003	5,527,292	5,765,328	1,101	1,063	1,077	1,050	1,123	1,095	58.6%
ACTUAL	2004	5,736,200	5,982,496	1,104	1,083	1,090	1,065	1,143	1,118	59.6%
ACTUAL	2005	6,332,029	6,576,718	1,162	1,331	1,133	1,317	1,181	1,374	54.6%
ACTUAL	2006	6,525,204	6,801,791	1,283	1,344	1,252	1,325	1,310	1,385	56.1%
ACTUAL	2007	6,924,233	7,228,689	1,378	1,350	1,345	1,348	1,412	1,415	58.3%
ACTUAL	2008	6,912,387	7,178,009	1,395	1,245	1,381	1,226	1,453	1,290	56.2%
ACTUAL	2009	6,617,661	6,880,934	1,472	1,247	1,470	1,244	1,544	1,306	50.9%
ACTUAL	2010	7,043,826	7,349,006	1,320	1,392	1,309	1,385	1,372	1,452	57.8%
ACTUAL	2011	7,133,534	7,429,606	1,394	1,435	1,379	1,429	1,438	1,491	56.9%
FRCST	2012	7,158,340	7,400,256	1,401	1,382	1,391	1,376	1,445	1,429	58.3%
FRCST	2013	7,167,691	7,450,170	1,400	1,384	1,390	1,379	1,455	1,443	58.4%
FRCST	2014	7,328,519	7,617,491	1,425	1,422	1,416	1,416	1,482	1,483	58.6%
FRCST	2015	7,502,107	7,798,087	1,454	1,446	1,444	1,440	1,512	1,508	58.9%
FRCST	2016	7,648,363	7,950,249	1,472	1,475	1,462	1,470	1,531	1,538	58.8%
FRCST	2017	7,801,707	8,109,784	1,501	1,492	1,491	1,487	1,561	1,556	59.3%
FRCST	2018	7,864,934	8,175,563	1,507	1,501	1,497	1,495	1,567	1,565	59.6%
FRCST	2019	7,943,773	8,257,585	1,517	1,512	1,507	1,506	1,578	1,577	59.8%
FRCST	2020	8,014,459	8,331,125	1,528	1,525	1,518	1,519	1,589	1,590	59.6%
FRCST	2021	8,084,788	8,404,293	1,538	1,538	1,528	1,532	1,599	1,604	59.8%
FRCST	2022	8,158,722	8,481,212	1,548	1,550	1,538	1,544	1,610	1,616	59.9%
FRCST	2023	8,210,630	8,535,215	1,554	1,558	1,544	1,552	1,616	1,625	60.0%
FRCST	2024	8,271,447	8,598,489	1,562	1,569	1,552	1,563	1,624	1,636	59.8%
FRCST	2025	8,339,445	8,669,231	1,571	1,581	1,561	1,574	1,634	1,648	60.0%
FRCST	2026	8,411,300	8,743,987	1,581	1,593	1,571	1,587	1,644	1,662	60.1%
FRCST	2027	8,491,554	8,827,481	1,595	1,608	1,585	1,602	1,659	1,677	60.1%
FRCST	2028	8,572,678	8,911,881	1,611	1,623	1,600	1,616	1,675	1,692	60.0%
FRCST	2029	8,622,041	8,963,237	1,621	1,632	1,610	1,626	1,686	1,702	60.1%
FRCST	2030	8,712,015	9,056,843	1,638	1,649	1,627	1,642	1,703	1,719	60.1%
FRCST	2031	8,807,740	9,156,433	1,656	1,667	1,645	1,660	1,722	1,738	60.1%
FRCST	2032	8,905,325	9,257,958	1,674	1,685	1,663	1,679	1,741	1,757	60.0%

***** BASE SCENARIO WITH DSM IMPACTS ***** ***** BASE SCENARIO WITH DSM IMPACTS *****

TIME PERIOD	Adjusted for Systems ENERGY PURCHASED (% CHG.)	ENERGY GENERATED (% CHG.)	Adjusted for Systems AGGREGATED 30 MIN. COIN. PEAK W/O LOSSES (% CHG) WINTER	SUMMER	Adjusted for Systems -- HE COIN. 60 MINUTE DEMAND Without Losses (% Chg) WINTER	SUMMER	With Losses (% Chg) WINTER	SUMMER	ADJUSTED ANNUAL LOAD FACTOR (AVERAGE)
2001 -2006	5.03%	5.01%	4.81%	5.45%	4.56%	5.41%	4.54%	5.40%	57.50%
2006 -2011	1.80%	1.78%	1.67%	1.33%	1.95%	1.53%	1.89%	1.48%	56.02%
2012 -2017	1.74%	1.85%	1.40%	1.55%	1.40%	1.55%	1.56%	1.71%	58.74%
2017 -2022	0.90%	0.90%	0.62%	0.76%	0.62%	0.76%	0.62%	0.76%	59.66%
2022 -2027	0.80%	0.80%	0.60%	0.74%	0.60%	0.74%	0.60%	0.74%	59.98%
2027 -2032	0.96%	0.96%	0.97%	0.94%	0.97%	0.94%	0.97%	0.94%	60.07%
2001 -2011	3.40%	3.38%	3.23%	3.37%	3.24%	3.45%	3.21%	3.42%	56.82%
2012 -2032	1.10%	1.13%	0.90%	1.00%	0.90%	1.00%	0.94%	1.04%	59.59%

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

***** BASE SCENARIO WITH DSM IMPACTS ***** ***** BASE SCENARIO WITH DSM IMPACTS *****

Energy and Demand Values Adjusted for IN #72, IN #16, IN#92, and IL#002

EXTREME COINCIDENT 60 MINUTE DEMAND (MW) (EST. BEFORE 1984)

		(WITHOUT LOSSES)		(WITH LOSSES)		EXTREME ANNUAL
	YEAR	WINTER	SUMMER	WINTER	SUMMER	LOAD FACTOR
ACTUAL	2001	*****	*****	*****	*****	*****
ACTUAL	2002	*****	*****	*****	*****	*****
ACTUAL	2003	*****	*****	*****	*****	*****
ACTUAL	2004	*****	*****	*****	*****	*****
ACTUAL	2005	*****	*****	*****	*****	*****
ACTUAL	2006	*****	*****	*****	*****	*****
ACTUAL	2007	*****	*****	*****	*****	*****
ACTUAL	2008	*****	*****	*****	*****	*****
ACTUAL	2009	*****	*****	*****	*****	*****
ACTUAL	2010	*****	*****	*****	*****	*****
ACTUAL	2011	*****	*****	*****	*****	*****
FRCST	2012	1,538	1,512	1,597	1,571	52.7%
FRCST	2013	1,537	1,515	1,609	1,586	52.9%
FRCST	2014	1,566	1,557	1,639	1,630	53.0%
FRCST	2015	1,597	1,582	1,672	1,657	53.3%
FRCST	2016	1,617	1,614	1,693	1,690	53.5%
FRCST	2017	1,648	1,632	1,725	1,709	53.7%
FRCST	2018	1,655	1,642	1,732	1,719	53.9%
FRCST	2019	1,666	1,655	1,744	1,732	54.0%
FRCST	2020	1,678	1,669	1,757	1,747	54.0%
FRCST	2021	1,690	1,683	1,769	1,762	54.2%
FRCST	2022	1,702	1,697	1,781	1,777	54.4%
FRCST	2023	1,709	1,707	1,789	1,787	54.5%
FRCST	2024	1,718	1,719	1,799	1,799	54.4%
FRCST	2025	1,729	1,732	1,810	1,813	54.6%
FRCST	2026	1,741	1,746	1,822	1,828	54.6%
FRCST	2027	1,756	1,762	1,839	1,845	54.6%
FRCST	2028	1,774	1,779	1,857	1,862	54.5%
FRCST	2029	1,785	1,789	1,869	1,873	54.6%
FRCST	2030	1,804	1,808	1,889	1,893	54.6%
FRCST	2031	1,824	1,828	1,910	1,914	54.6%
FRCST	2032	1,845	1,848	1,931	1,935	54.5%

***** BASE SCENARIO WITH DSM IMPACTS ***** ***** BASE SCENARIO RESULTS *****

Adjusted for Systems HE EXT. COIN. 60 MINUTE DEMAND

	Without Losses (% Chg)		With Losses (% Chg)		ADJUSTED EXT. ANNUAL LOAD FACTOR
TIME PERIOD	WINTER	SUMMER	WINTER	SUMMER	(AVERAGE)
2001 -2006	*****	*****	*****	*****	*****
2006 -2011	*****	*****	*****	*****	*****
2012 -2017	1.39%	1.54%	1.55%	1.70%	53.17%
2017 -2022	0.65%	0.78%	0.65%	0.78%	54.02%
2022 -2027	0.63%	0.76%	0.63%	0.76%	54.51%
2027 -2032	0.99%	0.96%	0.99%	0.96%	54.57%
2001 -2011	*****	*****	*****	*****	*****
2012 -2032	0.91%	1.01%	0.95%	1.05%	54.05%

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

		***** BASE SCENARIO WITH DSM IMPACTS *****					***** BASE SCENARIO WITH DSM IMPACTS *****				
		Values Adjusted for IN#72,IN#16,IN#92,IL#002 and Special Industrial Loads					Values Adjusted for IN#72,IN#16,IN#92,IL#002 and Special Industrial Loads				
		Aggregated Member System Data NUMBER OF CONSUMERS					Aggregated Member System Data SYSTEM ENERGY SALES TO END CONSUMERS (MWH)				
	YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL
ACTUAL	2001	219,228	10,003	132	1,093	230,456	3,052,360	639,446	1,029,201	31,271	4,752,278
ACTUAL	2002	223,044	10,265	138	1,144	234,591	3,261,617	663,738	1,102,023	32,441	5,059,819
ACTUAL	2003	226,749	10,462	150	1,293	238,654	3,243,405	673,235	1,142,196	32,150	5,090,986
ACTUAL	2004	230,760	10,690	150	1,429	243,029	3,305,807	706,497	1,217,305	33,098	5,262,707
ACTUAL	2005	257,250	11,810	164	1,573	270,797	3,749,514	774,714	1,295,926	33,634	5,853,788
ACTUAL	2006	260,854	11,986	168	1,707	274,715	3,856,899	824,354	1,347,295	32,678	6,061,226
ACTUAL	2007	263,908	12,246	190	1,821	278,165	4,088,777	855,093	1,427,519	34,240	6,405,629
ACTUAL	2008	265,071	12,166	199	1,833	279,269	4,080,904	856,375	1,434,770	33,209	6,405,258
ACTUAL	2009	265,137	12,281	191	1,836	279,445	3,904,139	818,798	1,379,492	31,738	6,134,167
ACTUAL	2010	265,890	12,407	192	1,851	280,340	4,158,336	843,557	1,543,619	33,075	6,578,587
ACTUAL	2011	277,750	13,765	209	2,498	294,222	4,093,232	901,705	1,649,885	40,873	6,685,695
FRCST	2012	278,966	13,865	198	2,563	295,592	3,989,581	917,278	1,718,850	46,873	6,672,582
FRCST	2013	280,670	13,956	195	2,563	297,384	3,983,222	920,003	1,731,644	46,873	6,681,742
FRCST	2014	282,590	14,047	192	2,563	299,392	3,997,211	928,879	1,862,668	46,873	6,835,631
FRCST	2015	284,673	14,138	191	2,563	301,565	4,012,283	935,762	2,005,840	46,873	7,000,758
FRCST	2016	286,859	14,229	191	2,563	303,842	4,053,719	942,801	2,097,128	46,873	7,140,521
FRCST	2017	289,262	14,320	190	2,563	306,335	4,101,451	949,908	2,188,681	46,873	7,286,912
FRCST	2018	291,878	14,460	187	2,563	309,088	4,143,638	957,578	2,199,001	46,873	7,347,090
FRCST	2019	294,498	14,600	187	2,563	311,848	4,183,274	966,007	2,226,344	46,873	7,422,498
FRCST	2020	297,165	14,740	187	2,563	314,655	4,225,357	974,512	2,243,360	46,873	7,490,102
FRCST	2021	299,756	14,880	187	2,563	317,386	4,267,958	983,121	2,259,404	46,873	7,557,356
FRCST	2022	302,394	15,020	187	2,563	320,164	4,313,354	991,829	2,275,995	46,873	7,628,051
FRCST	2023	305,241	15,200	187	2,563	323,191	4,351,843	1,002,860	2,275,995	46,873	7,677,572
FRCST	2024	308,091	15,380	187	2,563	326,221	4,397,369	1,015,342	2,275,995	46,873	7,735,579
FRCST	2025	310,985	15,560	187	2,563	329,295	4,446,161	1,031,372	2,275,995	46,873	7,800,401
FRCST	2026	313,956	15,740	187	2,563	332,446	4,500,201	1,045,814	2,275,995	46,873	7,868,883
FRCST	2027	316,958	15,920	187	2,563	335,628	4,560,874	1,061,611	2,275,995	46,873	7,945,353
FRCST	2028	320,105	16,142	187	2,563	338,997	4,619,479	1,080,333	2,275,995	46,873	8,022,680
FRCST	2029	323,359	16,364	186	2,563	342,472	4,683,226	1,099,167	2,240,086	46,873	8,069,352
FRCST	2030	326,738	16,586	186	2,563	346,073	4,750,067	1,118,034	2,240,086	46,873	8,155,060
FRCST	2031	330,231	16,808	186	2,563	349,788	4,822,419	1,136,863	2,240,086	46,873	8,246,242
FRCST	2032	333,793	17,030	186	2,563	353,572	4,896,486	1,155,730	2,240,086	46,873	8,339,174

	***** BASE SCENARIO WITH DSM IMPACTS *****					***** BASE SCENARIO WITH DSM IMPACTS *****				
	Adjusted for Systems & Ind. -- AGGREGATED NUMBER OF CONSUMERS					Adjusted for Systems & Ind. -- AGGREGATED ENERGY SALES				
TIME PERIOD	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (ACT.CHG.)	OTHER (ACT.CHG.)	TOTAL (% CHG.)	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (% CHG.)	OTHER (% CHG.)	TOTAL (% CHG.)
2001 -2006	3.54%	3.68%	36	614	3.58%	4.79%	5.21%	5.53%	0.88%	4.99%
2006 -2011	1.26%	2.81%	41	791	1.38%	1.20%	1.81%	4.14%	4.58%	1.98%
2012 -2017	0.73%	0.65%	-8	0	0.72%	0.55%	0.70%	4.95%	0.00%	1.78%
2017 -2022	0.89%	0.96%	-3	0	0.89%	1.01%	0.87%	0.79%	0.00%	0.92%
2022 -2027	0.95%	1.17%	0	0	0.95%	1.12%	1.37%	0.00%	0.00%	0.82%
2027 -2032	1.04%	1.36%	-1	0	1.05%	1.43%	1.71%	-0.32%	0.00%	0.97%
2001 -2011	2.39%	3.24%	77	1405	2.47%	2.98%	3.50%	4.83%	2.71%	3.47%
2012 -2032	0.90%	1.03%	-12	0	0.90%	1.03%	1.16%	1.33%	0.00%	1.12%

VER 2.1 | HOOSIER ENERGY REC, INC | 2013 POWER REQUIREMENTS STUDY | DISKETTE : 2013 PRS SYSTEM FORECAST
SUM | INDIANA # : IN 106 | SUMMARY HISTORICAL AND FORECAST SHEET | File 1 of 3
ORIG. DATE : 7/19/13 | ITER. DATE : 9/19/13 | FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* BASE SCENARIO WITH DSM IMPACTS ******* ******* BASE SCENARIO WITH DSM IMPACTS *******

Energy and Demand Values Adjusted for IN#72,IN#16,IN#92,IL#002 and Special Industrial Loads

	YEAR	AGGREGATED TOTAL MEMBER ENERGY PURCHASED (MWH)	ENERGY GENERATED FOR MEMBERS (MWH)	H.E. 30 MINUTE COINCIDENT DEMAND (MW) (WITHOUT LOSSES) WINTER	SUMMER	H.E. COINCIDENT 60 MINUTE DEMAND (MW) (EST. BEFORE 1984) (WITHOUT LOSSES) WINTER	SUMMER	(WITH LOSSES) WINTER	SUMMER	ANNUAL LOAD FACTOR
ACTUAL	2001	4,970,677	5,192,498	987	1,004	976	992	1,022	1,045	56.7%
ACTUAL	2002	5,328,221	5,576,498	968	1,040	929	1,030	965	1,091	58.3%
ACTUAL	2003	5,353,393	5,591,430	1,079	1,040	1,061	1,027	1,106	1,079	57.7%
ACTUAL	2004	5,549,970	5,796,266	1,066	1,055	1,052	1,037	1,106	1,093	59.7%
ACTUAL	2005	6,143,466	6,388,155	1,138	1,305	1,109	1,291	1,150	1,355	53.8%
ACTUAL	2006	6,326,917	6,603,504	1,260	1,322	1,229	1,303	1,283	1,366	55.2%
ACTUAL	2007	6,731,601	7,036,057	1,354	1,337	1,321	1,334	1,387	1,397	57.5%
ACTUAL	2008	6,716,954	6,982,576	1,394	1,235	1,379	1,215	1,442	1,327	55.1%
ACTUAL	2009	6,432,713	6,695,986	1,467	1,232	1,465	1,229	1,525	1,292	50.1%
ACTUAL	2010	6,875,191	7,180,371	1,317	1,373	1,306	1,366	1,357	1,431	57.3%
ACTUAL	2011	6,977,068	7,273,140	1,392	1,424	1,377	1,418	1,453	1,478	56.2%
FRCST	2012	6,987,217	7,229,132	1,380	1,362	1,371	1,357	1,424	1,410	57.8%
FRCST	2013	6,996,691	7,279,170	1,379	1,365	1,370	1,359	1,435	1,424	57.9%
FRCST	2014	7,157,519	7,446,491	1,405	1,403	1,395	1,397	1,461	1,463	58.1%
FRCST	2015	7,331,107	7,627,087	1,433	1,427	1,423	1,421	1,491	1,488	58.4%
FRCST	2016	7,477,363	7,779,249	1,452	1,456	1,442	1,450	1,510	1,519	58.3%
FRCST	2017	7,630,707	7,938,784	1,481	1,473	1,471	1,467	1,540	1,537	58.8%
FRCST	2018	7,693,934	8,004,563	1,487	1,482	1,477	1,476	1,547	1,546	59.1%
FRCST	2019	7,772,773	8,086,585	1,497	1,493	1,487	1,487	1,557	1,557	59.3%
FRCST	2020	7,843,459	8,160,125	1,508	1,506	1,497	1,500	1,568	1,571	59.1%
FRCST	2021	7,913,788	8,233,293	1,518	1,519	1,507	1,513	1,579	1,584	59.3%
FRCST	2022	7,987,722	8,310,212	1,528	1,531	1,517	1,525	1,589	1,597	59.4%
FRCST	2023	8,039,630	8,364,215	1,534	1,539	1,523	1,533	1,595	1,606	59.5%
FRCST	2024	8,100,447	8,427,489	1,541	1,550	1,531	1,544	1,604	1,617	59.3%
FRCST	2025	8,168,445	8,498,231	1,551	1,561	1,540	1,555	1,613	1,629	59.6%
FRCST	2026	8,240,300	8,572,987	1,561	1,574	1,550	1,568	1,624	1,642	59.6%
FRCST	2027	8,320,554	8,656,481	1,575	1,589	1,564	1,582	1,638	1,657	59.6%
FRCST	2028	8,401,678	8,740,881	1,590	1,603	1,579	1,597	1,654	1,673	59.5%
FRCST	2029	8,451,041	8,792,237	1,601	1,613	1,590	1,606	1,665	1,683	59.6%
FRCST	2030	8,541,015	8,885,843	1,618	1,629	1,606	1,623	1,683	1,700	59.7%
FRCST	2031	8,636,740	8,985,433	1,636	1,647	1,624	1,641	1,701	1,719	59.7%
FRCST	2032	8,734,325	9,086,958	1,654	1,666	1,643	1,659	1,720	1,738	59.5%

***** BASE SCENARIO WITH DSM IMPACTS ***** ***** BASE SCENARIO WITH DSM IMPACTS *****

TIME PERIOD	Adjusted for Systems & Ind ENERGY PURCHASED (% CHG.)	ENERGY GENERATED (% CHG.)	Adj. Sys. & Ind. -- H.E. 30 MINUTE COINCIDENT DEMAND (MW) (WITHOUT LOSSES) WINTER	SUMMER	Adjusted for Sys. & Ind. -- HE COIN. 60 MINUTE DEMAND Without Losses (% Chg) WINTER	SUMMER	With Losses (% Chg) WINTER	SUMMER	ADJUSTED ANNUAL LOAD FACTOR (AVERAGE)
2001 -2006	4.94%	4.93%	5.01%	5.67%	4.72%	5.61%	4.65%	5.50%	56.91%
2006 -2011	1.98%	1.95%	2.01%	1.50%	2.30%	1.71%	2.52%	1.59%	55.23%
2012 -2017	1.78%	1.89%	1.42%	1.57%	1.42%	1.57%	1.58%	1.73%	58.22%
2017 -2022	0.92%	0.92%	0.63%	0.77%	0.63%	0.77%	0.63%	0.77%	59.17%
2022 -2027	0.82%	0.82%	0.61%	0.75%	0.61%	0.75%	0.61%	0.75%	59.49%
2027 -2032	0.98%	0.98%	0.99%	0.95%	0.99%	0.95%	0.99%	0.95%	59.60%
2001 -2011	3.45%	3.43%	3.50%	3.56%	3.50%	3.64%	3.58%	3.53%	56.15%
2012 -2032	1.12%	1.15%	0.91%	1.01%	0.91%	1.01%	0.95%	1.05%	59.10%

VER 2.1 SUM | HOOSIER ENERGY REC, INC INDIANA # : IN 106 | 2013 POWER REQUIREMENTS STUDY SUMMARY HISTORICAL AND FORECAST SHEET ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 | DISKETTE : 2013 PRS SYSTEM FORECAST File 1 of 3 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
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******* BASE SCENARIO WITH DSM IMPACTS ******* ******* BASE SCENARIO WITH DSM IMPACTS *******

Energy and Demand Values Adjusted for IN#72,IN#16,IN#92,IL#002 and Special Industrial Loads

EXTREME COINCIDENT 60 MINUTE DEMAND (MW) (EST. BEFORE 1984)

		(WITHOUT LOSSES)		(WITH LOSSES)		EXTREME
	YEAR	WINTER	SUMMER	WINTER	SUMMER	ANNUAL LOAD FACTOR
ACTUAL	2001	*****	*****	*****	*****	*****
ACTUAL	2002	*****	*****	*****	*****	*****
ACTUAL	2003	*****	*****	*****	*****	*****
ACTUAL	2004	*****	*****	*****	*****	*****
ACTUAL	2005	*****	*****	*****	*****	*****
ACTUAL	2006	*****	*****	*****	*****	*****
ACTUAL	2007	*****	*****	*****	*****	*****
ACTUAL	2008	*****	*****	*****	*****	*****
ACTUAL	2009	*****	*****	*****	*****	*****
ACTUAL	2010	*****	*****	*****	*****	*****
ACTUAL	2011	*****	*****	*****	*****	*****
FRCST	2012	1,517	1,493	1,577	1,552	52.2%
FRCST	2013	1,517	1,496	1,589	1,567	52.3%
FRCST	2014	1,545	1,537	1,619	1,610	52.5%
FRCST	2015	1,576	1,563	1,651	1,637	52.7%
FRCST	2016	1,597	1,595	1,672	1,671	53.0%
FRCST	2017	1,627	1,613	1,704	1,690	53.2%
FRCST	2018	1,634	1,623	1,712	1,700	53.4%
FRCST	2019	1,646	1,635	1,724	1,713	53.6%
FRCST	2020	1,658	1,650	1,737	1,728	53.5%
FRCST	2021	1,670	1,664	1,749	1,743	53.7%
FRCST	2022	1,681	1,678	1,761	1,757	53.9%
FRCST	2023	1,688	1,687	1,768	1,768	54.0%
FRCST	2024	1,698	1,699	1,778	1,780	53.9%
FRCST	2025	1,708	1,712	1,789	1,794	54.1%
FRCST	2026	1,720	1,727	1,802	1,809	54.1%
FRCST	2027	1,736	1,743	1,818	1,826	54.1%
FRCST	2028	1,753	1,759	1,836	1,843	54.0%
FRCST	2029	1,765	1,770	1,848	1,854	54.1%
FRCST	2030	1,784	1,789	1,868	1,873	54.1%
FRCST	2031	1,804	1,809	1,889	1,894	54.1%
FRCST	2032	1,824	1,829	1,910	1,916	54.0%

***** BASE SCENARIO WITH DSM IMPACTS ***** ***** BASE SCENARIO RESULTS *****

Adjusted for Sys. & Ind. HE EXT. COIN. 60 MINUTE DEMAND

	Without Losses (% Chg)		With Losses (% Chg)		ADJUSTED EXT. ANNUAL LOAD FACTOR
TIME PERIOD	WINTER	SUMMER	WINTER	SUMMER	(AVERAGE)
2001 -2006	*****	*****	*****	*****	*****
2006 -2011	*****	*****	*****	*****	*****
2012 -2017	1.41%	1.56%	1.57%	1.72%	52.65%
2017 -2022	0.65%	0.79%	0.65%	0.79%	53.54%
2022 -2027	0.64%	0.76%	0.64%	0.76%	54.01%
2027 -2032	1.00%	0.97%	1.00%	0.97%	54.09%
2001 -2011	*****	*****	*****	*****	*****
2012 -2032	0.92%	1.02%	0.96%	1.06%	53.55%

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

***** BASE SCENARIO WITH DSM IMPACTS ***** ***** BASE SCENARIO WITH DSM IMPACTS *****

	YEAR	H.E. Time Factor Ratio from 30 to 60 Minute excludes pass-throughs (Est. before 1984) WINTER	SUMMER			PERCENTAGE of IN #72 Served by H.E.	IN #72 served by H.E. (Yes=0 , No= 1) WINTER	SUMMER	PERCENTAGE of IN #16 Served by H.E.	IN #16 served by H.E. (Yes=0 , No= 1) WINTER	SUMMER
ACTUAL	2001	98.92%	98.85%			100.0%	0	0	100.0%	0	0
ACTUAL	2002	96.00%	99.02%			100.0%	0	0	100.0%	0	0
ACTUAL	2003	98.31%	98.80%			100.0%	0	0	100.0%	0	0
ACTUAL	2004	98.73%	98.31%			100.0%	0	0	100.0%	0	0
ACTUAL	2005	97.45%	98.93%			100.0%	0	0	100.0%	0	0
ACTUAL	2006	97.54%	98.57%			100.0%	0	0	100.0%	0	0
ACTUAL	2007	97.56%	99.78%			100.0%	0	0	100.0%	0	0
ACTUAL	2008	98.92%	98.38%			100.0%	0	0	100.0%	0	0
ACTUAL	2009	99.86%	99.76%			100.0%	0	0	100.0%	0	0
ACTUAL	2010	99.16%	99.49%			100.0%	0	0	100.0%	0	0
ACTUAL	2011	98.92%	99.58%			100.0%	0	0	100.0%	0	0
FRCST	2012	99.32%	99.61%			100.0%	0	0	100.0%	0	0
FRCST	2013	99.32%	99.61%			100.0%	0	0	100.0%	0	0
FRCST	2014	99.32%	99.61%			100.0%	0	0	100.0%	0	0
FRCST	2015	99.32%	99.61%			100.0%	0	0	100.0%	0	0
FRCST	2016	99.32%	99.61%			100.0%	0	0	100.0%	0	0
FRCST	2017	99.32%	99.61%			100.0%	0	0	100.0%	0	0
FRCST	2018	99.32%	99.61%			100.0%	0	0	100.0%	0	0
FRCST	2019	99.32%	99.61%			100.0%	0	0	100.0%	0	0
FRCST	2020	99.32%	99.61%			100.0%	0	0	100.0%	0	0
FRCST	2021	99.32%	99.61%			100.0%	0	0	100.0%	0	0
FRCST	2022	99.32%	99.61%			100.0%	0	0	100.0%	0	0
FRCST	2023	99.32%	99.61%			100.0%	0	0	100.0%	0	0
FRCST	2024	99.32%	99.61%			100.0%	0	0	100.0%	0	0
FRCST	2025	99.32%	99.61%			100.0%	0	0	100.0%	0	0
FRCST	2026	99.32%	99.61%			100.0%	0	0	100.0%	0	0
FRCST	2027	99.32%	99.61%			100.0%	0	0	100.0%	0	0
FRCST	2028	99.32%	99.61%			100.0%	0	0	100.0%	0	0
FRCST	2029	99.32%	99.61%			100.0%	0	0	100.0%	0	0
FRCST	2030	99.32%	99.61%			100.0%	0	0	100.0%	0	0
FRCST	2031	99.32%	99.61%			100.0%	0	0	100.0%	0	0
FRCST	2032	99.32%	99.61%			100.0%	0	0	100.0%	0	0

***** BASE SCENARIO WITH DSM IMPACTS ***** ***** BASE SCENARIO WITH DSM IMPACTS *****

TIME PERIOD	HE TIME FACTOR RATIO (30 to 60 MINUTE) WINTER (AVERAGE)	SUMMER (AVERAGE)
2001 -2006	97.83%	98.75%
2006 -2011	98.66%	99.26%
2012 -2017	99.32%	99.61%
2017 -2022	99.32%	99.61%
2022 -2027	99.32%	99.61%
2027 -2032	99.32%	99.61%
2001 -2011	98.31%	99.04%
2012 -2032	99.32%	99.61%

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* BASE SCENARIO WITH DSM IMPACTS ******* ******* BASE SCENARIO WITH DSM IMPACTS *******

	YEAR	PERCENTAGE of IN #92 Served by H.E.	IN #92 served by H.E. (Yes=0 , No= 1) WINTER	SUMMER	PERCENTAGE of IL #2 Served by H.E.	IL #2 served by H.E. (Yes=0 , No= 1) WINTER	SUMMER
ACTUAL	2001	0.0%	1	1	0.0%	1	1
ACTUAL	2002	0.0%	1	1	0.0%	1	1
ACTUAL	2003	0.0%	1	1	0.0%	1	1
ACTUAL	2004	0.0%	1	1	0.0%	1	1
ACTUAL	2005	51.0%	1	0	0.0%	1	1
ACTUAL	2006	100.0%	0	0	0.0%	1	1
ACTUAL	2007	100.0%	0	0	0.0%	1	1
ACTUAL	2008	100.0%	0	0	0.0%	1	1
ACTUAL	2009	100.0%	0	0	0.0%	1	1
ACTUAL	2010	100.0%	0	0	0.0%	1	1
ACTUAL	2011	100.0%	0	0	100.0%	0	0
FRCST	2012	100.0%	0	0	100.0%	0	0
FRCST	2013	100.0%	0	0	100.0%	0	0
FRCST	2014	100.0%	0	0	100.0%	0	0
FRCST	2015	100.0%	0	0	100.0%	0	0
FRCST	2016	100.0%	0	0	100.0%	0	0
FRCST	2017	100.0%	0	0	100.0%	0	0
FRCST	2018	100.0%	0	0	100.0%	0	0
FRCST	2019	100.0%	0	0	100.0%	0	0
FRCST	2020	100.0%	0	0	100.0%	0	0
FRCST	2021	100.0%	0	0	100.0%	0	0
FRCST	2022	100.0%	0	0	100.0%	0	0
FRCST	2023	100.0%	0	0	100.0%	0	0
FRCST	2024	100.0%	0	0	100.0%	0	0
FRCST	2025	100.0%	0	0	100.0%	0	0
FRCST	2026	100.0%	0	0	100.0%	0	0
FRCST	2027	100.0%	0	0	100.0%	0	0
FRCST	2028	100.0%	0	0	100.0%	0	0
FRCST	2029	100.0%	0	0	100.0%	0	0
FRCST	2030	100.0%	0	0	100.0%	0	0
FRCST	2031	100.0%	0	0	100.0%	0	0
FRCST	2032	100.0%	0	0	100.0%	0	0

***** BASE SCENARIO WITH DSM IMPACTS *****

TIME PERIOD
2001 -2006
2006 -2011
2012 -2017
2017 -2022
2022 -2027
2027 -2032
2001 -2011
2012 -2032

VER 2.1 | HOOSIER ENERGY REC, INC | 2013 POWER REQUIREMENTS STUDY | DISKETTE : 2013 PRS SYSTEM FORECAST
SUM | INDIANA # : IN 106 | SUMMARY HISTORICAL AND FORECAST SHEET | File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 | FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* BASE SCENARIO WITH DSM IMPACTS ******* | ******* BASE SCENARIO WITH DSM IMPACTS *******

		DSM EE Program Energy Impact				DSM Demand Impacts-- Both EE & DR Programs) Coincident 60 Minute Demand MW			
						Savings w/o Losses		Savings with Losses	
	YEAR	Aggregated Total Member Energy Purchased Savings MWH	Percent of Total Purchases w/o DSM	Total Member Energy Generated Savings MWH	Percent of Total Generated w/o DSM	Winter	Summer	Winter	Summer
ACTUAL	2001								
ACTUAL	2002								
ACTUAL	2003								
ACTUAL	2004								
ACTUAL	2005								
ACTUAL	2006								
ACTUAL	2007								
ACTUAL	2008								
ACTUAL	2009								
ACTUAL	2010								
ACTUAL	2011								
FRCST	2012	104,788	1.5%	108,416	1.5%	40.350	23.815	41.931	24.748
FRCST	2013	125,361	1.8%	130,422	1.8%	46.550	27.668	48.758	28.980
FRCST	2014	144,473	2.0%	150,306	2.0%	55.424	34.284	58.053	35.910
FRCST	2015	161,520	2.2%	168,041	2.2%	64.096	40.998	67.136	42.943
FRCST	2016	155,196	2.0%	161,462	2.0%	67.370	45.571	70.565	47.733
FRCST	2017	147,262	1.9%	153,207	1.9%	70.097	49.998	73.422	52.370
FRCST	2018	150,912	1.9%	157,005	1.9%	75.703	55.729	79.293	58.372
FRCST	2019	159,576	2.0%	166,019	2.0%	82.647	62.058	86.567	65.001
FRCST	2020	170,371	2.1%	177,250	2.1%	87.905	65.349	92.074	68.448
FRCST	2021	181,709	2.2%	189,045	2.2%	93.802	68.599	98.251	71.852
FRCST	2022	193,144	2.4%	200,942	2.4%	100.739	73.468	105.517	76.953
FRCST	2023	206,040	2.5%	214,358	2.5%	107.951	78.348	113.071	82.064
FRCST	2024	217,466	2.6%	226,246	2.6%	114.755	82.782	120.197	86.709
FRCST	2025	225,070	2.7%	234,157	2.7%	121.092	86.576	126.835	90.682
FRCST	2026	232,491	2.7%	241,877	2.7%	127.172	89.826	133.203	94.086
FRCST	2027	233,609	2.7%	243,041	2.7%	129.907	92.145	136.068	96.516
FRCST	2028	235,263	2.7%	244,762	2.7%	131.368	94.265	137.598	98.736
FRCST	2029	237,491	2.7%	247,080	2.7%	132.820	96.435	139.119	101.009
FRCST	2030	240,827	2.7%	250,550	2.7%	135.439	98.830	141.862	103.518
FRCST	2031	243,583	2.7%	253,417	2.7%	137.810	101.082	144.346	105.876
FRCST	2032	246,547	2.7%	256,501	2.7%	140.525	103.334	147.190	108.235

***** BASE SCENARIO WITH DSM IMPACTS *****

TIME PERIOD
2001 -2006
2006 -2011
2012 -2017
2017 -2022
2022 -2027
2027 -2032
2001 -2011
2012 -2032

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

		***** BASE SCENARIO WITH DSM IMPACTS *****				***** BASE SCENARIO WITH DSM IMPACTS *****			
		DSM -- EE Program Demand Impacts Coincident 60 Minute Demand MW				DSM -- DR Program Demand Impacts Coincident 60 Minute Demand MW			
		Savings w/o Losses		Savings with Losses		Savings w/o Losses		Savings with Losses	
	YEAR	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer
ACTUAL	2001								
ACTUAL	2002								
ACTUAL	2003								
ACTUAL	2004								
ACTUAL	2005								
ACTUAL	2006								
ACTUAL	2007								
ACTUAL	2008								
ACTUAL	2009								
ACTUAL	2010								
ACTUAL	2011								
FRCST	2012	33.566	13.936	34.881	14.482	6.784	9.879	7.050	10.266
FRCST	2013	39.472	16.769	41.345	17.564	7.077	10.899	7.413	11.416
FRCST	2014	45.560	19.863	47.721	20.805	9.864	14.421	10.332	15.105
FRCST	2015	51.322	22.817	53.757	23.899	12.774	18.181	13.380	19.043
FRCST	2016	51.626	23.432	54.075	24.543	15.744	22.139	16.490	23.189
FRCST	2017	51.332	23.817	53.767	24.946	18.765	26.182	19.655	27.423
FRCST	2018	53.841	25.362	56.395	26.565	21.861	30.367	22.898	31.807
FRCST	2019	57.644	27.438	60.378	28.739	25.004	34.620	26.189	36.262
FRCST	2020	62.129	29.715	65.075	31.125	25.776	35.633	26.999	37.323
FRCST	2021	66.831	32.070	70.000	33.591	26.972	36.529	28.251	38.261
FRCST	2022	71.659	34.408	75.057	36.039	29.080	39.061	30.459	40.913
FRCST	2023	76.989	36.935	80.641	38.687	30.961	41.413	32.430	43.377
FRCST	2024	82.336	39.413	86.242	41.282	32.418	43.369	33.956	45.426
FRCST	2025	87.346	41.470	91.489	43.437	33.746	45.106	35.346	47.245
FRCST	2026	92.107	43.108	96.476	45.152	35.065	46.718	36.728	48.933
FRCST	2027	93.521	43.821	97.957	45.900	36.386	48.324	38.111	50.616
FRCST	2028	93.683	44.401	98.127	46.507	37.684	49.864	39.471	52.229
FRCST	2029	93.827	45.016	98.277	47.151	38.992	51.419	40.842	53.858
FRCST	2030	95.128	45.842	99.640	48.016	40.310	52.988	42.222	55.502
FRCST	2031	96.171	46.510	100.733	48.716	41.639	54.572	43.613	57.161
FRCST	2032	97.548	47.162	102.174	49.399	42.977	56.172	45.016	58.836

TIME PERIOD
2001 -2006
2006 -2011
2012 -2017
2017 -2022
2022 -2027
2027 -2032
2001 -2011
2012 -2032

Appendix C

Historical/Forecast Annual Values
Summary Base Severe Case

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 34 YEARS)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* BASE-SEVERE SCENARIO WITH DSM IMPACTS ******* | ******* BASE-SEVERE SCENARIO WITH DSM IMPACTS *******

		Aggregated Member System Data NUMBER OF CONSUMERS					Aggregated Member System Data SYSTEM ENERGY SALES TO END CONSUMERS (MWH)				
	YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL
ACTUAL	2001	253,162	12,265	155	1,444	267,026	3,522,968	729,098	1,261,060	113,891	5,627,017
ACTUAL	2002	257,347	12,533	163	1,501	271,544	3,772,856	750,481	1,372,372	117,598	6,013,307
ACTUAL	2003	261,300	12,711	176	1,654	275,841	3,744,229	760,700	1,406,637	112,443	6,024,009
ACTUAL	2004	265,436	12,930	173	1,793	280,332	3,816,332	797,926	1,498,284	112,624	6,225,166
ACTUAL	2005	269,261	13,031	173	1,934	284,399	4,087,081	833,664	1,583,193	44,652	6,548,590
ACTUAL	2006	272,892	13,211	177	2,070	288,350	3,997,738	859,810	1,632,862	37,999	6,528,409
ACTUAL	2007	275,983	13,481	199	2,186	291,849	4,235,636	896,961	1,706,767	41,253	6,880,617
ACTUAL	2008	277,143	13,424	208	2,202	292,977	4,225,769	896,208	1,712,574	38,855	6,873,406
ACTUAL	2009	277,179	13,547	200	2,204	293,130	4,049,085	862,271	1,638,530	36,404	6,586,290
ACTUAL	2010	277,915	13,683	201	2,219	294,018	4,313,613	889,903	1,783,519	40,028	7,027,063
ACTUAL	2011	277,750	13,765	210	2,498	294,223	4,093,232	901,705	1,806,351	40,873	6,842,161
FRCST	2012	278,966	13,865	199	2,563	295,593	4,288,487	917,278	1,889,973	46,873	7,142,611
FRCST	2013	280,670	13,956	196	2,563	297,385	4,451,182	920,003	1,902,644	46,873	7,320,702
FRCST	2014	282,590	14,047	193	2,563	299,393	4,562,401	928,879	2,033,668	46,873	7,571,821
FRCST	2015	284,673	14,138	192	2,563	301,566	4,633,742	935,762	2,176,840	46,873	7,793,217
FRCST	2016	286,859	14,229	192	2,563	303,843	4,709,534	942,801	2,268,128	46,873	7,967,336
FRCST	2017	289,262	14,320	191	2,563	306,336	4,779,963	949,908	2,359,681	46,873	8,136,424
FRCST	2018	291,878	14,460	188	2,563	309,089	4,838,882	957,578	2,370,001	46,873	8,213,334
FRCST	2019	294,498	14,600	188	2,563	311,849	4,891,800	966,007	2,397,344	46,873	8,302,024
FRCST	2020	297,165	14,740	188	2,563	314,656	4,945,681	974,512	2,414,360	46,873	8,381,426
FRCST	2021	299,756	14,880	188	2,563	317,387	4,999,001	983,121	2,430,404	46,873	8,459,399
FRCST	2022	302,394	15,020	188	2,563	320,165	5,054,793	991,829	2,446,995	46,873	8,540,490
FRCST	2023	305,241	15,200	188	2,563	323,192	5,102,186	1,002,860	2,446,995	46,873	8,598,915
FRCST	2024	308,091	15,380	188	2,563	326,222	5,157,496	1,015,342	2,446,995	46,873	8,666,706
FRCST	2025	310,985	15,560	188	2,563	329,296	5,216,362	1,031,372	2,446,995	46,873	8,741,602
FRCST	2026	313,956	15,740	188	2,563	332,447	5,280,901	1,045,814	2,446,995	46,873	8,820,583
FRCST	2027	316,958	15,920	188	2,563	335,629	5,352,316	1,061,611	2,446,995	46,873	8,907,795
FRCST	2028	320,105	16,142	188	2,563	338,998	5,421,165	1,080,333	2,446,995	46,873	8,995,366
FRCST	2029	323,359	16,364	187	2,563	342,473	5,496,031	1,099,167	2,411,086	46,873	9,053,157
FRCST	2030	326,738	16,586	187	2,563	346,074	5,574,628	1,118,034	2,411,086	46,873	9,150,621
FRCST	2031	330,231	16,808	187	2,563	349,789	5,659,535	1,136,863	2,411,086	46,873	9,254,358
FRCST	2032	333,793	17,030	187	2,563	353,573	5,746,491	1,155,730	2,411,086	46,873	9,360,179

***** BASE-SEVERE SCENARIO WITH DSM IMPACTS ***** | ***** BASE-SEVERE SCENARIO WITH DSM IMPACTS *****

	AGGREGATED NUMBER OF CONSUMERS					AGGREGATED SYSTEM ENERGY SALES				
TIME PERIOD	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (ACT.CHG.)	OTHER (ACT.CHG.)	TOTAL (% CHG.)	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (% CHG.)	OTHER (% CHG.)	TOTAL (% CHG.)
2001 -2006	1.51%	1.50%	22	626	1.55%	2.56%	3.35%	5.30%	-19.71%	3.02%
2006 -2011	0.35%	0.82%	33	428	0.40%	0.47%	0.96%	2.04%	1.47%	0.94%
2012 -2017	0.73%	0.65%	-8	0	0.72%	2.19%	0.70%	4.54%	0.00%	2.64%
2017 -2022	0.89%	0.96%	-3	0	0.89%	1.12%	0.87%	0.73%	0.00%	0.97%
2022 -2027	0.95%	1.17%	0	0	0.95%	1.15%	1.37%	0.00%	0.00%	0.85%
2027 -2032	1.04%	1.36%	-1	0	1.05%	1.43%	1.71%	-0.30%	0.00%	1.00%
2001 -2011	0.93%	1.16%	55	1054	0.97%	1.51%	2.15%	3.66%	-9.74%	1.97%
2012 -2032	0.90%	1.03%	-12	0	0.90%	1.47%	1.16%	1.23%	0.00%	1.36%

