The P2 Cost Savings Calculator

P2C2 Agenda

- Introduction
- What is the P2 Cost Savings Calculator?
- Validating the P2 Process
- P2C2 Exercise: Evaluating Low-Hanging Fruit
- Q&A

The P2 Cost Savings Calculator

What is the P2 Cost Calculator?

- Excel tool designed by EPA to evaluate annual cost savings* of P2 projects and policy implementations

- P2 cost calculator monetizes the financial value of reducing:
  - Hazardous Inputs and Wastes
  - Air Emissions
  - Water Pollution
  - Water Use
  - Fuel Use
  - Electricity
  - Non-Hazardous Inputs and Solid Wastes

* Temporal element subject to data usage

The P2 Cost Savings Calculator

Data Sources and Collection

Information obtained and compiled during the preliminary assessment of the facility and detailed process assessments may be used again for tracking P2C2 savings.

Where to look for Pollution Prevention Opportunities:

- Office operations
- Plating operations
- Materials management
- Paint application
- Paint removal
- Degreasing operations
- Chemical etching
- Wastewater treatment
- Facility maintenance
- Inventory systems
- Energy efficiency
- Byproduct and emissions records

The P2 Cost Savings Calculator

P2 Cost Calculator Exercise

Additional Data Sources

- Again, information obtained and compiled during the preliminary assessment of the facility and detailed process assessments may be used again for tracking P2C2 savings.

Other useful data to collect:

- Permit and/or permit applications
- Internal environmental audit reports
- Biennial hazardous waste reports
- Operator data logs
- Waste handling, treatment and disposal costs
- Product inventory
- Safety data sheets (SDSs)
- Product composition
- Batch sheets
- Electric, natural gas, fuel bills

The P2 Cost Savings Calculator

Evaluating low-hanging fruit

Evaluating Pollution Prevention Projects

Office Operations

- Phantom energy management

Paint Application

- Switch to water-based paint

Facility Maintenance

- Air leak management
- Install timers and/or thermostats
- efficient temperature regulation

Energy Efficiency

- High efficiency lighting

The P2 Cost Savings Calculator

Evaluating low-hanging fruit

Data Sources for Pollution Prevention Projects

Indianapolis Power & Light Company
P.O. Box 110 Indianapolis, IN 46206-0110
IPLpower.com

Account Number	1234567
Due Date	09/21/15
Amount Due	$74.05

JOHN Q. SAMPLE
1234 Main Street
Anywhere, IN 46241

Monthly Account Summary — Billing Date: 08/28/15

Previous Balance	$79.82
08/11/15 Payment - Thank You	-79.82
Metered Electric And Other Services	68.88
State Tax	5.17
Total Account Balance	**$74.05**

Message Center
Are you moving this summer? It's easy to connect, disconnect or transfer your service online at IPLpower.com.

Metered Electric and Other Services

Service Address: 1234 Main Street, Anywhere, IN 46241
Service ID: 87654321
Next Reading Date: 09/29/15
Rate: RH - Resident/Elec Heat/1 Family

Historical Usage

Period Last Year 595
Current Period 705

Billing Period	Average Daily kWh	Temperature Avg High	Temperature Avg Low
Period Last Year	20.5	82°	63°
Previous Period	25.1	83°	66°
Current Period	24.3	83°	63°

Current Period Average Daily Cost $ 2.73

Meter Reading Detail

Meter Number	Meter Use	Billing Period From	Billing Period To	Billing Days	Meter Reading Previous	Meter Reading Current	Meter Reading Difference	Multiplier	Usage
7654321	P	07/30/15	08/28/15	29	99789	00494	99295	1	705

Service Charges Summary

Metered Electric Charge	73.88
CoolCents Program	-5.00
State Tax	5.17
Subtotal	74.05

Credit For The 08/2015 CoolCents Program

Track electricity use monthly and compare annual before/after data.

The P2 Cost Savings Calculator

Evaluating low-hanging fruit

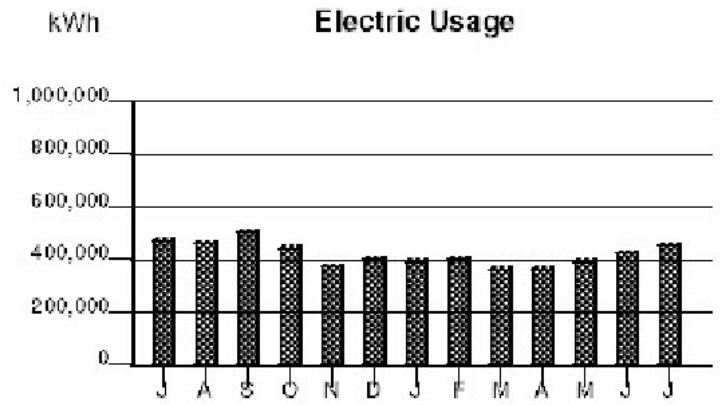
Data Sources for Pollution Prevention Projects

DUKE ENERGY

To view information printed on the back of your bill please click or go to www.duke-energy.com/indiana/billing/back-of-bill.asp

Page 3 of 3

Name	Service Address	Account Number
	Huntington IN 46750	



Calculations based on most recent 12 month history

Total Usage	5,123,941
Average Usage	426,995

	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
Electric	483,366	475,062	510,580	456,314	387,529	415,689	408,417	414,562	374,729	376,462	405,515	433,131	465,731

The P2 Cost Savings Calculator

Evaluating low-hanging fruit

Data Sources for Pollution Prevention Projects

Meter	Number	Reading Date From	To	Days	Meter Reading Previous	Present	Multi	Usage	Actual kW
Elec	108064995	Jun 03	Jul 02	29				465,724	
Elec	108038580	Jun 03	Jul 02	29				7	
					On Peak				1,326.40

