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Beth Heline, General Counsel
Indiana Utility Regulatory Commission
101 West Washington Street, Suite 1500E
Indianapolis, IN 46204

RE: STATEWIDE ANALYSIS

Dear Ms. Heline:

On behalf of the Indiana Coal Council, please accept the enclosed written comments on the Commission's Statewide Analysis. The Comments are being submitted pursuant to GAO 2018-2.

Thank you for the opportunity to participate in this process both in the public hearing and through the submission of written comments. Please contact me if you have any questions or would like to further discuss our comments.

All the best,



Jeffery A. Earl

Indiana Coal Council (ICC) Comments on the Statewide Analysis of Future Resource Requirements for Electricity

Summary of Conclusions

- Indiana Code § 8-1-8.5-3 requires the Indiana Utility Regulatory Commission (IURC) to prepare a statewide analysis of long-range needs for expansion of facilities for generation of electricity (Statewide Analysis). The required scope of the Statewide Analysis is as follows:
 - (1) The probable future growth of the use of electricity
 - (2) The probable needed generating resources
 - (3) The optimal extent, size, mix, and general location of generating plants
 - (4) The optimal arrangement for statewide or regional pooling of power and arrangements with other utilities and energy suppliers to achieve maximum efficiencies for the benefits of the people of Indiana
 - (5) The comparable costs of meeting future growth by other means of providing reliable, efficient, and economic electric service, including purchased power, joint ownership of facilities, refurbishments of existing facilities, conservation (including energy efficiency), load management, distributed generation, and cogeneration.
- The scope is comprehensive, recognizing the appropriate considerations for the Governor, the General Assembly, and the IURC in making difficult and significant decisions in a time of great uncertainty and change.
- The scope, through its inclusions of a requirement to consider “the comparable costs of meeting future growth by *other* means” directly recognizes the impact of costly new capital investments on the competitiveness of power pricing in the state and the associated impact on the economy.
- On April 11, 2018, the IURC delegated through General Administrative Order 2018-2 the authority to the IURC staff to prepare the Statewide Analysis. The IURC mandate provided a draft of the Statewide Analysis was to be complete in or around May 2018.
- The schedule for the first Statewide Analysis was unreasonable. To provide a responsive document more time and more resources were required. The Draft Statewide Analysis was published on June 20, 2018, and a final draft was expected to be completed by October 1, 2018.
- The Draft Statewide Analysis is not consistent with the defined scope of the statute. Rather it is largely a mashing together of pre-existing reports (i.e., the 2015 to 2017 utility-filed IRP’s; information from a December 2017 report prepared by the State Utility Forecasting Group (SUGF) at Purdue entitled Indiana Electricity Projections: The 2017 Forecast; information from the 2018 Annual Energy Outlook published by the Energy Information Administration (EIA) in February 2018; and selected information from MISO and PJM).

- There are three major problems with this approach.
 1. There are wide differences in each of the sources upon which the IURC staff relied and there was no effort to reconcile the differences in the Draft Statewide Analysis. For example, neither EIA nor the SUFG assumed a carbon regime in their forecasts. By contrast, the state utilities all assumed one in their preferred cases, but there are wide differences among them as to what future carbon prices will be.¹
 2. The IRP data are stale.² The IRP's were all published before 2018³ and contain assumptions that demonstrably are at odds with current thinking. This extends virtually to all areas including commodity costs, regulatory assumptions, and the cost and operating capabilities of renewable sources of energy and batteries. Indiana Michigan Power recently acknowledged in an email to the ICC that its Powder River Basin price forecast is significantly different than the current market outlook and that it will look to revise it going forward.⁴ The fact that the IRP's are stale is not surprising. The IURC's requirement that IRP's be updated no less than every three years acknowledges the rapid rate of change in the industry. Most recently, NIPSCO acknowledged this when it decided to update its December 2016 IRP in 2018 rather than wait until 2019.
 3. The scope requested an evaluation of statewide optimization of power plant locations, pooling, and a review of "other" resource options such as power purchase agreements, joint plant ownership, refurbishments of existing facilities, conservation (including energy efficiency), load management, distributed generation, and cogeneration. Using discretely prepared IRPs without supplemental analysis does not provide such an analysis. The Draft Statewide Analysis noted that "the Commission does not have the capability to predict the location of potential future resources."⁵ The statute accounts for this by requiring the Commission to consult with a large variety of parties, including other state commissions, stakeholders, and regional transmission operators in addition to the state's utility companies.