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 34 YEARS)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

		***** BASE-SEVERE SCENARIO WITH DSM IMPACTS ***** Aggregated Member System Data NUMBER OF CONSUMERS					***** BASE-SEVERE SCENARIO WITH DSM IMPACTS ***** Aggregated Member System Data SYSTEM ENERGY SALES TO END CONSUMERS (MWH)				
	YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL
ACTUAL	2001	253,162	12,265	155	1,444	267,026	3,522,968	729,098	1,261,060	113,891	5,627,017
ACTUAL	2002	257,347	12,533	163	1,501	271,544	3,772,856	750,481	1,372,372	117,598	6,013,307
ACTUAL	2003	261,300	12,711	176	1,654	275,841	3,744,229	760,700	1,406,637	112,443	6,024,009
ACTUAL	2004	265,436	12,930	173	1,793	280,332	3,816,332	797,926	1,498,284	112,624	6,225,166
ACTUAL	2005	269,261	13,031	173	1,934	284,399	4,087,081	833,664	1,583,193	44,652	6,548,590
ACTUAL	2006	272,892	13,211	177	2,070	288,350	3,997,738	859,810	1,632,862	37,999	6,528,409
ACTUAL	2007	275,983	13,481	199	2,186	291,849	4,235,636	896,961	1,706,767	41,253	6,880,617
ACTUAL	2008	277,143	13,424	208	2,202	292,977	4,225,769	896,208	1,712,574	38,855	6,873,406
ACTUAL	2009	277,179	13,547	200	2,204	293,130	4,049,085	862,271	1,638,530	36,404	6,586,290
ACTUAL	2010	277,915	13,683	201	2,219	294,018	4,313,613	889,903	1,783,519	40,028	7,027,063
ACTUAL	2011	277,750	13,765	210	2,498	294,223	4,093,232	901,705	1,806,351	40,873	6,842,161
FRCST	2012	278,966	13,865	199	2,563	295,593	4,288,487	917,278	1,889,973	46,873	7,142,611
FRCST	2013	280,670	13,956	196	2,563	297,385	4,451,182	920,003	1,902,644	46,873	7,320,702
FRCST	2014	282,590	14,047	193	2,563	299,393	4,562,401	928,879	2,033,668	46,873	7,571,821
FRCST	2015	284,673	14,138	192	2,563	301,566	4,633,742	935,762	2,176,840	46,873	7,793,217
FRCST	2016	286,859	14,229	192	2,563	303,843	4,709,534	942,801	2,268,128	46,873	7,967,336
FRCST	2017	289,262	14,320	191	2,563	306,336	4,779,963	949,908	2,359,681	46,873	8,136,424
FRCST	2018	291,878	14,460	188	2,563	309,089	4,838,882	957,578	2,370,001	46,873	8,213,334
FRCST	2019	294,498	14,600	188	2,563	311,849	4,891,800	966,007	2,397,344	46,873	8,302,024
FRCST	2020	297,165	14,740	188	2,563	314,656	4,945,681	974,512	2,414,360	46,873	8,381,426
FRCST	2021	299,756	14,880	188	2,563	317,387	4,999,001	983,121	2,430,404	46,873	8,459,399
FRCST	2022	302,394	15,020	188	2,563	320,165	5,054,793	991,829	2,446,995	46,873	8,540,490
FRCST	2023	305,241	15,200	188	2,563	323,192	5,102,186	1,002,860	2,446,995	46,873	8,598,915
FRCST	2024	308,091	15,380	188	2,563	326,222	5,157,496	1,015,342	2,446,995	46,873	8,666,706
FRCST	2025	310,985	15,560	188	2,563	329,296	5,216,362	1,031,372	2,446,995	46,873	8,741,602
FRCST	2026	313,956	15,740	188	2,563	332,447	5,280,901	1,045,814	2,446,995	46,873	8,820,583
FRCST	2027	316,958	15,920	188	2,563	335,629	5,352,316	1,061,611	2,446,995	46,873	8,907,795
FRCST	2028	320,105	16,142	188	2,563	338,998	5,421,165	1,080,333	2,446,995	46,873	8,995,366
FRCST	2029	323,359	16,364	187	2,563	342,473	5,496,031	1,099,167	2,411,086	46,873	9,053,157
FRCST	2030	326,738	16,586	187	2,563	346,074	5,574,628	1,118,034	2,411,086	46,873	9,150,621
FRCST	2031	330,231	16,808	187	2,563	349,789	5,659,535	1,136,863	2,411,086	46,873	9,254,358
FRCST	2032	333,793	17,030	187	2,563	353,573	5,746,491	1,155,730	2,411,086	46,873	9,360,179

	***** BASE-SEVERE SCENARIO WITH DSM IMPACTS ***** AGGREGATED NUMBER OF CONSUMERS					***** BASE-SEVERE SCENARIO WITH DSM IMPACTS ***** AGGREGATED SYSTEM ENERGY SALES				
TIME PERIOD	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (ACT.CHG.)	OTHER (ACT.CHG.)	TOTAL (% CHG.)	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (% CHG.)	OTHER (% CHG.)	TOTAL (% CHG.)
2001 -2006	1.51%	1.50%	22	626	1.55%	2.56%	3.35%	5.30%	-19.71%	3.02%
2006 -2011	0.35%	0.82%	33	428	0.40%	0.47%	0.96%	2.04%	1.47%	0.94%
2012 -2017	0.73%	0.65%	-8	0	0.72%	2.19%	0.70%	4.54%	0.00%	2.64%
2017 -2022	0.89%	0.96%	-3	0	0.89%	1.12%	0.87%	0.73%	0.00%	0.97%
2022 -2027	0.95%	1.17%	0	0	0.95%	1.15%	1.37%	0.00%	0.00%	0.85%
2027 -2032	1.04%	1.36%	-1	0	1.05%	1.43%	1.71%	-0.30%	0.00%	1.00%
2001 -2011	0.93%	1.16%	55	1054	0.97%	1.51%	2.15%	3.66%	-9.74%	1.97%
2012 -2032	0.90%	1.03%	-12	0	0.90%	1.47%	1.16%	1.23%	0.00%	1.36%

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* BASE-SEVERE SCENARIO WITH DSM IMPACTS ******* | ******* BASE-SEVERE SCENARIO WITH DSM IMPACTS *******

	YEAR	AGGREGATED TOTAL MEMBER ENERGY PURCHASED (MWH)	TOTAL ENERGY GENERATED for H.E. MEMBERS (MWH)	HE SYSTEM AVERAGE MONTHLY LOSS FACTORS due to MEMBER SYSTEM LOAD (excludes pass-throughs) FOR ENERGY	FOR DEMAND	H.E. AVERAGE WHOLESALE POWER COSTS (MILLS/MWH)	AGGREGATED MEMBER SYSTEM DEMANDS (WITHOUT LOSSES, 30 MINUTE DEMAND) NONCOINCIDENT (MW) WINTER	SUMMER	COINCIDENT (MW) (EST. BEFORE 1984) WINTER	SUMMER
ACTUAL	2001	5,864,880	6,120,565	4.27%	4.53%	*****	1,285	1,274	1,164	1,186
ACTUAL	2002	6,314,792	6,601,076	4.45%	4.78%	*****	1,211	1,346	1,139	1,224
ACTUAL	2003	6,320,460	6,593,765	4.26%	4.26%	*****	1,354	1,313	1,264	1,219
ACTUAL	2004	6,549,574	6,831,967	4.25%	4.81%	*****	1,381	1,321	1,268	1,243
ACTUAL	2005	6,850,535	7,115,875	3.83%	4.22%	*****	1,429	1,472	1,325	1,392
ACTUAL	2006	6,802,245	7,090,943	4.19%	4.47%	*****	1,413	1,502	1,324	1,400
ACTUAL	2007	7,215,322	7,532,943	4.33%	4.84%	*****	1,532	1,558	1,415	1,413
ACTUAL	2008	7,193,537	7,470,277	3.80%	5.10%	*****	1,576	1,442	1,440	1,289
ACTUAL	2009	6,898,809	7,173,589	3.93%	4.86%	*****	1,674	1,453	1,519	1,307
ACTUAL	2010	7,338,210	7,656,457	4.25%	4.73%	*****	1,539	1,577	1,369	1,450
ACTUAL	2011	7,133,534	7,429,606	4.07%	4.19%	*****	1,552	1,579	1,394	1,435
FRCST	2012	7,472,193	7,724,976	3.35%	3.77%	74.770	1,594	1,581	1,466	1,445
FRCST	2013	7,659,075	7,961,393	3.88%	4.53%	76.120	1,633	1,622	1,502	1,482
FRCST	2014	7,922,027	8,234,961	3.88%	4.53%	76.260	1,685	1,688	1,548	1,542
FRCST	2015	8,154,733	8,477,062	3.88%	4.53%	79.660	1,730	1,727	1,589	1,577
FRCST	2016	8,337,095	8,666,786	3.88%	4.53%	82.730	1,759	1,769	1,615	1,614
FRCST	2017	8,514,298	8,851,144	3.88%	4.53%	86.790	1,797	1,793	1,649	1,635
FRCST	2018	8,595,110	8,935,218	3.88%	4.53%	88.520	1,807	1,807	1,658	1,647
FRCST	2019	8,687,903	9,031,758	3.88%	4.53%	90.290	1,822	1,822	1,671	1,661
FRCST	2020	8,770,981	9,118,190	3.88%	4.53%	92.100	1,836	1,840	1,684	1,677
FRCST	2021	8,852,565	9,203,068	3.88%	4.53%	93.940	1,850	1,857	1,696	1,692
FRCST	2022	8,937,413	9,291,342	3.88%	4.53%	95.820	1,864	1,873	1,709	1,706
FRCST	2023	8,998,661	9,355,062	3.88%	4.53%	97.740	1,873	1,884	1,716	1,717
FRCST	2024	9,069,745	9,429,016	3.88%	4.53%	99.690	1,884	1,898	1,726	1,729
FRCST	2025	9,148,314	9,510,758	3.88%	4.53%	101.680	1,897	1,913	1,738	1,743
FRCST	2026	9,231,188	9,596,977	3.88%	4.53%	103.710	1,910	1,930	1,750	1,758
FRCST	2027	9,322,716	9,692,200	3.88%	4.53%	105.780	1,928	1,948	1,766	1,775
FRCST	2028	9,414,587	9,787,780	3.88%	4.53%	105.780	1,947	1,966	1,784	1,792
FRCST	2029	9,475,616	9,851,274	3.88%	4.53%	105.780	1,960	1,978	1,797	1,804
FRCST	2030	9,577,931	9,957,719	3.88%	4.53%	105.780	1,981	1,999	1,816	1,823
FRCST	2031	9,686,838	10,071,023	3.88%	4.53%	105.780	2,003	2,022	1,837	1,844
FRCST	2032	9,797,958	10,186,629	3.88%	4.53%	105.780	2,026	2,044	1,858	1,865

***** BASE-SEVERE SCENARIO WITH DSM IMPACTS ***** | ***** BASE-SEVERE SCENARIO WITH DSM IMPACTS *****

TIME PERIOD	AGGREGATED TOTAL ENERGY PURCHASED (% CHG.)	H.E. ENERGY GENERATED FOR MEMBERS (% CHG.)	AVG. MONTHLY LOSS FACTORS due to MEMBERS ENERGY (AVERAGE)	DEMAND (AVERAGE)	H.E. AVERAGE WHOLESALE POWER COSTS (% CHG.)	AGGREGATED MEMBER PEAK SEASONAL DEMANDS (WITHOUT LOSSES, 30 MINUTE DEMAND) Non-Coincident (% Chg) WINTER	SUMMER	Coincident (% Chg) WINTER	SUMMER
2001 -2006	3.01%	2.99%	4.21%	4.51%	*****	1.91%	3.34%	2.61%	3.37%
2006 -2011	0.96%	0.94%	4.10%	4.70%	*****	1.89%	1.00%	1.03%	0.51%
2012 -2017	2.65%	2.76%	3.79%	4.40%	3.03%	2.43%	2.55%	2.38%	2.51%
2017 -2022	0.97%	0.98%	3.88%	4.53%	2.00%	0.73%	0.87%	0.72%	0.85%
2022 -2027	0.85%	0.85%	3.88%	4.53%	2.00%	0.68%	0.79%	0.67%	0.79%
2027 -2032	1.00%	1.00%	3.88%	4.53%	0.00%	0.99%	0.97%	1.02%	0.99%
2001 -2011	1.98%	1.96%	4.15%	4.62%	*****	1.90%	2.17%	1.81%	1.93%
2012 -2032	1.36%	1.39%	3.86%	4.49%	1.75%	1.20%	1.29%	1.19%	1.29%

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
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******* BASE-SEVERE SCENARIO WITH DSM IMPACTS ******* | ******* BASE-SEVERE SCENARIO WITH DSM IMPACTS *******

	YEAR	AGGREGATED TOTAL MEMBER ENERGY PURCHASED (MWH)	TOTAL ENERGY GENERATED for H.E. MEMBERS (MWH)	HE SYSTEM AVERAGE MONTHLY LOSS FACTORS due to MEMBER SYSTEM LOAD (excludes pass-throughs) FOR ENERGY	FOR DEMAND	H.E. AVERAGE WHOLESALE POWER COSTS (MILLS/MWH)	AGGREGATED MEMBER SYSTEM DEMANDS (WITHOUT LOSSES, 30 MINUTE DEMAND) NONCOINCIDENT (MW) WINTER	SUMMER	COINCIDENT (MW) (EST. BEFORE 1984) WINTER	SUMMER
ACTUAL	2001	5,864,880	6,120,565	4.27%	4.53%	*****	1,285	1,274	1,164	1,186
ACTUAL	2002	6,314,792	6,601,076	4.45%	4.78%	*****	1,211	1,346	1,139	1,224
ACTUAL	2003	6,320,460	6,593,765	4.26%	4.26%	*****	1,354	1,313	1,264	1,219
ACTUAL	2004	6,549,574	6,831,967	4.25%	4.81%	*****	1,381	1,321	1,268	1,243
ACTUAL	2005	6,850,535	7,115,875	3.83%	4.22%	*****	1,429	1,472	1,325	1,392
ACTUAL	2006	6,802,245	7,090,943	4.19%	4.47%	*****	1,413	1,502	1,324	1,400
ACTUAL	2007	7,215,322	7,532,943	4.33%	4.84%	*****	1,532	1,558	1,415	1,413
ACTUAL	2008	7,193,537	7,470,277	3.80%	5.10%	*****	1,576	1,442	1,440	1,289
ACTUAL	2009	6,898,809	7,173,589	3.93%	4.86%	*****	1,674	1,453	1,519	1,307
ACTUAL	2010	7,338,210	7,656,457	4.25%	4.73%	*****	1,539	1,577	1,369	1,450
ACTUAL	2011	7,133,534	7,429,606	4.07%	4.19%	*****	1,552	1,579	1,394	1,435
FRCST	2012	7,472,193	7,724,976	3.35%	3.77%	74.770	1,594	1,581	1,466	1,445
FRCST	2013	7,659,075	7,961,393	3.88%	4.53%	76.120	1,633	1,622	1,502	1,482
FRCST	2014	7,922,027	8,234,961	3.88%	4.53%	76.260	1,685	1,688	1,548	1,542
FRCST	2015	8,154,733	8,477,062	3.88%	4.53%	79.660	1,730	1,727	1,589	1,577
FRCST	2016	8,337,095	8,666,786	3.88%	4.53%	82.730	1,759	1,769	1,615	1,614
FRCST	2017	8,514,298	8,851,144	3.88%	4.53%	86.790	1,797	1,793	1,649	1,635
FRCST	2018	8,595,110	8,935,218	3.88%	4.53%	88.520	1,807	1,807	1,658	1,647
FRCST	2019	8,687,903	9,031,758	3.88%	4.53%	90.290	1,822	1,822	1,671	1,661
FRCST	2020	8,770,981	9,118,190	3.88%	4.53%	92.100	1,836	1,840	1,684	1,677
FRCST	2021	8,852,565	9,203,068	3.88%	4.53%	93.940	1,850	1,857	1,696	1,692
FRCST	2022	8,937,413	9,291,342	3.88%	4.53%	95.820	1,864	1,873	1,709	1,706
FRCST	2023	8,998,661	9,355,062	3.88%	4.53%	97.740	1,873	1,884	1,716	1,717
FRCST	2024	9,069,745	9,429,016	3.88%	4.53%	99.690	1,884	1,898	1,726	1,729
FRCST	2025	9,148,314	9,510,758	3.88%	4.53%	101.680	1,897	1,913	1,738	1,743
FRCST	2026	9,231,188	9,596,977	3.88%	4.53%	103.710	1,910	1,930	1,750	1,758
FRCST	2027	9,322,716	9,692,200	3.88%	4.53%	105.780	1,928	1,948	1,766	1,775
FRCST	2028	9,414,587	9,787,780	3.88%	4.53%	105.780	1,947	1,966	1,784	1,792
FRCST	2029	9,475,616	9,851,274	3.88%	4.53%	105.780	1,960	1,978	1,797	1,804
FRCST	2030	9,577,931	9,957,719	3.88%	4.53%	105.780	1,981	1,999	1,816	1,823
FRCST	2031	9,686,838	10,071,023	3.88%	4.53%	105.780	2,003	2,022	1,837	1,844
FRCST	2032	9,797,958	10,186,629	3.88%	4.53%	105.780	2,026	2,044	1,858	1,865

***** BASE-SEVERE SCENARIO WITH DSM IMPACTS ***** | ***** BASE-SEVERE SCENARIO WITH DSM IMPACTS *****

TIME PERIOD	AGGREGATED TOTAL ENERGY PURCHASED (% CHG.)	H.E. ENERGY GENERATED FOR MEMBERS (% CHG.)	AVG. MONTHLY LOSS FACTORS due to MEMBERS ENERGY (AVERAGE)	DEMAND (AVERAGE)	H.E. AVERAGE WHOLESALE POWER COSTS (% CHG.)	AGGREGATED MEMBER PEAK SEASONAL DEMANDS (WITHOUT LOSSES, 30 MINUTE DEMAND) Non-Coincident (% Chg) WINTER	SUMMER	Coincident (% Chg) WINTER	SUMMER
2001 -2006	3.01%	2.99%	4.21%	4.51%	*****	1.91%	3.34%	2.61%	3.37%
2006 -2011	0.96%	0.94%	4.10%	4.70%	*****	1.89%	1.00%	1.03%	0.51%
2012 -2017	2.65%	2.76%	3.79%	4.40%	3.03%	2.43%	2.55%	2.38%	2.51%
2017 -2022	0.97%	0.98%	3.88%	4.53%	2.00%	0.73%	0.87%	0.72%	0.85%
2022 -2027	0.85%	0.85%	3.88%	4.53%	2.00%	0.68%	0.79%	0.67%	0.79%
2027 -2032	1.00%	1.00%	3.88%	4.53%	0.00%	0.99%	0.97%	1.02%	0.99%
2001 -2011	1.98%	1.96%	4.15%	4.62%	*****	1.90%	2.17%	1.81%	1.93%
2012 -2032	1.36%	1.39%	3.86%	4.49%	1.75%	1.20%	1.29%	1.19%	1.29%

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* BASE-SEVERE SCENARIO WITH DSM IMPACTS ******* | ******* BASE-SEVERE SCENARIO WITH DSM IMPACTS *******

		HOOSIER ENERGY SYSTEM PEAK SEASONAL COINCIDENT DEMAND (MW) (All values are estimated 60 minute values)				H.E. ANNUAL LOAD FACTOR Due To COINCIDENT PEAK	HOOSIER ENERGY SYSTEM PEAK SEASONAL NON-COINCIDENT DEMAND (MW) (All values are estimated 60 minute values)				H.E. ANNUAL LOAD FACTOR Due To NON-COIN. PEAK
		(WITHOUT LOSSES)		(WITH LOSSES)			(WITHOUT LOSSES)		(WITH LOSSES)		
	YEAR	WINTER	SUMMER	WINTER	SUMMER		WINTER	SUMMER	WINTER	SUMMER	
ACTUAL	2001	1,150	1,171	1,204	1,226	57.0%	1,270	1,258	1,329	1,317	52.6%
ACTUAL	2002	1,092	1,211	1,146	1,271	59.3%	1,164	1,332	1,220	1,397	53.9%
ACTUAL	2003	1,237	1,205	1,291	1,257	58.3%	1,331	1,296	1,389	1,353	54.2%
ACTUAL	2004	1,252	1,223	1,314	1,283	59.2%	1,361	1,300	1,428	1,364	54.5%
ACTUAL	2005	1,292	1,377	1,347	1,436	56.6%	1,393	1,457	1,453	1,519	53.5%
ACTUAL	2006	1,292	1,380	1,351	1,443	56.1%	1,379	1,481	1,442	1,549	52.3%
ACTUAL	2007	1,381	1,410	1,450	1,480	58.1%	1,496	1,555	1,570	1,632	52.7%
ACTUAL	2008	1,425	1,269	1,500	1,336	56.7%	1,559	1,419	1,641	1,493	51.8%
ACTUAL	2009	1,517	1,304	1,593	1,370	51.4%	1,672	1,450	1,756	1,522	46.6%
ACTUAL	2010	1,358	1,443	1,424	1,513	57.8%	1,526	1,570	1,600	1,646	53.1%
ACTUAL	2011	1,379	1,429	1,438	1,491	56.9%	1,536	1,573	1,601	1,640	51.7%
FRCST	2012	1,456	1,439	1,512	1,495	58.2%	1,583	1,575	1,644	1,635	53.5%
FRCST	2013	1,491	1,477	1,561	1,546	58.2%	1,622	1,616	1,697	1,691	53.5%
FRCST	2014	1,538	1,536	1,610	1,607	58.4%	1,674	1,682	1,752	1,760	53.4%
FRCST	2015	1,578	1,571	1,652	1,644	58.6%	1,719	1,721	1,799	1,801	53.7%
FRCST	2016	1,604	1,608	1,679	1,683	58.6%	1,747	1,763	1,829	1,845	53.5%
FRCST	2017	1,637	1,629	1,714	1,705	58.9%	1,785	1,786	1,868	1,870	54.0%
FRCST	2018	1,647	1,641	1,724	1,718	59.2%	1,795	1,800	1,879	1,883	54.2%
FRCST	2019	1,660	1,655	1,737	1,732	59.3%	1,809	1,815	1,894	1,900	54.3%
FRCST	2020	1,673	1,670	1,751	1,749	59.3%	1,824	1,832	1,909	1,918	54.1%
FRCST	2021	1,685	1,685	1,764	1,764	59.5%	1,838	1,849	1,924	1,936	54.3%
FRCST	2022	1,697	1,700	1,776	1,779	59.6%	1,851	1,865	1,938	1,952	54.3%
FRCST	2023	1,705	1,710	1,785	1,790	59.7%	1,860	1,877	1,947	1,964	54.4%
FRCST	2024	1,715	1,722	1,795	1,803	59.5%	1,871	1,891	1,959	1,979	54.2%
FRCST	2025	1,726	1,736	1,807	1,818	59.7%	1,884	1,906	1,972	1,995	54.4%
FRCST	2026	1,738	1,751	1,820	1,834	59.7%	1,897	1,922	1,986	2,012	54.4%
FRCST	2027	1,754	1,768	1,836	1,851	59.8%	1,915	1,940	2,004	2,031	54.5%
FRCST	2028	1,772	1,785	1,855	1,869	59.6%	1,934	1,959	2,024	2,050	54.3%
FRCST	2029	1,785	1,797	1,868	1,881	59.8%	1,947	1,971	2,038	2,063	54.5%
FRCST	2030	1,804	1,816	1,888	1,901	59.8%	1,967	1,992	2,059	2,085	54.5%
FRCST	2031	1,825	1,836	1,910	1,923	59.8%	1,990	2,014	2,083	2,108	54.5%
FRCST	2032	1,845	1,858	1,932	1,945	59.6%	2,012	2,037	2,106	2,132	54.4%

***** BASE-SEVERE SCENARIO WITH DSM IMPACTS ***** | ***** BASE-SEVERE SCENARIO WITH DSM IMPACTS *****

	HOOSIER ENERGY COINCIDENT PEAK DEMAND (60 MINUTE VALUE, ALL VALUES EST.)				H.E. ANNUAL COINCIDENT LOAD FACTOR (AVERAGE)	HOOSIER ENERGY NON-COINCIDENT PEAK DEMAND (60 MINUTE VALUE, ALL VALUES EST.)				H.E. ANNUAL NON-COIN. LOAD FACTOR (AVERAGE)
	Without Losses (% Chg)		With Losses (% Chg)			Without Losses (% Chg)		With Losses (% Chg)		
TIME PERIOD	WINTER	SUMMER	WINTER	SUMMER		WINTER	SUMMER	WINTER	SUMMER	
2001 -2006	2.36%	3.33%	2.34%	3.32%	57.74%	1.66%	3.32%	1.64%	3.30%	53.48%
2006 -2011	1.31%	0.70%	1.25%	0.65%	56.16%	2.17%	1.21%	2.11%	1.15%	51.37%
2012 -2017	2.38%	2.51%	2.54%	2.67%	58.49%	2.43%	2.55%	2.59%	2.71%	53.62%
2017 -2022	0.72%	0.85%	0.72%	0.86%	59.31%	0.73%	0.87%	0.73%	0.87%	54.20%
2022 -2027	0.67%	0.79%	0.67%	0.79%	59.67%	0.68%	0.79%	0.68%	0.79%	54.38%
2027 -2032	1.02%	0.99%	1.02%	0.99%	59.73%	0.99%	0.97%	0.99%	0.97%	54.47%
2001 -2011	1.83%	2.01%	1.80%	1.98%	57.03%	1.91%	2.26%	1.88%	2.22%	52.44%
2012 -2032	1.19%	1.29%	1.23%	1.33%	59.28%	1.20%	1.29%	1.24%	1.33%	54.15%

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST

SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3

ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

		***** BASE-SEVERE SCENARIO WITH DSM IMPACTS *****					***** BASE-SEVERE SCENARIO WITH DSM IMPACTS *****				
		**** EXTREME TEMPERATURE CONDITIONS **** HOOSIER ENERGY SYSTEM PEAK SEASONAL COINCIDENT DEMAND (MW); 60 MINUTE VALUE				H.E. ANNUAL LOAD FACTOR Due to EXTREME COINCIDENT PEAK	**** EXTREME TEMPERATURE CONDITIONS **** HOOSIER ENERGY SYSTEM PEAK SEASONAL NON-COINCIDENT DEMAND (MW); 60 MINUTE VALUE				H.E. ANNUAL LOAD FACTOR Due To EXTREME NON-COIN. PEAK
		(WITHOUT LOSSES)		(WITH LOSSES)			(WITHOUT LOSSES)		(WITH LOSSES)		
	YEAR	WINTER	SUMMER	WINTER	SUMMER		WINTER	SUMMER	WINTER	SUMMER	
ACTUAL	2001	******	******	******	******	******	******	******	******	******	******
ACTUAL	2002	******	******	******	******	******	******	******	******	******	******
ACTUAL	2003	******	******	******	******	******	******	******	******	******	******
ACTUAL	2004	******	******	******	******	******	******	******	******	******	******
ACTUAL	2005	******	******	******	******	******	******	******	******	******	******
ACTUAL	2006	******	******	******	******	******	******	******	******	******	******
ACTUAL	2007	******	******	******	******	******	******	******	******	******	******
ACTUAL	2008	******	******	******	******	******	******	******	******	******	******
ACTUAL	2009	******	******	******	******	******	******	******	******	******	******
ACTUAL	2010	******	******	******	******	******	******	******	******	******	******
ACTUAL	2011	******	******	******	******	******	******	******	******	******	******
FRCST	2012	1,610	1,582	1,672	1,643	52.6%	1,749	1,729	1,816	1,796	48.4%
FRCST	2013	1,650	1,624	1,727	1,700	52.6%	1,792	1,774	1,875	1,857	48.5%
FRCST	2014	1,702	1,688	1,782	1,768	52.8%	1,850	1,847	1,936	1,933	48.6%
FRCST	2015	1,746	1,727	1,828	1,808	52.9%	1,899	1,889	1,988	1,977	48.7%
FRCST	2016	1,774	1,767	1,857	1,850	53.1%	1,930	1,935	2,021	2,025	48.7%
FRCST	2017	1,810	1,790	1,895	1,874	53.3%	1,971	1,960	2,063	2,052	49.0%
FRCST	2018	1,821	1,803	1,906	1,888	53.5%	1,982	1,975	2,075	2,067	49.2%
FRCST	2019	1,836	1,819	1,922	1,904	53.7%	1,999	1,993	2,092	2,086	49.3%
FRCST	2020	1,851	1,836	1,937	1,922	53.6%	2,015	2,012	2,109	2,106	49.2%
FRCST	2021	1,865	1,853	1,952	1,940	53.8%	2,031	2,031	2,126	2,125	49.4%
FRCST	2022	1,879	1,869	1,967	1,957	53.9%	2,046	2,048	2,142	2,144	49.5%
FRCST	2023	1,888	1,881	1,976	1,969	54.0%	2,057	2,061	2,153	2,158	49.5%
FRCST	2024	1,899	1,895	1,989	1,984	54.0%	2,070	2,077	2,167	2,174	49.4%
FRCST	2025	1,912	1,911	2,002	2,000	54.2%	2,084	2,094	2,182	2,192	49.5%
FRCST	2026	1,927	1,928	2,017	2,018	54.3%	2,100	2,113	2,198	2,211	49.5%
FRCST	2027	1,945	1,946	2,036	2,037	54.3%	2,119	2,133	2,219	2,232	49.6%
FRCST	2028	1,965	1,965	2,057	2,057	54.2%	2,141	2,153	2,241	2,254	49.4%
FRCST	2029	1,979	1,978	2,072	2,071	54.3%	2,155	2,167	2,256	2,268	49.6%
FRCST	2030	2,000	1,999	2,094	2,093	54.3%	2,178	2,190	2,280	2,292	49.6%
FRCST	2031	2,024	2,022	2,119	2,117	54.3%	2,203	2,214	2,306	2,318	49.6%
FRCST	2032	2,047	2,046	2,143	2,142	54.1%	2,228	2,240	2,332	2,344	49.5%

	***** BASE-SEVERE SCENARIO WITH DSM IMPACTS *****					***** BASE-SEVERE SCENARIO WITH DSM IMPACTS *****				
	***** EXTREME TEMPERATURE CONDITIONS ***** HOOSIER ENERGY COINCIDENT PEAK (60 MIN.)				EXTREME COIN H.E. ANNUAL LOAD FACTOR (AVERAGE)	***** EXTREME TEMPERATURE CONDITIONS ***** HOOSIER ENERGY NON-COINCIDENT PEAK (60 MIN.)				EXT.NON-COIN H.E. ANNUAL LOAD FACTOR (AVERAGE)
	Without Losses (% Chg)		With Losses (% Chg)			Without Losses (% Chg)		With Losses (% Chg)		
TIME PERIOD	WINTER	SUMMER	WINTER	SUMMER		WINTER	SUMMER	WINTER	SUMMER	
2001 -2006	******	******	******	******	******	******	******	******	******	******
2006 -2011	******	******	******	******	******	******	******	******	******	******
2012 -2017	2.37%	2.50%	2.54%	2.67%	52.89%	2.42%	2.54%	2.58%	2.70%	48.64%
2017 -2022	0.74%	0.87%	0.74%	0.87%	53.63%	0.76%	0.88%	0.76%	0.89%	49.25%
2022 -2027	0.70%	0.81%	0.70%	0.81%	54.13%	0.70%	0.81%	0.70%	0.81%	49.50%
2027 -2032	1.03%	1.01%	1.03%	1.01%	54.23%	1.01%	0.98%	1.01%	0.99%	49.54%
2001 -2011	******	******	******	******	******	******	******	******	******	******
2012 -2032	1.21%	1.30%	1.25%	1.34%	53.70%	1.22%	1.30%	1.26%	1.34%	49.22%

VER 2.1 | HOOSIER ENERGY REC, INC | 2013 POWER REQUIREMENTS STUDY | DISKETTE : 2013 PRS SYSTEM FORECAST

SUM | INDIANA # : IN 106 | SUMMARY HISTORICAL AND FORECAST SHEET | File 1 of 3

ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 | FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

		***** BASE-SEVERE SCENARIO WITH DSM IMPACTS ***** **** Adjusted for IN #72, IN #16, IN#92, and IL#002 **** Aggregated Member System Data NUMBER OF CONSUMERS					***** BASE-SEVERE SCENARIO WITH DSM IMPACTS ***** **** Adjusted for IN #72, IN #16, IN#92, and IL#002 **** Aggregated Member System Data SYSTEM ENERGY SALES TO END CONSUMERS (MWH)				
	YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL
ACTUAL	2001	219,228	10,003	132	1,093	230,456	3,052,360	639,446	1,164,603	31,271	4,887,680
ACTUAL	2002	223,044	10,265	139	1,144	234,592	3,261,617	663,738	1,272,906	32,441	5,230,702
ACTUAL	2003	226,749	10,462	151	1,293	238,655	3,243,405	673,235	1,316,094	32,150	5,264,884
ACTUAL	2004	230,760	10,690	151	1,429	243,030	3,305,807	706,497	1,403,535	33,098	5,448,937
ACTUAL	2005	257,250	11,810	165	1,573	270,798	3,749,514	774,714	1,484,489	33,634	6,042,351
ACTUAL	2006	260,854	11,986	169	1,707	274,716	3,856,899	824,354	1,545,582	32,678	6,259,513
ACTUAL	2007	263,908	12,246	191	1,821	278,166	4,088,777	855,093	1,620,151	34,240	6,598,261
ACTUAL	2008	265,071	12,166	200	1,833	279,270	4,080,904	856,375	1,630,203	33,209	6,600,691
ACTUAL	2009	265,137	12,281	192	1,836	279,446	3,904,139	818,798	1,564,440	31,738	6,319,115
ACTUAL	2010	265,890	12,407	193	1,851	280,341	4,158,336	843,557	1,712,254	33,075	6,747,222
ACTUAL	2011	277,750	13,765	210	2,498	294,223	4,093,232	901,705	1,806,351	40,873	6,842,161
FRCST	2012	278,966	13,865	199	2,563	295,593	4,288,487	917,278	1,889,973	46,873	7,142,611
FRCST	2013	280,670	13,956	196	2,563	297,385	4,451,182	920,003	1,902,644	46,873	7,320,702
FRCST	2014	282,590	14,047	193	2,563	299,393	4,562,401	928,879	2,033,668	46,873	7,571,821
FRCST	2015	284,673	14,138	192	2,563	301,566	4,633,742	935,762	2,176,840	46,873	7,793,217
FRCST	2016	286,859	14,229	192	2,563	303,843	4,709,534	942,801	2,268,128	46,873	7,967,336
FRCST	2017	289,262	14,320	191	2,563	306,336	4,779,963	949,908	2,359,681	46,873	8,136,424
FRCST	2018	291,878	14,460	188	2,563	309,089	4,838,882	957,578	2,370,001	46,873	8,213,334
FRCST	2019	294,498	14,600	188	2,563	311,849	4,891,800	966,007	2,397,344	46,873	8,302,024
FRCST	2020	297,165	14,740	188	2,563	314,656	4,945,681	974,512	2,414,360	46,873	8,381,426
FRCST	2021	299,756	14,880	188	2,563	317,387	4,999,001	983,121	2,430,404	46,873	8,459,399
FRCST	2022	302,394	15,020	188	2,563	320,165	5,054,793	991,829	2,446,995	46,873	8,540,490
FRCST	2023	305,241	15,200	188	2,563	323,192	5,102,186	1,002,860	2,446,995	46,873	8,598,915
FRCST	2024	308,091	15,380	188	2,563	326,222	5,157,496	1,015,342	2,446,995	46,873	8,666,706
FRCST	2025	310,985	15,560	188	2,563	329,296	5,216,362	1,031,372	2,446,995	46,873	8,741,602
FRCST	2026	313,956	15,740	188	2,563	332,447	5,280,901	1,045,814	2,446,995	46,873	8,820,583
FRCST	2027	316,958	15,920	188	2,563	335,629	5,352,316	1,061,611	2,446,995	46,873	8,907,795
FRCST	2028	320,105	16,142	188	2,563	338,998	5,421,165	1,080,333	2,446,995	46,873	8,995,366
FRCST	2029	323,359	16,364	187	2,563	342,473	5,496,031	1,099,167	2,411,086	46,873	9,053,157
FRCST	2030	326,738	16,586	187	2,563	346,074	5,574,628	1,118,034	2,411,086	46,873	9,150,621
FRCST	2031	330,231	16,808	187	2,563	349,789	5,659,535	1,136,863	2,411,086	46,873	9,254,358
FRCST	2032	333,793	17,030	187	2,563	353,573	5,746,491	1,155,730	2,411,086	46,873	9,360,179

	***** BASE-SEVERE SCENARIO WITH DSM IMPACTS ***** Adjusted for Systems -- AGGREGATED NUMBER OF CONSUMERS					***** BASE-SEVERE SCENARIO WITH DSM IMPACTS ***** Adjusted for Systems -- AGGREGATED ENERGY SALES				
TIME PERIOD	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (ACT.CHG.)	OTHER (ACT.CHG.)	TOTAL (% CHG.)	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (% CHG.)	OTHER (% CHG.)	TOTAL (% CHG.)
2001 -2006	3.54%	3.68%	37	614	3.58%	4.79%	5.21%	5.82%	0.88%	5.07%
2006 -2011	1.26%	2.81%	41	791	1.38%	1.20%	1.81%	3.17%	4.58%	1.80%
2012 -2017	0.73%	0.65%	-8	0	0.72%	2.19%	0.70%	4.54%	0.00%	2.64%
2017 -2022	0.89%	0.96%	-3	0	0.89%	1.12%	0.87%	0.73%	0.00%	0.97%
2022 -2027	0.95%	1.17%	0	0	0.95%	1.15%	1.37%	0.00%	0.00%	0.85%
2027 -2032	1.04%	1.36%	-1	0	1.05%	1.43%	1.71%	-0.30%	0.00%	1.00%
2001 -2011	2.39%	3.24%	78	1405	2.47%	2.98%	3.50%	4.49%	2.71%	3.42%
2012 -2032	0.90%	1.03%	-12	0	0.90%	1.47%	1.16%	1.23%	0.00%	1.36%

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* BASE-SEVERE SCENARIO WITH DSM IMPACTS ******* ******* BASE-SEVERE SCENARIO WITH DSM IMPACTS *******

Energy and Demand Values Adjusted for IN #72, IN # 16, IN#92, and IL#002

	YEAR	AGGREGATED TOTAL MEMBER ENERGY PURCHASED (MWH)	ENERGY GENERATED FOR MEMBERS (MWH)	AGGREGATED MEMBER 30 MIN. COINCIDENT PEAK W/O LOSSES (MW) WINTER	SUMMER	HE COINCIDENT 60 MINUTE DEMAND (MW) (EST. BEFORE 1984) (WITHOUT LOSSES) WINTER	SUMMER	(WITH LOSSES) WINTER	SUMMER	ANNUAL LOAD FACTOR
ACTUAL	2001	5,106,079	5,327,900	1,015	1,031	1,002	1,018	1,049	1,065	57.1%
ACTUAL	2002	5,499,105	5,747,381	1,000	1,071	959	1,060	1,006	1,112	59.0%
ACTUAL	2003	5,527,292	5,765,328	1,101	1,063	1,077	1,050	1,123	1,095	58.6%
ACTUAL	2004	5,736,200	5,982,496	1,104	1,083	1,090	1,065	1,143	1,118	59.6%
ACTUAL	2005	6,332,029	6,576,718	1,162	1,331	1,133	1,317	1,181	1,374	54.6%
ACTUAL	2006	6,525,204	6,801,791	1,283	1,344	1,252	1,325	1,310	1,385	56.1%
ACTUAL	2007	6,924,233	7,228,689	1,378	1,350	1,345	1,348	1,412	1,415	58.3%
ACTUAL	2008	6,912,387	7,178,009	1,395	1,245	1,381	1,226	1,453	1,290	56.2%
ACTUAL	2009	6,617,661	6,880,934	1,472	1,247	1,470	1,244	1,544	1,306	50.9%
ACTUAL	2010	7,043,826	7,349,006	1,320	1,392	1,309	1,385	1,372	1,452	57.8%
ACTUAL	2011	7,133,534	7,429,606	1,394	1,435	1,379	1,429	1,438	1,491	56.9%
FRCST	2012	7,472,193	7,724,976	1,466	1,445	1,456	1,439	1,512	1,495	58.2%
FRCST	2013	7,659,075	7,961,393	1,502	1,482	1,491	1,477	1,561	1,546	58.2%
FRCST	2014	7,922,027	8,234,961	1,548	1,542	1,538	1,536	1,610	1,607	58.4%
FRCST	2015	8,154,733	8,477,062	1,589	1,577	1,578	1,571	1,652	1,644	58.6%
FRCST	2016	8,337,095	8,666,786	1,615	1,614	1,604	1,608	1,679	1,683	58.6%
FRCST	2017	8,514,298	8,851,144	1,649	1,635	1,637	1,629	1,714	1,705	58.9%
FRCST	2018	8,595,110	8,935,218	1,658	1,647	1,647	1,641	1,724	1,718	59.2%
FRCST	2019	8,687,903	9,031,758	1,671	1,661	1,660	1,655	1,737	1,732	59.3%
FRCST	2020	8,770,981	9,118,190	1,684	1,677	1,673	1,670	1,751	1,749	59.3%
FRCST	2021	8,852,565	9,203,068	1,696	1,692	1,685	1,685	1,764	1,764	59.5%
FRCST	2022	8,937,413	9,291,342	1,709	1,706	1,697	1,700	1,776	1,779	59.6%
FRCST	2023	8,998,661	9,355,062	1,716	1,717	1,705	1,710	1,785	1,790	59.7%
FRCST	2024	9,069,745	9,429,016	1,726	1,729	1,715	1,722	1,795	1,803	59.5%
FRCST	2025	9,148,314	9,510,758	1,738	1,743	1,726	1,736	1,807	1,818	59.7%
FRCST	2026	9,231,188	9,596,977	1,750	1,758	1,738	1,751	1,820	1,834	59.7%
FRCST	2027	9,322,716	9,692,200	1,766	1,775	1,754	1,768	1,836	1,851	59.8%
FRCST	2028	9,414,587	9,787,780	1,784	1,792	1,772	1,785	1,855	1,869	59.6%
FRCST	2029	9,475,616	9,851,274	1,797	1,804	1,785	1,797	1,868	1,881	59.8%
FRCST	2030	9,577,931	9,957,719	1,816	1,823	1,804	1,816	1,888	1,901	59.8%
FRCST	2031	9,686,838	10,071,023	1,837	1,844	1,825	1,836	1,910	1,923	59.8%
FRCST	2032	9,797,958	10,186,629	1,858	1,865	1,845	1,858	1,932	1,945	59.6%

***** BASE-SEVERE SCENARIO WITH DSM IMPACTS ***** ***** BASE-SEVERE SCENARIO WITH DSM IMPACTS *****

TIME PERIOD	Adjusted for Systems ENERGY PURCHASED (% CHG.)	ENERGY GENERATED (% CHG.)	Adjusted for Systems AGGREGATED 30 MIN. COIN. PEAK W/O LOSSES (% CHG) WINTER	SUMMER	Adjusted for Systems -- HE COIN. 60 MINUTE DEMAND Without Losses (% Chg) WINTER	SUMMER	With Losses (% Chg) WINTER	SUMMER	ADJUSTED ANNUAL LOAD FACTOR (AVERAGE)
2001 -2006	5.03%	5.01%	4.81%	5.45%	4.56%	5.41%	4.54%	5.40%	57.50%
2006 -2011	1.80%	1.78%	1.67%	1.33%	1.95%	1.53%	1.89%	1.48%	56.02%
2012 -2017	2.65%	2.76%	2.38%	2.51%	2.38%	2.51%	2.54%	2.67%	58.49%
2017 -2022	0.97%	0.98%	0.72%	0.85%	0.72%	0.85%	0.72%	0.86%	59.31%
2022 -2027	0.85%	0.85%	0.67%	0.79%	0.67%	0.79%	0.67%	0.79%	59.67%
2027 -2032	1.00%	1.00%	1.02%	0.99%	1.02%	0.99%	1.02%	0.99%	59.73%
2001 -2011	3.40%	3.38%	3.23%	3.37%	3.24%	3.45%	3.21%	3.42%	56.82%
2012 -2032	1.36%	1.39%	1.19%	1.29%	1.19%	1.29%	1.23%	1.33%	59.28%