Electric - Commercial		
Usage - 465.731 kWh	461.60 kVar	
Duke Energy - Rate LSN0		$ 40,907.67
Current Electric Charges		**$ 40,907.67**

Taxes	
Taxes	**$ 2,863.54**

Current Billing	
Amt Due - Previous Bill	$ 41,394.58
Payment(s) Received	41,394.58cr
Balance Forward	**0.00**
Current Electric Charges	40,907.67
Other Credits/Charges	10.00
Taxes	2,863.54
Current Amount Due	**$ 43,781.21**

The P2 Cost Savings Calculator

Evaluating low-hanging fruit

The formula to calculate the simple payback period is:

Simple payback: $I \div AS \times 12 \text{ months}$

Where:
Implementation cost = cost to implement project ($)
Anticipated annual savings = projected monetary savings (total $/year)
12 Months = converts payback to display unit in months

$$\text{Payback Period} = \frac{I}{(N - C)}$$

Shown in manual this way

Where:

I = initial investment, startup costs (in dollars)

C = annual cost of current practice (in dollars/year)

N = annual cost of new practice (in dollars/year)

The P2 Cost Savings Calculator

Evaluating low-hanging fruit

Office Operations: phantom energy management

Values represent KWh REDUCED and $ SAVED.

#|Description	Savings Cost	Status	Electricity Usage $	Electricity Usage kWh	Electricity Demand $	Electricity Demand kW/month
08: 2.6218 TURN OFF EQUIPMENT WHEN NOT IN USE	$2,968 $166	✔	$2,021	42,373	$947	119

- **Electricity Use tab:**
- 42,373 kWh saved annually
- 4.8 cents per kWh

- **Simple Payback:** 0.056 × 12 months
- $166 ÷ $2968 × 12 months = 0.67 months

The P2 Cost Savings Calculator

Evaluating low-hanging fruit

Paint Application: switch to water-based paint

Description	Total Purchased /yr	Cost ($/unit)	Total Annual Cost	# VOCs/yr
Oil-based enamel paint (5 gal unit)	2,880	$ 116.00	$ 66,816.00	63,216
Water-based paint (5 gal unit)	2,880	$ 70.00	$ 40,320.00	17,136

- **Air Emissions tab:**
- 46,080 VOCs saved annually
- Procurement dollars saved: $26,496
- Emission dollars saved: ~ $1,027.02

- **Simple Payback:** 0 × 12 months
- Instant payback (Implementation cost is negative)

The P2 Cost Savings Calculator

Evaluating low-hanging fruit

Facility Maintenance: air leak management

#|Description	Savings Cost	Status	Electricity Usage $	Electricity Usage kWh	Electricity Demand $	Electricity Demand kW/month
04: 2.4236 ELIMINATE LEAKS IN INERT GAS AND COMPRESSED AIR LINES/ VALVES	$34,979 $2,680	✔	$15,909	502,326	$19,070	758

- **Electricity Use tab:**
- 502,326 kWh saved annually
- 3.2 cents per kWh

- **Simple Payback**: 0.077 × 12 months
- $2,680 ÷ $34,979 × 12 months = 0.92 months

The P2 Cost Savings Calculator

Evaluating low-hanging fruit

Facility Maintenance: install timers and/or thermostats

#|Description	Savings Cost	Status	Electricity Usage $	Electricity Usage kWh	Electricity Demand $	Electricity Demand kW/month	Natural Gas $	Natural Gas MMBtu
01: 2.7261 INSTALL TIMERS AND/OR THERMOSTATS	$6,356 $73	✔	-	-	-	-	$6,356	874

- **Fuel Use tab:**
- 8740 therms saved annually
- 72 cents per therm

- **Simple Payback:** 0.011 × 12 months
- $73 ÷ $6,356 × 12 months = 0.14 months

The P2 Cost Savings Calculator

Evaluating low-hanging fruit

Facility Maintenance: efficient temperature regulation

#|Description	Savings Cost	Status	Electricity Usage $	Electricity Usage kWh	Electricity Demand $	Electricity Demand kW/month	Natural Gas $	Natural Gas MMBtu
02: 2.7221 LOWER TEMPERATURE DURING THE WINTER SEASON AND VICE-VERSA	$23,755 $72	✔	$11,850	242,822	-	-	$11,905	4,077

- **Electricity Use tab:**
- 242,822 kWh saved annually
- 4.9 cents per kWh
- **Fuel Use tab:**
- 40,770 therms saved annually
- 29 cents per therm

- **Simple Payback:** 0.003 × 12 months
- $72 ÷ $23,755 × 12 months = 0.04 months

The P2 Cost Savings Calculator

Evaluating low-hanging fruit

Energy Efficiency: energy efficient lighting

#|Description	Savings Cost	Status	Electricity Usage $	Electricity Usage kWh	Electricity Demand $	Electricity Demand kW/month
03: 2.7142 UTILIZE HIGHER EFFICIENCY LAMPS AND/OR BALLASTS	$68,255 $11,125	✔	$41,735	919,277	$26,520	1,768

- **Electricity Use tab:**
  - 919,277 kWh saved annually
  - 4.5 cents per kWh
- **Simple Payback:** 0.163 × 12 months
  - $11,125 ÷ $68,255 × 12 months = 2 months

The P2 Cost Savings Calculator

P2C2 SUMMARY

- P2C2 evaluates cost savings of P2 projects and policy implementation
- P2C2 can evaluate data in multiple time intervals based on inputs
- P2C2 can be personalized to appeal to YOUR business
- Check with your utility provider for energy audits, energy tracking, and additional resources
- Remember to enter appropriate unit for all data