¹ The Draft Statewide Analysis suggests that carbon is not important in resource decision-making as the costs associated with carbon "were dwarfed by the relatively low cost of natural gas as a generating fuel and the very high cost associated with the construction and maintenance of coal-fired generation." This was demonstrably not the case. For example, in the 2016 comments to the IRP, the Indiana Coal Council demonstrated that without carbon regulations, the early retirement of coal capacity was not justified.

[https://www.in.gov/iurc/files/ICC%20Comments%20on%20Vectren%20IRP%20\(002\).pdf](https://www.in.gov/iurc/files/ICC%20Comments%20on%20Vectren%20IRP%20(002).pdf)

² It is also noteworthy that that the IRPs are not all the same vintage. As a result, the forecast periods are not identical.

³ The Duke Energy Indiana and the Indiana Michigan Power IRP's were prepared in 2015; the Indianapolis Power & Light, Northern Indiana Public Service Company, and Southern Indiana Gas & Electric IRP's were prepared in 2016. The Hoosier Energy IRP was prepared in 2017.

⁴ June 29, 2018 email from Regiana Sistevaris, Senior Regulation Consultant Indiana Michigan Power.

⁵ Draft Statewide Analysis, Page 29

- What is most surprising about the Draft Statewide Analysis considering its heavy reliance on the utility’s IRP’s is its failure to acknowledge key findings in the its own Director’s Report on the 2016 IRPs. For example, the Director’s Report states:
 - “resource portfolios (from the IRP) should not be regarded as being THE Plan (sic) that a utility commits to undertake. Rather, it should be regarded as a road map based on the best information and judgment at the time the analysis is undertaken.
 - [T]he IRP analysis – including the utility’s selection of a preferred resource portfolio – should be regarded as an indicative analysis, in that the results are based on appropriate information available at the time the study was being conducted and does not bind the utility to adhere to the preferred resource portfolio, or any other resource portfolio.

These findings show that a compilation of aged IRPs does not necessarily represent the appropriate resource plans for the state.

- The Draft Statewide Analysis barely touches upon the primary focus of the IURC-sponsored 2018 Contemporary IRP Issues Forum including Energy Efficiency, Distribution System Planning, Smart Metering, Distributed Energy Resources and Peak Demand Reduction in Indiana. The focus of the 2018 Forum presumably reflected the areas that the IURC staff deemed most relevant.
- To the extent, the Governor, the General Assembly, and the IURC want a blueprint to guide their respective efforts to move the state’s power industry into the utilities of tomorrow, the Draft Statewide Analysis does not provide one. Reliance on the Draft Statewide Analysis for making decisions will result in negative long-term consequences.
- The Draft Statewide Analysis is a first and useful step in the development of a Statewide Analysis. While the work of the Commission’s staff to this point is commendable, the draft does not satisfy the defined scope of the statute. The Governor, the General Assembly, and the IURC would be better served to extend the deadlines for performing a comprehensive Statewide Analysis and to provide sufficient resources to its accomplishment.

Background

Indiana Code § 8-1-8.5-3 requires the Indiana Utility Regulatory Commission (“IURC”) to prepare a statewide analysis of long-range needs for expansion of facilities for generation of electricity (“Statewide Study”). On April 11, 2018, the IURC delegated through General Administrative Order 2018-2 the authority to the IURC staff to prepare an annual report that includes an estimate of the following:

- (1) The probable future growth of the use of electricity
- (2) The probable needed generating resources
- (3) The optimal extent, size, mix and general location of generating plants

- (4) The optimal arrangement for statewide or regional pooling of power and arrangements with other utilities and energy suppliers to achieve maximum efficiencies for the benefits of the people of Indiana
- (5) The comparable costs of meeting future growth by other means of providing reliable, efficient, and economic electric service, including purchased power, joint ownership of facilities, refurbishments of existing facilities, conservation (including energy efficiency), load management, distributed generation, and cogeneration.

While no specific deadlines were provided, the guidance provided in Appendix A set forth that an initial draft of the Statewide Analysis should be posted to the Commission’s website on or around May. Comments to the draft can be made through the website or in meetings with IURC staff. On or around June or July, a public hearing shall be held. Finally, Appendix A states that the Statewide Analysis should be completed and “posted in time for the Statewide Analysis to be included in the Commission's Annual Report and/or provided to the Governor and the appropriate committees of the General Assembly.”

The Draft report was published June 20, 2018. Initial comments and hearing dates were scheduled for July but at the request of at least one party were delayed until August 17, 2018.