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* BASE-SEVERE SCENARIO WITH DSM IMPACTS ******* ******* BASE-SEVERE SCENARIO RESULTS *******

Energy and Demand Values Adjusted for IN #72, IN #16, IN#92, and IL#002

EXTREME COINCIDENT 60 MINUTE DEMAND (MW) (EST. BEFORE 1984)

		(WITHOUT LOSSES)		(WITH LOSSES)		EXTREME
	YEAR	WINTER	SUMMER	WINTER	SUMMER	ANNUAL LOAD FACTOR
ACTUAL	2001	*****	*****	*****	*****	*****
ACTUAL	2002	*****	*****	*****	*****	*****
ACTUAL	2003	*****	*****	*****	*****	*****
ACTUAL	2004	*****	*****	*****	*****	*****
ACTUAL	2005	*****	*****	*****	*****	*****
ACTUAL	2006	*****	*****	*****	*****	*****
ACTUAL	2007	*****	*****	*****	*****	*****
ACTUAL	2008	*****	*****	*****	*****	*****
ACTUAL	2009	*****	*****	*****	*****	*****
ACTUAL	2010	*****	*****	*****	*****	*****
ACTUAL	2011	*****	*****	*****	*****	*****
FRCST	2012	1,610	1,582	1,672	1,643	52.6%
FRCST	2013	1,650	1,624	1,727	1,700	52.6%
FRCST	2014	1,702	1,688	1,782	1,768	52.8%
FRCST	2015	1,746	1,727	1,828	1,808	52.9%
FRCST	2016	1,774	1,767	1,857	1,850	53.1%
FRCST	2017	1,810	1,790	1,895	1,874	53.3%
FRCST	2018	1,821	1,803	1,906	1,888	53.5%
FRCST	2019	1,836	1,819	1,922	1,904	53.7%
FRCST	2020	1,851	1,836	1,937	1,922	53.6%
FRCST	2021	1,865	1,853	1,952	1,940	53.8%
FRCST	2022	1,879	1,869	1,967	1,957	53.9%
FRCST	2023	1,888	1,881	1,976	1,969	54.0%
FRCST	2024	1,899	1,895	1,989	1,984	54.0%
FRCST	2025	1,912	1,911	2,002	2,000	54.2%
FRCST	2026	1,927	1,928	2,017	2,018	54.3%
FRCST	2027	1,945	1,946	2,036	2,037	54.3%
FRCST	2028	1,965	1,965	2,057	2,057	54.2%
FRCST	2029	1,979	1,978	2,072	2,071	54.3%
FRCST	2030	2,000	1,999	2,094	2,093	54.3%
FRCST	2031	2,024	2,022	2,119	2,117	54.3%
FRCST	2032	2,047	2,046	2,143	2,142	54.1%

***** BASE-SEVERE SCENARIO WITH DSM IMPACTS ***** ***** BASE-SEVERE SCENARIO RESULTS *****

Adjusted for Systems HE EXT. COIN. 60 MINUTE DEMAND

	Without Losses (% Chg)		With Losses (% Chg)		ADJUSTED EXT. ANNUAL
TIME PERIOD	WINTER	SUMMER	WINTER	SUMMER	LOAD FACTOR (AVERAGE)
2001 -2006	*****	*****	*****	*****	*****
2006 -2011	*****	*****	*****	*****	*****
2012 -2017	2.37%	2.50%	2.54%	2.67%	52.89%
2017 -2022	0.74%	0.87%	0.74%	0.87%	53.63%
2022 -2027	0.70%	0.81%	0.70%	0.81%	54.13%
2027 -2032	1.03%	1.01%	1.03%	1.01%	54.23%
2001 -2011	*****	*****	*****	*****	*****
2012 -2032	1.21%	1.30%	1.25%	1.34%	53.70%

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* BASE-SEVERE SCENARIO WITH DSM IMPACTS *******

Values Adjusted for IN#72,IN#16,IN#92,IL#002 and Special Industrial Loads

		Aggregated Member System Data NUMBER OF CONSUMERS					Aggregated Member System Data SYSTEM ENERGY SALES TO END CONSUMERS (MWH)				
	YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL
ACTUAL	2001	219,228	10,003	132	1,093	230,456	3,052,360	639,446	1,029,201	31,271	4,752,278
ACTUAL	2002	223,044	10,265	138	1,144	234,591	3,261,617	663,738	1,102,023	32,441	5,059,819
ACTUAL	2003	226,749	10,462	150	1,293	238,654	3,243,405	673,235	1,142,196	32,150	5,090,986
ACTUAL	2004	230,760	10,690	150	1,429	243,029	3,305,807	706,497	1,217,305	33,098	5,262,707
ACTUAL	2005	257,250	11,810	164	1,573	270,797	3,749,514	774,714	1,295,926	33,634	5,853,788
ACTUAL	2006	260,854	11,986	168	1,707	274,715	3,856,899	824,354	1,347,295	32,678	6,061,226
ACTUAL	2007	263,908	12,246	190	1,821	278,165	4,088,777	855,093	1,427,519	34,240	6,405,629
ACTUAL	2008	265,071	12,166	199	1,833	279,269	4,080,904	856,375	1,434,770	33,209	6,405,258
ACTUAL	2009	265,137	12,281	191	1,836	279,445	3,904,139	818,798	1,379,492	31,738	6,134,167
ACTUAL	2010	265,890	12,407	192	1,851	280,340	4,158,336	843,557	1,543,619	33,075	6,578,587
ACTUAL	2011	277,750	13,765	209	2,498	294,222	4,093,232	901,705	1,649,885	40,873	6,685,695
FRCST	2012	278,966	13,865	198	2,563	295,592	4,288,487	917,278	1,718,850	46,873	6,971,488
FRCST	2013	280,670	13,956	195	2,563	297,384	4,451,182	920,003	1,731,644	46,873	7,149,702
FRCST	2014	282,590	14,047	192	2,563	299,392	4,562,401	928,879	1,862,668	46,873	7,400,821
FRCST	2015	284,673	14,138	191	2,563	301,565	4,633,742	935,762	2,005,840	46,873	7,622,217
FRCST	2016	286,859	14,229	191	2,563	303,842	4,709,534	942,801	2,097,128	46,873	7,796,336
FRCST	2017	289,262	14,320	190	2,563	306,335	4,779,963	949,908	2,188,681	46,873	7,965,424
FRCST	2018	291,878	14,460	187	2,563	309,088	4,838,882	957,578	2,199,001	46,873	8,042,334
FRCST	2019	294,498	14,600	187	2,563	311,848	4,891,800	966,007	2,226,344	46,873	8,131,024
FRCST	2020	297,165	14,740	187	2,563	314,655	4,945,681	974,512	2,243,360	46,873	8,210,426
FRCST	2021	299,756	14,880	187	2,563	317,386	4,999,001	983,121	2,259,404	46,873	8,288,399
FRCST	2022	302,394	15,020	187	2,563	320,164	5,054,793	991,829	2,275,995	46,873	8,369,490
FRCST	2023	305,241	15,200	187	2,563	323,191	5,102,186	1,002,860	2,275,995	46,873	8,427,915
FRCST	2024	308,091	15,380	187	2,563	326,221	5,157,496	1,015,342	2,275,995	46,873	8,495,706
FRCST	2025	310,985	15,560	187	2,563	329,295	5,216,362	1,031,372	2,275,995	46,873	8,570,602
FRCST	2026	313,956	15,740	187	2,563	332,446	5,280,901	1,045,814	2,275,995	46,873	8,649,583
FRCST	2027	316,958	15,920	187	2,563	335,628	5,352,316	1,061,611	2,275,995	46,873	8,736,795
FRCST	2028	320,105	16,142	187	2,563	338,997	5,421,165	1,080,333	2,275,995	46,873	8,824,366
FRCST	2029	323,359	16,364	186	2,563	342,472	5,496,031	1,099,167	2,240,086	46,873	8,882,157
FRCST	2030	326,738	16,586	186	2,563	346,073	5,574,628	1,118,034	2,240,086	46,873	8,979,621
FRCST	2031	330,231	16,808	186	2,563	349,788	5,659,535	1,136,863	2,240,086	46,873	9,083,358
FRCST	2032	333,793	17,030	186	2,563	353,572	5,746,491	1,155,730	2,240,086	46,873	9,189,179

***** BASE-SEVERE SCENARIO WITH DSM IMPACTS *****

	Adjusted for Systems -- AGGREGATED NUMBER OF CONSUMERS					Adjusted for Systems & Ind. -- AGGREGATED ENERGY SALES				
TIME PERIOD	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (ACT.CHG.)	OTHER (ACT.CHG.)	TOTAL (% CHG.)	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (% CHG.)	OTHER (% CHG.)	TOTAL (% CHG.)
2001 -2006	3.54%	3.68%	36	614	3.58%	4.79%	5.21%	5.53%	0.88%	4.99%
2006 -2011	1.26%	2.81%	41	791	1.38%	1.20%	1.81%	4.14%	4.58%	1.98%
2012 -2017	0.73%	0.65%	-8	0	0.72%	2.19%	0.70%	4.95%	0.00%	2.70%
2017 -2022	0.89%	0.96%	-3	0	0.89%	1.12%	0.87%	0.79%	0.00%	0.99%
2022 -2027	0.95%	1.17%	0	0	0.95%	1.15%	1.37%	0.00%	0.00%	0.86%
2027 -2032	1.04%	1.36%	-1	0	1.05%	1.43%	1.71%	-0.32%	0.00%	1.01%
2001 -2011	2.39%	3.24%	77	1405	2.47%	2.98%	3.50%	4.83%	2.71%	3.47%
2012 -2032	0.90%	1.03%	-12	0	0.90%	1.47%	1.16%	1.33%	0.00%	1.39%

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* BASE-SEVERE SCENARIO WITH DSM IMPACTS *******

Energy and Demand Values Adjusted for IN#72,IN#16,IN#92,IL#002 and Special Industrial Loads

	YEAR	AGGREGATED TOTAL MEMBER ENERGY PURCHASED (MWH)	ENERGY GENERATED FOR MEMBERS (MWH)	H.E. 30 MINUTE COINCIDENT DEMAND (MW) (WITHOUT LOSSES) WINTER	SUMMER	H.E. COINCIDENT 60 MINUTE DEMAND (MW) (EST. BEFORE 1984) (WITHOUT LOSSES) WINTER	SUMMER	(WITH LOSSES) WINTER	SUMMER	ANNUAL LOAD FACTOR
ACTUAL	2001	4,970,677	5,192,498	987	1,004	976	992	1,022	1,045	56.7%
ACTUAL	2002	5,328,221	5,576,498	968	1,040	929	1,030	965	1,091	58.3%
ACTUAL	2003	5,353,393	5,591,430	1,079	1,040	1,061	1,027	1,106	1,079	57.7%
ACTUAL	2004	5,549,970	5,796,266	1,066	1,055	1,052	1,037	1,106	1,093	59.7%
ACTUAL	2005	6,143,466	6,388,155	1,138	1,305	1,109	1,291	1,150	1,355	53.8%
ACTUAL	2006	6,326,917	6,603,504	1,260	1,322	1,229	1,303	1,283	1,366	55.2%
ACTUAL	2007	6,731,601	7,036,057	1,354	1,337	1,321	1,334	1,387	1,397	57.5%
ACTUAL	2008	6,716,954	6,982,576	1,394	1,235	1,379	1,215	1,442	1,327	55.1%
ACTUAL	2009	6,432,713	6,695,986	1,467	1,232	1,465	1,229	1,525	1,292	50.1%
ACTUAL	2010	6,875,191	7,180,371	1,317	1,373	1,306	1,366	1,357	1,431	57.3%
ACTUAL	2011	6,977,068	7,273,140	1,392	1,424	1,377	1,418	1,453	1,478	56.2%
FRCST	2012	7,301,070	7,553,852	1,445	1,425	1,435	1,420	1,492	1,475	57.7%
FRCST	2013	7,488,075	7,790,393	1,481	1,463	1,471	1,457	1,541	1,526	57.7%
FRCST	2014	7,751,027	8,063,961	1,528	1,522	1,517	1,516	1,589	1,588	57.9%
FRCST	2015	7,983,733	8,306,062	1,568	1,557	1,558	1,551	1,631	1,625	58.1%
FRCST	2016	8,166,095	8,495,786	1,594	1,595	1,583	1,588	1,658	1,664	58.1%
FRCST	2017	8,343,298	8,680,144	1,628	1,616	1,617	1,610	1,693	1,686	58.5%
FRCST	2018	8,424,110	8,764,218	1,637	1,628	1,626	1,622	1,703	1,699	58.7%
FRCST	2019	8,516,903	8,860,758	1,650	1,642	1,639	1,636	1,717	1,713	58.9%
FRCST	2020	8,599,981	8,947,190	1,664	1,657	1,652	1,651	1,731	1,729	58.9%
FRCST	2021	8,681,565	9,032,068	1,676	1,673	1,664	1,666	1,743	1,745	59.1%
FRCST	2022	8,766,413	9,120,342	1,688	1,687	1,676	1,680	1,756	1,760	59.2%
FRCST	2023	8,827,661	9,184,062	1,696	1,697	1,684	1,691	1,764	1,771	59.2%
FRCST	2024	8,898,745	9,258,016	1,706	1,710	1,694	1,703	1,774	1,784	59.1%
FRCST	2025	8,977,314	9,339,758	1,717	1,724	1,705	1,717	1,786	1,798	59.3%
FRCST	2026	9,060,188	9,425,977	1,729	1,739	1,718	1,732	1,799	1,814	59.3%
FRCST	2027	9,151,716	9,521,200	1,746	1,756	1,734	1,749	1,816	1,832	59.3%
FRCST	2028	9,243,587	9,616,780	1,763	1,773	1,751	1,766	1,834	1,850	59.2%
FRCST	2029	9,304,616	9,680,274	1,776	1,784	1,764	1,777	1,848	1,862	59.4%
FRCST	2030	9,406,931	9,786,719	1,796	1,804	1,783	1,797	1,868	1,882	59.4%
FRCST	2031	9,515,838	9,900,023	1,816	1,824	1,804	1,817	1,890	1,903	59.4%
FRCST	2032	9,626,958	10,015,629	1,837	1,846	1,825	1,838	1,911	1,926	59.2%

******* BASE-SEVERE SCENARIO WITH DSM IMPACTS *******

TIME PERIOD	Adjusted for Systems & Ind ENERGY PURCHASED (% CHG.)	ENERGY GENERATED (% CHG.)	Adj. Sys. & Ind. -- H.E. 30 MINUTE COINCIDENT DEMAND (MW) (WITHOUT LOSSES) WINTER	SUMMER	Adjusted for Sys. & Ind. -- HE COIN. 60 MINUTE DEMAND Without Losses (% Chg) WINTER	SUMMER	With Losses (% Chg) WINTER	SUMMER	ADJUSTED ANNUAL LOAD FACTOR (AVERAGE)
2001 -2006	4.94%	4.93%	5.01%	5.67%	4.72%	5.61%	4.65%	5.50%	56.91%
2006 -2011	1.98%	1.95%	2.01%	1.50%	2.30%	1.71%	2.52%	1.59%	55.23%
2012 -2017	2.70%	2.82%	2.41%	2.54%	2.41%	2.54%	2.57%	2.70%	58.01%
2017 -2022	0.99%	0.99%	0.73%	0.86%	0.73%	0.86%	0.73%	0.86%	58.88%
2022 -2027	0.86%	0.86%	0.67%	0.80%	0.67%	0.80%	0.67%	0.80%	59.23%
2027 -2032	1.02%	1.02%	1.03%	1.00%	1.03%	1.00%	1.03%	1.00%	59.31%
2001 -2011	3.45%	3.43%	3.50%	3.56%	3.50%	3.64%	3.58%	3.53%	56.15%
2012 -2032	1.39%	1.42%	1.21%	1.30%	1.21%	1.30%	1.25%	1.34%	58.83%

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* BASE-SEVERE SCENARIO WITH DSM IMPACTS ******* ******* BASE-SEVERE SCENARIO RESULTS *******

Energy and Demand Values Adjusted for IN#72,IN#16,IN#92,IL#002 and Special Industrial Loads

EXTREME COINCIDENT 60 MINUTE DEMAND (MW) (EST. BEFORE 1984)

		(WITHOUT LOSSES)		(WITH LOSSES)		EXTREME ANNUAL
	YEAR	WINTER	SUMMER	WINTER	SUMMER	LOAD FACTOR
ACTUAL	2001	*****	*****	*****	*****	*****
ACTUAL	2002	*****	*****	*****	*****	*****
ACTUAL	2003	*****	*****	*****	*****	*****
ACTUAL	2004	*****	*****	*****	*****	*****
ACTUAL	2005	*****	*****	*****	*****	*****
ACTUAL	2006	*****	*****	*****	*****	*****
ACTUAL	2007	*****	*****	*****	*****	*****
ACTUAL	2008	*****	*****	*****	*****	*****
ACTUAL	2009	*****	*****	*****	*****	*****
ACTUAL	2010	*****	*****	*****	*****	*****
ACTUAL	2011	*****	*****	*****	*****	*****
FRCST	2012	1,589	1,562	1,652	1,624	52.1%
FRCST	2013	1,629	1,604	1,707	1,680	52.1%
FRCST	2014	1,681	1,669	1,761	1,748	52.3%
FRCST	2015	1,725	1,707	1,807	1,788	52.5%
FRCST	2016	1,754	1,748	1,837	1,831	52.7%
FRCST	2017	1,790	1,771	1,875	1,855	52.9%
FRCST	2018	1,800	1,784	1,886	1,869	53.1%
FRCST	2019	1,815	1,800	1,901	1,885	53.2%
FRCST	2020	1,830	1,817	1,917	1,903	53.1%
FRCST	2021	1,844	1,834	1,932	1,921	53.4%
FRCST	2022	1,858	1,850	1,946	1,938	53.5%
FRCST	2023	1,867	1,862	1,956	1,950	53.6%
FRCST	2024	1,879	1,876	1,968	1,965	53.6%
FRCST	2025	1,892	1,891	1,982	1,981	53.8%
FRCST	2026	1,906	1,908	1,997	1,999	53.8%
FRCST	2027	1,924	1,927	2,015	2,018	53.9%
FRCST	2028	1,944	1,946	2,036	2,038	53.7%
FRCST	2029	1,958	1,959	2,051	2,052	53.9%
FRCST	2030	1,980	1,980	2,074	2,074	53.9%
FRCST	2031	2,003	2,003	2,098	2,098	53.9%
FRCST	2032	2,026	2,027	2,122	2,123	53.7%

***** BASE-SEVERE SCENARIO WITH DSM IMPACTS ***** ***** BASE-SEVERE SCENARIO RESULTS *****

	Adjusted for Sys. & Ind. HE EXT. COIN. 60 MINUTE DEMAND Without Losses (% Chg)		With Losses (% Chg)		ADJUSTED EXT. ANNUAL LOAD FACTOR
TIME PERIOD	WINTER	SUMMER	WINTER	SUMMER	(AVERAGE)
2001 -2006	*****	*****	*****	*****	*****
2006 -2011	*****	*****	*****	*****	*****
2012 -2017	2.40%	2.53%	2.57%	2.70%	52.41%
2017 -2022	0.75%	0.88%	0.75%	0.88%	53.19%
2022 -2027	0.70%	0.82%	0.70%	0.82%	53.69%
2027 -2032	1.04%	1.02%	1.04%	1.02%	53.81%
2001 -2011	*****	*****	*****	*****	*****
2012 -2032	1.22%	1.31%	1.26%	1.35%	53.26%

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* BASE-SEVERE SCENARIO WITH DSM IMPACTS ******* ******* BASE-SEVERE SCENARIO WITH DSM IMPACTS *******

		H.E. Time Factor Ratio from 30 to 60 Minute excludes pass-throughs (Est. before 1984)		PERCENTAGE of IN #72 Served by	IN #72 served by H.E. (Yes=0 , No= 1)		PERCENTAGE of IN #16 Served by	IN #16 served by H.E. (Yes=0 , No= 1)	
	YEAR	WINTER	SUMMER	H.E.	WINTER	SUMMER	H.E.	WINTER	SUMMER
ACTUAL	2001	98.92%	98.85%	100.0%	0	0	100.0%	0	0
ACTUAL	2002	96.00%	99.02%	100.0%	0	0	100.0%	0	0
ACTUAL	2003	98.31%	98.80%	100.0%	0	0	100.0%	0	0
ACTUAL	2004	98.73%	98.31%	100.0%	0	0	100.0%	0	0
ACTUAL	2005	97.45%	98.93%	100.0%	0	0	100.0%	0	0
ACTUAL	2006	97.54%	98.57%	100.0%	0	0	100.0%	0	0
ACTUAL	2007	97.56%	99.78%	100.0%	0	0	100.0%	0	0
ACTUAL	2008	98.92%	98.38%	100.0%	0	0	100.0%	0	0
ACTUAL	2009	99.86%	99.76%	100.0%	0	0	100.0%	0	0
ACTUAL	2010	99.16%	99.49%	100.0%	0	0	100.0%	0	0
ACTUAL	2011	98.92%	99.58%	100.0%	0	0	100.0%	0	0
FRCST	2012	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2013	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2014	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2015	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2016	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2017	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2018	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2019	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2020	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2021	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2022	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2023	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2024	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2025	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2026	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2027	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2028	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2029	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2030	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2031	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2032	99.32%	99.61%	100.00%	0	0	100.00%	0	0

***** BASE-SEVERE SCENARIO WITH DSM IMPACTS ***** ***** BASE-SEVERE SCENARIO WITH DSM IMPACTS *****

	HE TIME FACTOR RATIO (30 to 60 MINUTE)	
TIME PERIOD	WINTER (AVERAGE)	SUMMER (AVERAGE)
2001 -2006	97.83%	98.75%
2006 -2011	98.66%	99.26%
2012 -2017	99.32%	99.61%
2017 -2022	99.32%	99.61%
2022 -2027	99.32%	99.61%
2027 -2032	99.32%	99.61%
2001 -2011	98.31%	99.04%
2012 -2032	99.32%	99.61%

VER 2.1	HOOSIER ENERGY REC, INC	2013 POWER REQUIREMENTS STUDY	DISKETTE :	2013 PRS SYSTEM FORECAST
SUM	INDIANA # : IN 106	SUMMARY HISTORICAL AND FORECAST SHEET		File 1 of 3
		ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13	FILE NAME :	HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* BASE-SEVERE SCENARIO WITH DSM IMPACTS *******

	YEAR	PERCENTAGE of IN #92 Served by H.E.	IN #92 served by H.E. (Yes=0 , No= 1) WINTER	SUMMER	PERCENTAGE of IL #2 Served by H.E.	IL #2 served by H.E. (Yes=0 , No= 1) WINTER	SUMMER
ACTUAL	2001	0.0%	1	1	0.0%	1	1
ACTUAL	2002	0.0%	1	1	0.0%	1	1
ACTUAL	2003	0.0%	1	1	0.0%	1	1
ACTUAL	2004	0.0%	1	1	0.0%	1	1
ACTUAL	2005	51.0%	1	0	0.0%	1	1
ACTUAL	2006	100.0%	0	0	0.0%	1	1
ACTUAL	2007	100.0%	0	0	0.0%	1	1
ACTUAL	2008	100.0%	0	0	0.0%	1	1
ACTUAL	2009	100.0%	0	0	0.0%	1	1
ACTUAL	2010	100.0%	0	0	0.0%	1	1
ACTUAL	2011	100.0%	0	0	100.0%	0	0
FRCST	2012	100.00%	0	0	100.00%	0	0
FRCST	2013	100.00%	0	0	100.00%	0	0
FRCST	2014	100.00%	0	0	100.00%	0	0
FRCST	2015	100.00%	0	0	100.00%	0	0
FRCST	2016	100.00%	0	0	100.00%	0	0
FRCST	2017	100.00%	0	0	100.00%	0	0
FRCST	2018	100.00%	0	0	100.00%	0	0
FRCST	2019	100.00%	0	0	100.00%	0	0
FRCST	2020	100.00%	0	0	100.00%	0	0
FRCST	2021	100.00%	0	0	100.00%	0	0
FRCST	2022	100.00%	0	0	100.00%	0	0
FRCST	2023	100.00%	0	0	100.00%	0	0
FRCST	2024	100.00%	0	0	100.00%	0	0
FRCST	2025	100.00%	0	0	100.00%	0	0
FRCST	2026	100.00%	0	0	100.00%	0	0
FRCST	2027	100.00%	0	0	100.00%	0	0
FRCST	2028	100.00%	0	0	100.00%	0	0
FRCST	2029	100.00%	0	0	100.00%	0	0
FRCST	2030	100.00%	0	0	100.00%	0	0
FRCST	2031	100.00%	0	0	100.00%	0	0
FRCST	2032	100.00%	0	0	100.00%	0	0

***** BASE-SEVERE SCENARIO WITH DSM IMPACTS *****

TIME PERIOD
2001 -2006
2006 -2011
2012 -2017
2017 -2022
2022 -2027
2027 -2032
2001 -2011
2012 -2032

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* BASE-SEVERE SCENARIO WITH DSM IMPACTS *******

		DSM EE Program Energy Impact				DSM Demand Impacts-- Both EE & DR Programs) Coincident 60 Minute Demand MW			
						Savings w/o Losses		Savings with Losses	
	YEAR	Aggregated Total Member Energy Purchased Savings MWH	Percent of Total	Total Member Energy Generated Savings MWH	Percent of Total	Winter	Summer	Winter	Summer
ACTUAL	2001								
ACTUAL	2002								
ACTUAL	2003								
ACTUAL	2004								
ACTUAL	2005								
ACTUAL	2006								
ACTUAL	2007								
ACTUAL	2008								
ACTUAL	2009								
ACTUAL	2010								
ACTUAL	2011								
FRCST	2012	104,788	1.4%	108,416	1.4%	40.350	23.815	41.931	24.748
FRCST	2013	125,361	1.6%	130,422	1.6%	46.550	27.668	48.758	28.980
FRCST	2014	144,473	1.8%	150,306	1.8%	55.424	34.284	58.053	35.910
FRCST	2015	161,520	2.0%	168,041	2.0%	64.096	40.998	67.136	42.943
FRCST	2016	155,196	1.9%	161,462	1.9%	67.370	45.571	70.565	47.733
FRCST	2017	147,262	1.7%	153,207	1.7%	70.097	49.998	73.422	52.370
FRCST	2018	150,912	1.8%	157,005	1.8%	75.703	55.729	79.293	58.372
FRCST	2019	159,576	1.8%	166,019	1.8%	82.647	62.058	86.567	65.001
FRCST	2020	170,371	1.9%	177,250	1.9%	87.905	65.349	92.074	68.448
FRCST	2021	181,709	2.1%	189,045	2.1%	93.802	68.599	98.251	71.852
FRCST	2022	193,144	2.2%	200,942	2.2%	100.739	73.468	105.517	76.953
FRCST	2023	206,040	2.3%	214,358	2.3%	107.951	78.348	113.071	82.064
FRCST	2024	217,466	2.4%	226,246	2.4%	114.755	82.782	120.197	86.709
FRCST	2025	225,070	2.4%	234,157	2.4%	121.092	86.576	126.835	90.682
FRCST	2026	232,491	2.5%	241,877	2.5%	127.172	89.826	133.203	94.086
FRCST	2027	233,609	2.5%	243,041	2.5%	129.907	92.145	136.068	96.516
FRCST	2028	235,263	2.5%	244,762	2.5%	131.368	94.265	137.598	98.736
FRCST	2029	237,491	2.5%	247,080	2.5%	132.820	96.435	139.119	101.009
FRCST	2030	240,827	2.5%	250,550	2.5%	135.439	98.830	141.862	103.518
FRCST	2031	243,583	2.5%	253,417	2.5%	137.810	101.082	144.346	105.876
FRCST	2032	246,547	2.5%	256,501	2.5%	140.525	103.334	147.190	108.235

***** BASE-SEVERE SCENARIO WITH DSM IMPACTS *****

TIME PERIOD
2001 -2006
2006 -2011
2012 -2017
2017 -2022
2022 -2027
2027 -2032
2001 -2011
2012 -2032

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

		***** BASE-SEVERE SCENARIO WITH DSM IMPACTS *****				***** BASE-SEVERE SCENARIO WITH DSM IMPACTS *****			
		DSM -- EE Program Demand Impacts Coincident 60 Minute Demand MW				DSM -- DR Program Demand Impacts Coincident 60 Minute Demand MW			
		Savings w/o Losses		Savings with Losses		Savings w/o Losses		Savings with Losses	
	YEAR	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer
ACTUAL	2001								
ACTUAL	2002								
ACTUAL	2003								
ACTUAL	2004								
ACTUAL	2005								
ACTUAL	2006								
ACTUAL	2007								
ACTUAL	2008								
ACTUAL	2009								
ACTUAL	2010								
ACTUAL	2011								
FRCST	2012	33.566	13.936	34.881	14.482	6.784	9.879	7.050	10.266
FRCST	2013	39.472	16.769	41.345	17.564	7.077	10.899	7.413	11.416
FRCST	2014	45.560	19.863	47.721	20.805	9.864	14.421	10.332	15.105
FRCST	2015	51.322	22.817	53.757	23.899	12.774	18.181	13.380	19.043
FRCST	2016	51.626	23.432	54.075	24.543	15.744	22.139	16.490	23.189
FRCST	2017	51.332	23.817	53.767	24.946	18.765	26.182	19.655	27.423
FRCST	2018	53.841	25.362	56.395	26.565	21.861	30.367	22.898	31.807
FRCST	2019	57.644	27.438	60.378	28.739	25.004	34.620	26.189	36.262
FRCST	2020	62.129	29.715	65.075	31.125	25.776	35.633	26.999	37.323
FRCST	2021	66.831	32.070	70.000	33.591	26.972	36.529	28.251	38.261
FRCST	2022	71.659	34.408	75.057	36.039	29.080	39.061	30.459	40.913
FRCST	2023	76.989	36.935	80.641	38.687	30.961	41.413	32.430	43.377
FRCST	2024	82.336	39.413	86.242	41.282	32.418	43.369	33.956	45.426
FRCST	2025	87.346	41.470	91.489	43.437	33.746	45.106	35.346	47.245
FRCST	2026	92.107	43.108	96.476	45.152	35.065	46.718	36.728	48.933
FRCST	2027	93.521	43.821	97.957	45.900	36.386	48.324	38.111	50.616
FRCST	2028	93.683	44.401	98.127	46.507	37.684	49.864	39.471	52.229
FRCST	2029	93.827	45.016	98.277	47.151	38.992	51.419	40.842	53.858
FRCST	2030	95.128	45.842	99.640	48.016	40.310	52.988	42.222	55.502
FRCST	2031	96.171	46.510	100.733	48.716	41.639	54.572	43.613	57.161
FRCST	2032	97.548	47.162	102.174	49.399	42.977	56.172	45.016	58.836

TIME PERIOD
2001 -2006
2006 -2011
2012 -2017
2017 -2022
2022 -2027
2027 -2032
2001 -2011
2012 -2032

Appendix D

Historical/Forecast Annual Values
Summary Base Mild Case

VER 2.1	HOOSIER ENERGY REC, INC	2013 POWER REQUIREMENTS STUDY		DISKETTE :	2013 PRS SYSTEM FORECAST
SUM	INDIANA # : IN 106	SUMMARY HISTORICAL AND FORECAST SHEET			File 1 of 3
		ORIG. DATE : 7/19/13	ITER. DATE : 9/19/13	FILE NAME :	HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 34 YEARS)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* BASE-MILD SCENARIO WITH DSM IMPACTS ******* — ******* BASE-MILD SCENARIO WITH DSM IMPACTS *******

		Aggregated Member System Data NUMBER OF CONSUMERS					Aggregated Member System Data SYSTEM ENERGY SALES TO END CONSUMERS (MWH)				
	YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL
ACTUAL	2001	253,162	12,265	155	1,444	267,026	3,522,968	729,098	1,261,060	113,891	5,627,017
ACTUAL	2002	257,347	12,533	163	1,501	271,544	3,772,856	750,481	1,372,372	117,598	6,013,307
ACTUAL	2003	261,300	12,711	176	1,654	275,841	3,744,229	760,700	1,406,637	112,443	6,024,009
ACTUAL	2004	265,436	12,930	173	1,793	280,332	3,816,332	797,926	1,498,284	112,624	6,225,166
ACTUAL	2005	269,261	13,031	173	1,934	284,399	4,087,081	833,664	1,583,193	44,652	6,548,590
ACTUAL	2006	272,892	13,211	177	2,070	288,350	3,997,738	859,810	1,632,862	37,999	6,528,409
ACTUAL	2007	275,983	13,481	199	2,186	291,849	4,235,636	896,961	1,706,767	41,253	6,880,617
ACTUAL	2008	277,143	13,424	208	2,202	292,977	4,225,769	896,208	1,712,574	38,855	6,873,406
ACTUAL	2009	277,179	13,547	200	2,204	293,130	4,049,085	862,271	1,638,530	36,404	6,586,290
ACTUAL	2010	277,915	13,683	201	2,219	294,018	4,313,613	889,903	1,783,519	40,028	7,027,063
ACTUAL	2011	277,750	13,765	210	2,498	294,223	4,093,232	901,705	1,806,351	40,873	6,842,161
FRCST	2012	278,966	13,865	199	2,563	295,593	3,613,583	917,278	1,889,973	46,873	6,467,707
FRCST	2013	280,670	13,956	196	2,563	297,385	3,420,846	920,003	1,902,644	46,873	6,290,366
FRCST	2014	282,590	14,047	193	2,563	299,393	3,334,570	928,879	2,033,668	46,873	6,343,990
FRCST	2015	284,673	14,138	192	2,563	301,566	3,293,639	935,762	2,176,840	46,873	6,453,114
FRCST	2016	286,859	14,229	192	2,563	303,843	3,301,309	942,801	2,268,128	46,873	6,559,111
FRCST	2017	289,262	14,320	191	2,563	306,336	3,326,629	949,908	2,359,681	46,873	6,683,090
FRCST	2018	291,878	14,460	188	2,563	309,089	3,351,980	957,578	2,370,001	46,873	6,726,432
FRCST	2019	294,498	14,600	188	2,563	311,849	3,377,940	966,007	2,397,344	46,873	6,788,164
FRCST	2020	297,165	14,740	188	2,563	314,656	3,407,583	974,512	2,414,360	46,873	6,843,328
FRCST	2021	299,756	14,880	188	2,563	317,387	3,438,690	983,121	2,430,404	46,873	6,899,088
FRCST	2022	302,394	15,020	188	2,563	320,165	3,472,749	991,829	2,446,995	46,873	6,958,446
FRCST	2023	305,241	15,200	188	2,563	323,192	3,501,490	1,002,860	2,446,995	46,873	6,998,219
FRCST	2024	308,091	15,380	188	2,563	326,222	3,536,163	1,015,342	2,446,995	46,873	7,045,373
FRCST	2025	310,985	15,560	188	2,563	329,296	3,573,712	1,031,372	2,446,995	46,873	7,098,952
FRCST	2026	313,956	15,740	188	2,563	332,447	3,615,969	1,045,814	2,446,995	46,873	7,155,651
FRCST	2027	316,958	15,920	188	2,563	335,629	3,664,550	1,061,611	2,446,995	46,873	7,220,029
FRCST	2028	320,105	16,142	188	2,563	338,998	3,711,627	1,080,333	2,446,995	46,873	7,285,828
FRCST	2029	323,359	16,364	187	2,563	342,473	3,762,819	1,099,167	2,411,086	46,873	7,319,945
FRCST	2030	326,738	16,586	187	2,563	346,074	3,816,333	1,118,034	2,411,086	46,873	7,392,326
FRCST	2031	330,231	16,808	187	2,563	349,789	3,874,441	1,136,863	2,411,086	46,873	7,469,264
FRCST	2032	333,793	17,030	187	2,563	353,573	3,933,861	1,155,730	2,411,086	46,873	7,547,549

***** BASE-MILD SCENARIO WITH DSM IMPACTS ***** — ***** BASE-MILD SCENARIO WITH DSM IMPACTS *****

	AGGREGATED NUMBER OF CONSUMERS					AGGREGATED SYSTEM ENERGY SALES				
TIME PERIOD	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (ACT.CHG.)	OTHER (ACT.CHG.)	TOTAL (% CHG.)	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (% CHG.)	OTHER (% CHG.)	TOTAL (% CHG.)
2001 -2006	1.51%	1.50%	22	626	1.55%	2.56%	3.35%	5.30%	-19.71%	3.02%
2006 -2011	0.35%	0.82%	33	428	0.40%	0.47%	0.96%	2.04%	1.47%	0.94%
2012 -2017	0.73%	0.65%	-8	0	0.72%	-1.64%	0.70%	4.54%	0.00%	0.66%
2017 -2022	0.89%	0.96%	-3	0	0.89%	0.86%	0.87%	0.73%	0.00%	0.81%
2022 -2027	0.95%	1.17%	0	0	0.95%	1.08%	1.37%	0.00%	0.00%	0.74%
2027 -2032	1.04%	1.36%	-1	0	1.05%	1.43%	1.71%	-0.30%	0.00%	0.89%
2001 -2011	0.93%	1.16%	55	1054	0.97%	1.51%	2.15%	3.66%	-9.74%	1.97%
2012 -2032	0.90%	1.03%	-12	0	0.90%	0.43%	1.16%	1.23%	0.00%	0.77%

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* BASE-MILD SCENARIO WITH DSM IMPACTS ******* | ******* BASE-MILD SCENARIO WITH DSM IMPACTS *******

	YEAR	AGGREGATED TOTAL MEMBER ENERGY PURCHASED (MWH)	TOTAL ENERGY GENERATED for H.E. MEMBERS (MWH)	HE SYSTEM AVERAGE MONTHLY LOSS FACTORS due to MEMBER SYSTEM LOAD (excludes pass-throughs) FOR ENERGY	FOR DEMAND	H.E. AVERAGE WHOLESALE POWER COSTS (MILLS/MWH)	AGGREGATED MEMBER SYSTEM DEMANDS (WITHOUT LOSSES, 30 MINUTE DEMAND) NONCOINCIDENT (MW) WINTER	SUMMER	COINCIDENT (MW) (EST. BEFORE 1984) WINTER	SUMMER
ACTUAL	2001	5,864,880	6,120,565	4.27%	4.53%	*****	1,285	1,274	1,164	1,186
ACTUAL	2002	6,314,792	6,601,076	4.45%	4.78%	*****	1,211	1,346	1,139	1,224
ACTUAL	2003	6,320,460	6,593,765	4.26%	4.26%	*****	1,354	1,313	1,264	1,219
ACTUAL	2004	6,549,574	6,831,967	4.25%	4.81%	*****	1,381	1,321	1,268	1,243
ACTUAL	2005	6,850,535	7,115,875	3.83%	4.22%	*****	1,429	1,472	1,325	1,392
ACTUAL	2006	6,802,245	7,090,943	4.19%	4.47%	*****	1,413	1,502	1,324	1,400
ACTUAL	2007	7,215,322	7,532,943	4.33%	4.84%	*****	1,532	1,558	1,415	1,413
ACTUAL	2008	7,193,537	7,470,277	3.80%	5.10%	*****	1,576	1,442	1,440	1,289
ACTUAL	2009	6,898,809	7,173,589	3.93%	4.86%	*****	1,674	1,453	1,519	1,307
ACTUAL	2010	7,338,210	7,656,457	4.25%	4.73%	*****	1,539	1,577	1,369	1,450
ACTUAL	2011	7,133,534	7,429,606	4.07%	4.19%	*****	1,552	1,579	1,394	1,435
FRCST	2012	6,763,499	6,991,744	3.35%	3.77%	74.770	1,436	1,428	1,318	1,302
FRCST	2013	6,577,105	6,835,740	3.88%	4.53%	76.120	1,391	1,388	1,277	1,265
FRCST	2014	6,632,612	6,893,488	3.88%	4.53%	76.260	1,398	1,408	1,280	1,282
FRCST	2015	6,747,358	7,012,867	3.88%	4.53%	79.660	1,417	1,423	1,297	1,294
FRCST	2016	6,858,131	7,128,112	3.88%	4.53%	82.730	1,430	1,449	1,308	1,316
FRCST	2017	6,987,916	7,263,137	3.88%	4.53%	86.790	1,457	1,463	1,332	1,329
FRCST	2018	7,033,452	7,310,511	3.88%	4.53%	88.520	1,460	1,469	1,335	1,334
FRCST	2019	7,097,926	7,377,588	3.88%	4.53%	90.290	1,468	1,478	1,342	1,342
FRCST	2020	7,155,548	7,437,537	3.88%	4.53%	92.100	1,478	1,490	1,350	1,352
FRCST	2021	7,213,809	7,498,150	3.88%	4.53%	93.940	1,487	1,502	1,358	1,363
FRCST	2022	7,275,844	7,562,689	3.88%	4.53%	95.820	1,495	1,513	1,365	1,373
FRCST	2023	7,317,526	7,606,054	3.88%	4.53%	97.740	1,500	1,520	1,369	1,379
FRCST	2024	7,366,956	7,657,480	3.88%	4.53%	99.690	1,506	1,529	1,375	1,387
FRCST	2025	7,423,155	7,715,948	3.88%	4.53%	101.680	1,514	1,539	1,382	1,396
FRCST	2026	7,482,643	7,777,838	3.88%	4.53%	103.710	1,523	1,551	1,389	1,407
FRCST	2027	7,550,205	7,848,127	3.88%	4.53%	105.780	1,535	1,563	1,401	1,418
FRCST	2028	7,619,234	7,919,944	3.88%	4.53%	105.780	1,549	1,577	1,414	1,431
FRCST	2029	7,655,424	7,957,594	3.88%	4.53%	105.780	1,557	1,583	1,421	1,437
FRCST	2030	7,731,407	8,036,645	3.88%	4.53%	105.780	1,572	1,598	1,435	1,451
FRCST	2031	7,812,177	8,120,676	3.88%	4.53%	105.780	1,588	1,614	1,450	1,466
FRCST	2032	7,894,380	8,206,198	3.88%	4.53%	105.780	1,604	1,631	1,465	1,481

***** BASE-MILD SCENARIO WITH DSM IMPACTS ***** | ***** BASE-MILD SCENARIO WITH DSM IMPACTS *****

TIME PERIOD	AGGREGATED TOTAL ENERGY PURCHASED (% CHG.)	H.E. ENERGY GENERATED FOR MEMBERS (% CHG.)	AVG. MONTHLY LOSS FACTORS due to MEMBERS ENERGY (AVERAGE)	DEMAND (AVERAGE)	H.E. AVERAGE WHOLESALE POWER COSTS (% CHG.)	AGGREGATED MEMBER PEAK SEASONAL DEMANDS (WITHOUT LOSSES, 30 MINUTE DEMAND) Non-Coincident (% Chg) WINTER	SUMMER	Coincident (% Chg) WINTER	SUMMER
2001 -2006	3.01%	2.99%	4.21%	4.51%	*****	1.91%	3.34%	2.61%	3.37%
2006 -2011	0.96%	0.94%	4.10%	4.70%	*****	1.89%	1.00%	1.03%	0.51%
2012 -2017	0.65%	0.76%	3.79%	4.40%	3.03%	0.30%	0.49%	0.21%	0.40%
2017 -2022	0.81%	0.81%	3.88%	4.53%	2.00%	0.51%	0.67%	0.49%	0.65%
2022 -2027	0.74%	0.74%	3.88%	4.53%	2.00%	0.53%	0.66%	0.51%	0.66%
2027 -2032	0.90%	0.90%	3.88%	4.53%	0.00%	0.88%	0.85%	0.91%	0.87%
2001 -2011	1.98%	1.96%	4.15%	4.62%	*****	1.90%	2.17%	1.81%	1.93%
2012 -2032	0.78%	0.80%	3.86%	4.49%	1.75%	0.56%	0.67%	0.53%	0.65%

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
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******* BASE-MILD SCENARIO WITH DSM IMPACTS ******* | ******* BASE-MILD SCENARIO WITH DSM IMPACTS *******

		HOOSIER ENERGY SYSTEM PEAK SEASONAL COINCIDENT DEMAND (MW) (All values are estimated 60 minute values)				H.E. ANNUAL LOAD FACTOR Due To COINCIDENT PEAK	HOOSIER ENERGY SYSTEM PEAK SEASONAL NON-COINCIDENT DEMAND (MW) (All values are estimated 60 minute values)				H.E. ANNUAL LOAD FACTOR Due To NON-COIN. PEAK
		(WITHOUT LOSSES)		(WITH LOSSES)			(WITHOUT LOSSES)		(WITH LOSSES)		
	YEAR	WINTER	SUMMER	WINTER	SUMMER		WINTER	SUMMER	WINTER	SUMMER	
ACTUAL	2001	1,150	1,171	1,204	1,226	57.0%	1,270	1,258	1,329	1,317	52.6%
ACTUAL	2002	1,092	1,211	1,146	1,271	59.3%	1,164	1,332	1,220	1,397	53.9%
ACTUAL	2003	1,237	1,205	1,291	1,257	58.3%	1,331	1,296	1,389	1,353	54.2%
ACTUAL	2004	1,252	1,223	1,314	1,283	59.2%	1,361	1,300	1,428	1,364	54.5%
ACTUAL	2005	1,292	1,377	1,347	1,436	56.6%	1,393	1,457	1,453	1,519	53.5%
ACTUAL	2006	1,292	1,380	1,351	1,443	56.1%	1,379	1,481	1,442	1,549	52.3%
ACTUAL	2007	1,381	1,410	1,450	1,480	58.1%	1,496	1,555	1,570	1,632	52.7%
ACTUAL	2008	1,425	1,269	1,500	1,336	56.7%	1,559	1,419	1,641	1,493	51.8%
ACTUAL	2009	1,517	1,304	1,593	1,370	51.4%	1,672	1,450	1,756	1,522	46.6%
ACTUAL	2010	1,358	1,443	1,424	1,513	57.8%	1,526	1,570	1,600	1,646	53.1%
ACTUAL	2011	1,379	1,429	1,438	1,491	56.9%	1,536	1,573	1,601	1,640	51.7%
FRCST	2012	1,309	1,297	1,360	1,348	58.5%	1,426	1,422	1,481	1,477	53.7%
FRCST	2013	1,268	1,261	1,327	1,319	58.8%	1,382	1,383	1,446	1,447	53.9%
FRCST	2014	1,272	1,277	1,331	1,336	58.9%	1,388	1,403	1,453	1,468	53.6%
FRCST	2015	1,288	1,289	1,348	1,350	59.3%	1,407	1,417	1,473	1,483	54.0%
FRCST	2016	1,299	1,311	1,360	1,373	59.1%	1,421	1,443	1,487	1,510	53.7%
FRCST	2017	1,323	1,324	1,385	1,386	59.8%	1,448	1,457	1,515	1,525	54.4%
FRCST	2018	1,326	1,329	1,388	1,391	60.0%	1,450	1,463	1,518	1,531	54.5%
FRCST	2019	1,333	1,337	1,395	1,400	60.2%	1,459	1,473	1,526	1,541	54.7%
FRCST	2020	1,341	1,347	1,404	1,410	60.0%	1,468	1,484	1,536	1,553	54.5%
FRCST	2021	1,349	1,358	1,412	1,421	60.2%	1,477	1,496	1,545	1,565	54.7%
FRCST	2022	1,356	1,367	1,419	1,431	60.3%	1,485	1,507	1,554	1,577	54.8%
FRCST	2023	1,360	1,374	1,423	1,438	60.4%	1,490	1,514	1,559	1,584	54.8%
FRCST	2024	1,366	1,382	1,429	1,446	60.3%	1,496	1,523	1,566	1,594	54.7%
FRCST	2025	1,372	1,391	1,436	1,456	60.5%	1,504	1,533	1,574	1,604	54.9%
FRCST	2026	1,380	1,401	1,444	1,467	60.5%	1,513	1,545	1,583	1,616	54.9%
FRCST	2027	1,391	1,413	1,456	1,479	60.6%	1,525	1,557	1,596	1,630	55.0%
FRCST	2028	1,404	1,425	1,470	1,492	60.4%	1,539	1,571	1,610	1,644	54.9%
FRCST	2029	1,412	1,432	1,478	1,499	60.6%	1,546	1,577	1,618	1,651	55.0%
FRCST	2030	1,426	1,446	1,492	1,513	60.6%	1,561	1,592	1,634	1,666	55.1%
FRCST	2031	1,441	1,461	1,508	1,529	60.6%	1,577	1,608	1,651	1,683	55.1%
FRCST	2032	1,455	1,476	1,524	1,545	60.5%	1,593	1,625	1,667	1,700	54.9%

***** BASE-MILD SCENARIO WITH DSM IMPACTS ***** | ***** BASE-MILD SCENARIO WITH DSM IMPACTS *****

	HOOSIER ENERGY COINCIDENT PEAK DEMAND (60 MINUTE VALUE, ALL VALUES EST.)				H.E. ANNUAL COINCIDENT LOAD FACTOR (AVERAGE)	HOOSIER ENERGY NON-COINCIDENT PEAK DEMAND (60 MINUTE VALUE, ALL VALUES EST.)				H.E. ANNUAL NON-COIN. LOAD FACTOR (AVERAGE)
	Without Losses (% Chg)		With Losses (% Chg)			Without Losses (% Chg)		With Losses (% Chg)		
TIME PERIOD	WINTER	SUMMER	WINTER	SUMMER		WINTER	SUMMER	WINTER	SUMMER	
2001 -2006	2.36%	3.33%	2.34%	3.32%	57.74%	1.66%	3.32%	1.64%	3.30%	53.48%
2006 -2011	1.31%	0.70%	1.25%	0.65%	56.16%	2.17%	1.21%	2.11%	1.15%	51.37%
2012 -2017	0.21%	0.40%	0.37%	0.56%	59.08%	0.30%	0.49%	0.45%	0.64%	53.89%
2017 -2022	0.49%	0.65%	0.49%	0.65%	60.10%	0.51%	0.67%	0.51%	0.67%	54.58%
2022 -2027	0.51%	0.66%	0.51%	0.66%	60.43%	0.53%	0.66%	0.53%	0.66%	54.84%
2027 -2032	0.91%	0.87%	0.91%	0.87%	60.56%	0.88%	0.85%	0.88%	0.85%	54.99%
2001 -2011	1.83%	2.01%	1.80%	1.98%	57.03%	1.91%	2.26%	1.88%	2.22%	52.44%
2012 -2032	0.53%	0.65%	0.57%	0.69%	60.01%	0.56%	0.67%	0.59%	0.71%	54.56%

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

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		***** BASE-MILD SCENARIO WITH DSM IMPACTS *****					***** BASE-MILD SCENARIO WITH DSM IMPACTS *****				
		**** EXTREME TEMPERATURE CONDITIONS **** HOOSIER ENERGY SYSTEM PEAK SEASONAL COINCIDENT DEMAND (MW); 60 MINUTE VALUE				H.E. ANNUAL LOAD FACTOR Due to EXTREME COINCIDENT PEAK	**** EXTREME TEMPERATURE CONDITIONS **** HOOSIER ENERGY SYSTEM PEAK SEASONAL NON-COINCIDENT DEMAND (MW); 60 MINUTE VALUE				H.E. ANNUAL LOAD FACTOR Due To EXTREME NON-COIN. PEAK
		(WITHOUT LOSSES)		(WITH LOSSES)			(WITHOUT LOSSES)		(WITH LOSSES)		
	YEAR	WINTER	SUMMER	WINTER	SUMMER		WINTER	SUMMER	WINTER	SUMMER	
ACTUAL	2001	******	******	******	******	******	******	******	******	******	******
ACTUAL	2002	******	******	******	******	******	******	******	******	******	******
ACTUAL	2003	******	******	******	******	******	******	******	******	******	******
ACTUAL	2004	******	******	******	******	******	******	******	******	******	******
ACTUAL	2005	******	******	******	******	******	******	******	******	******	******
ACTUAL	2006	******	******	******	******	******	******	******	******	******	******
ACTUAL	2007	******	******	******	******	******	******	******	******	******	******
ACTUAL	2008	******	******	******	******	******	******	******	******	******	******
ACTUAL	2009	******	******	******	******	******	******	******	******	******	******
ACTUAL	2010	******	******	******	******	******	******	******	******	******	******
ACTUAL	2011	******	******	******	******	******	******	******	******	******	******
FRCST	2012	1,447	1,425	1,503	1,480	53.0%	1,574	1,560	1,634	1,620	48.7%
FRCST	2013	1,401	1,384	1,467	1,449	53.2%	1,525	1,517	1,596	1,587	48.9%
FRCST	2014	1,406	1,402	1,471	1,468	53.5%	1,532	1,539	1,604	1,610	48.9%
FRCST	2015	1,423	1,415	1,490	1,481	53.7%	1,553	1,554	1,625	1,626	49.2%
FRCST	2016	1,436	1,439	1,503	1,506	53.9%	1,567	1,582	1,640	1,655	49.0%
FRCST	2017	1,461	1,452	1,529	1,520	54.2%	1,596	1,597	1,670	1,671	49.6%
FRCST	2018	1,464	1,458	1,532	1,526	54.5%	1,599	1,603	1,673	1,678	49.7%
FRCST	2019	1,472	1,467	1,541	1,536	54.6%	1,609	1,614	1,684	1,689	49.9%
FRCST	2020	1,482	1,479	1,551	1,548	54.6%	1,619	1,627	1,695	1,703	49.7%
FRCST	2021	1,491	1,491	1,560	1,560	54.9%	1,629	1,640	1,705	1,716	49.9%
FRCST	2022	1,499	1,502	1,570	1,572	54.9%	1,640	1,652	1,716	1,729	49.9%
FRCST	2023	1,505	1,509	1,575	1,580	55.0%	1,645	1,661	1,722	1,738	50.0%
FRCST	2024	1,511	1,518	1,582	1,589	54.9%	1,653	1,671	1,730	1,749	49.9%
FRCST	2025	1,519	1,529	1,590	1,600	55.0%	1,662	1,683	1,740	1,761	50.0%
FRCST	2026	1,528	1,541	1,600	1,613	55.1%	1,672	1,695	1,750	1,774	50.0%
FRCST	2027	1,541	1,554	1,613	1,626	55.1%	1,686	1,710	1,765	1,789	50.1%
FRCST	2028	1,556	1,567	1,629	1,641	55.0%	1,702	1,725	1,781	1,805	50.0%
FRCST	2029	1,565	1,575	1,638	1,649	55.1%	1,710	1,732	1,790	1,813	50.1%
FRCST	2030	1,580	1,590	1,654	1,665	55.1%	1,727	1,749	1,808	1,830	50.1%
FRCST	2031	1,597	1,607	1,672	1,682	55.1%	1,745	1,767	1,827	1,849	50.1%
FRCST	2032	1,614	1,624	1,689	1,700	55.0%	1,763	1,785	1,846	1,868	50.0%

	***** BASE-MILD SCENARIO WITH DSM IMPACTS *****					***** BASE-MILD SCENARIO WITH DSM IMPACTS *****				
	***** EXTREME TEMPERATURE CONDITIONS ***** HOOSIER ENERGY COINCIDENT PEAK (60 MIN.)				EXTREME COIN. H.E. ANNUAL LOAD FACTOR (AVERAGE)	***** EXTREME TEMPERATURE CONDITIONS ***** HOOSIER ENERGY NON-COINCIDENT PEAK (60 MIN.)				EXT.NON-COIN H.E. ANNUAL LOAD FACTOR (AVERAGE)
	Without Losses (% Chg)		With Losses (% Chg)			Without Losses (% Chg)		With Losses (% Chg)		
TIME PERIOD	WINTER	SUMMER	WINTER	SUMMER		WINTER	SUMMER	WINTER	SUMMER	
2001 -2006	******	******	******	******	******	******	******	******	******	******
2006 -2011	******	******	******	******	******	******	******	******	******	******
2012 -2017	0.19%	0.38%	0.35%	0.54%	53.58%	0.28%	0.46%	0.43%	0.62%	49.06%
2017 -2022	0.52%	0.67%	0.53%	0.67%	54.62%	0.54%	0.69%	0.54%	0.69%	49.79%
2022 -2027	0.55%	0.68%	0.55%	0.68%	54.99%	0.56%	0.68%	0.56%	0.68%	49.98%
2027 -2032	0.92%	0.89%	0.92%	0.89%	55.05%	0.90%	0.87%	0.90%	0.87%	50.07%
2001 -2011	******	******	******	******	******	******	******	******	******	******
2012 -2032	0.55%	0.66%	0.59%	0.70%	54.53%	0.57%	0.67%	0.61%	0.71%	49.70%

VER 2.1 | HOOSIER ENERGY REC, INC | 2013 POWER REQUIREMENTS STUDY | DISKETTE : 2013 PRS SYSTEM FORECAST
SUM | INDIANA # : IN 106 | SUMMARY HISTORICAL AND FORECAST SHEET | File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 | FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* BASE-MILD SCENARIO WITH DSM IMPACTS ******* | ******* BASE-MILD SCENARIO WITH DSM IMPACTS *******

		**** Adjusted for IN #72, IN #16, IN#92, and IL#002 **** Aggregated Member System Data NUMBER OF CONSUMERS					**** Adjusted for IN #72, IN #16, IN#92, and IL#002 **** Aggregated Member System Data SYSTEM ENERGY SALES TO END CONSUMERS (MWH)				
	YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL
ACTUAL	2001	219,228	10,003	132	1,093	230,456	3,052,360	639,446	1,164,603	31,271	4,887,680
ACTUAL	2002	223,044	10,265	139	1,144	234,592	3,261,617	663,738	1,272,906	32,441	5,230,702
ACTUAL	2003	226,749	10,462	151	1,293	238,655	3,243,405	673,235	1,316,094	32,150	5,264,884
ACTUAL	2004	230,760	10,690	151	1,429	243,030	3,305,807	706,497	1,403,535	33,098	5,448,937
ACTUAL	2005	257,250	11,810	165	1,573	270,798	3,749,514	774,714	1,484,489	33,634	6,042,351
ACTUAL	2006	260,854	11,986	169	1,707	274,716	3,856,899	824,354	1,545,582	32,678	6,259,513
ACTUAL	2007	263,908	12,246	191	1,821	278,166	4,088,777	855,093	1,620,151	34,240	6,598,261
ACTUAL	2008	265,071	12,166	200	1,833	279,270	4,080,904	856,375	1,630,203	33,209	6,600,691
ACTUAL	2009	265,137	12,281	192	1,836	279,446	3,904,139	818,798	1,564,440	31,738	6,319,115
ACTUAL	2010	265,890	12,407	193	1,851	280,341	4,158,336	843,557	1,712,254	33,075	6,747,222
ACTUAL	2011	277,750	13,765	210	2,498	294,223	4,093,232	901,705	1,806,351	40,873	6,842,161
FRCST	2012	278,966	13,865	199	2,563	295,593	3,613,583	917,278	1,889,973	46,873	6,467,707
FRCST	2013	280,670	13,956	196	2,563	297,385	3,420,846	920,003	1,902,644	46,873	6,290,366
FRCST	2014	282,590	14,047	193	2,563	299,393	3,334,570	928,879	2,033,668	46,873	6,343,990
FRCST	2015	284,673	14,138	192	2,563	301,566	3,293,639	935,762	2,176,840	46,873	6,453,114
FRCST	2016	286,859	14,229	192	2,563	303,843	3,301,309	942,801	2,268,128	46,873	6,559,111
FRCST	2017	289,262	14,320	191	2,563	306,336	3,326,629	949,908	2,359,681	46,873	6,683,090
FRCST	2018	291,878	14,460	188	2,563	309,089	3,351,980	957,578	2,370,001	46,873	6,726,432
FRCST	2019	294,498	14,600	188	2,563	311,849	3,377,940	966,007	2,397,344	46,873	6,788,164
FRCST	2020	297,165	14,740	188	2,563	314,656	3,407,583	974,512	2,414,360	46,873	6,843,328
FRCST	2021	299,756	14,880	188	2,563	317,387	3,438,690	983,121	2,430,404	46,873	6,899,088
FRCST	2022	302,394	15,020	188	2,563	320,165	3,472,749	991,829	2,446,995	46,873	6,958,446
FRCST	2023	305,241	15,200	188	2,563	323,192	3,501,490	1,002,860	2,446,995	46,873	6,998,219
FRCST	2024	308,091	15,380	188	2,563	326,222	3,536,163	1,015,342	2,446,995	46,873	7,045,373
FRCST	2025	310,985	15,560	188	2,563	329,296	3,573,712	1,031,372	2,446,995	46,873	7,098,952
FRCST	2026	313,956	15,740	188	2,563	332,447	3,615,969	1,045,814	2,446,995	46,873	7,155,651
FRCST	2027	316,958	15,920	188	2,563	335,629	3,664,550	1,061,611	2,446,995	46,873	7,220,029
FRCST	2028	320,105	16,142	188	2,563	338,998	3,711,627	1,080,333	2,446,995	46,873	7,285,828
FRCST	2029	323,359	16,364	187	2,563	342,473	3,762,819	1,099,167	2,411,086	46,873	7,319,945
FRCST	2030	326,738	16,586	187	2,563	346,074	3,816,333	1,118,034	2,411,086	46,873	7,392,326
FRCST	2031	330,231	16,808	187	2,563	349,789	3,874,441	1,136,863	2,411,086	46,873	7,469,264
FRCST	2032	333,793	17,030	187	2,563	353,573	3,933,861	1,155,730	2,411,086	46,873	7,547,549

***** BASE-MILD SCENARIO WITH DSM IMPACTS ***** | ***** BASE-MILD SCENARIO WITH DSM IMPACTS *****

	Adjusted for Systems -- AGGREGATED NUMBER OF CONSUMERS					Adjusted for Systems -- AGGREGATED ENERGY SALES				
TIME PERIOD	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (ACT.CHG.)	OTHER (ACT.CHG.)	TOTAL (% CHG.)	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (% CHG.)	OTHER (% CHG.)	TOTAL (% CHG.)
2001 -2006	3.54%	3.68%	37	614	3.58%	4.79%	5.21%	5.82%	0.88%	5.07%
2006 -2011	1.26%	2.81%	41	791	1.38%	1.20%	1.81%	3.17%	4.58%	1.80%
2012 -2017	0.73%	0.65%	-8	0	0.72%	-1.64%	0.70%	4.54%	0.00%	0.66%
2017 -2022	0.89%	0.96%	-3	0	0.89%	0.86%	0.87%	0.73%	0.00%	0.81%
2022 -2027	0.95%	1.17%	0	0	0.95%	1.08%	1.37%	0.00%	0.00%	0.74%
2027 -2032	1.04%	1.36%	-1	0	1.05%	1.43%	1.71%	-0.30%	0.00%	0.89%
2001 -2011	2.39%	3.24%	78	1405	2.47%	2.98%	3.50%	4.49%	2.71%	3.42%
2012 -2032	0.90%	1.03%	-12	0	0.90%	0.43%	1.16%	1.23%	0.00%	0.77%

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* BASE-MILD SCENARIO WITH DSM IMPACTS ******* ******* BASE-MILD SCENARIO WITH DSM IMPACTS *******

Energy and Demand Values Adjusted for IN #72, IN # 16, IN#92, and IL#002

	YEAR	AGGREGATED TOTAL MEMBER ENERGY PURCHASED (MWH)	ENERGY GENERATED FOR MEMBERS (MWH)	AGGREGATED MEMBER 30 MIN. COINCIDENT PEAK W/O LOSSES (MW) WINTER	SUMMER	HE COINCIDENT 60 MINUTE DEMAND (MW) (EST. BEFORE 1984) (WITHOUT LOSSES) WINTER	SUMMER	(WITH LOSSES) WINTER	SUMMER	ANNUAL LOAD FACTOR
ACTUAL	2001	5,106,079	5,327,900	1,015	1,031	1,002	1,018	1,049	1,065	57.1%
ACTUAL	2002	5,499,105	5,747,381	1,000	1,071	959	1,060	1,006	1,112	59.0%
ACTUAL	2003	5,527,292	5,765,328	1,101	1,063	1,077	1,050	1,123	1,095	58.6%
ACTUAL	2004	5,736,200	5,982,496	1,104	1,083	1,090	1,065	1,143	1,118	59.6%
ACTUAL	2005	6,332,029	6,576,718	1,162	1,331	1,133	1,317	1,181	1,374	54.6%
ACTUAL	2006	6,525,204	6,801,791	1,283	1,344	1,252	1,325	1,310	1,385	56.1%
ACTUAL	2007	6,924,233	7,228,689	1,378	1,350	1,345	1,348	1,412	1,415	58.3%
ACTUAL	2008	6,912,387	7,178,009	1,395	1,245	1,381	1,226	1,453	1,290	56.2%
ACTUAL	2009	6,617,661	6,880,934	1,472	1,247	1,470	1,244	1,544	1,306	50.9%
ACTUAL	2010	7,043,826	7,349,006	1,320	1,392	1,309	1,385	1,372	1,452	57.8%
ACTUAL	2011	7,133,534	7,429,606	1,394	1,435	1,379	1,429	1,438	1,491	56.9%
FRCST	2012	6,763,499	6,991,744	1,318	1,302	1,309	1,297	1,360	1,348	58.5%
FRCST	2013	6,577,105	6,835,740	1,277	1,265	1,268	1,261	1,327	1,319	58.8%
FRCST	2014	6,632,612	6,893,488	1,280	1,282	1,272	1,277	1,331	1,336	58.9%
FRCST	2015	6,747,358	7,012,867	1,297	1,294	1,288	1,289	1,348	1,350	59.3%
FRCST	2016	6,858,131	7,128,112	1,308	1,316	1,299	1,311	1,360	1,373	59.1%
FRCST	2017	6,987,916	7,263,137	1,332	1,329	1,323	1,324	1,385	1,386	59.8%
FRCST	2018	7,033,452	7,310,511	1,335	1,334	1,326	1,329	1,388	1,391	60.0%
FRCST	2019	7,097,926	7,377,588	1,342	1,342	1,333	1,337	1,395	1,400	60.2%
FRCST	2020	7,155,548	7,437,537	1,350	1,352	1,341	1,347	1,404	1,410	60.0%
FRCST	2021	7,213,809	7,498,150	1,358	1,363	1,349	1,358	1,412	1,421	60.2%
FRCST	2022	7,275,844	7,562,689	1,365	1,373	1,356	1,367	1,419	1,431	60.3%
FRCST	2023	7,317,526	7,606,054	1,369	1,379	1,360	1,374	1,423	1,438	60.4%
FRCST	2024	7,366,956	7,657,480	1,375	1,387	1,366	1,382	1,429	1,446	60.3%
FRCST	2025	7,423,155	7,715,948	1,382	1,396	1,372	1,391	1,436	1,456	60.5%
FRCST	2026	7,482,643	7,777,838	1,389	1,407	1,380	1,401	1,444	1,467	60.5%
FRCST	2027	7,550,205	7,848,127	1,401	1,418	1,391	1,413	1,456	1,479	60.6%
FRCST	2028	7,619,234	7,919,944	1,414	1,431	1,404	1,425	1,470	1,492	60.4%
FRCST	2029	7,655,424	7,957,594	1,421	1,437	1,412	1,432	1,478	1,499	60.6%
FRCST	2030	7,731,407	8,036,645	1,435	1,451	1,426	1,446	1,492	1,513	60.6%
FRCST	2031	7,812,177	8,120,676	1,450	1,466	1,441	1,461	1,508	1,529	60.6%
FRCST	2032	7,894,380	8,206,198	1,465	1,481	1,455	1,476	1,524	1,545	60.5%

***** BASE-MILD SCENARIO WITH DSM IMPACTS ***** ***** BASE-MILD SCENARIO WITH DSM IMPACTS *****

TIME PERIOD	Adjusted for Systems ENERGY PURCHASED (% CHG.)	ENERGY GENERATED (% CHG.)	Adjusted for Systems AGGREGATED 30 MIN. COIN. PEAK W/O LOSSES (% CHG) WINTER	SUMMER	Adjusted for Systems -- HE COIN. 60 MINUTE DEMAND Without Losses (% Chg) WINTER	SUMMER	With Losses (% Chg) WINTER	SUMMER	ADJUSTED ANNUAL LOAD FACTOR (AVERAGE)
2001 -2006	5.03%	5.01%	4.81%	5.45%	4.56%	5.41%	4.54%	5.40%	57.50%
2006 -2011	1.80%	1.78%	1.67%	1.33%	1.95%	1.53%	1.89%	1.48%	56.02%
2012 -2017	0.65%	0.76%	0.21%	0.40%	0.21%	0.40%	0.37%	0.56%	59.08%
2017 -2022	0.81%	0.81%	0.49%	0.65%	0.49%	0.65%	0.49%	0.65%	60.10%
2022 -2027	0.74%	0.74%	0.51%	0.66%	0.51%	0.66%	0.51%	0.66%	60.43%
2027 -2032	0.90%	0.90%	0.91%	0.87%	0.91%	0.87%	0.91%	0.87%	60.56%
2001 -2011	3.40%	3.38%	3.23%	3.37%	3.24%	3.45%	3.21%	3.42%	56.82%
2012 -2032	0.78%	0.80%	0.53%	0.65%	0.53%	0.65%	0.57%	0.69%	60.01%

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* BASE-MILD SCENARIO WITH DSM IMPACTS ******* ******* BASE-MILD SCENARIO RESULTS *******

Energy and Demand Values Adjusted for IN #72, IN #16, IN#92, and IL#002

EXTREME COINCIDENT 60 MINUTE DEMAND (MW) (EST. BEFORE 1984)

	YEAR	WINTER (WITHOUT LOSSES)	SUMMER (WITHOUT LOSSES)	WINTER (WITH LOSSES)	SUMMER (WITH LOSSES)	EXTREME ANNUAL LOAD FACTOR
ACTUAL	2001	*****	*****	*****	*****	*****
ACTUAL	2002	*****	*****	*****	*****	*****
ACTUAL	2003	*****	*****	*****	*****	*****
ACTUAL	2004	*****	*****	*****	*****	*****
ACTUAL	2005	*****	*****	*****	*****	*****
ACTUAL	2006	*****	*****	*****	*****	*****
ACTUAL	2007	*****	*****	*****	*****	*****
ACTUAL	2008	*****	*****	*****	*****	*****
ACTUAL	2009	*****	*****	*****	*****	*****
ACTUAL	2010	*****	*****	*****	*****	*****
ACTUAL	2011	*****	*****	*****	*****	*****
FRCST	2012	1,447	1,425	1,503	1,480	53.0%
FRCST	2013	1,401	1,384	1,467	1,449	53.2%
FRCST	2014	1,406	1,402	1,471	1,468	53.5%
FRCST	2015	1,423	1,415	1,490	1,481	53.7%
FRCST	2016	1,436	1,439	1,503	1,506	53.9%
FRCST	2017	1,461	1,452	1,529	1,520	54.2%
FRCST	2018	1,464	1,458	1,532	1,526	54.5%
FRCST	2019	1,472	1,467	1,541	1,536	54.6%
FRCST	2020	1,482	1,479	1,551	1,548	54.6%
FRCST	2021	1,491	1,491	1,560	1,560	54.9%
FRCST	2022	1,499	1,502	1,570	1,572	54.9%
FRCST	2023	1,505	1,509	1,575	1,580	55.0%
FRCST	2024	1,511	1,518	1,582	1,589	54.9%
FRCST	2025	1,519	1,529	1,590	1,600	55.0%
FRCST	2026	1,528	1,541	1,600	1,613	55.1%
FRCST	2027	1,541	1,554	1,613	1,626	55.1%
FRCST	2028	1,556	1,567	1,629	1,641	55.0%
FRCST	2029	1,565	1,575	1,638	1,649	55.1%
FRCST	2030	1,580	1,590	1,654	1,665	55.1%
FRCST	2031	1,597	1,607	1,672	1,682	55.1%
FRCST	2032	1,614	1,624	1,689	1,700	55.0%

***** BASE-MILD SCENARIO WITH DSM IMPACTS ***** ***** BASE-MILD SCENARIO RESULTS *****

Adjusted for Systems HE EXT. COIN. 60 MINUTE DEMAND

TIME PERIOD	WINTER Without Losses (% Chg)	SUMMER Without Losses (% Chg)	WINTER With Losses (% Chg)	SUMMER With Losses (% Chg)	ADJUSTED EXT. ANNUAL LOAD FACTOR (AVERAGE)
2001 -2006	*****	*****	*****	*****	*****
2006 -2011	*****	*****	*****	*****	*****
2012 -2017	0.19%	0.38%	0.35%	0.54%	53.58%
2017 -2022	0.52%	0.67%	0.53%	0.67%	54.62%
2022 -2027	0.55%	0.68%	0.55%	0.68%	54.99%
2027 -2032	0.92%	0.89%	0.92%	0.89%	55.05%
2001 -2011	*****	*****	*****	*****	*****
2012 -2032	0.55%	0.66%	0.59%	0.70%	54.53%

VER 2.1 HOOSIER ENERGY REC. INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

		***** BASE-MILD SCENARIO WITH DSM IMPACTS *****					***** BASE-MILD SCENARIO WITH DSM IMPACTS *****				
		Values Adjusted for IN#72,IN#16,IN#92,IL#002 and Special Industrial Loads					Values Adjusted for IN#72,IN#16,IN#92,IL#002 and Special Industrial Loads				
		Aggregated Member System Data NUMBER OF CONSUMERS					Aggregated Member System Data SYSTEM ENERGY SALES TO END CONSUMERS (MWH)				
	YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL
ACTUAL	2001	219,228	10,003	132	1,093	230,456	3,052,360	639,446	1,029,201	31,271	4,752,278
ACTUAL	2002	223,044	10,265	138	1,144	234,591	3,261,617	663,738	1,102,023	32,441	5,059,819
ACTUAL	2003	226,749	10,462	150	1,293	238,654	3,243,405	673,235	1,142,196	32,150	5,090,986
ACTUAL	2004	230,760	10,690	150	1,429	243,029	3,305,807	706,497	1,217,305	33,098	5,262,707
ACTUAL	2005	257,250	11,810	164	1,573	270,797	3,749,514	774,714	1,295,926	33,634	5,853,788
ACTUAL	2006	260,854	11,986	168	1,707	274,715	3,856,899	824,354	1,347,295	32,678	6,061,226
ACTUAL	2007	263,908	12,246	190	1,821	278,165	4,088,777	855,093	1,427,519	34,240	6,405,629
ACTUAL	2008	265,071	12,166	199	1,833	279,269	4,080,904	856,375	1,434,770	33,209	6,405,258
ACTUAL	2009	265,137	12,281	191	1,836	279,445	3,904,139	818,798	1,379,492	31,738	6,134,167
ACTUAL	2010	265,890	12,407	192	1,851	280,340	4,158,336	843,557	1,543,619	33,075	6,578,587
ACTUAL	2011	277,750	13,765	209	2,498	294,222	4,093,232	901,705	1,649,885	40,873	6,685,695
FRCST	2012	278,966	13,865	198	2,563	295,592	3,613,583	917,278	1,718,850	46,873	6,296,584
FRCST	2013	280,670	13,956	195	2,563	297,384	3,420,846	920,003	1,731,644	46,873	6,119,366
FRCST	2014	282,590	14,047	192	2,563	299,392	3,334,570	928,879	1,862,668	46,873	6,172,990
FRCST	2015	284,673	14,138	191	2,563	301,565	3,293,639	935,762	2,005,840	46,873	6,282,114
FRCST	2016	286,859	14,229	191	2,563	303,842	3,301,309	942,801	2,097,128	46,873	6,388,111
FRCST	2017	289,262	14,320	190	2,563	306,335	3,326,629	949,908	2,188,681	46,873	6,512,090
FRCST	2018	291,878	14,460	187	2,563	309,088	3,351,980	957,578	2,199,001	46,873	6,555,432
FRCST	2019	294,498	14,600	187	2,563	311,848	3,377,940	966,007	2,226,344	46,873	6,617,164
FRCST	2020	297,165	14,740	187	2,563	314,655	3,407,583	974,512	2,243,360	46,873	6,672,328
FRCST	2021	299,756	14,880	187	2,563	317,386	3,438,690	983,121	2,259,404	46,873	6,728,088
FRCST	2022	302,394	15,020	187	2,563	320,164	3,472,749	991,829	2,275,995	46,873	6,787,446
FRCST	2023	305,241	15,200	187	2,563	323,191	3,501,490	1,002,860	2,275,995	46,873	6,827,219
FRCST	2024	308,091	15,380	187	2,563	326,221	3,536,163	1,015,342	2,275,995	46,873	6,874,373
FRCST	2025	310,985	15,560	187	2,563	329,295	3,573,712	1,031,372	2,275,995	46,873	6,927,952
FRCST	2026	313,956	15,740	187	2,563	332,446	3,615,969	1,045,814	2,275,995	46,873	6,984,651
FRCST	2027	316,958	15,920	187	2,563	335,628	3,664,550	1,061,611	2,275,995	46,873	7,049,029
FRCST	2028	320,105	16,142	187	2,563	338,997	3,711,627	1,080,333	2,275,995	46,873	7,114,828
FRCST	2029	323,359	16,364	186	2,563	342,472	3,762,819	1,099,167	2,240,086	46,873	7,148,945
FRCST	2030	326,738	16,586	186	2,563	346,073	3,816,333	1,118,034	2,240,086	46,873	7,221,326
FRCST	2031	330,231	16,808	186	2,563	349,788	3,874,441	1,136,863	2,240,086	46,873	7,298,264
FRCST	2032	333,793	17,030	186	2,563	353,572	3,933,861	1,155,730	2,240,086	46,873	7,376,549

	***** BASE-MILD SCENARIO WITH DSM IMPACTS *****					***** BASE-MILD SCENARIO WITH DSM IMPACTS *****				
	Adjusted for Systems -- AGGREGATED NUMBER OF CONSUMERS					Adjusted for Systems & Ind. -- AGGREGATED ENERGY SALES				
TIME PERIOD	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (ACT.CHG.)	OTHER (ACT.CHG.)	TOTAL (% CHG.)	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (% CHG.)	OTHER (% CHG.)	TOTAL (% CHG.)
2001 -2006	3.54%	3.68%	36	614	3.58%	4.79%	5.21%	5.53%	0.88%	4.99%
2006 -2011	1.26%	2.81%	41	791	1.38%	1.20%	1.81%	4.14%	4.58%	1.98%
2012 -2017	0.73%	0.65%	-8	0	0.72%	-1.64%	0.70%	4.95%	0.00%	0.68%
2017 -2022	0.89%	0.96%	-3	0	0.89%	0.86%	0.87%	0.79%	0.00%	0.83%
2022 -2027	0.95%	1.17%	0	0	0.95%	1.08%	1.37%	0.00%	0.00%	0.76%
2027 -2032	1.04%	1.36%	-1	0	1.05%	1.43%	1.71%	-0.32%	0.00%	0.91%
2001 -2011	2.39%	3.24%	77	1405	2.47%	2.98%	3.50%	4.83%	2.71%	3.47%
2012 -2032	0.90%	1.03%	-12	0	0.90%	0.43%	1.16%	1.33%	0.00%	0.79%

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* BASE-MILD SCENARIO WITH DSM IMPACTS *******

Energy and Demand Values Adjusted for IN#72,IN#16,IN#92,IL#002 and Special Industrial Loads

	YEAR	AGGREGATED TOTAL MEMBER ENERGY PURCHASED (MWH)	ENERGY GENERATED FOR MEMBERS (MWH)	H.E. 30 MINUTE COINCIDENT DEMAND (MW) (WITHOUT LOSSES) WINTER	SUMMER	H.E. COINCIDENT 60 MINUTE DEMAND (MW) (EST. BEFORE 1984) (WITHOUT LOSSES) WINTER	SUMMER	(WITH LOSSES) WINTER	SUMMER	ANNUAL LOAD FACTOR
ACTUAL	2001	4,970,677	5,192,498	987	1,004	976	992	1,022	1,045	56.7%
ACTUAL	2002	5,328,221	5,576,498	968	1,040	929	1,030	965	1,091	58.3%
ACTUAL	2003	5,353,393	5,591,430	1,079	1,040	1,061	1,027	1,106	1,079	57.7%
ACTUAL	2004	5,549,970	5,796,266	1,066	1,055	1,052	1,037	1,106	1,093	59.7%
ACTUAL	2005	6,143,466	6,388,155	1,138	1,305	1,109	1,291	1,150	1,355	53.8%
ACTUAL	2006	6,326,917	6,603,504	1,260	1,322	1,229	1,303	1,283	1,366	55.2%
ACTUAL	2007	6,731,601	7,036,057	1,354	1,337	1,321	1,334	1,387	1,397	57.5%
ACTUAL	2008	6,716,954	6,982,576	1,394	1,235	1,379	1,215	1,442	1,327	55.1%
ACTUAL	2009	6,432,713	6,695,986	1,467	1,232	1,465	1,229	1,525	1,292	50.1%
ACTUAL	2010	6,875,191	7,180,371	1,317	1,373	1,306	1,366	1,357	1,431	57.3%
ACTUAL	2011	6,977,068	7,273,140	1,392	1,424	1,377	1,418	1,453	1,478	56.2%
FRCST	2012	6,592,375	6,820,621	1,298	1,283	1,289	1,278	1,339	1,328	58.0%
FRCST	2013	6,406,105	6,664,740	1,256	1,246	1,247	1,241	1,307	1,300	58.2%
FRCST	2014	6,461,612	6,722,488	1,260	1,263	1,251	1,258	1,310	1,317	58.3%
FRCST	2015	6,576,358	6,841,867	1,276	1,275	1,267	1,270	1,328	1,330	58.7%
FRCST	2016	6,687,131	6,957,112	1,288	1,297	1,279	1,292	1,340	1,353	58.5%
FRCST	2017	6,816,916	7,092,137	1,312	1,310	1,303	1,305	1,364	1,367	59.2%
FRCST	2018	6,862,452	7,139,511	1,314	1,315	1,305	1,310	1,367	1,372	59.4%
FRCST	2019	6,926,926	7,206,588	1,321	1,323	1,312	1,318	1,374	1,380	59.6%
FRCST	2020	6,984,548	7,266,537	1,329	1,333	1,320	1,328	1,383	1,391	59.5%
FRCST	2021	7,042,809	7,327,150	1,337	1,344	1,328	1,338	1,391	1,402	59.7%
FRCST	2022	7,104,844	7,391,689	1,345	1,353	1,335	1,348	1,399	1,412	59.8%
FRCST	2023	7,146,526	7,435,054	1,349	1,360	1,339	1,354	1,403	1,419	59.8%
FRCST	2024	7,195,956	7,486,480	1,354	1,368	1,345	1,362	1,409	1,427	59.7%
FRCST	2025	7,252,155	7,544,948	1,361	1,377	1,352	1,372	1,416	1,437	59.9%
FRCST	2026	7,311,643	7,606,838	1,369	1,387	1,359	1,382	1,424	1,448	60.0%
FRCST	2027	7,379,205	7,677,127	1,380	1,399	1,371	1,394	1,436	1,460	60.0%
FRCST	2028	7,448,234	7,748,944	1,393	1,412	1,384	1,406	1,449	1,473	59.9%
FRCST	2029	7,484,424	7,786,594	1,401	1,418	1,391	1,413	1,457	1,480	60.1%
FRCST	2030	7,560,407	7,865,645	1,415	1,432	1,405	1,426	1,472	1,494	60.1%
FRCST	2031	7,641,177	7,949,676	1,430	1,447	1,420	1,441	1,487	1,510	60.1%
FRCST	2032	7,723,380	8,035,198	1,445	1,462	1,435	1,456	1,503	1,526	60.0%

***** BASE-MILD SCENARIO WITH DSM IMPACTS *****

TIME PERIOD	Adjusted for Systems & Ind ENERGY PURCHASED (% CHG.)	ENERGY GENERATED (% CHG.)	Adj. Sys. & Ind. -- H.E. 30 MINUTE COINCIDENT DEMAND (MW) (WITHOUT LOSSES) WINTER	SUMMER	Adjusted for Sys. & Ind. -- HE COIN. 60 MINUTE DEMAND Without Losses (% Chg) WINTER	SUMMER	With Losses (% Chg) WINTER	SUMMER	ADJUSTED ANNUAL LOAD FACTOR (AVERAGE)
2001 -2006	4.94%	4.93%	5.01%	5.67%	4.72%	5.61%	4.65%	5.50%	56.91%
2006 -2011	1.98%	1.95%	2.01%	1.50%	2.30%	1.71%	2.52%	1.59%	55.23%
2012 -2017	0.67%	0.78%	0.21%	0.41%	0.21%	0.41%	0.37%	0.57%	58.49%
2017 -2022	0.83%	0.83%	0.50%	0.66%	0.50%	0.66%	0.50%	0.66%	59.53%
2022 -2027	0.76%	0.76%	0.52%	0.67%	0.52%	0.67%	0.52%	0.67%	59.88%
2027 -2032	0.92%	0.92%	0.92%	0.88%	0.92%	0.88%	0.92%	0.88%	60.03%
2001 -2011	3.45%	3.43%	3.50%	3.56%	3.50%	3.64%	3.58%	3.53%	56.15%
2012 -2032	0.79%	0.82%	0.54%	0.65%	0.54%	0.65%	0.58%	0.69%	59.45%

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* BASE-MILD SCENARIO WITH DSM IMPACTS ******* ******* BASE-MILD SCENARIO RESULTS *******

Energy and Demand Values Adjusted for IN#72,IN#16,IN#92,IL#002 and Special Industrial Loads

EXTREME COINCIDENT 60 MINUTE DEMAND (MW) (EST. BEFORE 1984)

		(WITHOUT LOSSES)		(WITH LOSSES)		EXTREME ANNUAL
	YEAR	WINTER	SUMMER	WINTER	SUMMER	LOAD FACTOR
ACTUAL	2001	*****	*****	*****	*****	*****
ACTUAL	2002	*****	*****	*****	*****	*****
ACTUAL	2003	*****	*****	*****	*****	*****
ACTUAL	2004	*****	*****	*****	*****	*****
ACTUAL	2005	*****	*****	*****	*****	*****
ACTUAL	2006	*****	*****	*****	*****	*****
ACTUAL	2007	*****	*****	*****	*****	*****
ACTUAL	2008	*****	*****	*****	*****	*****
ACTUAL	2009	*****	*****	*****	*****	*****
ACTUAL	2010	*****	*****	*****	*****	*****
ACTUAL	2011	*****	*****	*****	*****	*****
FRCST	2012	1,426	1,406	1,482	1,461	52.4%
FRCST	2013	1,380	1,365	1,446	1,430	52.6%
FRCST	2014	1,385	1,383	1,451	1,448	52.9%
FRCST	2015	1,402	1,396	1,469	1,462	53.2%
FRCST	2016	1,415	1,420	1,482	1,487	53.3%
FRCST	2017	1,440	1,433	1,508	1,501	53.7%
FRCST	2018	1,443	1,439	1,512	1,507	53.9%
FRCST	2019	1,452	1,448	1,521	1,517	54.1%
FRCST	2020	1,461	1,460	1,530	1,529	54.1%
FRCST	2021	1,470	1,471	1,540	1,541	54.3%
FRCST	2022	1,479	1,482	1,549	1,553	54.3%
FRCST	2023	1,484	1,490	1,554	1,560	54.4%
FRCST	2024	1,491	1,499	1,561	1,570	54.3%
FRCST	2025	1,499	1,510	1,570	1,581	54.5%
FRCST	2026	1,508	1,521	1,579	1,593	54.5%
FRCST	2027	1,521	1,534	1,593	1,607	54.5%
FRCST	2028	1,535	1,548	1,608	1,622	54.4%
FRCST	2029	1,544	1,556	1,617	1,630	54.5%
FRCST	2030	1,560	1,571	1,634	1,646	54.6%
FRCST	2031	1,576	1,588	1,651	1,663	54.6%
FRCST	2032	1,593	1,605	1,669	1,681	54.4%

***** BASE-MILD SCENARIO WITH DSM IMPACTS ***** ***** BASE-MILD SCENARIO RESULTS *****

Adjusted for Sys. & Ind. HE EXT. COIN. 60 MINUTE DEMAND

	Without Losses (% Chg)		With Losses (% Chg)		ADJUSTED EXT. ANNUAL LOAD FACTOR
TIME PERIOD	WINTER	SUMMER	WINTER	SUMMER	(AVERAGE)
2001 -2006	*****	*****	*****	*****	*****
2006 -2011	*****	*****	*****	*****	*****
2012 -2017	0.20%	0.39%	0.36%	0.55%	53.00%
2017 -2022	0.53%	0.68%	0.53%	0.68%	54.06%
2022 -2027	0.56%	0.69%	0.56%	0.69%	54.42%
2027 -2032	0.94%	0.90%	0.94%	0.90%	54.51%
2001 -2011	*****	*****	*****	*****	*****
2012 -2032	0.56%	0.66%	0.60%	0.70%	53.97%