Report Summary and Critique

(1) Probable Future Growth in the Use of Electricity

The Draft Statewide Analysis summarizes the individual Indiana utility forecasts of load and energy and compares these forecasts to the SUFG 2017 forecast and to the national electricity demand growth forecast by EIA.⁶

Entity	Forecast Period	Annual Energy (CAGR)	Peak Demand (CAGR)
Duke Energy Indiana	2016-2035	0.7%	0.8%
Hoosier Energy	2018-2037	0.7%	0.7%
Indiana Michigan Power	2016-2035	0.1%	0.2%
IMPA	2018-2037	0.5%	0.5%
Inianapolis Power &Light	2016-2037	0.5%	0.4%
Northern IN Public Service	2017-2037	0.3%	0.4%
SIGECO	2016-2036	0.5%	0.5%
Wabash Valley	2018-2036	0.8%	0.8%
SUFG	2016-2035	1.1%	1.0%
EIA (National)	2017-2050	0.9%	

No analysis of the forecasts was conducted; no conclusions were formed other than that the forecasts are “relatively low”. Further, the forecasts were not put on an even basis. Given the decline in electricity demand in 2016, the forecasts starting in 2016 would have a higher compound average growth rate (CAGR) than the forecasts started in 2017 and 2018.

⁶ It is unclear why the regional number for East North Central was not used. The electricity forecast for East North Central in the 2018 AEO was 0.8%.

One relevant difference between the SUFG forecast and the forecasts of the Indiana utilities relates to the differences in regulatory assumptions. The SUFG does not include any carbon constraints or costs associated with ELG⁷ compliance in its forecasts, while all the utilities do. Other likely differences are assumptions regarding commodity prices, capital cost assumptions, and the outlook for energy efficiency, demand side management, distribution generation, and smart metering.

Ultimately, the load and energy forecasts determine future resource requirements and are critically important to understand. To varying degrees, the utilities themselves consider a range in forecast growth in load and energy to reflect the recognized uncertainty in these forecasts. The Draft Statewide Analysis only minimally reflects the range in growth assumptions and the impact of lower or higher growth rates on generation levels.

(2) The Probable Needed Generating Resources

The Draft Statewide Analysis discussion of the need for generating sources starts with the work being done by the SUFG. In 2017, SUFG changed its modeling approach. It replaced its old model with AURORA.xmp, a 24/7 dispatch model developed by EPIS. The AURORA.xmp model is widely used. The model relies on voluminous assumptions. EPIS provides default assumptions so that the model can be run as is. Most users expend considerable efforts to customize assumptions. As a relatively new user of AURORA.xmp, SUFG is largely dependent on many of the default model assumptions. The variables that are critical to resource analysis and forecasting include commodity prices, delivered prices, reagent costs, regulatory assumptions, variable and fixed plant O&M costs, capital costs, plant operating parameters, and transmission costs/constraints.

The AURORA.xmp is a national model but can be “run” on smaller geographic areas. If not national, the logical regional areas are the areas governed by each Regional Transmission Organizations (RTOs) as the RTO dispatches power for the entire area. SUFG is believed to have limited the geographic area to the state of Indiana. SUFG indicated the only out of state sale/purchase of electricity considered was the known and identified out-of-state power purchase agreements (PPAs).

SUFG did not validate each utility’s resource plan. SUFG’s base resource plan were derived from the preferred plan in each utility’s most-recently available IRP.⁸ Specifically SUFG states “(p)lanned capacity changes include: certified, rate base eligible generation additions, retirements, de-ratings due to pollution control retrofits, changes in the amount of demand response that is available, and net changes in firm out-of-state purchases and sales.”⁹

SUFG developed forecasts of additional resources needed to meet the required reserve margins given SUFG’s forecast of load growth. SUFG concluded no resources were needed before 2021, 3600 MW needed by 2025, 6,300 MW by 2030, and 9,300 MW by 2035. SUFG indicated it was not comfortable with the Aurora model results as to where the resources were needed.

⁷ ELG refers to the Effluent Limitation Guidelines Final Rule.

⁸ Of note, SUFG assumed retirement of Schahfer 17/18 even though NIPSCO committed to its re-evaluation and did not assume retirement of the two Rockport units.

⁹ SUFG indicated it received confidential information from each utility under non-disclosure agreements.

The IRPs the Draft Statewide Analysis relied upon are listed below. It is worth noting that IRPs are currently underway at Duke Energy Indiana, Indiana Michigan Power¹⁰, and Northern Indiana Public Service. These 2018 IRPs are likely to have different results than the earlier IRPs.