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20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

		***** BASE-MILD SCENARIO WITH DSM IMPACTS *****							***** BASE-MILD SCENARIO WITH DSM IMPACTS *****		
		H.E. Time Factor Ratio from 30 to 60 Minute excludes pass-throughs (Est. before 1984)				PERCENTAGE of IN #72 Served by	IN #72 served by H.E. (Yes=0 , No= 1)		PERCENTAGE of IN #16 Served by	IN #16 served by H.E. (Yes=0 , No= 1)	
	YEAR	WINTER	SUMMER			H.E.	WINTER	SUMMER	H.E.	WINTER	SUMMER
ACTUAL	2001	98.92%	98.85%			100.0%	0	0	100.0%	0	0
ACTUAL	2002	96.00%	99.02%			100.0%	0	0	100.0%	0	0
ACTUAL	2003	98.31%	98.80%			100.0%	0	0	100.0%	0	0
ACTUAL	2004	98.73%	98.31%			100.0%	0	0	100.0%	0	0
ACTUAL	2005	97.45%	98.93%			100.0%	0	0	100.0%	0	0
ACTUAL	2006	97.54%	98.57%			100.0%	0	0	100.0%	0	0
ACTUAL	2007	97.56%	99.78%			100.0%	0	0	100.0%	0	0
ACTUAL	2008	98.92%	98.38%			100.0%	0	0	100.0%	0	0
ACTUAL	2009	99.86%	99.76%			100.0%	0	0	100.0%	0	0
ACTUAL	2010	99.16%	99.49%			100.0%	0	0	100.0%	0	0
ACTUAL	2011	98.92%	99.58%			100.0%	0	0	100.0%	0	0
FRCST	2012	99.32%	99.61%			100.00%	0	0	100.00%	0	0
FRCST	2013	99.32%	99.61%			100.00%	0	0	100.00%	0	0
FRCST	2014	99.32%	99.61%			100.00%	0	0	100.00%	0	0
FRCST	2015	99.32%	99.61%			100.00%	0	0	100.00%	0	0
FRCST	2016	99.32%	99.61%			100.00%	0	0	100.00%	0	0
FRCST	2017	99.32%	99.61%			100.00%	0	0	100.00%	0	0
FRCST	2018	99.32%	99.61%			100.00%	0	0	100.00%	0	0
FRCST	2019	99.32%	99.61%			100.00%	0	0	100.00%	0	0
FRCST	2020	99.32%	99.61%			100.00%	0	0	100.00%	0	0
FRCST	2021	99.32%	99.61%			100.00%	0	0	100.00%	0	0
FRCST	2022	99.32%	99.61%			100.00%	0	0	100.00%	0	0
FRCST	2023	99.32%	99.61%			100.00%	0	0	100.00%	0	0
FRCST	2024	99.32%	99.61%			100.00%	0	0	100.00%	0	0
FRCST	2025	99.32%	99.61%			100.00%	0	0	100.00%	0	0
FRCST	2026	99.32%	99.61%			100.00%	0	0	100.00%	0	0
FRCST	2027	99.32%	99.61%			100.00%	0	0	100.00%	0	0
FRCST	2028	99.32%	99.61%			100.00%	0	0	100.00%	0	0
FRCST	2029	99.32%	99.61%			100.00%	0	0	100.00%	0	0
FRCST	2030	99.32%	99.61%			100.00%	0	0	100.00%	0	0
FRCST	2031	99.32%	99.61%			100.00%	0	0	100.00%	0	0
FRCST	2032	99.32%	99.61%			100.00%	0	0	100.00%	0	0

	***** BASE-MILD SCENARIO WITH DSM IMPACTS *****		***** BASE-MILD SCENARIO WITH DSM IMPACTS *****
	HE TIME FACTOR RATIO (30 to 60 MINUTE)		
TIME PERIOD	WINTER (AVERAGE)	SUMMER (AVERAGE)	
2001 -2006	97.83%	98.75%	
2006 -2011	98.66%	99.26%	
2012 -2017	99.32%	99.61%	
2017 -2022	99.32%	99.61%	
2022 -2027	99.32%	99.61%	
2027 -2032	99.32%	99.61%	
2001 -2011	98.31%	99.04%	
2012 -2032	99.32%	99.61%	

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******* BASE-MILD SCENARIO WITH DSM IMPACTS *******

	YEAR	PERCENTAGE of IN #92 Served by H.E.	IN #92 served by H.E. (Yes=0 , No= 1) WINTER	SUMMER	PERCENTAGE of IL #2 Served by H.E.	IL #2 served by H.E. (Yes=0 , No= 1) WINTER	SUMMER
ACTUAL	2001	0.0%	1	1	0.0%	1	1
ACTUAL	2002	0.0%	1	1	0.0%	1	1
ACTUAL	2003	0.0%	1	1	0.0%	1	1
ACTUAL	2004	0.0%	1	1	0.0%	1	1
ACTUAL	2005	51.0%	1	0	0.0%	1	1
ACTUAL	2006	100.0%	0	0	0.0%	1	1
ACTUAL	2007	100.0%	0	0	0.0%	1	1
ACTUAL	2008	100.0%	0	0	0.0%	1	1
ACTUAL	2009	100.0%	0	0	0.0%	1	1
ACTUAL	2010	100.0%	0	0	0.0%	1	1
ACTUAL	2011	100.0%	0	0	100.0%	0	0
FRCST	2012	100.00%	0	0	100.00%	0	0
FRCST	2013	100.00%	0	0	100.00%	0	0
FRCST	2014	100.00%	0	0	100.00%	0	0
FRCST	2015	100.00%	0	0	100.00%	0	0
FRCST	2016	100.00%	0	0	100.00%	0	0
FRCST	2017	100.00%	0	0	100.00%	0	0
FRCST	2018	100.00%	0	0	100.00%	0	0
FRCST	2019	100.00%	0	0	100.00%	0	0
FRCST	2020	100.00%	0	0	100.00%	0	0
FRCST	2021	100.00%	0	0	100.00%	0	0
FRCST	2022	100.00%	0	0	100.00%	0	0
FRCST	2023	100.00%	0	0	100.00%	0	0
FRCST	2024	100.00%	0	0	100.00%	0	0
FRCST	2025	100.00%	0	0	100.00%	0	0
FRCST	2026	100.00%	0	0	100.00%	0	0
FRCST	2027	100.00%	0	0	100.00%	0	0
FRCST	2028	100.00%	0	0	100.00%	0	0
FRCST	2029	100.00%	0	0	100.00%	0	0
FRCST	2030	100.00%	0	0	100.00%	0	0
FRCST	2031	100.00%	0	0	100.00%	0	0
FRCST	2032	100.00%	0	0	100.00%	0	0

***** BASE-MILD SCENARIO WITH DSM IMPACTS *****

TIME PERIOD
2001 -2006
2006 -2011
2012 -2017
2017 -2022
2022 -2027
2027 -2032
2001 -2011
2012 -2032

1973 :BEGINNING HISTORICAL DATA YEAR ?
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***** BASE-MILD SCENARIO WITH DSM IMPACTS ***** | ***** BASE-MILD SCENARIO WITH DSM IMPACTS *****

		DSM EE Program Energy Impact				DSM Demand Impacts-- Both EE & DR Programs) Coincident 60 Minute Demand MW			
						Savings w/o Losses		Savings with Losses	
	YEAR	Aggregated Total Member Energy Purchased Savings MWH	Percent of Total	Total Member Energy Generated Savings MWH	Percent of Total	Winter	Summer	Winter	Summer
ACTUAL	2001								
ACTUAL	2002								
ACTUAL	2003								
ACTUAL	2004								
ACTUAL	2005								
ACTUAL	2006								
ACTUAL	2007								
ACTUAL	2008								
ACTUAL	2009								
ACTUAL	2010								
ACTUAL	2011								
FRCST	2012	104,788	1.6%	108,416	1.6%	40.350	23.815	41.931	24.748
FRCST	2013	125,361	1.9%	130,422	1.9%	46.550	27.668	48.758	28.980
FRCST	2014	144,473	2.2%	150,306	2.2%	55.424	34.284	58.053	35.910
FRCST	2015	161,520	2.4%	168,041	2.4%	64.096	40.998	67.136	42.943
FRCST	2016	155,196	2.3%	161,462	2.3%	67.370	45.571	70.565	47.733
FRCST	2017	147,262	2.1%	153,207	2.1%	70.097	49.998	73.422	52.370
FRCST	2018	150,912	2.2%	157,005	2.2%	75.703	55.729	79.293	58.372
FRCST	2019	159,576	2.3%	166,019	2.3%	82.647	62.058	86.567	65.001
FRCST	2020	170,371	2.4%	177,250	2.4%	87.905	65.349	92.074	68.448
FRCST	2021	181,709	2.5%	189,045	2.5%	93.802	68.599	98.251	71.852
FRCST	2022	193,144	2.6%	200,942	2.6%	100.739	73.468	105.517	76.953
FRCST	2023	206,040	2.8%	214,358	2.8%	107.951	78.348	113.071	82.064
FRCST	2024	217,466	2.9%	226,246	2.9%	114.755	82.782	120.197	86.709
FRCST	2025	225,070	3.0%	234,157	3.0%	121.092	86.576	126.835	90.682
FRCST	2026	232,491	3.1%	241,877	3.1%	127.172	89.826	133.203	94.086
FRCST	2027	233,609	3.1%	243,041	3.1%	129.907	92.145	136.068	96.516
FRCST	2028	235,263	3.1%	244,762	3.1%	131.368	94.265	137.598	98.736
FRCST	2029	237,491	3.1%	247,080	3.1%	132.820	96.435	139.119	101.009
FRCST	2030	240,827	3.1%	250,550	3.1%	135.439	98.830	141.862	103.518
FRCST	2031	243,583	3.1%	253,417	3.1%	137.810	101.082	144.346	105.876
FRCST	2032	246,547	3.1%	256,501	3.1%	140.525	103.334	147.190	108.235

***** BASE-MILD SCENARIO WITH DSM IMPACTS *****

TIME PERIOD
2001 -2006
2006 -2011
2012 -2017
2017 -2022
2022 -2027
2027 -2032
2001 -2011
2012 -2032

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

		***** BASE-MILD SCENARIO WITH DSM IMPACTS *****				***** BASE-MILD SCENARIO WITH DSM IMPACTS *****			
		DSM -- EE Program Demand Impacts Coincident 60 Minute Demand MW				DSM -- DR Program Demand Impacts Coincident 60 Minute Demand MW			
		Savings w/o Losses		Savings with Losses		Savings w/o Losses		Savings with Losses	
	YEAR	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer
ACTUAL	2001								
ACTUAL	2002								
ACTUAL	2003								
ACTUAL	2004								
ACTUAL	2005								
ACTUAL	2006								
ACTUAL	2007								
ACTUAL	2008								
ACTUAL	2009								
ACTUAL	2010								
ACTUAL	2011								
FRCST	2012	33.566	13.936	34.881	14.482	6.784	9.879	7.050	10.266
FRCST	2013	39.472	16.769	41.345	17.564	7.077	10.899	7.413	11.416
FRCST	2014	45.560	19.863	47.721	20.805	9.864	14.421	10.332	15.105
FRCST	2015	51.322	22.817	53.757	23.899	12.774	18.181	13.380	19.043
FRCST	2016	51.626	23.432	54.075	24.543	15.744	22.139	16.490	23.189
FRCST	2017	51.332	23.817	53.767	24.946	18.765	26.182	19.655	27.423
FRCST	2018	53.841	25.362	56.395	26.565	21.861	30.367	22.898	31.807
FRCST	2019	57.644	27.438	60.378	28.739	25.004	34.620	26.189	36.262
FRCST	2020	62.129	29.715	65.075	31.125	25.776	35.633	26.999	37.323
FRCST	2021	66.831	32.070	70.000	33.591	26.972	36.529	28.251	38.261
FRCST	2022	71.659	34.408	75.057	36.039	29.080	39.061	30.459	40.913
FRCST	2023	76.989	36.935	80.641	38.687	30.961	41.413	32.430	43.377
FRCST	2024	82.336	39.413	86.242	41.282	32.418	43.369	33.956	45.426
FRCST	2025	87.346	41.470	91.489	43.437	33.746	45.106	35.346	47.245
FRCST	2026	92.107	43.108	96.476	45.152	35.065	46.718	36.728	48.933
FRCST	2027	93.521	43.821	97.957	45.900	36.386	48.324	38.111	50.616
FRCST	2028	93.683	44.401	98.127	46.507	37.684	49.864	39.471	52.229
FRCST	2029	93.827	45.016	98.277	47.151	38.992	51.419	40.842	53.858
FRCST	2030	95.128	45.842	99.640	48.016	40.310	52.988	42.222	55.502
FRCST	2031	96.171	46.510	100.733	48.716	41.639	54.572	43.613	57.161
FRCST	2032	97.548	47.162	102.174	49.399	42.977	56.172	45.016	58.836

TIME PERIOD
2001 -2006
2006 -2011
2012 -2017
2017 -2022
2022 -2027
2027 -2032
2001 -2011
2012 -2032

Appendix E

Historical/Forecast Annual Values
Summary High Case

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 34 YEARS)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* HIGH SCENARIO WITH DSM IMPACTS ******* ******* HIGH SCENARIO WITH DSM IMPACTS *******

		Aggregated Member System Data NUMBER OF CONSUMERS					Aggregated Member System Data SYSTEM ENERGY SALES TO END CONSUMERS (MWH)				
	YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL
ACTUAL	2001	253,162	12,265	155	1,444	267,026	3,522,968	729,098	1,261,060	113,891	5,627,017
ACTUAL	2002	257,347	12,533	163	1,501	271,544	3,772,856	750,481	1,372,372	117,598	6,013,307
ACTUAL	2003	261,300	12,711	176	1,654	275,841	3,744,229	760,700	1,406,637	112,443	6,024,009
ACTUAL	2004	265,436	12,930	173	1,793	280,332	3,816,332	797,926	1,498,284	112,624	6,225,166
ACTUAL	2005	269,261	13,031	173	1,934	284,399	4,087,081	833,664	1,583,193	44,652	6,548,590
ACTUAL	2006	272,892	13,211	177	2,070	288,350	3,997,738	859,810	1,632,862	37,999	6,528,409
ACTUAL	2007	275,983	13,481	199	2,186	291,849	4,235,636	896,961	1,706,767	41,253	6,880,617
ACTUAL	2008	277,143	13,424	208	2,202	292,977	4,225,769	896,208	1,712,574	38,855	6,873,406
ACTUAL	2009	277,179	13,547	200	2,204	293,130	4,049,085	862,271	1,638,530	36,404	6,586,290
ACTUAL	2010	277,915	13,683	201	2,219	294,018	4,313,613	889,903	1,783,519	40,028	7,027,063
ACTUAL	2011	277,750	13,765	210	2,498	294,223	4,093,232	901,705	1,806,351	40,873	6,842,161
FRCST	2012	279,926	13,934	217	2,563	296,640	4,010,435	921,829	1,962,008	46,873	6,941,145
FRCST	2013	282,608	14,095	214	2,563	299,480	4,028,651	929,268	1,984,485	46,873	6,989,277
FRCST	2014	285,520	14,256	211	2,563	302,550	4,069,588	943,002	2,125,434	46,873	7,184,897
FRCST	2015	288,616	14,421	210	2,563	305,810	4,113,146	954,867	2,279,232	46,873	7,394,118
FRCST	2016	291,834	14,585	210	2,563	309,192	4,184,277	967,019	2,381,916	46,873	7,580,085
FRCST	2017	295,291	14,752	209	2,563	312,815	4,262,786	979,377	2,485,380	46,873	7,774,415
FRCST	2018	298,995	14,971	206	2,563	316,735	4,336,799	992,453	2,508,126	46,873	7,884,251
FRCST	2019	302,718	15,188	206	2,563	320,675	4,409,246	1,006,452	2,548,008	46,873	8,010,579
FRCST	2020	306,510	15,408	206	2,563	324,687	4,485,302	1,020,680	2,577,767	46,873	8,130,622
FRCST	2021	310,251	15,633	206	2,563	328,653	4,562,888	1,035,167	2,606,699	46,873	8,251,627
FRCST	2022	314,063	15,859	206	2,563	332,691	4,644,441	1,049,904	2,636,326	46,873	8,377,544
FRCST	2023	318,111	16,128	206	2,563	337,008	4,719,711	1,067,241	2,649,504	46,873	8,483,330
FRCST	2024	322,195	16,401	206	2,563	341,365	4,803,572	1,086,207	2,662,755	46,873	8,599,407
FRCST	2025	326,346	16,673	206	2,563	345,788	4,892,088	1,108,906	2,676,066	46,873	8,723,933
FRCST	2026	330,601	16,951	206	2,563	350,321	4,987,321	1,130,196	2,689,447	46,873	8,853,837
FRCST	2027	334,918	17,228	206	2,563	354,915	5,090,581	1,153,026	2,702,895	46,873	8,993,375
FRCST	2028	339,415	17,555	206	2,563	359,739	5,192,812	1,179,249	2,716,410	46,873	9,135,344
FRCST	2029	344,048	17,885	205	2,563	364,701	5,302,134	1,205,806	2,694,084	46,873	9,248,897
FRCST	2030	348,845	18,216	205	2,563	369,829	5,416,453	1,232,629	2,707,550	46,873	9,403,505
FRCST	2031	353,794	18,549	205	2,563	375,111	5,538,335	1,259,644	2,721,090	46,873	9,565,943
FRCST	2032	358,844	18,887	205	2,563	380,499	5,663,656	1,286,933	2,734,694	46,873	9,732,155

***** HIGH SCENARIO WITH DSM IMPACTS ***** ***** HIGH SCENARIO WITH DSM IMPACTS *****

	AGGREGATED NUMBER OF CONSUMERS					AGGREGATED SYSTEM ENERGY SALES				
TIME PERIOD	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (ACT.CHG.)	OTHER (ACT.CHG.)	TOTAL (% CHG.)	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (% CHG.)	OTHER (% CHG.)	TOTAL (% CHG.)
2001 -2006	1.51%	1.50%	22	626	1.55%	2.56%	3.35%	5.30%	-19.71%	3.02%
2006 -2011	0.35%	0.82%	33	428	0.40%	0.47%	0.96%	2.04%	1.47%	0.94%
2012 -2017	1.07%	1.15%	-8	0	1.07%	1.23%	1.22%	4.84%	0.00%	2.29%
2017 -2022	1.24%	1.46%	-3	0	1.24%	1.73%	1.40%	1.19%	0.00%	1.51%
2022 -2027	1.29%	1.67%	0	0	1.30%	1.85%	1.89%	0.50%	0.00%	1.43%
2027 -2032	1.39%	1.86%	-1	0	1.40%	2.16%	2.22%	0.23%	0.00%	1.59%
2001 -2011	0.93%	1.16%	55	1054	0.97%	1.51%	2.15%	3.66%	-9.74%	1.97%
2012 -2032	1.25%	1.53%	-12	0	1.25%	1.74%	1.68%	1.67%	0.00%	1.70%

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* HIGH SCENARIO WITH DSM IMPACTS ******* | ******* HIGH SCENARIO WITH DSM IMPACTS *******

	YEAR	AGGREGATED TOTAL MEMBER ENERGY PURCHASED (MWH)	TOTAL ENERGY GENERATED for H.E. MEMBERS (MWH)	HE SYSTEM AVERAGE MONTHLY LOSS FACTORS due to MEMBER SYSTEM LOAD (excludes pass-throughs) FOR ENERGY	FOR DEMAND	H.E. AVERAGE WHOLESALE POWER COSTS (MILLS/MWH)	AGGREGATED MEMBER SYSTEM DEMANDS (WITHOUT LOSSES, 30 MINUTE DEMAND) NONCOINCIDENT (MW) WINTER	SUMMER	COINCIDENT (MW) (EST. BEFORE 1984) WINTER	SUMMER
ACTUAL	2001	5,864,880	6,120,565	4.27%	4.53%	*****	1,285	1,274	1,164	1,186
ACTUAL	2002	6,314,792	6,601,076	4.45%	4.78%	*****	1,211	1,346	1,139	1,224
ACTUAL	2003	6,320,460	6,593,765	4.26%	4.26%	*****	1,354	1,313	1,264	1,219
ACTUAL	2004	6,549,574	6,831,967	4.25%	4.81%	*****	1,381	1,321	1,268	1,243
ACTUAL	2005	6,850,535	7,115,875	3.83%	4.22%	*****	1,429	1,472	1,325	1,392
ACTUAL	2006	6,802,245	7,090,943	4.19%	4.47%	*****	1,413	1,502	1,324	1,400
ACTUAL	2007	7,215,322	7,532,943	4.33%	4.84%	*****	1,532	1,558	1,415	1,413
ACTUAL	2008	7,193,537	7,470,277	3.80%	5.10%	*****	1,576	1,442	1,440	1,289
ACTUAL	2009	6,898,809	7,173,589	3.93%	4.86%	*****	1,674	1,453	1,519	1,307
ACTUAL	2010	7,338,210	7,656,457	4.25%	4.73%	*****	1,539	1,577	1,369	1,450
ACTUAL	2011	7,133,534	7,429,606	4.07%	4.19%	*****	1,552	1,579	1,394	1,435
FRCST	2012	7,260,506	7,505,959	3.35%	3.77%	74.770	1,546	1,535	1,421	1,401
FRCST	2013	7,310,806	7,599,063	3.88%	4.53%	76.120	1,554	1,546	1,428	1,412
FRCST	2014	7,515,351	7,811,866	3.88%	4.53%	76.260	1,593	1,599	1,463	1,458
FRCST	2015	7,735,132	8,040,521	3.88%	4.53%	79.660	1,636	1,635	1,501	1,491
FRCST	2016	7,929,799	8,243,047	3.88%	4.53%	82.730	1,667	1,680	1,529	1,530
FRCST	2017	8,133,374	8,454,840	3.88%	4.53%	86.790	1,711	1,709	1,568	1,557
FRCST	2018	8,248,632	8,574,752	3.88%	4.53%	88.520	1,729	1,730	1,584	1,576
FRCST	2019	8,380,827	8,712,284	3.88%	4.53%	90.290	1,752	1,754	1,605	1,597
FRCST	2020	8,506,461	8,842,990	3.88%	4.53%	92.100	1,776	1,780	1,627	1,621
FRCST	2021	8,633,112	8,974,755	3.88%	4.53%	93.940	1,799	1,807	1,648	1,645
FRCST	2022	8,764,911	9,111,875	3.88%	4.53%	95.820	1,823	1,833	1,670	1,668
FRCST	2023	8,875,774	9,227,214	3.88%	4.53%	97.740	1,843	1,855	1,688	1,688
FRCST	2024	8,997,443	9,353,795	3.88%	4.53%	99.690	1,865	1,879	1,708	1,710
FRCST	2025	9,128,006	9,489,630	3.88%	4.53%	101.680	1,889	1,905	1,730	1,734
FRCST	2026	9,264,231	9,631,354	3.88%	4.53%	103.710	1,914	1,933	1,753	1,760
FRCST	2027	9,410,582	9,783,613	3.88%	4.53%	105.780	1,944	1,963	1,780	1,787
FRCST	2028	9,559,452	9,938,494	3.88%	4.53%	105.780	1,976	1,994	1,809	1,816
FRCST	2029	9,678,912	10,062,777	3.88%	4.53%	105.780	2,001	2,018	1,834	1,839
FRCST	2030	9,841,109	10,231,523	3.88%	4.53%	105.780	2,035	2,052	1,865	1,870
FRCST	2031	10,011,533	10,408,827	3.88%	4.53%	105.780	2,071	2,087	1,899	1,902
FRCST	2032	10,185,944	10,590,279	3.88%	4.53%	105.780	2,107	2,123	1,932	1,936

***** HIGH SCENARIO WITH DSM IMPACTS ***** | ***** HIGH SCENARIO WITH DSM IMPACTS *****

TIME PERIOD	AGGREGATED TOTAL ENERGY PURCHASED (% CHG.)	H.E. ENERGY GENERATED FOR MEMBERS (% CHG.)	AVG. MONTHLY LOSS FACTORS due to MEMBERS ENERGY (AVERAGE)	DEMAND (AVERAGE)	H.E. AVERAGE WHOLESALE POWER COSTS (% CHG.)	AGGREGATED MEMBER PEAK SEASONAL DEMANDS (WITHOUT LOSSES, 30 MINUTE DEMAND) Non-Coincident (% Chg) WINTER	SUMMER	Coincident (% Chg) WINTER	SUMMER
2001 -2006	3.01%	2.99%	4.21%	4.51%	*****	1.91%	3.34%	2.61%	3.37%
2006 -2011	0.96%	0.94%	4.10%	4.70%	*****	1.89%	1.00%	1.03%	0.51%
2012 -2017	2.30%	2.41%	3.79%	4.40%	3.03%	2.04%	2.18%	1.98%	2.12%
2017 -2022	1.51%	1.51%	3.88%	4.53%	2.00%	1.28%	1.40%	1.27%	1.39%
2022 -2027	1.43%	1.43%	3.88%	4.53%	2.00%	1.29%	1.39%	1.29%	1.39%
2027 -2032	1.60%	1.60%	3.88%	4.53%	0.00%	1.63%	1.58%	1.66%	1.61%
2001 -2011	1.98%	1.96%	4.15%	4.62%	*****	1.90%	2.17%	1.81%	1.93%
2012 -2032	1.71%	1.74%	3.86%	4.49%	1.75%	1.56%	1.64%	1.55%	1.63%

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* HIGH SCENARIO WITH DSM IMPACTS ******* (Coincident) | ******* HIGH SCENARIO WITH DSM IMPACTS ******* (Non-Coincident)

		HOOSIER ENERGY SYSTEM PEAK SEASONAL COINCIDENT DEMAND (MW) (All values are estimated 60 minute values)				H.E. ANNUAL LOAD FACTOR Due To COINCIDENT PEAK	HOOSIER ENERGY SYSTEM PEAK SEASONAL NON-COINCIDENT DEMAND (MW) (All values are estimated 60 minute values)				H.E. ANNUAL LOAD FACTOR Due To NON-COIN. PEAK
		(WITHOUT LOSSES)		(WITH LOSSES)			(WITHOUT LOSSES)		(WITH LOSSES)		
	YEAR	WINTER	SUMMER	WINTER	SUMMER		WINTER	SUMMER	WINTER	SUMMER	
ACTUAL	2001	1,150	1,171	1,204	1,226	57.0%	1,270	1,258	1,329	1,317	52.6%
ACTUAL	2002	1,092	1,211	1,146	1,271	59.3%	1,164	1,332	1,220	1,397	53.9%
ACTUAL	2003	1,237	1,205	1,291	1,257	58.3%	1,331	1,296	1,389	1,353	54.2%
ACTUAL	2004	1,252	1,223	1,314	1,283	59.2%	1,361	1,300	1,428	1,364	54.5%
ACTUAL	2005	1,292	1,377	1,347	1,436	56.6%	1,393	1,457	1,453	1,519	53.5%
ACTUAL	2006	1,292	1,380	1,351	1,443	56.1%	1,379	1,481	1,442	1,549	52.3%
ACTUAL	2007	1,381	1,410	1,450	1,480	58.1%	1,496	1,555	1,570	1,632	52.7%
ACTUAL	2008	1,425	1,269	1,500	1,336	56.7%	1,559	1,419	1,641	1,493	51.8%
ACTUAL	2009	1,517	1,304	1,593	1,370	51.4%	1,672	1,450	1,756	1,522	46.6%
ACTUAL	2010	1,358	1,443	1,424	1,513	57.8%	1,526	1,570	1,600	1,646	53.1%
ACTUAL	2011	1,379	1,429	1,438	1,491	56.9%	1,536	1,573	1,601	1,640	51.7%
FRCST	2012	1,412	1,396	1,466	1,450	58.3%	1,536	1,529	1,595	1,588	53.6%
FRCST	2013	1,419	1,406	1,485	1,472	58.4%	1,544	1,540	1,616	1,612	53.7%
FRCST	2014	1,453	1,453	1,521	1,521	58.6%	1,583	1,593	1,656	1,667	53.5%
FRCST	2015	1,490	1,485	1,560	1,555	58.8%	1,625	1,629	1,701	1,705	53.8%
FRCST	2016	1,518	1,524	1,589	1,596	58.8%	1,656	1,673	1,733	1,751	53.6%
FRCST	2017	1,557	1,551	1,630	1,623	59.2%	1,700	1,703	1,779	1,782	54.2%
FRCST	2018	1,574	1,569	1,647	1,643	59.4%	1,717	1,723	1,797	1,803	54.3%
FRCST	2019	1,594	1,591	1,669	1,665	59.6%	1,740	1,747	1,821	1,829	54.4%
FRCST	2020	1,616	1,614	1,692	1,690	59.5%	1,764	1,773	1,846	1,856	54.2%
FRCST	2021	1,637	1,638	1,714	1,715	59.7%	1,787	1,800	1,871	1,884	54.4%
FRCST	2022	1,659	1,662	1,736	1,740	59.8%	1,811	1,826	1,896	1,911	54.4%
FRCST	2023	1,676	1,682	1,755	1,760	59.8%	1,831	1,847	1,916	1,934	54.5%
FRCST	2024	1,696	1,704	1,776	1,784	59.7%	1,853	1,872	1,939	1,959	54.4%
FRCST	2025	1,718	1,728	1,798	1,809	59.9%	1,876	1,898	1,964	1,987	54.5%
FRCST	2026	1,741	1,753	1,822	1,835	59.9%	1,902	1,926	1,990	2,016	54.5%
FRCST	2027	1,768	1,780	1,851	1,864	59.9%	1,931	1,956	2,021	2,047	54.6%
FRCST	2028	1,797	1,808	1,881	1,893	59.8%	1,962	1,986	2,054	2,079	54.4%
FRCST	2029	1,821	1,832	1,907	1,917	59.9%	1,988	2,010	2,081	2,104	54.6%
FRCST	2030	1,853	1,862	1,940	1,950	59.9%	2,021	2,044	2,116	2,139	54.6%
FRCST	2031	1,886	1,895	1,974	1,984	59.9%	2,057	2,079	2,153	2,176	54.6%
FRCST	2032	1,919	1,928	2,009	2,019	59.7%	2,093	2,115	2,191	2,214	54.5%

***** HIGH SCENARIO WITH DSM IMPACTS ***** | ***** HIGH SCENARIO WITH DSM IMPACTS *****

	HOOSIER ENERGY COINCIDENT PEAK DEMAND (60 MINUTE VALUE, ALL VALUES EST.)				H.E. ANNUAL COINCIDENT LOAD FACTOR (AVERAGE)	HOOSIER ENERGY NON-COINCIDENT PEAK DEMAND (60 MINUTE VALUE, ALL VALUES EST.)				H.E. ANNUAL NON-COIN. LOAD FACTOR (AVERAGE)
	Without Losses (% Chg)		With Losses (% Chg)			Without Losses (% Chg)		With Losses (% Chg)		
TIME PERIOD	WINTER	SUMMER	WINTER	SUMMER		WINTER	SUMMER	WINTER	SUMMER	
2001 -2006	2.36%	3.33%	2.34%	3.32%	57.74%	1.66%	3.32%	1.64%	3.30%	53.48%
2006 -2011	1.31%	0.70%	1.25%	0.65%	56.16%	2.17%	1.21%	2.11%	1.15%	51.37%
2012 -2017	1.98%	2.12%	2.14%	2.28%	58.70%	2.04%	2.18%	2.20%	2.34%	53.72%
2017 -2022	1.27%	1.39%	1.27%	1.39%	59.55%	1.28%	1.40%	1.28%	1.40%	54.32%
2022 -2027	1.29%	1.39%	1.29%	1.39%	59.84%	1.29%	1.39%	1.29%	1.39%	54.48%
2027 -2032	1.66%	1.61%	1.66%	1.61%	59.85%	1.63%	1.58%	1.63%	1.58%	54.54%
2001 -2011	1.83%	2.01%	1.80%	1.98%	57.03%	1.91%	2.26%	1.88%	2.22%	52.44%
2012 -2032	1.55%	1.63%	1.59%	1.67%	59.46%	1.56%	1.64%	1.60%	1.68%	54.25%

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

		***** HIGH SCENARIO WITH DSM IMPACTS *****					***** HIGH SCENARIO WITH DSM IMPACTS *****				
		**** EXTREME TEMPERATURE CONDITIONS **** HOOSIER ENERGY SYSTEM PEAK SEASONAL COINCIDENT DEMAND (MW); 60 MINUTE VALUE				H.E. ANNUAL LOAD FACTOR Due to EXTREME COINCIDENT PEAK	**** EXTREME TEMPERATURE CONDITIONS **** HOOSIER ENERGY SYSTEM PEAK SEASONAL NON-COINCIDENT DEMAND (MW); 60 MINUTE VALUE				H.E. ANNUAL LOAD FACTOR Due To EXTREME NON-COIN. PEAK
		(WITHOUT LOSSES)		(WITH LOSSES)			(WITHOUT LOSSES)		(WITH LOSSES)		
	YEAR	WINTER	SUMMER	WINTER	SUMMER		WINTER	SUMMER	WINTER	SUMMER	
ACTUAL	2001	******	******	******	******	******	******	******	******	******	******
ACTUAL	2002	******	******	******	******	******	******	******	******	******	******
ACTUAL	2003	******	******	******	******	******	******	******	******	******	******
ACTUAL	2004	******	******	******	******	******	******	******	******	******	******
ACTUAL	2005	******	******	******	******	******	******	******	******	******	******
ACTUAL	2006	******	******	******	******	******	******	******	******	******	******
ACTUAL	2007	******	******	******	******	******	******	******	******	******	******
ACTUAL	2008	******	******	******	******	******	******	******	******	******	******
ACTUAL	2009	******	******	******	******	******	******	******	******	******	******
ACTUAL	2010	******	******	******	******	******	******	******	******	******	******
ACTUAL	2011	******	******	******	******	******	******	******	******	******	******
FRCST	2012	1,560	1,534	1,621	1,593	52.7%	1,696	1,678	1,761	1,743	48.5%
FRCST	2013	1,569	1,545	1,642	1,618	52.8%	1,705	1,690	1,784	1,769	48.6%
FRCST	2014	1,607	1,597	1,682	1,671	53.0%	1,748	1,749	1,830	1,830	48.7%
FRCST	2015	1,648	1,632	1,725	1,708	53.2%	1,794	1,788	1,878	1,871	48.9%
FRCST	2016	1,679	1,674	1,758	1,753	53.4%	1,829	1,836	1,914	1,921	48.8%
FRCST	2017	1,721	1,703	1,801	1,783	53.6%	1,875	1,867	1,963	1,954	49.2%
FRCST	2018	1,739	1,724	1,820	1,804	53.8%	1,895	1,890	1,983	1,978	49.4%
FRCST	2019	1,762	1,748	1,845	1,830	53.9%	1,920	1,917	2,010	2,006	49.5%
FRCST	2020	1,787	1,774	1,870	1,857	53.8%	1,947	1,946	2,038	2,036	49.4%
FRCST	2021	1,811	1,800	1,896	1,885	54.0%	1,974	1,975	2,066	2,067	49.6%
FRCST	2022	1,835	1,826	1,921	1,912	54.2%	2,000	2,003	2,094	2,097	49.6%
FRCST	2023	1,855	1,848	1,942	1,935	54.2%	2,023	2,028	2,117	2,123	49.6%
FRCST	2024	1,878	1,873	1,966	1,961	54.2%	2,048	2,055	2,143	2,151	49.5%
FRCST	2025	1,902	1,900	1,992	1,989	54.4%	2,074	2,084	2,171	2,182	49.7%
FRCST	2026	1,928	1,928	2,019	2,019	54.5%	2,103	2,115	2,201	2,214	49.7%
FRCST	2027	1,958	1,958	2,050	2,050	54.5%	2,136	2,148	2,235	2,248	49.7%
FRCST	2028	1,991	1,989	2,084	2,083	54.3%	2,170	2,182	2,272	2,284	49.5%
FRCST	2029	2,018	2,015	2,113	2,110	54.4%	2,199	2,209	2,302	2,312	49.7%
FRCST	2030	2,053	2,049	2,149	2,146	54.3%	2,236	2,246	2,341	2,351	49.7%
FRCST	2031	2,090	2,085	2,188	2,183	54.3%	2,276	2,285	2,382	2,392	49.7%
FRCST	2032	2,127	2,122	2,227	2,222	54.1%	2,316	2,325	2,424	2,433	49.5%

	***** HIGH SCENARIO WITH DSM IMPACTS *****					***** HIGH SCENARIO WITH DSM IMPACTS *****				
	***** EXTREME TEMPERATURE CONDITIONS ***** HOOSIER ENERGY COINCIDENT PEAK (60 MIN.)				EXTREME COIN. H.E. ANNUAL LOAD FACTOR	***** EXTREME TEMPERATURE CONDITIONS ***** HOOSIER ENERGY NON-COINCIDENT PEAK (60 MIN.)				EXT.NON-COIN H.E. ANNUAL LOAD FACTOR
	Without Losses (% Chg)		With Losses (% Chg)			Without Losses (% Chg)		With Losses (% Chg)		
TIME PERIOD	WINTER	SUMMER	WINTER	SUMMER	(AVERAGE)	WINTER	SUMMER	WINTER	SUMMER	(AVERAGE)
2001 -2006	******	******	******	******	******	******	******	******	******	******
2006 -2011	******	******	******	******	******	******	******	******	******	******
2012 -2017	1.98%	2.11%	2.14%	2.27%	53.13%	2.03%	2.16%	2.19%	2.32%	48.79%
2017 -2022	1.29%	1.41%	1.29%	1.41%	53.88%	1.30%	1.42%	1.30%	1.42%	49.43%
2022 -2027	1.31%	1.41%	1.31%	1.41%	54.31%	1.32%	1.40%	1.32%	1.40%	49.62%
2027 -2032	1.67%	1.62%	1.67%	1.62%	54.32%	1.64%	1.59%	1.64%	1.60%	49.64%
2001 -2011	******	******	******	******	******	******	******	******	******	******
2012 -2032	1.56%	1.64%	1.60%	1.68%	53.89%	1.57%	1.64%	1.61%	1.68%	49.35%

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

		***** HIGH SCENARIO WITH DSM IMPACTS ***** **** Adjusted for IN #72, IN #16, IN#92, and IL#002 **** Aggregated Member System Data NUMBER OF CONSUMERS					***** HIGH SCENARIO WITH DSM IMPACTS ***** **** Adjusted for IN #72, IN #16, IN#92, and IL#002 **** Aggregated Member System Data SYSTEM ENERGY SALES TO END CONSUMERS (MWH)				
	YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL
ACTUAL	2001	219,228	10,003	132	1,093	230,456	3,052,360	639,446	1,164,603	31,271	4,887,680
ACTUAL	2002	223,044	10,265	139	1,144	234,592	3,261,617	663,738	1,272,906	32,441	5,230,702
ACTUAL	2003	226,749	10,462	151	1,293	238,655	3,243,405	673,235	1,316,094	32,150	5,264,884
ACTUAL	2004	230,760	10,690	151	1,429	243,030	3,305,807	706,497	1,403,535	33,098	5,448,937
ACTUAL	2005	257,250	11,810	165	1,573	270,798	3,749,514	774,714	1,484,489	33,634	6,042,351
ACTUAL	2006	260,854	11,986	169	1,707	274,716	3,856,899	824,354	1,545,582	32,678	6,259,513
ACTUAL	2007	263,908	12,246	191	1,821	278,166	4,088,777	855,093	1,620,151	34,240	6,598,261
ACTUAL	2008	265,071	12,166	200	1,833	279,270	4,080,904	856,375	1,630,203	33,209	6,600,691
ACTUAL	2009	265,137	12,281	192	1,836	279,446	3,904,139	818,798	1,564,440	31,738	6,319,115
ACTUAL	2010	265,890	12,407	193	1,851	280,341	4,158,336	843,557	1,712,254	33,075	6,747,222
ACTUAL	2011	277,750	13,765	210	2,498	294,223	4,093,232	901,705	1,806,351	40,873	6,842,161
FRCST	2012	279,926	13,934	217	2,563	296,640	4,010,435	921,829	1,962,008	46,873	6,941,145
FRCST	2013	282,608	14,095	214	2,563	299,480	4,028,651	929,268	1,984,485	46,873	6,989,277
FRCST	2014	285,520	14,256	211	2,563	302,550	4,069,588	943,002	2,125,434	46,873	7,184,897
FRCST	2015	288,616	14,421	210	2,563	305,810	4,113,146	954,867	2,279,232	46,873	7,394,118
FRCST	2016	291,834	14,585	210	2,563	309,192	4,184,277	967,019	2,381,916	46,873	7,580,085
FRCST	2017	295,291	14,752	209	2,563	312,815	4,262,786	979,377	2,485,380	46,873	7,774,415
FRCST	2018	298,995	14,971	206	2,563	316,735	4,336,799	992,453	2,508,126	46,873	7,884,251
FRCST	2019	302,718	15,188	206	2,563	320,675	4,409,246	1,006,452	2,548,008	46,873	8,010,579
FRCST	2020	306,510	15,408	206	2,563	324,687	4,485,302	1,020,680	2,577,767	46,873	8,130,622
FRCST	2021	310,251	15,633	206	2,563	328,653	4,562,888	1,035,167	2,606,699	46,873	8,251,627
FRCST	2022	314,063	15,859	206	2,563	332,691	4,644,441	1,049,904	2,636,326	46,873	8,377,544
FRCST	2023	318,111	16,128	206	2,563	337,008	4,719,711	1,067,241	2,649,504	46,873	8,483,330
FRCST	2024	322,195	16,401	206	2,563	341,365	4,803,572	1,086,207	2,662,755	46,873	8,599,407
FRCST	2025	326,346	16,673	206	2,563	345,788	4,892,088	1,108,906	2,676,066	46,873	8,723,933
FRCST	2026	330,601	16,951	206	2,563	350,321	4,987,321	1,130,196	2,689,447	46,873	8,853,837
FRCST	2027	334,918	17,228	206	2,563	354,915	5,090,581	1,153,026	2,702,895	46,873	8,993,375
FRCST	2028	339,415	17,555	206	2,563	359,739	5,192,812	1,179,249	2,716,410	46,873	9,135,344
FRCST	2029	344,048	17,885	205	2,563	364,701	5,302,134	1,205,806	2,694,084	46,873	9,248,897
FRCST	2030	348,845	18,216	205	2,563	369,829	5,416,453	1,232,629	2,707,550	46,873	9,403,505
FRCST	2031	353,794	18,549	205	2,563	375,111	5,538,335	1,259,644	2,721,090	46,873	9,565,943
FRCST	2032	358,844	18,887	205	2,563	380,499	5,663,656	1,286,933	2,734,694	46,873	9,732,155

	***** HIGH SCENARIO WITH DSM IMPACTS ***** Adjusted for Systems -- AGGREGATED NUMBER OF CONSUMERS					***** HIGH SCENARIO WITH DSM IMPACTS ***** Adjusted for Systems -- AGGREGATED ENERGY SALES				
TIME PERIOD	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (ACT.CHG.)	OTHER (ACT.CHG.)	TOTAL (% CHG.)	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (% CHG.)	OTHER (% CHG.)	TOTAL (% CHG.)
2001 -2006	3.54%	3.68%	37	614	3.58%	4.79%	5.21%	5.82%	0.88%	5.07%
2006 -2011	1.26%	2.81%	41	791	1.38%	1.20%	1.81%	3.17%	4.58%	1.80%
2012 -2017	1.07%	1.15%	-8	0	1.07%	1.23%	1.22%	4.84%	0.00%	2.29%
2017 -2022	1.24%	1.46%	-3	0	1.24%	1.73%	1.40%	1.19%	0.00%	1.51%
2022 -2027	1.29%	1.67%	0	0	1.30%	1.85%	1.89%	0.50%	0.00%	1.43%
2027 -2032	1.39%	1.86%	-1	0	1.40%	2.16%	2.22%	0.23%	0.00%	1.59%
2001 -2011	2.39%	3.24%	78	1405	2.47%	2.98%	3.50%	4.49%	2.71%	3.42%
2012 -2032	1.25%	1.53%	-12	0	1.25%	1.74%	1.68%	1.67%	0.00%	1.70%

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

***** HIGH SCENARIO WITH DSM IMPACTS ***** ***** HIGH SCENARIO WITH DSM IMPACTS *****

Energy and Demand Values Adjusted for IN #72, IN # 16, IN#92, and IL#002

	YEAR	AGGREGATED TOTAL MEMBER ENERGY PURCHASED (MWH)	ENERGY GENERATED FOR MEMBERS (MWH)	AGGREGATED MEMBER 30 MIN. COINCIDENT PEAK W/O LOSSES (MW) WINTER	SUMMER	HE COINCIDENT 60 MINUTE DEMAND (MW) (EST. BEFORE 1984) (WITHOUT LOSSES) WINTER	SUMMER	(WITH LOSSES) WINTER	SUMMER	ANNUAL LOAD FACTOR
ACTUAL	2001	5,106,079	5,327,900	1,015	1,031	1,002	1,018	1,049	1,065	57.1%
ACTUAL	2002	5,499,105	5,747,381	1,000	1,071	959	1,060	1,006	1,112	59.0%
ACTUAL	2003	5,527,292	5,765,328	1,101	1,063	1,077	1,050	1,123	1,095	58.6%
ACTUAL	2004	5,736,200	5,982,496	1,104	1,083	1,090	1,065	1,143	1,118	59.6%
ACTUAL	2005	6,332,029	6,576,718	1,162	1,331	1,133	1,317	1,181	1,374	54.6%
ACTUAL	2006	6,525,204	6,801,791	1,283	1,344	1,252	1,325	1,310	1,385	56.1%
ACTUAL	2007	6,924,233	7,228,689	1,378	1,350	1,345	1,348	1,412	1,415	58.3%
ACTUAL	2008	6,912,387	7,178,009	1,395	1,245	1,381	1,226	1,453	1,290	56.2%
ACTUAL	2009	6,617,661	6,880,934	1,472	1,247	1,470	1,244	1,544	1,306	50.9%
ACTUAL	2010	7,043,826	7,349,006	1,320	1,392	1,309	1,385	1,372	1,452	57.8%
ACTUAL	2011	7,133,534	7,429,606	1,394	1,435	1,379	1,429	1,438	1,491	56.9%
FRCST	2012	7,260,506	7,505,959	1,421	1,401	1,412	1,396	1,466	1,450	58.3%
FRCST	2013	7,310,806	7,599,063	1,428	1,412	1,419	1,406	1,485	1,472	58.4%
FRCST	2014	7,515,351	7,811,866	1,463	1,458	1,453	1,453	1,521	1,521	58.6%
FRCST	2015	7,735,132	8,040,521	1,501	1,491	1,490	1,485	1,560	1,555	58.8%
FRCST	2016	7,929,799	8,243,047	1,529	1,530	1,518	1,524	1,589	1,596	58.8%
FRCST	2017	8,133,374	8,454,840	1,568	1,557	1,557	1,551	1,630	1,623	59.2%
FRCST	2018	8,248,632	8,574,752	1,584	1,576	1,574	1,569	1,647	1,643	59.4%
FRCST	2019	8,380,827	8,712,284	1,605	1,597	1,594	1,591	1,669	1,665	59.6%
FRCST	2020	8,506,461	8,842,990	1,627	1,621	1,616	1,614	1,692	1,690	59.5%
FRCST	2021	8,633,112	8,974,755	1,648	1,645	1,637	1,638	1,714	1,715	59.7%
FRCST	2022	8,764,911	9,111,875	1,670	1,668	1,659	1,662	1,736	1,740	59.8%
FRCST	2023	8,875,774	9,227,214	1,688	1,688	1,676	1,682	1,755	1,760	59.8%
FRCST	2024	8,997,443	9,353,795	1,708	1,710	1,696	1,704	1,776	1,784	59.7%
FRCST	2025	9,128,006	9,489,630	1,730	1,734	1,718	1,728	1,798	1,809	59.9%
FRCST	2026	9,264,231	9,631,354	1,753	1,760	1,741	1,753	1,822	1,835	59.9%
FRCST	2027	9,410,582	9,783,613	1,780	1,787	1,768	1,780	1,851	1,864	59.9%
FRCST	2028	9,559,452	9,938,494	1,809	1,816	1,797	1,808	1,881	1,893	59.8%
FRCST	2029	9,678,912	10,062,777	1,834	1,839	1,821	1,832	1,907	1,917	59.9%
FRCST	2030	9,841,109	10,231,523	1,865	1,870	1,853	1,862	1,940	1,950	59.9%
FRCST	2031	10,011,533	10,408,827	1,899	1,902	1,886	1,895	1,974	1,984	59.9%
FRCST	2032	10,185,944	10,590,279	1,932	1,936	1,919	1,928	2,009	2,019	59.7%

***** HIGH SCENARIO WITH DSM IMPACTS ***** ***** HIGH SCENARIO WITH DSM IMPACTS *****

TIME PERIOD	Adjusted for Systems ENERGY PURCHASED (% CHG.)	ENERGY GENERATED (% CHG.)	Adjusted for Systems AGGREGATED 30 MIN. COIN. PEAK W/O LOSSES (% CHG) WINTER	SUMMER	Adjusted for Systems -- HE COIN. 60 MINUTE DEMAND Without Losses (% Chg) WINTER	SUMMER	With Losses (% Chg) WINTER	SUMMER	ADJUSTED ANNUAL LOAD FACTOR (AVERAGE)
2001 -2006	5.03%	5.01%	4.81%	5.45%	4.56%	5.41%	4.54%	5.40%	57.50%
2006 -2011	1.80%	1.78%	1.67%	1.33%	1.95%	1.53%	1.89%	1.48%	56.02%
2012 -2017	2.30%	2.41%	1.98%	2.12%	1.98%	2.12%	2.14%	2.28%	58.70%
2017 -2022	1.51%	1.51%	1.27%	1.39%	1.27%	1.39%	1.27%	1.39%	59.55%
2022 -2027	1.43%	1.43%	1.29%	1.39%	1.29%	1.39%	1.29%	1.39%	59.84%
2027 -2032	1.60%	1.60%	1.66%	1.61%	1.66%	1.61%	1.66%	1.61%	59.85%
2001 -2011	3.40%	3.38%	3.23%	3.37%	3.24%	3.45%	3.21%	3.42%	56.82%
2012 -2032	1.71%	1.74%	1.55%	1.63%	1.55%	1.63%	1.59%	1.67%	59.46%

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* HIGH SCENARIO WITH DSM IMPACTS ******* ******* HIGH SCENARIO RESULTS *******

Energy and Demand Values Adjusted for IN #72, IN #16, IN#92, and IL#002

EXTREME COINCIDENT 60 MINUTE DEMAND (MW) (EST. BEFORE 1984)

	YEAR	WINTER (WITHOUT LOSSES)	SUMMER (WITHOUT LOSSES)	WINTER (WITH LOSSES)	SUMMER (WITH LOSSES)	EXTREME ANNUAL LOAD FACTOR
ACTUAL	2001	*****	*****	*****	*****	*****
ACTUAL	2002	*****	*****	*****	*****	*****
ACTUAL	2003	*****	*****	*****	*****	*****
ACTUAL	2004	*****	*****	*****	*****	*****
ACTUAL	2005	*****	*****	*****	*****	*****
ACTUAL	2006	*****	*****	*****	*****	*****
ACTUAL	2007	*****	*****	*****	*****	*****
ACTUAL	2008	*****	*****	*****	*****	*****
ACTUAL	2009	*****	*****	*****	*****	*****
ACTUAL	2010	*****	*****	*****	*****	*****
ACTUAL	2011	*****	*****	*****	*****	*****
FRCST	2012	1,560	1,534	1,621	1,593	52.7%
FRCST	2013	1,569	1,545	1,642	1,618	52.8%
FRCST	2014	1,607	1,597	1,682	1,671	53.0%
FRCST	2015	1,648	1,632	1,725	1,708	53.2%
FRCST	2016	1,679	1,674	1,758	1,753	53.4%
FRCST	2017	1,721	1,703	1,801	1,783	53.6%
FRCST	2018	1,739	1,724	1,820	1,804	53.8%
FRCST	2019	1,762	1,748	1,845	1,830	53.9%
FRCST	2020	1,787	1,774	1,870	1,857	53.8%
FRCST	2021	1,811	1,800	1,896	1,885	54.0%
FRCST	2022	1,835	1,826	1,921	1,912	54.2%
FRCST	2023	1,855	1,848	1,942	1,935	54.2%
FRCST	2024	1,878	1,873	1,966	1,961	54.2%
FRCST	2025	1,902	1,900	1,992	1,989	54.4%
FRCST	2026	1,928	1,928	2,019	2,019	54.5%
FRCST	2027	1,958	1,958	2,050	2,050	54.5%
FRCST	2028	1,991	1,989	2,084	2,083	54.3%
FRCST	2029	2,018	2,015	2,113	2,110	54.4%
FRCST	2030	2,053	2,049	2,149	2,146	54.3%
FRCST	2031	2,090	2,085	2,188	2,183	54.3%
FRCST	2032	2,127	2,122	2,227	2,222	54.1%

***** HIGH SCENARIO WITH DSM IMPACTS ***** ***** HIGH SCENARIO RESULTS *****

Adjusted for Systems HE EXT. COIN. 60 MINUTE DEMAND

TIME PERIOD	WINTER Without Losses (% Chg)	SUMMER Without Losses (% Chg)	WINTER With Losses (% Chg)	SUMMER With Losses (% Chg)	ADJUSTED EXT. ANNUAL LOAD FACTOR (AVERAGE)
2001 -2006	*****	*****	*****	*****	*****
2006 -2011	*****	*****	*****	*****	*****
2012 -2017	1.98%	2.11%	2.14%	2.27%	53.13%
2017 -2022	1.29%	1.41%	1.29%	1.41%	53.88%
2022 -2027	1.31%	1.41%	1.31%	1.41%	54.31%
2027 -2032	1.67%	1.62%	1.67%	1.62%	54.32%
2001 -2011	*****	*****	*****	*****	*****
2012 -2032	1.56%	1.64%	1.60%	1.68%	53.89%

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

		***** HIGH SCENARIO WITH DSM IMPACTS *****					***** HIGH SCENARIO WITH DSM IMPACTS *****				
		Values Adjusted for IN#72,IN#16,IN#92,IL#002 and Special Industrial Loads					**Values Adjusted for IN#72,IN#16,IN#92,IL#002 and Special Industrial Loads**				
		Aggregated Member System Data NUMBER OF CONSUMERS					Aggregated Member System Data SYSTEM ENERGY SALES TO END CONSUMERS (MWH)				
	YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL
ACTUAL	2001	219,228	10,003	132	1,093	230,456	3,052,360	639,446	1,029,201	31,271	4,752,278
ACTUAL	2002	223,044	10,265	138	1,144	234,591	3,261,617	663,738	1,102,023	32,441	5,059,819
ACTUAL	2003	226,749	10,462	150	1,293	238,654	3,243,405	673,235	1,142,196	32,150	5,090,986
ACTUAL	2004	230,760	10,690	150	1,429	243,029	3,305,807	706,497	1,217,305	33,098	5,262,707
ACTUAL	2005	257,250	11,810	164	1,573	270,797	3,749,514	774,714	1,295,926	33,634	5,853,788
ACTUAL	2006	260,854	11,986	168	1,707	274,715	3,856,899	824,354	1,347,295	32,678	6,061,226
ACTUAL	2007	263,908	12,246	190	1,821	278,165	4,088,777	855,093	1,427,519	34,240	6,405,629
ACTUAL	2008	265,071	12,166	199	1,833	279,269	4,080,904	856,375	1,434,770	33,209	6,405,258
ACTUAL	2009	265,137	12,281	191	1,836	279,445	3,904,139	818,798	1,379,492	31,738	6,134,167
ACTUAL	2010	265,890	12,407	192	1,851	280,340	4,158,336	843,557	1,543,619	33,075	6,578,587
ACTUAL	2011	277,750	13,765	209	2,498	294,222	4,093,232	901,705	1,649,885	40,873	6,685,695
FRCST	2012	279,926	13,934	216	2,563	296,639	4,010,435	921,829	1,790,885	46,873	6,770,022
FRCST	2013	282,608	14,095	213	2,563	299,479	4,028,651	929,268	1,813,485	46,873	6,818,277
FRCST	2014	285,520	14,256	210	2,563	302,549	4,069,588	943,002	1,954,434	46,873	7,013,897
FRCST	2015	288,616	14,421	209	2,563	305,809	4,113,146	954,867	2,108,232	46,873	7,223,118
FRCST	2016	291,834	14,585	209	2,563	309,191	4,184,277	967,019	2,210,916	46,873	7,409,085
FRCST	2017	295,291	14,752	208	2,563	312,814	4,262,786	979,377	2,314,380	46,873	7,603,415
FRCST	2018	298,995	14,971	205	2,563	316,734	4,336,799	992,453	2,337,126	46,873	7,713,251
FRCST	2019	302,718	15,188	205	2,563	320,674	4,409,246	1,006,452	2,377,008	46,873	7,839,579
FRCST	2020	306,510	15,408	205	2,563	324,686	4,485,302	1,020,680	2,406,767	46,873	7,959,622
FRCST	2021	310,251	15,633	205	2,563	328,652	4,562,888	1,035,167	2,435,699	46,873	8,080,627
FRCST	2022	314,063	15,859	205	2,563	332,690	4,644,441	1,049,904	2,465,326	46,873	8,206,544
FRCST	2023	318,111	16,128	205	2,563	337,007	4,719,711	1,067,241	2,478,504	46,873	8,312,330
FRCST	2024	322,195	16,401	205	2,563	341,364	4,803,572	1,086,207	2,491,755	46,873	8,428,407
FRCST	2025	326,346	16,673	205	2,563	345,787	4,892,088	1,108,906	2,505,066	46,873	8,552,933
FRCST	2026	330,601	16,951	205	2,563	350,320	4,987,321	1,130,196	2,518,447	46,873	8,682,837
FRCST	2027	334,918	17,228	205	2,563	354,914	5,090,581	1,153,026	2,531,895	46,873	8,822,375
FRCST	2028	339,415	17,555	205	2,563	359,738	5,192,812	1,179,249	2,545,410	46,873	8,964,344
FRCST	2029	344,048	17,885	204	2,563	364,700	5,302,134	1,205,806	2,523,084	46,873	9,077,897
FRCST	2030	348,845	18,216	204	2,563	369,828	5,416,453	1,232,629	2,536,550	46,873	9,232,505
FRCST	2031	353,794	18,549	204	2,563	375,110	5,538,335	1,259,644	2,550,090	46,873	9,394,943
FRCST	2032	358,844	18,887	204	2,563	380,498	5,663,656	1,286,933	2,563,694	46,873	9,561,155

	***** HIGH SCENARIO WITH DSM IMPACTS *****					***** HIGH SCENARIO WITH DSM IMPACTS *****				
	Adjusted for Systems & Ind. -- AGGREGATED NUMBER OF CONSUMERS					Adjusted for Systems & Ind. -- AGGREGATED ENERGY SALES				
TIME PERIOD	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (ACT.CHG.)	OTHER (ACT.CHG.)	TOTAL (% CHG.)	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (% CHG.)	OTHER (% CHG.)	TOTAL (% CHG.)
2001 -2006	3.54%	3.68%	36	614	3.58%	4.79%	5.21%	5.53%	0.88%	4.99%
2006 -2011	1.26%	2.81%	41	791	1.38%	1.20%	1.81%	4.14%	4.58%	1.98%
2012 -2017	1.07%	1.15%	-8	0	1.07%	1.23%	1.22%	5.26%	0.00%	2.35%
2017 -2022	1.24%	1.46%	-3	0	1.24%	1.73%	1.40%	1.27%	0.00%	1.54%
2022 -2027	1.29%	1.67%	0	0	1.30%	1.85%	1.89%	0.53%	0.00%	1.46%
2027 -2032	1.39%	1.86%	-1	0	1.40%	2.16%	2.22%	0.25%	0.00%	1.62%
2001 -2011	2.39%	3.24%	77	1405	2.47%	2.98%	3.50%	4.83%	2.71%	3.47%
2012 -2032	1.25%	1.53%	-12	0	1.25%	1.74%	1.68%	1.81%	0.00%	1.74%

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

***** HIGH SCENARIO WITH DSM IMPACTS *****

Energy and Demand Values Adjusted for IN#72,IN#16,IN#92,IL#002 and Special Industrial Loads

	YEAR	AGGREGATED TOTAL MEMBER ENERGY PURCHASED (MWH)	ENERGY GENERATED FOR MEMBERS (MWH)	H.E. 30 MINUTE COINCIDENT DEMAND (MW) (WITHOUT LOSSES) WINTER	SUMMER	H.E. COINCIDENT 60 MINUTE DEMAND (MW) (EST. BEFORE 1984) (WITHOUT LOSSES) WINTER	SUMMER	(WITH LOSSES) WINTER	SUMMER	ANNUAL LOAD FACTOR
ACTUAL	2001	4,970,677	5,192,498	987	1,004	976	992	1,022	1,045	56.7%
ACTUAL	2002	5,328,221	5,576,498	968	1,040	929	1,030	965	1,091	58.3%
ACTUAL	2003	5,353,393	5,591,430	1,079	1,040	1,061	1,027	1,106	1,079	57.7%
ACTUAL	2004	5,549,970	5,796,266	1,066	1,055	1,052	1,037	1,106	1,093	59.7%
ACTUAL	2005	6,143,466	6,388,155	1,138	1,305	1,109	1,291	1,150	1,355	53.8%
ACTUAL	2006	6,326,917	6,603,504	1,260	1,322	1,229	1,303	1,283	1,366	55.2%
ACTUAL	2007	6,731,601	7,036,057	1,354	1,337	1,321	1,334	1,387	1,397	57.5%
ACTUAL	2008	6,716,954	6,982,576	1,394	1,235	1,379	1,215	1,442	1,327	55.1%
ACTUAL	2009	6,432,713	6,695,986	1,467	1,232	1,465	1,229	1,525	1,292	50.1%
ACTUAL	2010	6,875,191	7,180,371	1,317	1,373	1,306	1,366	1,357	1,431	57.3%
ACTUAL	2011	6,977,068	7,273,140	1,392	1,424	1,377	1,418	1,453	1,478	56.2%
FRCST	2012	7,089,383	7,334,836	1,401	1,382	1,391	1,377	1,445	1,431	57.8%
FRCST	2013	7,139,806	7,428,063	1,408	1,392	1,398	1,387	1,464	1,453	57.9%
FRCST	2014	7,344,351	7,640,866	1,442	1,439	1,432	1,434	1,500	1,502	58.1%
FRCST	2015	7,564,132	7,869,521	1,480	1,472	1,470	1,466	1,540	1,536	58.4%
FRCST	2016	7,758,799	8,072,047	1,508	1,511	1,498	1,505	1,569	1,577	58.3%
FRCST	2017	7,962,374	8,283,840	1,547	1,537	1,537	1,531	1,610	1,604	58.8%
FRCST	2018	8,077,632	8,403,752	1,564	1,556	1,553	1,550	1,627	1,624	59.0%
FRCST	2019	8,209,827	8,541,284	1,584	1,578	1,574	1,572	1,648	1,646	59.2%
FRCST	2020	8,335,461	8,671,990	1,606	1,601	1,595	1,595	1,671	1,671	59.1%
FRCST	2021	8,462,112	8,803,755	1,628	1,625	1,617	1,619	1,693	1,696	59.3%
FRCST	2022	8,593,911	8,940,875	1,649	1,649	1,638	1,642	1,716	1,720	59.3%
FRCST	2023	8,704,774	9,056,214	1,667	1,669	1,656	1,662	1,734	1,741	59.4%
FRCST	2024	8,826,443	9,182,795	1,687	1,691	1,676	1,685	1,755	1,764	59.2%
FRCST	2025	8,957,006	9,318,630	1,709	1,715	1,697	1,708	1,778	1,789	59.4%
FRCST	2026	9,093,231	9,460,354	1,732	1,741	1,720	1,734	1,802	1,816	59.5%
FRCST	2027	9,239,582	9,612,613	1,759	1,768	1,747	1,761	1,830	1,845	59.5%
FRCST	2028	9,388,452	9,767,494	1,789	1,796	1,776	1,789	1,861	1,874	59.3%
FRCST	2029	9,507,912	9,891,777	1,813	1,819	1,801	1,812	1,886	1,898	59.5%
FRCST	2030	9,670,109	10,060,523	1,845	1,850	1,832	1,843	1,919	1,930	59.5%
FRCST	2031	9,840,533	10,237,827	1,878	1,883	1,865	1,876	1,954	1,965	59.5%
FRCST	2032	10,014,944	10,419,279	1,912	1,917	1,899	1,909	1,989	2,000	59.3%

***** HIGH SCENARIO WITH DSM IMPACTS *****

TIME PERIOD	Adjusted for Systems & Ind ENERGY PURCHASED (% CHG.)	ENERGY GENERATED (% CHG.)	Adj. Sys. & Ind. -- H.E. 30 MINUTE COINCIDENT DEMAND (MW) (WITHOUT LOSSES) WINTER	SUMMER	Adjusted for Sys. & Ind. -- HE COIN. 60 MINUTE DEMAND Without Losses (% Chg) WINTER	SUMMER	With Losses (% Chg) WINTER	SUMMER	ADJUSTED ANNUAL LOAD FACTOR (AVERAGE)
2001 -2006	4.94%	4.93%	5.01%	5.67%	4.72%	5.61%	4.65%	5.50%	56.91%
2006 -2011	1.98%	1.95%	2.01%	1.50%	2.30%	1.71%	2.52%	1.59%	55.23%
2012 -2017	2.35%	2.46%	2.01%	2.15%	2.01%	2.15%	2.17%	2.31%	58.19%
2017 -2022	1.54%	1.54%	1.28%	1.41%	1.28%	1.41%	1.28%	1.41%	59.09%
2022 -2027	1.46%	1.46%	1.30%	1.41%	1.30%	1.41%	1.30%	1.41%	59.39%
2027 -2032	1.62%	1.62%	1.68%	1.63%	1.68%	1.63%	1.68%	1.63%	59.43%
2001 -2011	3.45%	3.43%	3.50%	3.56%	3.50%	3.64%	3.58%	3.53%	56.15%
2012 -2032	1.74%	1.77%	1.57%	1.65%	1.57%	1.65%	1.61%	1.69%	59.00%

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
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1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
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******* HIGH SCENARIO WITH DSM IMPACTS ******* ******* HIGH SCENARIO RESULTS *******

Energy and Demand Values Adjusted for IN#72,IN#16,IN#92,IL#002 and Special Industrial Loads

EXTREME COINCIDENT 60 MINUTE DEMAND (MW) (EST. BEFORE 1984)

		(WITHOUT LOSSES)		(WITH LOSSES)		EXTREME ANNUAL
	YEAR	WINTER	SUMMER	WINTER	SUMMER	LOAD FACTOR
ACTUAL	2001	*****	*****	*****	*****	*****
ACTUAL	2002	*****	*****	*****	*****	*****
ACTUAL	2003	*****	*****	*****	*****	*****
ACTUAL	2004	*****	*****	*****	*****	*****
ACTUAL	2005	*****	*****	*****	*****	*****
ACTUAL	2006	*****	*****	*****	*****	*****
ACTUAL	2007	*****	*****	*****	*****	*****
ACTUAL	2008	*****	*****	*****	*****	*****
ACTUAL	2009	*****	*****	*****	*****	*****
ACTUAL	2010	*****	*****	*****	*****	*****
ACTUAL	2011	*****	*****	*****	*****	*****
FRCST	2012	1,540	1,515	1,600	1,574	52.2%
FRCST	2013	1,548	1,526	1,621	1,598	52.3%
FRCST	2014	1,586	1,577	1,662	1,652	52.5%
FRCST	2015	1,627	1,613	1,705	1,689	52.7%
FRCST	2016	1,658	1,655	1,737	1,734	52.9%
FRCST	2017	1,700	1,684	1,781	1,764	53.1%
FRCST	2018	1,718	1,704	1,800	1,785	53.3%
FRCST	2019	1,742	1,728	1,824	1,810	53.4%
FRCST	2020	1,766	1,754	1,850	1,838	53.4%
FRCST	2021	1,790	1,781	1,875	1,865	53.6%
FRCST	2022	1,814	1,807	1,900	1,893	53.7%
FRCST	2023	1,834	1,829	1,921	1,916	53.8%
FRCST	2024	1,857	1,854	1,945	1,942	53.7%
FRCST	2025	1,882	1,881	1,971	1,970	54.0%
FRCST	2026	1,908	1,909	1,998	1,999	54.0%
FRCST	2027	1,938	1,939	2,030	2,031	54.0%
FRCST	2028	1,970	1,970	2,064	2,064	53.9%
FRCST	2029	1,997	1,996	2,092	2,090	54.0%
FRCST	2030	2,032	2,030	2,129	2,126	54.0%
FRCST	2031	2,069	2,066	2,167	2,164	53.9%
FRCST	2032	2,106	2,103	2,206	2,203	53.8%

***** HIGH SCENARIO WITH DSM IMPACTS ***** ***** HIGH SCENARIO RESULTS *****

Adjusted for Sys. & Ind. HE EXT. COIN. 60 MINUTE DEMAND

	Without Losses (% Chg)		With Losses (% Chg)		ADJUSTED EXT. ANNUAL LOAD FACTOR
TIME PERIOD	WINTER	SUMMER	WINTER	SUMMER	(AVERAGE)
2001 -2006	*****	*****	*****	*****	*****
2006 -2011	*****	*****	*****	*****	*****
2012 -2017	2.00%	2.14%	2.16%	2.30%	52.62%
2017 -2022	1.31%	1.42%	1.31%	1.42%	53.42%
2022 -2027	1.33%	1.42%	1.33%	1.42%	53.88%
2027 -2032	1.68%	1.64%	1.68%	1.64%	53.92%
2001 -2011	*****	*****	*****	*****	*****
2012 -2032	1.58%	1.65%	1.62%	1.69%	53.44%

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* HIGH SCENARIO WITH DSM IMPACTS ******* ******* HIGH SCENARIO WITH DSM IMPACTS *******

		H.E. Time Factor Ratio from 30 to 60 Minute excludes pass-throughs (Est. before 1984)		PERCENTAGE of IN #72 Served by H.E.	IN #72 served by H.E. (Yes=0 , No= 1)		PERCENTAGE of IN #16 Served by H.E.	IN #16 served by H.E. (Yes=0 , No= 1)	
	YEAR	WINTER	SUMMER		WINTER	SUMMER		WINTER	SUMMER
ACTUAL	2001	98.92%	98.85%	100.0%	0	0	100.0%	0	0
ACTUAL	2002	96.00%	99.02%	100.0%	0	0	100.0%	0	0
ACTUAL	2003	98.31%	98.80%	100.0%	0	0	100.0%	0	0
ACTUAL	2004	98.73%	98.31%	100.0%	0	0	100.0%	0	0
ACTUAL	2005	97.45%	98.93%	100.0%	0	0	100.0%	0	0
ACTUAL	2006	97.54%	98.57%	100.0%	0	0	100.0%	0	0
ACTUAL	2007	97.56%	99.78%	100.0%	0	0	100.0%	0	0
ACTUAL	2008	98.92%	98.38%	100.0%	0	0	100.0%	0	0
ACTUAL	2009	99.86%	99.76%	100.0%	0	0	100.0%	0	0
ACTUAL	2010	99.16%	99.49%	100.0%	0	0	100.0%	0	0
ACTUAL	2011	98.92%	99.58%	100.0%	0	0	100.0%	0	0
FRCST	2012	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2013	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2014	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2015	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2016	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2017	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2018	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2019	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2020	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2021	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2022	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2023	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2024	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2025	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2026	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2027	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2028	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2029	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2030	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2031	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2032	99.32%	99.61%	100.00%	0	0	100.00%	0	0

***** HIGH SCENARIO WITH DSM IMPACTS ***** ***** HIGH SCENARIO WITH DSM IMPACTS *****

	HE TIME FACTOR RATIO (30 to 60 MINUTE)	
TIME PERIOD	WINTER (AVERAGE)	SUMMER (AVERAGE)
2001 -2006	97.83%	98.75%
2006 -2011	98.66%	99.26%
2012 -2017	99.32%	99.61%
2017 -2022	99.32%	99.61%
2022 -2027	99.32%	99.61%
2027 -2032	99.32%	99.61%
2001 -2011	98.31%	99.04%
2012 -2032	99.32%	99.61%

VER 2.1	HOOSIER ENERGY REC, INC	2013 POWER REQUIREMENTS STUDY	DISKETTE :	2013 PRS SYSTEM FORECAST
SUM	INDIANA # : IN 106	SUMMARY HISTORICAL AND FORECAST SHEET		File 1 of 3
		ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13	FILE NAME :	HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* HIGH SCENARIO WITH DSM IMPACTS *******

	YEAR	PERCENTAGE of IN #92 Served by H.E.	IN #92 served by H.E. (Yes=0 , No= 1) WINTER	SUMMER	PERCENTAGE of IL #2 Served by H.E.	IL #2 served by H.E. (Yes=0 , No= 1) WINTER	SUMMER
ACTUAL	2001	0.0%	1	1	0.0%	1	1
ACTUAL	2002	0.0%	1	1	0.0%	1	1
ACTUAL	2003	0.0%	1	1	0.0%	1	1
ACTUAL	2004	0.0%	1	1	0.0%	1	1
ACTUAL	2005	51.0%	1	0	0.0%	1	1
ACTUAL	2006	100.0%	0	0	0.0%	1	1
ACTUAL	2007	100.0%	0	0	0.0%	1	1
ACTUAL	2008	100.0%	0	0	0.0%	1	1
ACTUAL	2009	100.0%	0	0	0.0%	1	1
ACTUAL	2010	100.0%	0	0	0.0%	1	1
ACTUAL	2011	100.0%	0	0	100.0%	0	0
FRCST	2012	100.00%	0	0	100.00%	0	0
FRCST	2013	100.00%	0	0	100.00%	0	0
FRCST	2014	100.00%	0	0	100.00%	0	0
FRCST	2015	100.00%	0	0	100.00%	0	0
FRCST	2016	100.00%	0	0	100.00%	0	0
FRCST	2017	100.00%	0	0	100.00%	0	0
FRCST	2018	100.00%	0	0	100.00%	0	0
FRCST	2019	100.00%	0	0	100.00%	0	0
FRCST	2020	100.00%	0	0	100.00%	0	0
FRCST	2021	100.00%	0	0	100.00%	0	0
FRCST	2022	100.00%	0	0	100.00%	0	0
FRCST	2023	100.00%	0	0	100.00%	0	0
FRCST	2024	100.00%	0	0	100.00%	0	0
FRCST	2025	100.00%	0	0	100.00%	0	0
FRCST	2026	100.00%	0	0	100.00%	0	0
FRCST	2027	100.00%	0	0	100.00%	0	0
FRCST	2028	100.00%	0	0	100.00%	0	0
FRCST	2029	100.00%	0	0	100.00%	0	0
FRCST	2030	100.00%	0	0	100.00%	0	0
FRCST	2031	100.00%	0	0	100.00%	0	0
FRCST	2032	100.00%	0	0	100.00%	0	0

***** HIGH SCENARIO WITH DSM IMPACTS *****

TIME PERIOD
2001 -2006
2006 -2011
2012 -2017
2017 -2022
2022 -2027
2027 -2032
2001 -2011
2012 -2032

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

***** HIGH SCENARIO WITH DSM IMPACTS ***** ***** HIGH SCENARIO WITH DSM IMPACTS *****

		DSM EE Program Energy Impact						DSM Demand Impacts-- Both EE & DR Programs) Coincident 60 Minute Demand MW			
	YEAR	Aggregated Total Member Energy Purchased Savings MWH	Percent of Total	Total Member Energy Generated Savings MWH	Percent of Total			Savings w/o Losses Winter	Savings w/o Losses Summer	Savings with Losses Winter	Savings with Losses Summer
ACTUAL	2001										
ACTUAL	2002										
ACTUAL	2003										
ACTUAL	2004										
ACTUAL	2005										
ACTUAL	2006										
ACTUAL	2007										
ACTUAL	2008										
ACTUAL	2009										
ACTUAL	2010										
ACTUAL	2011										
FRCST	2012	104,788	1.5%	108,416	1.5%			40.350	23.815	41.931	24.748
FRCST	2013	125,361	1.7%	130,422	1.7%			46.550	27.668	48.758	28.980
FRCST	2014	144,473	1.9%	150,306	1.9%			55.424	34.284	58.053	35.910
FRCST	2015	161,520	2.1%	168,041	2.1%			64.096	40.998	67.136	42.943
FRCST	2016	155,196	2.0%	161,462	2.0%			67.370	45.571	70.565	47.733
FRCST	2017	147,262	1.8%	153,207	1.8%			70.097	49.998	73.422	52.370
FRCST	2018	150,912	1.8%	157,005	1.8%			75.703	55.729	79.293	58.372
FRCST	2019	159,576	1.9%	166,019	1.9%			82.647	62.058	86.567	65.001
FRCST	2020	170,371	2.0%	177,250	2.0%			87.905	65.349	92.074	68.448
FRCST	2021	181,709	2.1%	189,045	2.1%			93.802	68.599	98.251	71.852
FRCST	2022	193,144	2.2%	200,942	2.2%			100.739	73.468	105.517	76.953
FRCST	2023	206,040	2.3%	214,358	2.3%			107.951	78.348	113.071	82.064
FRCST	2024	217,466	2.4%	226,246	2.4%			114.755	82.782	120.197	86.709
FRCST	2025	225,070	2.5%	234,157	2.5%			121.092	86.576	126.835	90.682
FRCST	2026	232,491	2.5%	241,877	2.5%			127.172	89.826	133.203	94.086
FRCST	2027	233,609	2.5%	243,041	2.5%			129.907	92.145	136.068	96.516
FRCST	2028	235,263	2.4%	244,762	2.4%			131.368	94.265	137.598	98.736
FRCST	2029	237,491	2.4%	247,080	2.4%			132.820	96.435	139.119	101.009
FRCST	2030	240,827	2.4%	250,550	2.4%			135.439	98.830	141.862	103.518
FRCST	2031	243,583	2.4%	253,417	2.4%			137.810	101.082	144.346	105.876
FRCST	2032	246,547	2.4%	256,501	2.4%			140.525	103.334	147.190	108.235

***** HIGH SCENARIO WITH DSM IMPACTS *****

TIME PERIOD										
2001 -2006										
2006 -2011										
2012 -2017										
2017 -2022										
2022 -2027										
2027 -2032										
2001 -2011										
2012 -2032										

VER 2.1 SUM

HOOSIER ENERGY REC, INC
INDIANA # : IN 106

2013 POWER REQUIREMENTS STUDY
SUMMARY HISTORICAL AND FORECAST SHEET
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13

DISKETTE : 2013 PRS SYSTEM FORECAST
File 1 of 3
FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

		***** HIGH SCENARIO WITH DSM IMPACTS *****				***** HIGH SCENARIO WITH DSM IMPACTS *****			
		DSM -- EE Program Demand Impacts Coincident 60 Minute Demand MW				**DSM -- DR Program Demand Impacts Coincident 60 Minute Demand MW**			
		Savings w/o Losses		**Savings with Losses**		**Savings w/o Losses**		**Savings with Losses**	
	YEAR	**Winter**	**Summer**	**Winter**	**Summer**	**Winter**	**Summer**	**Winter**	**Summer**
ACTUAL	2001								
ACTUAL	2002								
ACTUAL	2003								
ACTUAL	2004								
ACTUAL	2005								
ACTUAL	2006								
ACTUAL	2007								
ACTUAL	2008								
ACTUAL	2009								
ACTUAL	2010								
ACTUAL	2011								
FRCST	2012	33.566	13.936	34.881	14.482	6.784	9.879	7.050	10.266
FRCST	2013	39.472	16.769	41.345	17.564	7.077	10.899	7.413	11.416
FRCST	2014	45.560	19.863	47.721	20.805	9.864	14.421	10.332	15.105
FRCST	2015	51.322	22.817	53.757	23.899	12.774	18.181	13.380	19.043
FRCST	2016	51.626	23.432	54.075	24.543	15.744	22.139	16.490	23.189
FRCST	2017	51.332	23.817	53.767	24.946	18.765	26.182	19.655	27.423
FRCST	2018	53.841	25.362	56.395	26.565	21.861	30.367	22.898	31.807
FRCST	2019	57.644	27.438	60.378	28.739	25.004	34.620	26.189	36.262
FRCST	2020	62.129	29.715	65.075	31.125	25.776	35.633	26.999	37.323
FRCST	2021	66.831	32.070	70.000	33.591	26.972	36.529	28.251	38.261
FRCST	2022	71.659	34.408	75.057	36.039	29.080	39.061	30.459	40.913
FRCST	2023	76.989	36.935	80.641	38.687	30.961	41.413	32.430	43.377
FRCST	2024	82.336	39.413	86.242	41.282	32.418	43.369	33.956	45.426
FRCST	2025	87.346	41.470	91.489	43.437	33.746	45.106	35.346	47.245
FRCST	2026	92.107	43.108	96.476	45.152	35.065	46.718	36.728	48.933
FRCST	2027	93.521	43.821	97.957	45.900	36.386	48.324	38.111	50.616
FRCST	2028	93.683	44.401	98.127	46.507	37.684	49.864	39.471	52.229
FRCST	2029	93.827	45.016	98.277	47.151	38.992	51.419	40.842	53.858
FRCST	2030	95.128	45.842	99.640	48.016	40.310	52.988	42.222	55.502
FRCST	2031	96.171	46.510	100.733	48.716	41.639	54.572	43.613	57.161
FRCST	2032	97.548	47.162	102.174	49.399	42.977	56.172	45.016	58.836

TIME PERIOD
2001 -2006
2006 -2011
2012 -2017
2017 -2022
2022 -2027
2027 -2032
2001 -2011
2012 -2032

Appendix F

Historical/Forecast Annual Values
Summary Low Case

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 34 YEARS)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

		***** LOW SCENARIO WITH DSM IMPACTS *****					***** LOW SCENARIO WITH DSM IMPACTS *****				
		Aggregated Member System Data NUMBER OF CONSUMERS					**Aggregated Member System Data** SYSTEM ENERGY SALES TO END CONSUMERS (MWH)				
	YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL
ACTUAL	2001	253,162	12,265	155	1,444	267,026	3,522,968	729,098	1,261,060	113,891	5,627,017
ACTUAL	2002	257,347	12,533	163	1,501	271,544	3,772,856	750,481	1,372,372	117,598	6,013,307
ACTUAL	2003	261,300	12,711	176	1,654	275,841	3,744,229	760,700	1,406,637	112,443	6,024,009
ACTUAL	2004	265,436	12,930	173	1,793	280,332	3,816,332	797,926	1,498,284	112,624	6,225,166
ACTUAL	2005	269,261	13,031	173	1,934	284,399	4,087,081	833,664	1,583,193	44,652	6,548,590
ACTUAL	2006	272,892	13,211	177	2,070	288,350	3,997,738	859,810	1,632,862	37,999	6,528,409
ACTUAL	2007	275,983	13,481	199	2,186	291,849	4,235,636	896,961	1,706,767	41,253	6,880,617
ACTUAL	2008	277,143	13,424	208	2,202	292,977	4,225,769	896,208	1,712,574	38,855	6,873,406
ACTUAL	2009	277,179	13,547	200	2,204	293,130	4,049,085	862,271	1,638,530	36,404	6,586,290
ACTUAL	2010	277,915	13,683	201	2,219	294,018	4,313,613	889,903	1,783,519	40,028	7,027,063
ACTUAL	2011	277,750	13,765	210	2,498	294,223	4,093,232	901,705	1,806,351	40,873	6,842,161
FRCST	2012	278,004	13,794	182	2,563	294,543	3,968,696	912,721	1,625,714	46,873	6,554,004
FRCST	2013	278,739	13,814	179	2,563	295,295	3,937,992	910,787	1,630,253	46,873	6,525,905
FRCST	2014	279,678	13,837	176	2,563	296,254	3,925,608	914,896	1,753,128	46,873	6,640,505
FRCST	2015	280,767	13,860	175	2,563	297,365	3,913,164	916,939	1,887,532	46,873	6,764,508
FRCST	2016	281,946	13,880	175	2,563	298,564	3,926,301	919,057	1,969,381	46,873	6,861,612
FRCST	2017	283,324	13,896	174	2,563	299,957	3,945,086	921,159	2,051,090	46,873	6,964,207
FRCST	2018	284,900	13,963	171	2,563	301,597	3,957,730	923,716	2,051,154	46,873	6,979,473
FRCST	2019	286,465	14,027	171	2,563	303,226	3,967,301	926,931	2,068,240	46,873	7,009,345
FRCST	2020	288,060	14,094	171	2,563	304,888	3,978,654	930,127	2,074,918	46,873	7,030,572
FRCST	2021	289,567	14,160	171	2,563	306,461	3,990,017	933,339	2,080,586	46,873	7,050,815
FRCST	2022	291,110	14,217	171	2,563	308,061	4,003,518	936,554	2,086,775	46,873	7,073,720
FRCST	2023	292,831	14,318	171	2,563	309,883	4,010,002	941,887	2,076,341	46,873	7,075,104
FRCST	2024	294,541	14,414	171	2,563	311,689	4,022,547	948,554	2,065,960	46,873	7,083,934
FRCST	2025	296,282	14,511	171	2,563	313,527	4,037,580	958,666	2,055,627	46,873	7,098,746
FRCST	2026	298,076	14,608	171	2,563	315,418	4,057,006	967,069	2,045,351	46,873	7,116,299
FRCST	2027	299,884	14,702	171	2,563	317,320	4,082,314	976,716	2,035,123	46,873	7,141,026
FRCST	2028	301,817	14,835	171	2,563	319,386	4,105,150	988,930	2,024,948	46,873	7,165,901
FRCST	2029	303,827	14,964	170	2,563	321,524	4,131,917	1,001,108	1,978,916	46,873	7,158,814
FRCST	2030	305,939	15,091	170	2,563	323,763	4,160,654	1,013,176	1,969,019	46,873	7,189,722
FRCST	2031	308,142	15,219	170	2,563	326,094	4,193,653	1,025,063	1,959,175	46,873	7,224,765
FRCST	2032	310,387	15,345	170	2,563	328,465	4,227,442	1,036,846	1,949,380	46,873	7,260,540

	***** LOW SCENARIO WITH DSM IMPACTS *****					***** LOW SCENARIO WITH DSM IMPACTS *****				
	AGGREGATED NUMBER OF CONSUMERS					AGGREGATED SYSTEM ENERGY SALES				
TIME PERIOD	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (ACT.CHG.)	OTHER (ACT.CHG.)	TOTAL (% CHG.)	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (% CHG.)	OTHER (% CHG.)	TOTAL (% CHG.)
2001 -2006	1.51%	1.50%	22	626	1.55%	2.56%	3.35%	5.30%	-19.71%	3.02%
2006 -2011	0.35%	0.82%	33	428	0.40%	0.47%	0.96%	2.04%	1.47%	0.94%
2012 -2017	0.38%	0.15%	-8	0	0.36%	-0.12%	0.18%	4.76%	0.00%	1.22%
2017 -2022	0.54%	0.46%	-3	0	0.53%	0.29%	0.33%	0.35%	0.00%	0.31%
2022 -2027	0.60%	0.67%	0	0	0.59%	0.39%	0.84%	-0.50%	0.00%	0.19%
2027 -2032	0.69%	0.86%	-1	0	0.69%	0.70%	1.20%	-0.86%	0.00%	0.33%
2001 -2011	0.93%	1.16%	55	1054	0.97%	1.51%	2.15%	3.66%	-9.74%	1.97%
2012 -2032	0.55%	0.53%	-12	0	0.55%	0.32%	0.64%	0.91%	0.00%	0.51%