Utility	IRP Date
Duke Energy Indiana	2015
Hoosier Energy	2017
Indiana Michigan Power	2015
Indiana Municipal Power Agency	2017
Indianapolis Power & Light	2016
Northern Indiana Public Service	2016
Southern Indiana Gas & Electric	2016
Wabash Valley Power Association	2017

The lack of acknowledgement that the stale IRPs may no longer reflect the current environment is particularly surprising given the following clear conclusions in the Director’s Report on the 2016 IRPs:

- “resource portfolios (from the IRP) should not be regarded as being THE Plan that a utility commits to undertake. Rather, it should be regarded as a road map based on the best information and judgment at the time the analysis is undertaken.
- [T]he IRP analysis – including the utility’s selection of a preferred resource portfolio – should be regarded as an indicative analysis, in that the results are based on appropriate information available at the time the study was being conducted and does not bind the utility to adhere to the preferred resource portfolio, or any other resource portfolio.

The Draft Statewide Analysis contains no analysis of its own nor does it establish criteria that it believes are important considerations in the selection of new resources.

(3) The Optimal Extent, Size, Mix and General Location of Generating Plants

The Draft Statewide Analysis states up front that the IURC staff did “not have the capability to predict the location of potential future resources.” Rather than address the specified scope, the Draft Statewide Analysis used this section of the report to discuss “Considerations Affecting Resource Decisions.” The discussion focuses on the relative costs of coal and natural gas resources and then summarizes the resource choices in the following IRP’s which are the same IRP’s reviewed above.

¹⁰ In correspondence with Indiana Michigan Power, ICC confirmed that the utility assumptions regarding future coal prices was inconsistent with current forecasts.

Utility	IRP Date
Duke Energy Indiana	2015
Hoosier Energy	2017
Indiana Michigan Power	2015
Indiana Municipal Power Agency	2017
Indianapolis Power & Light	2016
Northern Indiana Public Service	2016
Southern Indiana Gas & Electric	2016
Wabash Valley Power Association	2017

The general discussion of key factors is incomplete. The Draft Statewide Analysis attributes the coal plant retirements to low gas prices rather than environmental regulations. A careful analysis of the IRPs shows that is the not the case. Without the assumed environmental regulations, the NPV of retaining the coal plants is lower than or similar to the NPV assuming new gas plants.

Rather, the causes of the current round of coal plant retirements is due to other factors besides current low gas prices including the following:

- The antiquated regulatory system which compensates utilities based upon their invested capital rather than performance is a large part of the motivation for the recently-announced plans to replace largely depreciated coal plants with new gas plants
- The lack of consideration of life cycle emissions of carbon from new gas plants provide the illusion that the replacement of coal plants with new gas plants are more environmentally sound when they are not.
- The failure to consider adequately that the risks associated with increased reliance on natural gas both with respect to grid resiliency and price volatility
- The failure to consider that any new gas plants built are likely to become stranded assets well in advance of their expected (and modeled) lives.
- The consistent understatement of power plant costs during the CPCN process

(4) The Optimal Arrangement for Statewide or Regional Pooling of Power

While not said explicitly related to this scope item, it appears that the IURC staff also does not have the capability to analyze the optimal arrangement for statement or regional pooling of power. This is not meant as a criticism as the skill set required to perform this type of analysis is different. The Draft Statewide Analysis describes resource and generic operational efficiencies gained through regional transmission organizations (RTOs). Presumably, the inclusion of this scope item was to critically assess the role statewide or regional pooling of power could play in maximizing efficiencies for the benefits of the people of Indiana. Rather, following the descriptions of the relevant RTO's, i.e., MISO and PJM, the Draft Statewide Analysis simply summarized their respective outlooks as to the mix of future generation.

(5) The Comparable Costs of Meeting Future Growth

The scope asks this element to look at alternative resource approaches such as purchased power, joint ownership, refurbishment of existing facilities, conservation, load management, distributed generation, and cogeneration. The Draft Statewide Analysis includes estimated levelized cost of electricity (LCOE) for different **new** technologies out of the latest EIA Annual Energy Outlook. As shown below, this table includes **none** of the options referred to in the scope. This item is perhaps the most difficult part of the analysis as it requires a consideration outside of the box, so to speak.