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

		***** LOW SCENARIO WITH DSM IMPACTS *****					***** LOW SCENARIO WITH DSM IMPACTS *****			
		AGGREGATED TOTAL MEMBER ENERGY PURCHASED	TOTAL ENERGY GENERATED for H.E. MEMBERS	HE SYSTEM AVERAGE MONTHLY LOSS FACTORS due to MEMBER SYSTEM LOAD (excludes pass-throughs)		H.E. AVERAGE WHOLESALE POWER COSTS	AGGREGATED MEMBER SYSTEM DEMANDS (WITHOUT LOSSES, 30 MINUTE DEMAND) NONCOINCIDENT (MW)		COINCIDENT (MW) (EST. BEFORE 1984)	
	YEAR	(MWH)	(MWH)	FOR ENERGY	FOR DEMAND	(MILLS/MWH)	WINTER	SUMMER	WINTER	SUMMER
ACTUAL	2001	5,864,880	6,120,565	4.27%	4.53%	*****	1,285	1,274	1,164	1,186
ACTUAL	2002	6,314,792	6,601,076	4.45%	4.78%	*****	1,211	1,346	1,139	1,224
ACTUAL	2003	6,320,460	6,593,765	4.26%	4.26%	*****	1,354	1,313	1,264	1,219
ACTUAL	2004	6,549,574	6,831,967	4.25%	4.81%	*****	1,381	1,321	1,268	1,243
ACTUAL	2005	6,850,535	7,115,875	3.83%	4.22%	*****	1,429	1,472	1,325	1,392
ACTUAL	2006	6,802,245	7,090,943	4.19%	4.47%	*****	1,413	1,502	1,324	1,400
ACTUAL	2007	7,215,322	7,532,943	4.33%	4.84%	*****	1,532	1,558	1,415	1,413
ACTUAL	2008	7,193,537	7,470,277	3.80%	5.10%	*****	1,576	1,442	1,440	1,289
ACTUAL	2009	6,898,809	7,173,589	3.93%	4.86%	*****	1,674	1,453	1,519	1,307
ACTUAL	2010	7,338,210	7,656,457	4.25%	4.73%	*****	1,539	1,577	1,369	1,450
ACTUAL	2011	7,133,534	7,429,606	4.07%	4.19%	*****	1,552	1,579	1,394	1,435
FRCST	2012	6,857,695	7,089,202	3.35%	3.77%	74.770	1,468	1,456	1,350	1,330
FRCST	2013	6,828,136	7,096,906	3.88%	4.53%	76.120	1,459	1,450	1,341	1,325
FRCST	2014	6,947,793	7,221,394	3.88%	4.53%	76.260	1,479	1,485	1,358	1,355
FRCST	2015	7,078,285	7,357,154	3.88%	4.53%	79.660	1,502	1,503	1,378	1,370
FRCST	2016	7,179,832	7,462,801	3.88%	4.53%	82.730	1,514	1,527	1,388	1,391
FRCST	2017	7,287,274	7,574,581	3.88%	4.53%	86.790	1,536	1,536	1,408	1,399
FRCST	2018	7,303,429	7,591,388	3.88%	4.53%	88.520	1,532	1,536	1,404	1,399
FRCST	2019	7,334,542	7,623,758	3.88%	4.53%	90.290	1,533	1,539	1,405	1,401
FRCST	2020	7,356,621	7,646,727	3.88%	4.53%	92.100	1,535	1,543	1,406	1,404
FRCST	2021	7,377,678	7,668,635	3.88%	4.53%	93.940	1,536	1,546	1,406	1,407
FRCST	2022	7,401,525	7,693,444	3.88%	4.53%	95.820	1,536	1,549	1,405	1,409
FRCST	2023	7,402,983	7,694,962	3.88%	4.53%	97.740	1,532	1,548	1,401	1,408
FRCST	2024	7,412,259	7,704,612	3.88%	4.53%	99.690	1,529	1,549	1,399	1,408
FRCST	2025	7,427,839	7,720,821	3.88%	4.53%	101.680	1,528	1,550	1,397	1,410
FRCST	2026	7,446,311	7,740,039	3.88%	4.53%	103.710	1,528	1,553	1,397	1,412
FRCST	2027	7,472,327	7,767,105	3.88%	4.53%	105.780	1,531	1,557	1,400	1,416
FRCST	2028	7,498,472	7,794,305	3.88%	4.53%	105.780	1,536	1,561	1,404	1,420
FRCST	2029	7,491,482	7,787,033	3.88%	4.53%	105.780	1,534	1,559	1,403	1,418
FRCST	2030	7,524,002	7,820,867	3.88%	4.53%	105.780	1,540	1,564	1,408	1,423
FRCST	2031	7,560,867	7,859,220	3.88%	4.53%	105.780	1,546	1,571	1,414	1,430
FRCST	2032	7,598,519	7,898,392	3.88%	4.53%	105.780	1,553	1,578	1,420	1,436

	***** LOW SCENARIO WITH DSM IMPACTS *****					***** LOW SCENARIO WITH DSM IMPACTS *****			
	AGGREGATED TOTAL ENERGY PURCHASED	H.E. ENERGY GENERATED FOR MEMBERS	AVG. MONTHLY LOSS FACTORS due to MEMBERS		H.E. AVERAGE WHOLESALE POWER COSTS	AGGREGATED MEMBER PEAK SEASONAL DEMANDS (WITHOUT LOSSES, 30 MINUTE DEMAND) Non-Coincident (% Chg)		Coincident (% Chg)	
TIME PERIOD	(% CHG.)	(% CHG.)	ENERGY (AVERAGE)	DEMAND (AVERAGE)	(% CHG.)	WINTER	SUMMER	WINTER	SUMMER
2001 -2006	3.01%	2.99%	4.21%	4.51%	*****	1.91%	3.34%	2.61%	3.37%
2006 -2011	0.96%	0.94%	4.10%	4.70%	*****	1.89%	1.00%	1.03%	0.51%
2012 -2017	1.22%	1.33%	3.79%	4.40%	3.03%	0.91%	1.08%	0.84%	1.02%
2017 -2022	0.31%	0.31%	3.88%	4.53%	2.00%	0.00%	0.17%	-0.03%	0.14%
2022 -2027	0.19%	0.19%	3.88%	4.53%	2.00%	-0.06%	0.10%	-0.08%	0.09%
2027 -2032	0.34%	0.34%	3.88%	4.53%	0.00%	0.28%	0.27%	0.29%	0.29%
2001 -2011	1.98%	1.96%	4.15%	4.62%	*****	1.90%	2.17%	1.81%	1.93%
2012 -2032	0.51%	0.54%	3.86%	4.49%	1.75%	0.28%	0.40%	0.25%	0.38%

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

		***** LOW SCENARIO WITH DSM IMPACTS *****					***** LOW SCENARIO WITH DSM IMPACTS *****				
		HOOSIER ENERGY SYSTEM PEAK SEASONAL COINCIDENT DEMAND (MW) (All values are estimated 60 minute values)				H.E. ANNUAL LOAD FACTOR Due To COINCIDENT PEAK	HOOSIER ENERGY SYSTEM PEAK SEASONAL NON-COINCIDENT DEMAND (MW) (All values are estimated 60 minute values)				H.E. ANNUAL LOAD FACTOR Due To NON-COIN. PEAK
		(WITHOUT LOSSES)		(WITH LOSSES)			(WITHOUT LOSSES)		(WITH LOSSES)		
	YEAR	WINTER	SUMMER	WINTER	SUMMER		WINTER	SUMMER	WINTER	SUMMER	
ACTUAL	2001	1,150	1,171	1,204	1,226	57.0%	1,270	1,258	1,329	1,317	52.6%
ACTUAL	2002	1,092	1,211	1,146	1,271	59.3%	1,164	1,332	1,220	1,397	53.9%
ACTUAL	2003	1,237	1,205	1,291	1,257	58.3%	1,331	1,296	1,389	1,353	54.2%
ACTUAL	2004	1,252	1,223	1,314	1,283	59.2%	1,361	1,300	1,428	1,364	54.5%
ACTUAL	2005	1,292	1,377	1,347	1,436	56.6%	1,393	1,457	1,453	1,519	53.5%
ACTUAL	2006	1,292	1,380	1,351	1,443	56.1%	1,379	1,481	1,442	1,549	52.3%
ACTUAL	2007	1,381	1,410	1,450	1,480	58.1%	1,496	1,555	1,570	1,632	52.7%
ACTUAL	2008	1,425	1,269	1,500	1,336	56.7%	1,559	1,419	1,641	1,493	51.8%
ACTUAL	2009	1,517	1,304	1,593	1,370	51.4%	1,672	1,450	1,756	1,522	46.6%
ACTUAL	2010	1,358	1,443	1,424	1,513	57.8%	1,526	1,570	1,600	1,646	53.1%
ACTUAL	2011	1,379	1,429	1,438	1,491	56.9%	1,536	1,573	1,601	1,640	51.7%
FRCST	2012	1,341	1,325	1,393	1,377	57.9%	1,458	1,451	1,514	1,506	53.3%
FRCST	2013	1,332	1,320	1,394	1,382	58.1%	1,449	1,445	1,516	1,512	53.4%
FRCST	2014	1,349	1,350	1,412	1,413	58.4%	1,469	1,479	1,538	1,548	53.3%
FRCST	2015	1,369	1,365	1,433	1,429	58.6%	1,492	1,497	1,562	1,567	53.6%
FRCST	2016	1,379	1,386	1,443	1,451	58.6%	1,504	1,521	1,574	1,592	53.4%
FRCST	2017	1,398	1,394	1,463	1,459	59.1%	1,526	1,531	1,597	1,602	54.0%
FRCST	2018	1,395	1,393	1,460	1,459	59.4%	1,522	1,530	1,593	1,601	54.1%
FRCST	2019	1,395	1,395	1,460	1,460	59.6%	1,523	1,533	1,594	1,604	54.3%
FRCST	2020	1,396	1,398	1,461	1,464	59.5%	1,525	1,537	1,595	1,608	54.1%
FRCST	2021	1,396	1,402	1,462	1,467	59.7%	1,525	1,541	1,596	1,612	54.3%
FRCST	2022	1,396	1,404	1,461	1,470	59.8%	1,526	1,543	1,597	1,615	54.4%
FRCST	2023	1,392	1,402	1,457	1,468	59.8%	1,521	1,542	1,592	1,614	54.4%
FRCST	2024	1,389	1,403	1,454	1,468	59.7%	1,519	1,543	1,590	1,614	54.3%
FRCST	2025	1,388	1,404	1,453	1,470	60.0%	1,518	1,544	1,589	1,616	54.5%
FRCST	2026	1,387	1,407	1,452	1,472	60.0%	1,518	1,547	1,588	1,619	54.6%
FRCST	2027	1,390	1,410	1,455	1,476	60.1%	1,521	1,551	1,592	1,623	54.6%
FRCST	2028	1,395	1,414	1,460	1,480	59.9%	1,526	1,555	1,597	1,628	54.5%
FRCST	2029	1,394	1,412	1,459	1,478	60.1%	1,524	1,553	1,595	1,625	54.7%
FRCST	2030	1,399	1,418	1,464	1,484	60.2%	1,529	1,558	1,600	1,631	54.7%
FRCST	2031	1,405	1,424	1,471	1,491	60.2%	1,536	1,565	1,607	1,638	54.8%
FRCST	2032	1,411	1,431	1,477	1,497	60.0%	1,542	1,572	1,614	1,645	54.7%

	***** LOW SCENARIO WITH DSM IMPACTS *****					***** LOW SCENARIO WITH DSM IMPACTS *****				
	HOOSIER ENERGY COINCIDENT PEAK DEMAND (60 MINUTE VALUE, ALL VALUES EST.)				H.E. ANNUAL COINCIDENT LOAD FACTOR (AVERAGE)	HOOSIER ENERGY NON-COINCIDENT PEAK DEMAND (60 MINUTE VALUE, ALL VALUES EST.)				H.E. ANNUAL NON-COIN. LOAD FACTOR (AVERAGE)
	Without Losses (% Chg)		With Losses (% Chg)			Without Losses (% Chg)		With Losses (% Chg)		
TIME PERIOD	WINTER	SUMMER	WINTER	SUMMER		WINTER	SUMMER	WINTER	SUMMER	
2001 -2006	2.36%	3.33%	2.34%	3.32%	57.74%	1.66%	3.32%	1.64%	3.30%	53.48%
2006 -2011	1.31%	0.70%	1.25%	0.65%	56.16%	2.17%	1.21%	2.11%	1.15%	51.37%
2012 -2017	0.84%	1.01%	0.99%	1.17%	58.44%	0.91%	1.08%	1.07%	1.24%	53.49%
2017 -2022	-0.03%	0.14%	-0.03%	0.14%	59.49%	0.00%	0.17%	0.00%	0.17%	54.20%
2022 -2027	-0.08%	0.09%	-0.08%	0.09%	59.89%	-0.06%	0.10%	-0.06%	0.10%	54.48%
2027 -2032	0.29%	0.29%	0.29%	0.29%	60.09%	0.28%	0.27%	0.28%	0.27%	54.67%
2001 -2011	1.83%	2.01%	1.80%	1.98%	57.03%	1.91%	2.26%	1.88%	2.22%	52.44%
2012 -2032	0.25%	0.38%	0.29%	0.42%	59.46%	0.28%	0.40%	0.32%	0.44%	54.19%

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

		***** LOW SCENARIO WITH DSM IMPACTS *****					***** LOW SCENARIO WITH DSM IMPACTS *****				
		**** EXTREME TEMPERATURE CONDITIONS **** HOOSIER ENERGY SYSTEM PEAK SEASONAL COINCIDENT DEMAND (MW); 60 MINUTE VALUE				H.E. ANNUAL LOAD FACTOR Due to EXTREME COINCIDENT PEAK	**** EXTREME TEMPERATURE CONDITIONS **** HOOSIER ENERGY SYSTEM PEAK SEASONAL NON-COINCIDENT DEMAND (MW); 60 MINUTE VALUE				H.E. ANNUAL LOAD FACTOR Due To EXTREME NON-COIN. PEAK
		(WITHOUT LOSSES)		(WITH LOSSES)			(WITHOUT LOSSES)		(WITH LOSSES)		
	YEAR	WINTER	SUMMER	WINTER	SUMMER		WINTER	SUMMER	WINTER	SUMMER	
ACTUAL	2001	******	******	******	******	******	******	******	******	******	******
ACTUAL	2002	******	******	******	******	******	******	******	******	******	******
ACTUAL	2003	******	******	******	******	******	******	******	******	******	******
ACTUAL	2004	******	******	******	******	******	******	******	******	******	******
ACTUAL	2005	******	******	******	******	******	******	******	******	******	******
ACTUAL	2006	******	******	******	******	******	******	******	******	******	******
ACTUAL	2007	******	******	******	******	******	******	******	******	******	******
ACTUAL	2008	******	******	******	******	******	******	******	******	******	******
ACTUAL	2009	******	******	******	******	******	******	******	******	******	******
ACTUAL	2010	******	******	******	******	******	******	******	******	******	******
ACTUAL	2011	******	******	******	******	******	******	******	******	******	******
FRCST	2012	1,484	1,458	1,541	1,514	52.4%	1,612	1,594	1,674	1,655	48.2%
FRCST	2013	1,475	1,452	1,544	1,520	52.5%	1,602	1,588	1,677	1,661	48.3%
FRCST	2014	1,494	1,485	1,564	1,554	52.7%	1,625	1,625	1,701	1,701	48.5%
FRCST	2015	1,515	1,501	1,586	1,572	52.9%	1,650	1,644	1,726	1,721	48.6%
FRCST	2016	1,526	1,524	1,598	1,595	53.2%	1,662	1,670	1,740	1,748	48.6%
FRCST	2017	1,546	1,532	1,619	1,604	53.4%	1,685	1,680	1,764	1,758	49.0%
FRCST	2018	1,543	1,532	1,615	1,603	53.7%	1,681	1,680	1,760	1,758	49.2%
FRCST	2019	1,544	1,534	1,616	1,606	53.8%	1,683	1,683	1,761	1,761	49.4%
FRCST	2020	1,546	1,538	1,618	1,610	53.8%	1,685	1,688	1,764	1,766	49.3%
FRCST	2021	1,546	1,542	1,619	1,614	54.1%	1,686	1,692	1,765	1,771	49.4%
FRCST	2022	1,547	1,545	1,619	1,617	54.2%	1,687	1,696	1,766	1,775	49.5%
FRCST	2023	1,543	1,544	1,615	1,616	54.4%	1,684	1,695	1,762	1,774	49.5%
FRCST	2024	1,541	1,544	1,613	1,617	54.3%	1,682	1,696	1,760	1,775	49.4%
FRCST	2025	1,540	1,546	1,612	1,619	54.5%	1,681	1,698	1,760	1,777	49.6%
FRCST	2026	1,540	1,549	1,612	1,622	54.5%	1,682	1,701	1,760	1,780	49.6%
FRCST	2027	1,543	1,553	1,616	1,626	54.5%	1,685	1,706	1,764	1,785	49.7%
FRCST	2028	1,549	1,558	1,621	1,631	54.4%	1,691	1,711	1,770	1,790	49.6%
FRCST	2029	1,548	1,556	1,620	1,629	54.6%	1,689	1,708	1,768	1,788	49.7%
FRCST	2030	1,554	1,563	1,627	1,636	54.6%	1,696	1,715	1,775	1,795	49.7%
FRCST	2031	1,561	1,570	1,634	1,643	54.6%	1,703	1,723	1,782	1,803	49.8%
FRCST	2032	1,568	1,577	1,641	1,651	54.5%	1,710	1,731	1,790	1,811	49.6%

	***** LOW SCENARIO WITH DSM IMPACTS *****					***** LOW SCENARIO WITH DSM IMPACTS *****				
	***** EXTREME TEMPERATURE CONDITIONS ***** HOOSIER ENERGY COINCIDENT PEAK (60 MIN.)				EXTREME COIN. H.E. ANNUAL LOAD FACTOR (AVERAGE)	***** EXTREME TEMPERATURE CONDITIONS ***** HOOSIER ENERGY NON-COINCIDENT PEAK (60 MIN.)				EXT.NON-COIN H.E. ANNUAL LOAD FACTOR (AVERAGE)
	Without Losses (% Chg)		With Losses (% Chg)			Without Losses (% Chg)		With Losses (% Chg)		
TIME PERIOD	WINTER	SUMMER	WINTER	SUMMER		WINTER	SUMMER	WINTER	SUMMER	
2001 -2006	******	******	******	******	******	******	******	******	******	******
2006 -2011	******	******	******	******	******	******	******	******	******	******
2012 -2017	0.83%	1.00%	0.99%	1.16%	52.85%	0.90%	1.06%	1.05%	1.22%	48.55%
2017 -2022	0.01%	0.16%	0.01%	0.16%	53.84%	0.03%	0.19%	0.03%	0.19%	49.32%
2022 -2027	-0.04%	0.11%	-0.04%	0.11%	54.39%	-0.02%	0.12%	-0.02%	0.12%	49.56%
2027 -2032	0.31%	0.30%	0.31%	0.30%	54.52%	0.29%	0.29%	0.29%	0.29%	49.68%
2001 -2011	******	******	******	******	******	******	******	******	******	******
2012 -2032	0.28%	0.39%	0.31%	0.43%	53.88%	0.30%	0.41%	0.34%	0.45%	49.26%

VER 2.1	HOOSIER ENERGY REC, INC	2013 POWER REQUIREMENTS STUDY	DISKETTE : 2013 PRS SYSTEM FORECAST
SUM	INDIANA # : IN 106	SUMMARY HISTORICAL AND FORECAST SHEET	File 1 of 3
		ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13	FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

		***** LOW SCENARIO WITH DSM IMPACTS *****					***** LOW SCENARIO WITH DSM IMPACTS *****				
		****** Adjusted for IN #72, IN #16, IN#92, and IL#002 ******					****** Adjusted for IN #72, IN #16, IN#92, and IL#002 ******				
		Aggregated Member System Data					Aggregated Member System Data				
		NUMBER OF CONSUMERS					SYSTEM ENERGY SALES TO END CONSUMERS (MWH)				
	YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL
ACTUAL	2001	219,228	10,003	132	1,093	230,456	3,052,360	639,446	1,164,603	31,271	4,887,680
ACTUAL	2002	223,044	10,265	139	1,144	234,592	3,261,617	663,738	1,272,906	32,441	5,230,702
ACTUAL	2003	226,749	10,462	151	1,293	238,655	3,243,405	673,235	1,316,094	32,150	5,264,884
ACTUAL	2004	230,760	10,690	151	1,429	243,030	3,305,807	706,497	1,403,535	33,098	5,448,937
ACTUAL	2005	257,250	11,810	165	1,573	270,798	3,749,514	774,714	1,484,489	33,634	6,042,351
ACTUAL	2006	260,854	11,986	169	1,707	274,716	3,856,899	824,354	1,545,582	32,678	6,259,513
ACTUAL	2007	263,908	12,246	191	1,821	278,166	4,088,777	855,093	1,620,151	34,240	6,598,261
ACTUAL	2008	265,071	12,166	200	1,833	279,270	4,080,904	856,375	1,630,203	33,209	6,600,691
ACTUAL	2009	265,137	12,281	192	1,836	279,446	3,904,139	818,798	1,564,440	31,738	6,319,115
ACTUAL	2010	265,890	12,407	193	1,851	280,341	4,158,336	843,557	1,712,254	33,075	6,747,222
ACTUAL	2011	277,750	13,765	210	2,498	294,223	4,093,232	901,705	1,806,351	40,873	6,842,161
FRCST	2012	278,004	13,794	182	2,563	294,543	3,968,696	912,721	1,625,714	46,873	6,554,004
FRCST	2013	278,739	13,814	179	2,563	295,295	3,937,992	910,787	1,630,253	46,873	6,525,905
FRCST	2014	279,678	13,837	176	2,563	296,254	3,925,608	914,896	1,753,128	46,873	6,640,505
FRCST	2015	280,767	13,860	175	2,563	297,365	3,913,164	916,939	1,887,532	46,873	6,764,508
FRCST	2016	281,946	13,880	175	2,563	298,564	3,926,301	919,057	1,969,381	46,873	6,861,612
FRCST	2017	283,324	13,896	174	2,563	299,957	3,945,086	921,159	2,051,090	46,873	6,964,207
FRCST	2018	284,900	13,963	171	2,563	301,597	3,957,730	923,716	2,051,154	46,873	6,979,473
FRCST	2019	286,465	14,027	171	2,563	303,226	3,967,301	926,931	2,068,240	46,873	7,009,345
FRCST	2020	288,060	14,094	171	2,563	304,888	3,978,654	930,127	2,074,918	46,873	7,030,572
FRCST	2021	289,567	14,160	171	2,563	306,461	3,990,017	933,339	2,080,586	46,873	7,050,815
FRCST	2022	291,110	14,217	171	2,563	308,061	4,003,518	936,554	2,086,775	46,873	7,073,720
FRCST	2023	292,831	14,318	171	2,563	309,883	4,010,002	941,887	2,076,341	46,873	7,075,104
FRCST	2024	294,541	14,414	171	2,563	311,689	4,022,547	948,554	2,065,960	46,873	7,083,934
FRCST	2025	296,282	14,511	171	2,563	313,527	4,037,580	958,666	2,055,627	46,873	7,098,746
FRCST	2026	298,076	14,608	171	2,563	315,418	4,057,006	967,069	2,045,351	46,873	7,116,299
FRCST	2027	299,884	14,702	171	2,563	317,320	4,082,314	976,716	2,035,123	46,873	7,141,026
FRCST	2028	301,817	14,835	171	2,563	319,386	4,105,150	988,930	2,024,948	46,873	7,165,901
FRCST	2029	303,827	14,964	170	2,563	321,524	4,131,917	1,001,108	1,978,916	46,873	7,158,814
FRCST	2030	305,939	15,091	170	2,563	323,763	4,160,654	1,013,176	1,969,019	46,873	7,189,722
FRCST	2031	308,142	15,219	170	2,563	326,094	4,193,653	1,025,063	1,959,175	46,873	7,224,765
FRCST	2032	310,387	15,345	170	2,563	328,465	4,227,442	1,036,846	1,949,380	46,873	7,260,540

	***** LOW SCENARIO WITH DSM IMPACTS *****					***** LOW SCENARIO WITH DSM IMPACTS *****				
	Adjusted for Systems -- AGGREGATED NUMBER OF CONSUMERS					Adjusted for Systems -- AGGREGATED ENERGY SALES				
TIME PERIOD	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (ACT.CHG.)	OTHER (ACT.CHG.)	TOTAL (% CHG.)	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (% CHG.)	OTHER (% CHG.)	TOTAL (% CHG.)
2001 -2006	3.54%	3.68%	37	614	3.58%	4.79%	5.21%	5.82%	0.88%	5.07%
2006 -2011	1.26%	2.81%	41	791	1.38%	1.20%	1.81%	3.17%	4.58%	1.80%
2012 -2017	0.38%	0.15%	-8	0	0.36%	-0.12%	0.18%	4.76%	0.00%	1.22%
2017 -2022	0.54%	0.46%	-3	0	0.53%	0.29%	0.33%	0.35%	0.00%	0.31%
2022 -2027	0.60%	0.67%	0	0	0.59%	0.39%	0.84%	-0.50%	0.00%	0.19%
2027 -2032	0.69%	0.86%	-1	0	0.69%	0.70%	1.20%	-0.86%	0.00%	0.33%
2001 -2011	2.39%	3.24%	78	1405	2.47%	2.98%	3.50%	4.49%	2.71%	3.42%
2012 -2032	0.55%	0.53%	-12	0	0.55%	0.32%	0.64%	0.91%	0.00%	0.51%

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

***** LOW SCENARIO WITH DSM IMPACTS ***** ***** LOW SCENARIO WITH DSM IMPACTS *****

Energy and Demand Values Adjusted for IN #72, IN # 16, IN#92, and IL#002

	YEAR	AGGREGATED TOTAL MEMBER ENERGY PURCHASED (MWH)	ENERGY GENERATED FOR MEMBERS (MWH)	AGGREGATED MEMBER 30 MIN. COINCIDENT PEAK W/O LOSSES (MW)		HE COINCIDENT 60 MINUTE DEMAND (MW) (EST. BEFORE 1984) (WITHOUT LOSSES)		(WITH LOSSES)		ANNUAL LOAD FACTOR
				WINTER	SUMMER	WINTER	SUMMER	WINTER	SUMMER	
ACTUAL	2001	5,106,079	5,327,900	1,015	1,031	1,002	1,018	1,049	1,065	57.1%
ACTUAL	2002	5,499,105	5,747,381	1,000	1,071	959	1,060	1,006	1,112	59.0%
ACTUAL	2003	5,527,292	5,765,328	1,101	1,063	1,077	1,050	1,123	1,095	58.6%
ACTUAL	2004	5,736,200	5,982,496	1,104	1,083	1,090	1,065	1,143	1,118	59.6%
ACTUAL	2005	6,332,029	6,576,718	1,162	1,331	1,133	1,317	1,181	1,374	54.6%
ACTUAL	2006	6,525,204	6,801,791	1,283	1,344	1,252	1,325	1,310	1,385	56.1%
ACTUAL	2007	6,924,233	7,228,689	1,378	1,350	1,345	1,348	1,412	1,415	58.3%
ACTUAL	2008	6,912,387	7,178,009	1,395	1,245	1,381	1,226	1,453	1,290	56.2%
ACTUAL	2009	6,617,661	6,880,934	1,472	1,247	1,470	1,244	1,544	1,306	50.9%
ACTUAL	2010	7,043,826	7,349,006	1,320	1,392	1,309	1,385	1,372	1,452	57.8%
ACTUAL	2011	7,133,534	7,429,606	1,394	1,435	1,379	1,429	1,438	1,491	56.9%
FRCST	2012	6,857,695	7,089,202	1,350	1,330	1,341	1,325	1,393	1,377	57.9%
FRCST	2013	6,828,136	7,096,906	1,341	1,325	1,332	1,320	1,394	1,382	58.1%
FRCST	2014	6,947,793	7,221,394	1,358	1,355	1,349	1,350	1,412	1,413	58.4%
FRCST	2015	7,078,285	7,357,154	1,378	1,370	1,369	1,365	1,433	1,429	58.6%
FRCST	2016	7,179,832	7,462,801	1,388	1,391	1,379	1,386	1,443	1,451	58.6%
FRCST	2017	7,287,274	7,574,581	1,408	1,399	1,398	1,394	1,463	1,459	59.1%
FRCST	2018	7,303,429	7,591,388	1,404	1,399	1,395	1,393	1,460	1,459	59.4%
FRCST	2019	7,334,542	7,623,758	1,405	1,401	1,395	1,395	1,460	1,460	59.6%
FRCST	2020	7,356,621	7,646,727	1,406	1,404	1,396	1,398	1,461	1,464	59.5%
FRCST	2021	7,377,678	7,668,635	1,406	1,407	1,396	1,402	1,462	1,467	59.7%
FRCST	2022	7,401,525	7,693,444	1,405	1,409	1,396	1,404	1,461	1,470	59.8%
FRCST	2023	7,402,983	7,694,962	1,401	1,408	1,392	1,402	1,457	1,468	59.8%
FRCST	2024	7,412,259	7,704,612	1,399	1,408	1,389	1,403	1,454	1,468	59.7%
FRCST	2025	7,427,839	7,720,821	1,397	1,410	1,388	1,404	1,453	1,470	60.0%
FRCST	2026	7,446,311	7,740,039	1,397	1,412	1,387	1,407	1,452	1,472	60.0%
FRCST	2027	7,472,327	7,767,105	1,400	1,416	1,390	1,410	1,455	1,476	60.1%
FRCST	2028	7,498,472	7,794,305	1,404	1,420	1,395	1,414	1,460	1,480	59.9%
FRCST	2029	7,491,482	7,787,033	1,403	1,418	1,394	1,412	1,459	1,478	60.1%
FRCST	2030	7,524,002	7,820,867	1,408	1,423	1,399	1,418	1,464	1,484	60.2%
FRCST	2031	7,560,867	7,859,220	1,414	1,430	1,405	1,424	1,471	1,491	60.2%
FRCST	2032	7,598,519	7,898,392	1,420	1,436	1,411	1,431	1,477	1,497	60.0%

***** LOW SCENARIO WITH DSM IMPACTS ***** ***** LOW SCENARIO WITH DSM IMPACTS *****

TIME PERIOD	Adjusted for Systems ENERGY PURCHASED (% CHG.)	Adjusted for Systems ENERGY GENERATED (% CHG.)	Adjusted for Systems AGGREGATED 30 MIN. COIN. PEAK W/O LOSSES (% CHG)		Adjusted for Systems -- HE COIN. 60 MINUTE DEMAND Without Losses (% Chg)		With Losses (% Chg)		ADJUSTED ANNUAL LOAD FACTOR (AVERAGE)
			WINTER	SUMMER	WINTER	SUMMER	WINTER	SUMMER	
2001 -2006	5.03%	5.01%	4.81%	5.45%	4.56%	5.41%	4.54%	5.40%	57.50%
2006 -2011	1.80%	1.78%	1.67%	1.33%	1.95%	1.53%	1.89%	1.48%	56.02%
2012 -2017	1.22%	1.33%	0.84%	1.02%	0.84%	1.01%	0.99%	1.17%	58.44%
2017 -2022	0.31%	0.31%	-0.03%	0.14%	-0.03%	0.14%	-0.03%	0.14%	59.49%
2022 -2027	0.19%	0.19%	-0.08%	0.09%	-0.08%	0.09%	-0.08%	0.09%	59.89%
2027 -2032	0.34%	0.34%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	60.09%
2001 -2011	3.40%	3.38%	3.23%	3.37%	3.24%	3.45%	3.21%	3.42%	56.82%
2012 -2032	0.51%	0.54%	0.25%	0.38%	0.25%	0.38%	0.29%	0.42%	59.46%

VER 2.1	HOOSIER ENERGY REC, INC	2013 POWER REQUIREMENTS STUDY	DISKETTE :	2013 PRS SYSTEM FORECAST
SUM	INDIANA # : IN 106	SUMMARY HISTORICAL AND FORECAST SHEET		File 1 of 3
		ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13	FILE NAME :	HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* LOW SCENARIO WITH DSM IMPACTS ******* ******* LOW SCENARIO RESULTS *******

Energy and Demand Values Adjusted for IN #72, IN #16, IN#92, and IL#002

EXTREME COINCIDENT 60 MINUTE DEMAND (MW) (EST. BEFORE 1984)

		(WITHOUT LOSSES)		(WITH LOSSES)		EXTREME ANNUAL
	YEAR	WINTER	SUMMER	WINTER	SUMMER	LOAD FACTOR
ACTUAL	2001	*****	*****	*****	*****	*****
ACTUAL	2002	*****	*****	*****	*****	*****
ACTUAL	2003	*****	*****	*****	*****	*****
ACTUAL	2004	*****	*****	*****	*****	*****
ACTUAL	2005	*****	*****	*****	*****	*****
ACTUAL	2006	*****	*****	*****	*****	*****
ACTUAL	2007	*****	*****	*****	*****	*****
ACTUAL	2008	*****	*****	*****	*****	*****
ACTUAL	2009	*****	*****	*****	*****	*****
ACTUAL	2010	*****	*****	*****	*****	*****
ACTUAL	2011	*****	*****	*****	*****	*****
FRCST	2012	1,484	1,458	1,541	1,514	52.4%
FRCST	2013	1,475	1,452	1,544	1,520	52.5%
FRCST	2014	1,494	1,485	1,564	1,554	52.7%
FRCST	2015	1,515	1,501	1,586	1,572	52.9%
FRCST	2016	1,526	1,524	1,598	1,595	53.2%
FRCST	2017	1,546	1,532	1,619	1,604	53.4%
FRCST	2018	1,543	1,532	1,615	1,603	53.7%
FRCST	2019	1,544	1,534	1,616	1,606	53.8%
FRCST	2020	1,546	1,538	1,618	1,610	53.8%
FRCST	2021	1,546	1,542	1,619	1,614	54.1%
FRCST	2022	1,547	1,545	1,619	1,617	54.2%
FRCST	2023	1,543	1,544	1,615	1,616	54.4%
FRCST	2024	1,541	1,544	1,613	1,617	54.3%
FRCST	2025	1,540	1,546	1,612	1,619	54.5%
FRCST	2026	1,540	1,549	1,612	1,622	54.5%
FRCST	2027	1,543	1,553	1,616	1,626	54.5%
FRCST	2028	1,549	1,558	1,621	1,631	54.4%
FRCST	2029	1,548	1,556	1,620	1,629	54.6%
FRCST	2030	1,554	1,563	1,627	1,636	54.6%
FRCST	2031	1,561	1,570	1,634	1,643	54.6%
FRCST	2032	1,568	1,577	1,641	1,651	54.5%

***** LOW SCENARIO WITH DSM IMPACTS ***** ***** LOW SCENARIO RESULTS *****

Adjusted for Systems HE EXT. COIN. 60 MINUTE DEMAND

	Without Losses (% Chg)		With Losses (% Chg)		ADJUSTED EXT. ANNUAL LOAD FACTOR
TIME PERIOD	WINTER	SUMMER	WINTER	SUMMER	(AVERAGE)
2001 -2006	*****	*****	*****	*****	*****
2006 -2011	*****	*****	*****	*****	*****
2012 -2017	0.83%	1.00%	0.99%	1.16%	52.85%
2017 -2022	0.01%	0.16%	0.01%	0.16%	53.84%
2022 -2027	-0.04%	0.11%	-0.04%	0.11%	54.39%
2027 -2032	0.31%	0.30%	0.31%	0.30%	54.52%
2001 -2011	*****	*****	*****	*****	*****
2012 -2032	0.28%	0.39%	0.31%	0.43%	53.88%

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* LOW SCENARIO WITH DSM IMPACTS ******* | ******* LOW SCENARIO WITH DSM IMPACTS *******

Values Adjusted for IN#72,IN#16,IN#92,IL#002 and Special Industrial Loads — Aggregated Member System Data — NUMBER OF CONSUMERS | **Values Adjusted for IN#72,IN#16,IN#92,IL#002 and Special Industrial Loads** — Aggregated Member System Data — SYSTEM ENERGY SALES TO END CONSUMERS (MWH)

		Number of Consumers					System Energy Sales (MWH)				
	YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL
ACTUAL	2001	219,228	10,003	132	1,093	230,456	3,052,360	639,446	1,029,201	31,271	4,752,278
ACTUAL	2002	223,044	10,265	138	1,144	234,591	3,261,617	663,738	1,102,023	32,441	5,059,819
ACTUAL	2003	226,749	10,462	150	1,293	238,654	3,243,405	673,235	1,142,196	32,150	5,090,986
ACTUAL	2004	230,760	10,690	150	1,429	243,029	3,305,807	706,497	1,217,305	33,098	5,262,707
ACTUAL	2005	257,250	11,810	164	1,573	270,797	3,749,514	774,714	1,295,926	33,634	5,853,788
ACTUAL	2006	260,854	11,986	168	1,707	274,715	3,856,899	824,354	1,347,295	32,678	6,061,226
ACTUAL	2007	263,908	12,246	190	1,821	278,165	4,088,777	855,093	1,427,519	34,240	6,405,629
ACTUAL	2008	265,071	12,166	199	1,833	279,269	4,080,904	856,375	1,434,770	33,209	6,405,258
ACTUAL	2009	265,137	12,281	191	1,836	279,445	3,904,139	818,798	1,379,492	31,738	6,134,167
ACTUAL	2010	265,890	12,407	192	1,851	280,340	4,158,336	843,557	1,543,619	33,075	6,578,587
ACTUAL	2011	277,750	13,765	209	2,498	294,222	4,093,232	901,705	1,649,885	40,873	6,685,695
FRCST	2012	278,004	13,794	181	2,563	294,542	3,968,696	912,721	1,454,591	46,873	6,382,881
FRCST	2013	278,739	13,814	178	2,563	295,294	3,937,992	910,787	1,459,253	46,873	6,354,905
FRCST	2014	279,678	13,837	175	2,563	296,253	3,925,608	914,896	1,582,128	46,873	6,469,505
FRCST	2015	280,767	13,860	174	2,563	297,364	3,913,164	916,939	1,716,532	46,873	6,593,508
FRCST	2016	281,946	13,880	174	2,563	298,563	3,926,301	919,057	1,798,381	46,873	6,690,612
FRCST	2017	283,324	13,896	173	2,563	299,956	3,945,086	921,159	1,880,090	46,873	6,793,207
FRCST	2018	284,900	13,963	170	2,563	301,596	3,957,730	923,716	1,880,154	46,873	6,808,473
FRCST	2019	286,465	14,027	170	2,563	303,225	3,967,301	926,931	1,897,240	46,873	6,838,345
FRCST	2020	288,060	14,094	170	2,563	304,887	3,978,654	930,127	1,903,918	46,873	6,859,572
FRCST	2021	289,567	14,160	170	2,563	306,460	3,990,017	933,339	1,909,586	46,873	6,879,815
FRCST	2022	291,110	14,217	170	2,563	308,060	4,003,518	936,554	1,915,775	46,873	6,902,720
FRCST	2023	292,831	14,318	170	2,563	309,882	4,010,002	941,887	1,905,341	46,873	6,904,104
FRCST	2024	294,541	14,414	170	2,563	311,688	4,022,547	948,554	1,894,960	46,873	6,912,934
FRCST	2025	296,282	14,511	170	2,563	313,526	4,037,580	958,666	1,884,627	46,873	6,927,746
FRCST	2026	298,076	14,608	170	2,563	315,417	4,057,006	967,069	1,874,351	46,873	6,945,299
FRCST	2027	299,884	14,702	170	2,563	317,319	4,082,314	976,716	1,864,123	46,873	6,970,026
FRCST	2028	301,817	14,835	170	2,563	319,385	4,105,150	988,930	1,853,948	46,873	6,994,901
FRCST	2029	303,827	14,964	169	2,563	321,523	4,131,917	1,001,108	1,807,916	46,873	6,987,814
FRCST	2030	305,939	15,091	169	2,563	323,762	4,160,654	1,013,176	1,798,019	46,873	7,018,722
FRCST	2031	308,142	15,219	169	2,563	326,093	4,193,653	1,025,063	1,788,175	46,873	7,053,765
FRCST	2032	310,387	15,345	169	2,563	328,464	4,227,442	1,036,846	1,778,380	46,873	7,089,540

***** LOW SCENARIO WITH DSM IMPACTS ***** | ***** LOW SCENARIO WITH DSM IMPACTS *****

Adjusted for Systems & Ind. -- AGGREGATED NUMBER OF CONSUMERS | Adjusted for Systems & Ind.-- AGGREGATED ENERGY SALES

TIME PERIOD	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (ACT.CHG.)	OTHER (ACT.CHG.)	TOTAL (% CHG.)	RESIDENTIAL (% CHG.)	COMMERCIAL (% CHG.)	INDUSTRIAL (% CHG.)	OTHER (% CHG.)	TOTAL (% CHG.)
2001 -2006	3.54%	3.68%	36	614	3.58%	4.79%	5.21%	5.53%	0.88%	4.99%
2006 -2011	1.26%	2.81%	41	791	1.38%	1.20%	1.81%	4.14%	4.58%	1.98%
2012 -2017	0.38%	0.15%	-8	0	0.36%	-0.12%	0.18%	5.27%	0.00%	1.25%
2017 -2022	0.54%	0.46%	-3	0	0.53%	0.29%	0.33%	0.38%	0.00%	0.32%
2022 -2027	0.60%	0.67%	0	0	0.59%	0.39%	0.84%	-0.55%	0.00%	0.19%
2027 -2032	0.69%	0.86%	-1	0	0.69%	0.70%	1.20%	-0.94%	0.00%	0.34%
2001 -2011	2.39%	3.24%	77	1405	2.47%	2.98%	3.50%	4.83%	2.71%	3.47%
2012 -2032	0.55%	0.53%	-12	0	0.55%	0.32%	0.64%	1.01%	0.00%	0.53%

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

1973 :BEGINNING HISTORICAL DATA YEAR ?
2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* LOW SCENARIO WITH DSM IMPACTS *******

Energy and Demand Values Adjusted for IN#72,IN#16,IN#92,IL#002 and Special Industrial Loads

	YEAR	AGGREGATED TOTAL MEMBER ENERGY PURCHASED (MWH)	ENERGY GENERATED FOR MEMBERS (MWH)	H.E. 30 MINUTE COINCIDENT DEMAND (MW) (WITHOUT LOSSES) WINTER	SUMMER	H.E. COINCIDENT 60 MINUTE DEMAND (MW) (EST. BEFORE 1984) (WITHOUT LOSSES) WINTER	SUMMER	(WITH LOSSES) WINTER	SUMMER	ANNUAL LOAD FACTOR
ACTUAL	2001	4,970,677	5,192,498	987	1,004	976	992	1,022	1,045	56.7%
ACTUAL	2002	5,328,221	5,576,498	968	1,040	929	1,030	965	1,091	58.3%
ACTUAL	2003	5,353,393	5,591,430	1,079	1,040	1,061	1,027	1,106	1,079	57.7%
ACTUAL	2004	5,549,970	5,796,266	1,066	1,055	1,052	1,037	1,106	1,093	59.7%
ACTUAL	2005	6,143,466	6,388,155	1,138	1,305	1,109	1,291	1,150	1,355	53.8%
ACTUAL	2006	6,326,917	6,603,504	1,260	1,322	1,229	1,303	1,283	1,366	55.2%
ACTUAL	2007	6,731,601	7,036,057	1,354	1,337	1,321	1,334	1,387	1,397	57.5%
ACTUAL	2008	6,716,954	6,982,576	1,394	1,235	1,379	1,215	1,442	1,327	55.1%
ACTUAL	2009	6,432,713	6,695,986	1,467	1,232	1,465	1,229	1,525	1,292	50.1%
ACTUAL	2010	6,875,191	7,180,371	1,317	1,373	1,306	1,366	1,357	1,431	57.3%
ACTUAL	2011	6,977,068	7,273,140	1,392	1,424	1,377	1,418	1,453	1,478	56.2%
FRCST	2012	6,686,572	6,918,079	1,330	1,311	1,320	1,306	1,372	1,357	57.4%
FRCST	2013	6,657,136	6,925,906	1,321	1,306	1,312	1,301	1,374	1,362	57.5%
FRCST	2014	6,776,793	7,050,394	1,338	1,335	1,329	1,330	1,392	1,393	57.8%
FRCST	2015	6,907,285	7,186,154	1,358	1,351	1,348	1,346	1,412	1,410	58.1%
FRCST	2016	7,008,832	7,291,801	1,367	1,372	1,358	1,366	1,423	1,431	58.0%
FRCST	2017	7,116,274	7,403,581	1,387	1,380	1,377	1,375	1,443	1,440	58.6%
FRCST	2018	7,132,429	7,420,388	1,384	1,379	1,374	1,374	1,439	1,439	58.9%
FRCST	2019	7,163,542	7,452,758	1,384	1,381	1,375	1,376	1,440	1,441	59.0%
FRCST	2020	7,185,621	7,475,727	1,385	1,385	1,375	1,379	1,441	1,445	58.9%
FRCST	2021	7,206,678	7,497,635	1,385	1,388	1,376	1,382	1,441	1,448	59.1%
FRCST	2022	7,230,525	7,522,444	1,385	1,390	1,375	1,385	1,441	1,450	59.2%
FRCST	2023	7,231,983	7,523,962	1,381	1,389	1,371	1,383	1,436	1,449	59.3%
FRCST	2024	7,241,259	7,533,612	1,378	1,389	1,369	1,384	1,434	1,449	59.2%
FRCST	2025	7,256,839	7,549,821	1,377	1,390	1,367	1,385	1,432	1,451	59.4%
FRCST	2026	7,275,311	7,569,039	1,376	1,393	1,367	1,387	1,432	1,453	59.5%
FRCST	2027	7,301,327	7,596,105	1,379	1,396	1,370	1,391	1,435	1,457	59.5%
FRCST	2028	7,327,472	7,623,305	1,384	1,400	1,374	1,395	1,439	1,461	59.4%
FRCST	2029	7,320,482	7,616,033	1,383	1,399	1,373	1,393	1,438	1,459	59.6%
FRCST	2030	7,353,002	7,649,867	1,388	1,404	1,378	1,398	1,444	1,465	59.6%
FRCST	2031	7,389,867	7,688,220	1,394	1,410	1,384	1,405	1,450	1,471	59.6%
FRCST	2032	7,427,519	7,727,392	1,400	1,417	1,390	1,411	1,456	1,478	59.5%