Estimated Levelized Cost of Electricity (Capacity-Weighted Average) for New Generating Resources Entering Service in 2022 (2017 \$/ MWh)

Plant type	Capacity factor (%)	Levelized capital cost	Levelized fixed O&M	Levelized variable O&M	Levelized transmission cost	Total system LCOE	Levelized tax credit ²	Total LCOE including tax credit
Dispatchable technologies								
Coal with 30% CCS ³	NB	NB	NB	NB	NB	NB	NA	NB
Coal with 90% CCS ³	NB	NB	NB	NB	NB	NB	NA	NB
Conventional CC	87	13.0	1.5	32.8	1.0	48.3	NA	48.3
Advanced CC	87	15.5	1.3	30.3	1.1	48.1	NA	48.1
Advanced CC with CCS	NB	NB	NB	NB	NB	NB	NA	NB
Conventional CT	NB	NB	NB	NB	NB	NB	NA	NB
Advanced CT	30	22.7	2.6	51.3	2.9	79.5	NA	79.5
Advanced nuclear	90	67.0	12.9	9.3	0.9	90.1	NA	90.1
Geothermal	91	28.3	13.5	0.0	1.3	43.1	-2.8	40.3
Biomass	83	40.3	15.4	45.0	1.5	102.2	NA	102.2
Non-dispatchable technologies								
Wind, onshore	43	33.0	12.7	0.0	2.4	48.0	-11.1	37.0
Wind, offshore	45	102.6	20.0	0.0	2.0	124.6	-18.5	106.2
Solar PV ⁴	33	48.2	7.5	0.0	3.3	59.1	-12.5	46.5
Solar thermal	NB	NB	NB	NB	NB	NB	NB	NB
Hydroelectric ⁵	65	56.7	14.0	1.3	1.8	73.9	NA	73.9

Source: 2018 Annual Energy Outlook, EIA

The section in the Draft Statewide Analysis discussing this element then goes on to talk about fuel prices and the changing mix of fuels, only partially relevant to the focus on “other” resources.

The failure to address this scope is confusing in that the IURC staff is well aware of at least a number of the included items. In the IURC 2018 Contemporary IRP Issues forum, the agenda focused on Energy Efficiency, Distribution System Planning, and Smart Meters. At the forum, there was considerable discussion as to the complexity of including the “other” resources in resource plans.

Statewide Analysis Omissions

Due possibly to the timing and lack of resources, the Draft Statewide Analysis does not address adequately some of the critical issues facing the utility industry today and its regulators. Some of the most important are summarized below:

- The Draft Statewide Analysis does not mention the Effluent Limitation Guideline (ELG) Rule other than a single mention in a discussion as to what NIPSCO is assuming. This is interesting as NIPSCO in its 2016 IRP and Vectren in its 2018 CPCN represent that the timing of their plans are

tied to the 2023 compliance requirement with the ELG Rule. The ELG Rule is currently under a two-year administrative stay. The EPA has started a new rule-making and expects to propose a replacement rule by the end of 2018. If the new proposed rule lessens the regulatory requirements, the costs of the compliance may demonstrably change which could affect the economic analysis. As Vectren noted in its 2016 IRP, Vectren's coal units were not subject to the ELG proposed rule. This may be true again under the revised rule. If the new proposed rule changes the timeline, decisions can be deferred until more information is known. As Duke Energy Indiana states, one of the objectives in its IRP is to avoid making irreversible decisions prematurely. The closure of a coal plant is exactly that.

- The Draft Statewide Analysis does not consider carbon emissions other than mentioning as noted above that the IURC staff believed that carbon was not a major driver with respect to determining the lowest cost resource plan. Given that each Indiana utility addresses this issue both in terms of its importance on the economics but also with respect to the importance of reducing carbon emissions over time, the failure to address in the Draft Statewide Analysis is not appropriate.
- The Draft Statewide Analysis does not consider life cycle carbon emissions for new resources. This is an important consideration in commitments for new natural gas fired combined cycles.
- The Draft Statewide Analysis does not address that the revolution in renewables and battery storage make likely that economic life of a new gas plant will be shorter than represented. As some describe it, the construction of a new gas plant is akin to building an asset that will be stranded prematurely.¹¹ Accelerated retirements of gas plants have already started in California. None of the economic analyses reflect the potential for the new gas plant to be retired economically in 15 years rather than the 30 plus years of expected life. As the host utility would still expect to recover in rates its undepreciated capital, the rate impacts of a new gas plant are vastly understated as the host utility would also expect to recover its incremental investments in renewables and battery storage.
- The Draft Statewide Analysis does not consider the impact on the state's economy of the various resource options.

¹¹ <https://rmi.org/insight/the-economics-of-clean-energy-portfolios/>