***** LOW SCENARIO WITH DSM IMPACTS *****

TIME PERIOD	Adjusted for Systems & Ind. ENERGY PURCHASED (% CHG.)	ENERGY GENERATED (% CHG.)	Adj. Sys. & Ind. -- H.E. 30 MINUTE COINCIDENT DEMAND (MW) (WITHOUT LOSSES) WINTER	SUMMER	Adjusted for Sys. & Ind. -- HE COIN. 60 MINUTE DEMAND Without Losses (% Chg) WINTER	SUMMER	With Losses (% Chg) WINTER	SUMMER	ADJUSTED ANNUAL LOAD FACTOR (AVERAGE)
2001 -2006	4.94%	4.93%	5.01%	5.67%	4.72%	5.61%	4.65%	5.50%	56.91%
2006 -2011	1.98%	1.95%	2.01%	1.50%	2.30%	1.71%	2.52%	1.59%	55.23%
2012 -2017	1.25%	1.37%	0.85%	1.03%	0.85%	1.03%	1.01%	1.19%	57.89%
2017 -2022	0.32%	0.32%	-0.03%	0.14%	-0.03%	0.14%	-0.03%	0.14%	58.95%
2022 -2027	0.20%	0.20%	-0.08%	0.09%	-0.08%	0.09%	-0.08%	0.09%	59.34%
2027 -2032	0.34%	0.34%	0.30%	0.29%	0.30%	0.29%	0.30%	0.29%	59.55%
2001 -2011	3.45%	3.43%	3.50%	3.56%	3.50%	3.64%	3.58%	3.53%	56.15%
2012 -2032	0.53%	0.55%	0.26%	0.39%	0.26%	0.39%	0.30%	0.43%	58.91%

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 FILE NAME : HESUM13.xls

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2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

******* LOW SCENARIO WITH DSM IMPACTS ******* ******* LOW SCENARIO RESULTS *******

Energy and Demand Values Adjusted for IN#72,IN#16,IN#92,IL#002 and Special Industrial Loads

EXTREME COINCIDENT 60 MINUTE DEMAND (MW) (EST. BEFORE 1984)

		(WITHOUT LOSSES)		(WITH LOSSES)		EXTREME ANNUAL
	YEAR	WINTER	SUMMER	WINTER	SUMMER	LOAD FACTOR
ACTUAL	2001	*****	*****	*****	*****	*****
ACTUAL	2002	*****	*****	*****	*****	*****
ACTUAL	2003	*****	*****	*****	*****	*****
ACTUAL	2004	*****	*****	*****	*****	*****
ACTUAL	2005	*****	*****	*****	*****	*****
ACTUAL	2006	*****	*****	*****	*****	*****
ACTUAL	2007	*****	*****	*****	*****	*****
ACTUAL	2008	*****	*****	*****	*****	*****
ACTUAL	2009	*****	*****	*****	*****	*****
ACTUAL	2010	*****	*****	*****	*****	*****
ACTUAL	2011	*****	*****	*****	*****	*****
FRCST	2012	1,463	1,438	1,521	1,495	51.8%
FRCST	2013	1,454	1,433	1,523	1,501	51.9%
FRCST	2014	1,474	1,465	1,544	1,535	52.1%
FRCST	2015	1,495	1,482	1,566	1,552	52.4%
FRCST	2016	1,506	1,504	1,577	1,576	52.6%
FRCST	2017	1,526	1,513	1,598	1,585	52.9%
FRCST	2018	1,522	1,512	1,595	1,584	53.1%
FRCST	2019	1,523	1,515	1,596	1,587	53.3%
FRCST	2020	1,525	1,519	1,597	1,591	53.3%
FRCST	2021	1,526	1,523	1,598	1,595	53.6%
FRCST	2022	1,526	1,525	1,599	1,598	53.7%
FRCST	2023	1,522	1,524	1,594	1,597	53.8%
FRCST	2024	1,520	1,525	1,592	1,597	53.7%
FRCST	2025	1,519	1,527	1,591	1,599	53.9%
FRCST	2026	1,519	1,530	1,591	1,603	53.9%
FRCST	2027	1,523	1,534	1,595	1,607	54.0%
FRCST	2028	1,528	1,539	1,601	1,612	53.8%
FRCST	2029	1,527	1,537	1,600	1,610	54.0%
FRCST	2030	1,533	1,543	1,606	1,617	54.0%
FRCST	2031	1,540	1,551	1,613	1,624	54.0%
FRCST	2032	1,547	1,558	1,621	1,632	53.9%

***** LOW SCENARIO WITH DSM IMPACTS ***** ***** LOW SCENARIO RESULTS *****

Adjusted for Sys. & Ind. HE EXT. COIN. 60 MINUTE DEMAND

	Without Losses (% Chg)		With Losses (% Chg)		ADJUSTED EXT. ANNUAL LOAD FACTOR
TIME PERIOD	WINTER	SUMMER	WINTER	SUMMER	(AVERAGE)
2001 -2006	*****	*****	*****	*****	*****
2006 -2011	*****	*****	*****	*****	*****
2012 -2017	0.84%	1.01%	1.00%	1.17%	52.29%
2017 -2022	0.01%	0.17%	0.01%	0.17%	53.31%
2022 -2027	-0.04%	0.11%	-0.04%	0.11%	53.83%
2027 -2032	0.32%	0.31%	0.32%	0.31%	53.96%
2001 -2011	*****	*****	*****	*****	*****
2012 -2032	0.28%	0.40%	0.32%	0.44%	53.33%

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2011 :FINAL HISTORICAL DATA YEAR ? (15 YEARS REQUIRED, MAX IS 40)
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******* LOW SCENARIO WITH DSM IMPACTS ******* ******* LOW SCENARIO WITH DSM IMPACTS *******

		H.E. Time Factor Ratio from 30 to 60 Minute excludes pass-throughs (Est. before 1984)		PERCENTAGE of IN #72 Served by H.E.	IN #72 served by H.E. (Yes=0 , No= 1)		PERCENTAGE of IN #16 Served by H.E.	IN #16 served by H.E. (Yes=0 , No= 1)	
	YEAR	WINTER	SUMMER		WINTER	SUMMER		WINTER	SUMMER
ACTUAL	2001	98.92%	98.85%	100.0%	0	0	100.0%	0	0
ACTUAL	2002	96.00%	99.02%	100.0%	0	0	100.0%	0	0
ACTUAL	2003	98.31%	98.80%	100.0%	0	0	100.0%	0	0
ACTUAL	2004	98.73%	98.31%	100.0%	0	0	100.0%	0	0
ACTUAL	2005	97.45%	98.93%	100.0%	0	0	100.0%	0	0
ACTUAL	2006	97.54%	98.57%	100.0%	0	0	100.0%	0	0
ACTUAL	2007	97.56%	99.78%	100.0%	0	0	100.0%	0	0
ACTUAL	2008	98.92%	98.38%	100.0%	0	0	100.0%	0	0
ACTUAL	2009	99.86%	99.76%	100.0%	0	0	100.0%	0	0
ACTUAL	2010	99.16%	99.49%	100.0%	0	0	100.0%	0	0
ACTUAL	2011	98.92%	99.58%	100.0%	0	0	100.0%	0	0
FRCST	2012	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2013	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2014	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2015	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2016	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2017	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2018	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2019	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2020	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2021	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2022	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2023	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2024	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2025	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2026	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2027	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2028	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2029	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2030	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2031	99.32%	99.61%	100.00%	0	0	100.00%	0	0
FRCST	2032	99.32%	99.61%	100.00%	0	0	100.00%	0	0

***** LOW SCENARIO WITH DSM IMPACTS ***** ***** LOW SCENARIO WITH DSM IMPACTS *****

	HE TIME FACTOR RATIO (30 to 60 MINUTE)	
TIME PERIOD	WINTER (AVERAGE)	SUMMER (AVERAGE)
2001 -2006	97.83%	98.75%
2006 -2011	98.66%	99.26%
2012 -2017	99.32%	99.61%
2017 -2022	99.32%	99.61%
2022 -2027	99.32%	99.61%
2027 -2032	99.32%	99.61%
2001 -2011	98.31%	99.04%
2012 -2032	99.32%	99.61%

VER 2.1 HOOSIER ENERGY REC, INC 2013 POWER REQUIREMENTS STUDY DISKETTE : 2013 PRS SYSTEM FORECAST
SUM INDIANA # : IN 106 SUMMARY HISTORICAL AND FORECAST SHEET File 1 of 3
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***** LOW SCENARIO WITH DSM IMPACTS *****

	YEAR	PERCENTAGE of IN #92 Served by H.E.	IN #92 served by H.E. (Yes=0 , No= 1) WINTER	SUMMER	PERCENTAGE of IL #2 Served by H.E.	IL #2 served by H.E. (Yes=0 , No= 1) WINTER	SUMMER
ACTUAL	2001	0.0%	1	1	0.0%	1	1
ACTUAL	2002	0.0%	1	1	0.0%	1	1
ACTUAL	2003	0.0%	1	1	0.0%	1	1
ACTUAL	2004	0.0%	1	1	0.0%	1	1
ACTUAL	2005	51.0%	1	0	0.0%	1	1
ACTUAL	2006	100.0%	0	0	0.0%	1	1
ACTUAL	2007	100.0%	0	0	0.0%	1	1
ACTUAL	2008	100.0%	0	0	0.0%	1	1
ACTUAL	2009	100.0%	0	0	0.0%	1	1
ACTUAL	2010	100.0%	0	0	0.0%	1	1
ACTUAL	2011	100.0%	0	0	100.0%	0	0
FRCST	2012	100.00%	0	0	100.00%	0	0
FRCST	2013	100.00%	0	0	100.00%	0	0
FRCST	2014	100.00%	0	0	100.00%	0	0
FRCST	2015	100.00%	0	0	100.00%	0	0
FRCST	2016	100.00%	0	0	100.00%	0	0
FRCST	2017	100.00%	0	0	100.00%	0	0
FRCST	2018	100.00%	0	0	100.00%	0	0
FRCST	2019	100.00%	0	0	100.00%	0	0
FRCST	2020	100.00%	0	0	100.00%	0	0
FRCST	2021	100.00%	0	0	100.00%	0	0
FRCST	2022	100.00%	0	0	100.00%	0	0
FRCST	2023	100.00%	0	0	100.00%	0	0
FRCST	2024	100.00%	0	0	100.00%	0	0
FRCST	2025	100.00%	0	0	100.00%	0	0
FRCST	2026	100.00%	0	0	100.00%	0	0
FRCST	2027	100.00%	0	0	100.00%	0	0
FRCST	2028	100.00%	0	0	100.00%	0	0
FRCST	2029	100.00%	0	0	100.00%	0	0
FRCST	2030	100.00%	0	0	100.00%	0	0
FRCST	2031	100.00%	0	0	100.00%	0	0
FRCST	2032	100.00%	0	0	100.00%	0	0

***** LOW SCENARIO WITH DSM IMPACTS *****

TIME PERIOD
2001 -2006
2006 -2011
2012 -2017
2017 -2022
2022 -2027
2027 -2032
2001 -2011
2012 -2032

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***** LOW SCENARIO WITH DSM IMPACTS ***** ***** LOW SCENARIO WITH DSM IMPACTS *****

		DSM EE Program Energy Impact						DSM Demand Impacts-- Both EE & DR Programs) Coincident 60 Minute Demand MW			
		Aggregated Total Member Energy Purchased		Total Member Energy Generated				Savings w/o Losses		Savings with Losses	
	YEAR	Savings MWH	Percent of Total	Savings MWH	Percent of Total			Winter	Summer	Winter	Summer
ACTUAL	2001										
ACTUAL	2002										
ACTUAL	2003										
ACTUAL	2004										
ACTUAL	2005										
ACTUAL	2006										
ACTUAL	2007										
ACTUAL	2008										
ACTUAL	2009										
ACTUAL	2010										
ACTUAL	2011										
FRCST	2012	104,788	1.5%	108,416	1.5%			40.350	23.815	41.931	24.748
FRCST	2013	125,361	1.8%	130,422	1.8%			46.550	27.668	48.758	28.980
FRCST	2014	144,473	2.1%	150,306	2.1%			55.424	34.284	58.053	35.910
FRCST	2015	161,520	2.3%	168,041	2.3%			64.096	40.998	67.136	42.943
FRCST	2016	155,196	2.2%	161,462	2.2%			67.370	45.571	70.565	47.733
FRCST	2017	147,262	2.0%	153,207	2.0%			70.097	49.998	73.422	52.370
FRCST	2018	150,912	2.1%	157,005	2.1%			75.703	55.729	79.293	58.372
FRCST	2019	159,576	2.2%	166,019	2.2%			82.647	62.058	86.567	65.001
FRCST	2020	170,371	2.3%	177,250	2.3%			87.905	65.349	92.074	68.448
FRCST	2021	181,709	2.5%	189,045	2.5%			93.802	68.599	98.251	71.852
FRCST	2022	193,144	2.6%	200,942	2.6%			100.739	73.468	105.517	76.953
FRCST	2023	206,040	2.8%	214,358	2.8%			107.951	78.348	113.071	82.064
FRCST	2024	217,466	2.9%	226,246	2.9%			114.755	82.782	120.197	86.709
FRCST	2025	225,070	3.0%	234,157	3.0%			121.092	86.576	126.835	90.682
FRCST	2026	232,491	3.1%	241,877	3.1%			127.172	89.826	133.203	94.086
FRCST	2027	233,609	3.1%	243,041	3.1%			129.907	92.145	136.068	96.516
FRCST	2028	235,263	3.1%	244,762	3.1%			131.368	94.265	137.598	98.736
FRCST	2029	237,491	3.1%	247,080	3.1%			132.820	96.435	139.119	101.009
FRCST	2030	240,827	3.2%	250,550	3.2%			135.439	98.830	141.862	103.518
FRCST	2031	243,583	3.2%	253,417	3.2%			137.810	101.082	144.346	105.876
FRCST	2032	246,547	3.2%	256,501	3.2%			140.525	103.334	147.190	108.235

***** LOW SCENARIO WITH DSM IMPACTS *****

TIME PERIOD										
2001 -2006										
2006 -2011										
2012 -2017										
2017 -2022										
2022 -2027										
2027 -2032										
2001 -2011										
2012 -2032										

VER 2.1 SUM | HOOSIER ENERGY REC, INC INDIANA # : IN 106 | 2013 POWER REQUIREMENTS STUDY SUMMARY HISTORICAL AND FORECAST SHEET ORIG. DATE : 7/19/13 ITER. DATE : 9/19/13 | DISKETTE : 2013 PRS SYSTEM FORECAST File 1 of 3 FILE NAME : HESUM13.xls

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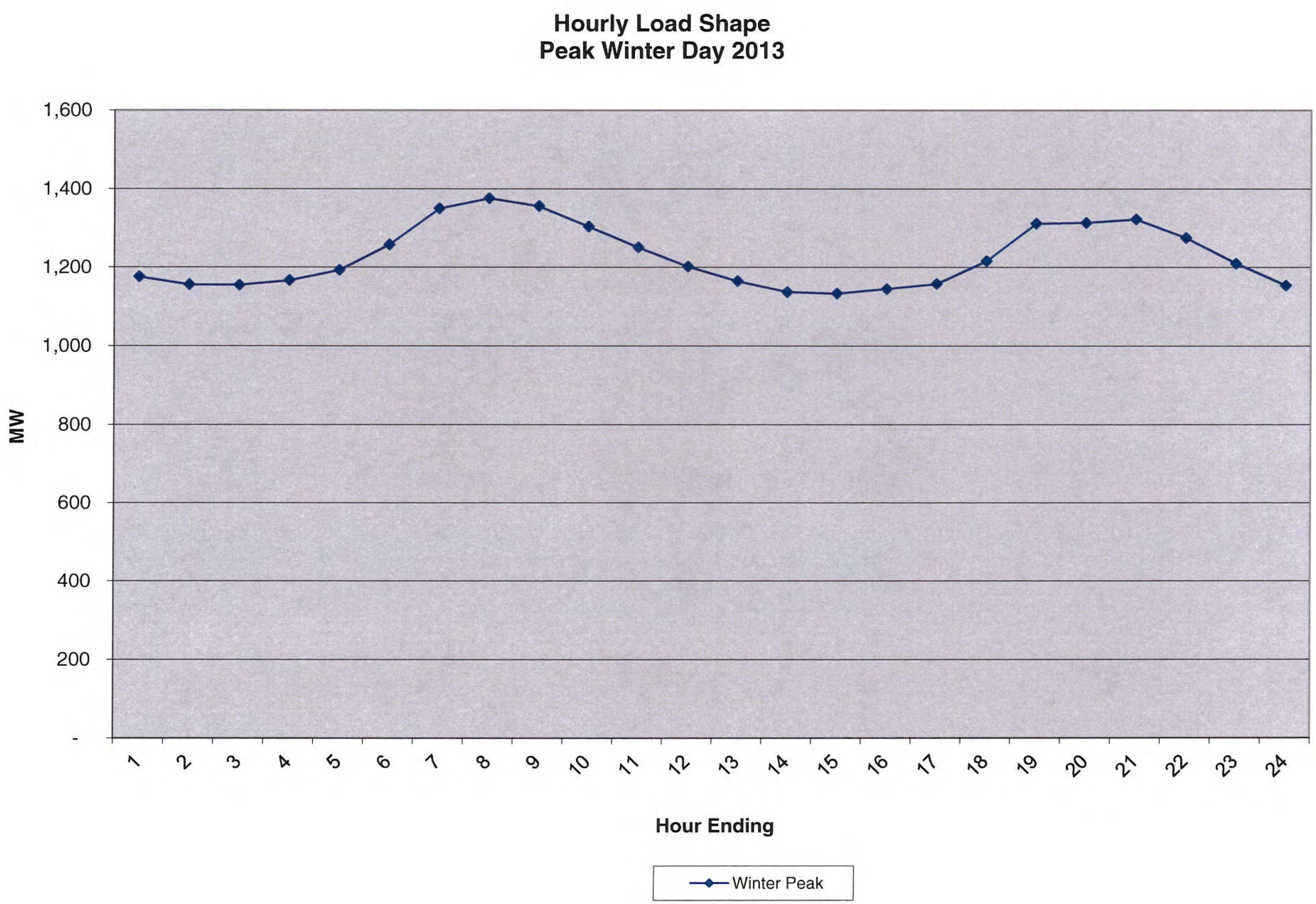
20 :NUMBER OF YEARS TO FORECAST (MAXIMUM 30 YR.) ?

		***** LOW SCENARIO WITH DSM IMPACTS *****				***** LOW SCENARIO WITH DSM IMPACTS *****			
		DSM -- EE Program Demand Impacts **Coincident 60 Minute Demand MW**				**DSM -- DR Program Demand Impacts** **Coincident 60 Minute Demand MW**			
		Savings w/o Losses		**Savings with Losses**		**Savings w/o Losses**		**Savings with Losses**	
	YEAR	**Winter**	**Summer**	**Winter**	**Summer**	**Winter**	**Summer**	**Winter**	**Summer**
ACTUAL	2001								
ACTUAL	2002								
ACTUAL	2003								
ACTUAL	2004								
ACTUAL	2005								
ACTUAL	2006								
ACTUAL	2007								
ACTUAL	2008								
ACTUAL	2009								
ACTUAL	2010								
ACTUAL	2011								
FRCST	2012	33.566	13.936	34.881	14.482	6.784	9.879	7.050	10.266
FRCST	2013	39.472	16.769	41.345	17.564	7.077	10.899	7.413	11.416
FRCST	2014	45.560	19.863	47.721	20.805	9.864	14.421	10.332	15.105
FRCST	2015	51.322	22.817	53.757	23.899	12.774	18.181	13.380	19.043
FRCST	2016	51.626	23.432	54.075	24.543	15.744	22.139	16.490	23.189
FRCST	2017	51.332	23.817	53.767	24.946	18.765	26.182	19.655	27.423
FRCST	2018	53.841	25.362	56.395	26.565	21.861	30.367	22.898	31.807
FRCST	2019	57.644	27.438	60.378	28.739	25.004	34.620	26.189	36.262
FRCST	2020	62.129	29.715	65.075	31.125	25.776	35.633	26.999	37.323
FRCST	2021	66.831	32.070	70.000	33.591	26.972	36.529	28.251	38.261
FRCST	2022	71.659	34.408	75.057	36.039	29.080	39.061	30.459	40.913
FRCST	2023	76.989	36.935	80.641	38.687	30.961	41.413	32.430	43.377
FRCST	2024	82.336	39.413	86.242	41.282	32.418	43.369	33.956	45.426
FRCST	2025	87.346	41.470	91.489	43.437	33.746	45.106	35.346	47.245
FRCST	2026	92.107	43.108	96.476	45.152	35.065	46.718	36.728	48.933
FRCST	2027	93.521	43.821	97.957	45.900	36.386	48.324	38.111	50.616
FRCST	2028	93.683	44.401	98.127	46.507	37.684	49.864	39.471	52.229
FRCST	2029	93.827	45.016	98.277	47.151	38.992	51.419	40.842	53.858
FRCST	2030	95.128	45.842	99.640	48.016	40.310	52.988	42.222	55.502
FRCST	2031	96.171	46.510	100.733	48.716	41.639	54.572	43.613	57.161
FRCST	2032	97.548	47.162	102.174	49.399	42.977	56.172	45.016	58.836

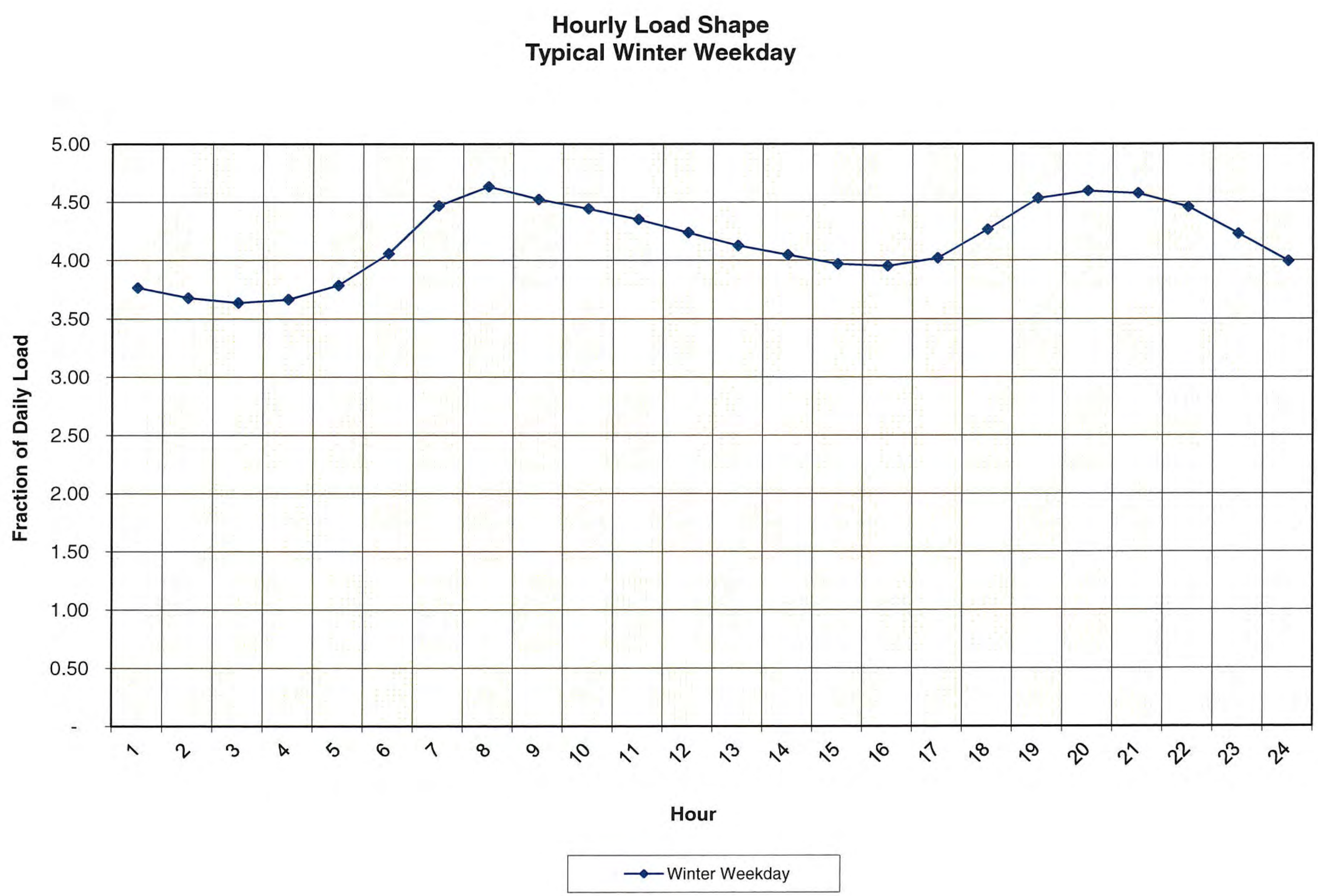
TIME PERIOD								
2001 -2006								
2006 -2011								
2012 -2017								
2017 -2022								
2022 -2027								
2027 -2032								
2001 -2011								
2012 -2032								

Appendix G

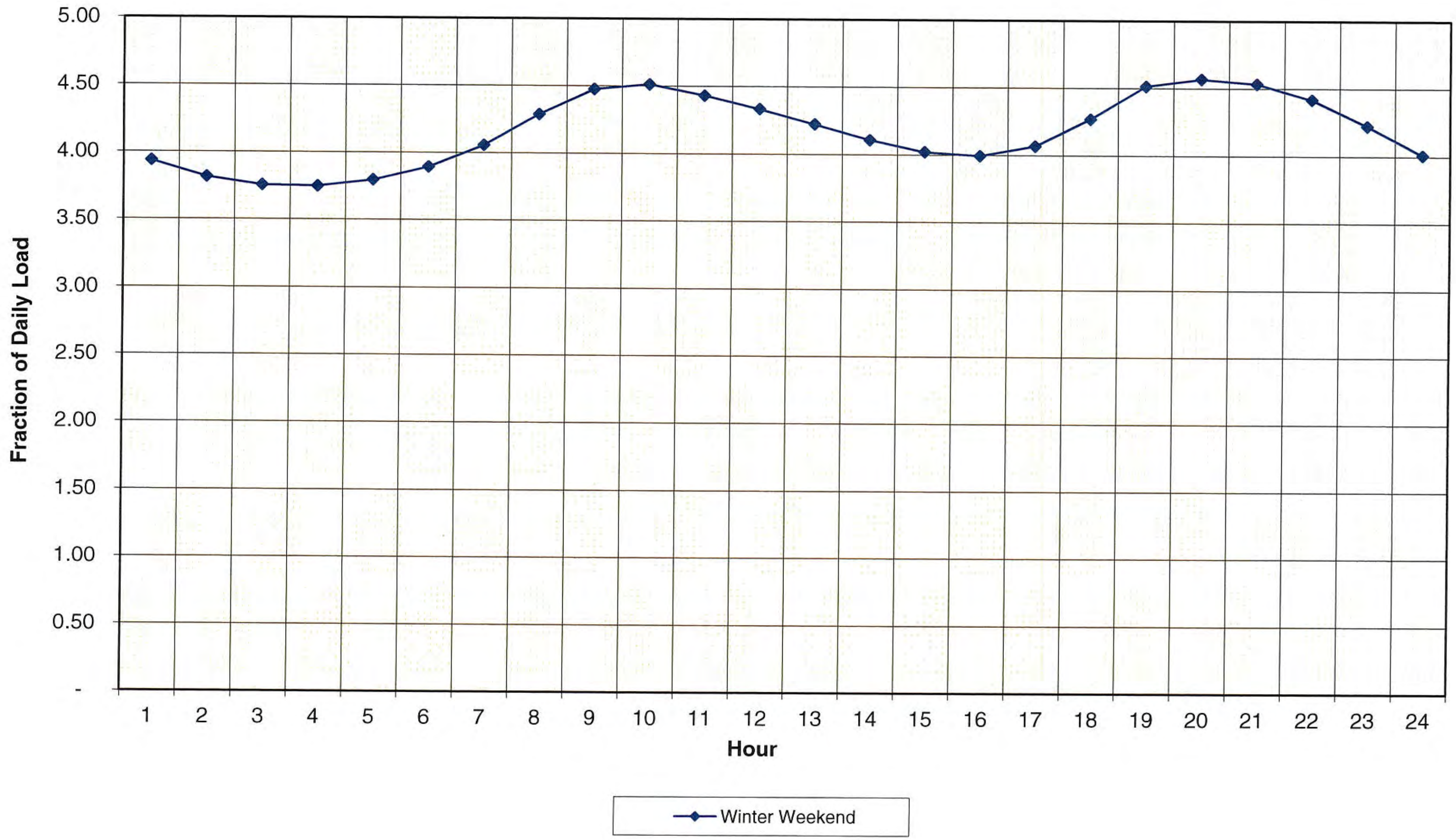
Load Shapes and Historical Load Comparison to Forecast



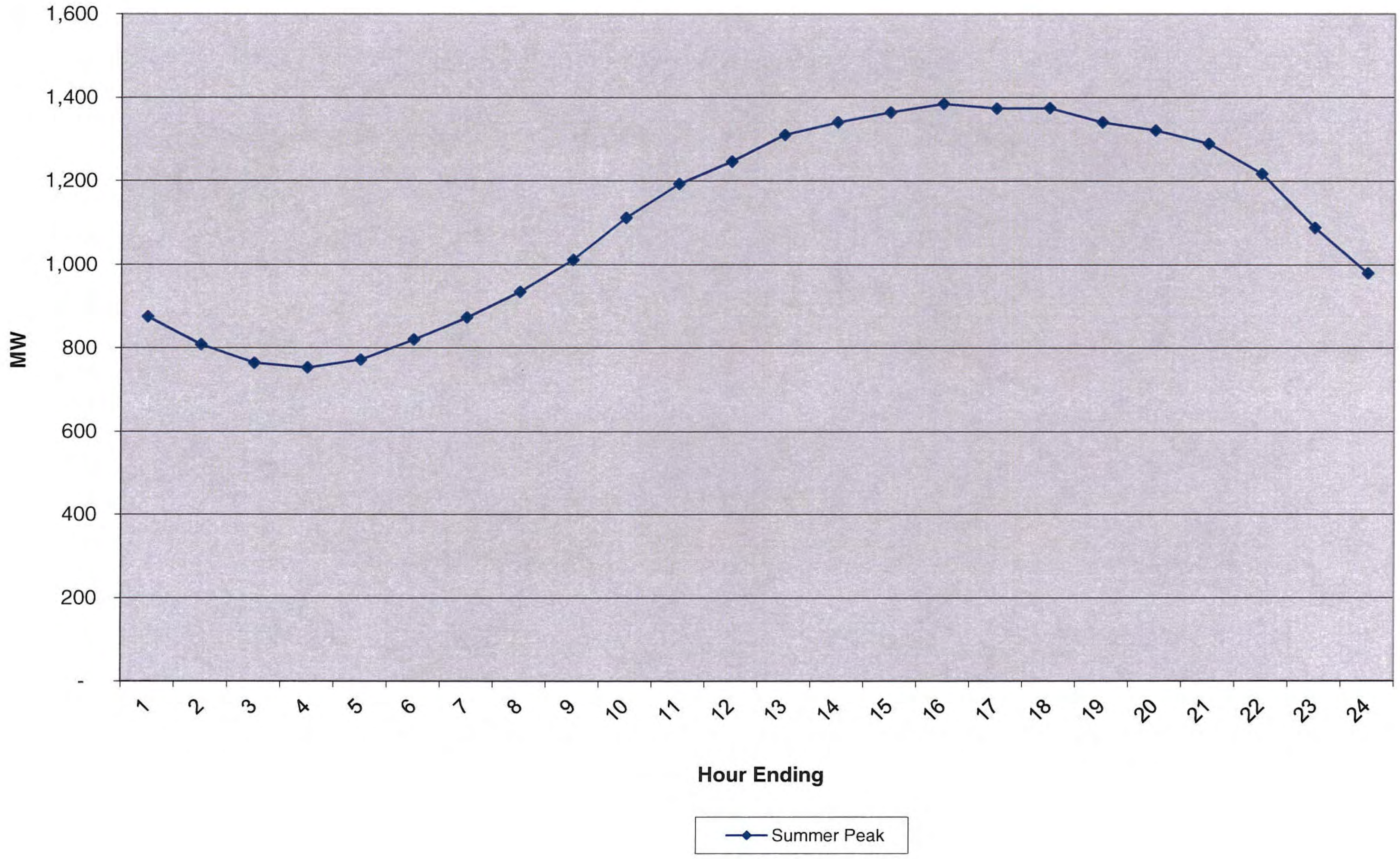
Hourly Load Shape
Peak Winter Day 2013
MW
1,600
1,400
1,200
1,000
800
600
400
200
-
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
Hour Ending
Winter Peak

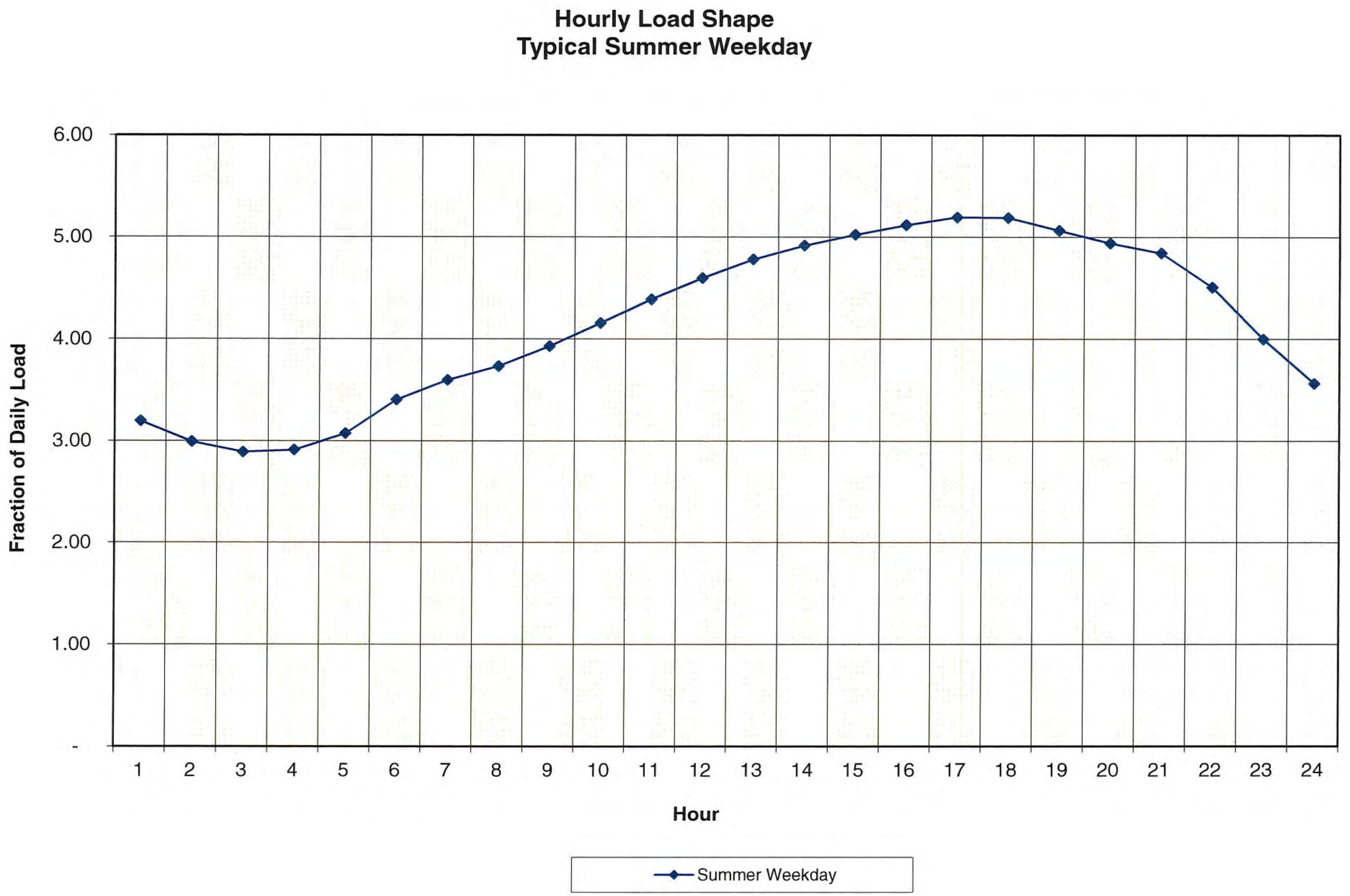

Hourly Load Shape
Typical Winter Weekday
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
-
Fraction of Daily Load
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Hour
Winter Weekday

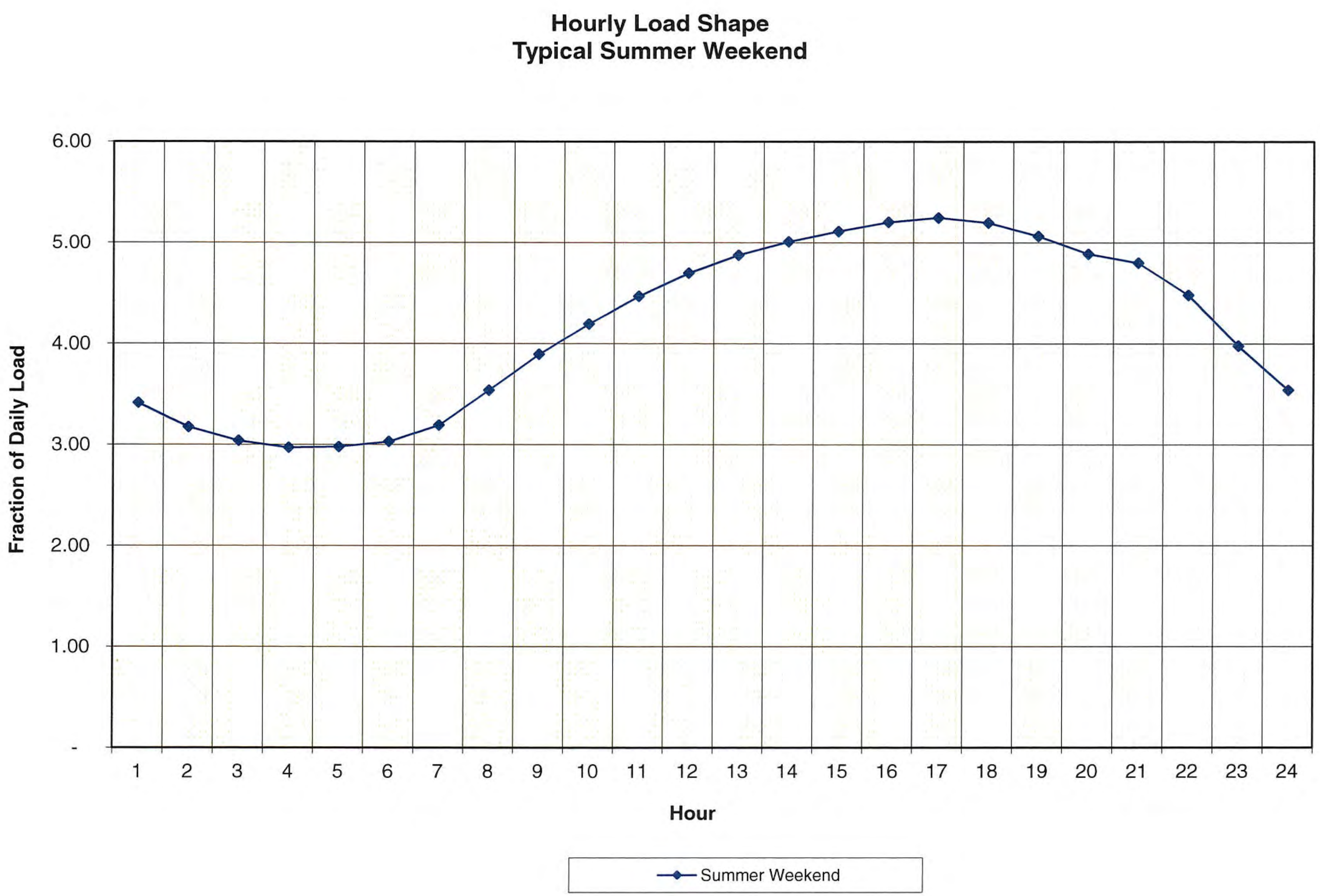
Hourly Load Shape
Typical Winter Weekend



Hourly Load Shape
Peak Summer Day 2013




Hourly Load Shape
Typical Summer Weekday
Fraction of Daily Load
6.00
5.00
4.00
3.00
2.00
1.00
-
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
Hour
Summer Weekday


Hourly Load Shape
Typical Summer Weekend
Fraction of Daily Load
6.00
5.00
4.00
3.00
2.00
1.00
-
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Hour
Summer Weekend

Hoosier Energy Rural Electric Cooperative, Inc.
Comparison of Forecasted Summer Peak Demand to Actual (MW)
Calendar Years 2003 - 2013

		Forecasted					
Year	Actual	2003 PRS	2005 PRS	2007 PRS	2009 PRS	2011 PRS	2013 PRS
2003	1079	1129					
2004	1093	1163					
2005	1355	1326	1321				
2006	1366	1364	1354				
2007	1397	1417	1396	1390			
2008	1327	1455	1430	1464			
2009	1292	1493	1469	1541	1392		
2010	1431	1530	1501	1594	1407		
2011	1478	1572	1539	1655	1472	1370	
2012	1537	1625	1573	1689	1474	1383	
2013	1385	1661	1610	1725	1489	1401	1424

Hoosier Energy Rural Electric Cooperative, Inc.
Comparison of Forecasted Winter Peak Demand to Actual (MW)
Calendar Years 2003 - 2013

		Forecasted					
Year	Actual	2003 PRS	2005 PRS	2007 PRS	2009 PRS	2011 PRS	2013 PRS
2003	1106	1090					
2004	1106	1123					
2005	1150	1165	1180				
2006	1283	1337	1335				
2007	1387	1384	1376	1357			
2008	1442	1421	1409	1427			
2009	1525	1458	1448	1500	1398		
2010	1357	1495	1476	1551	1416		
2011	1453	1536	1513	1610	1470	1404	
2012	1287	1588	1546	1643	1477	1416	
2013	1376	1624	1582	1678	1501	1431	1435

Hoosier Energy Rural Electric Cooperative, Inc.

Comparison of Forecasted Annual Energy Requirements to Actual (MWh)

Calendar Years 2003 - 2013

		Forecasted					
Year	Actual	2003 PRS	2005 PRS	2007 PRS	2009 PRS	2011 PRS	2013 PRS
2003	5,574,724	5,587,697					
2004	5,783,721	5,750,959					
2005	6,383,901	6,240,054	6,388,652				
2006	6,607,041	6,695,726	6,803,814				
2007	7,043,038	6,930,797	7,012,221	7,041,182			
2008	7,013,553	7,114,660	7,176,935	7,420,124			
2009	6,728,314	7,293,350	7,373,453	7,817,530	6,930,213		
2010	7,169,555	7,475,338	7,526,849	8,083,978	7,040,762		
2011	7,261,250	7,675,238	7,714,613	8,386,054	7,416,679	7,168,523	
2012	7,193,545	7,935,984	7,881,469	8,542,823	7,472,510	7,300,091	
2013	7,335,037	8,105,698	8,063,188	8,713,270	7,626,664	7,469,626	7,279,170