



# Renewable Energy Issues and Opportunities at Indianapolis Power & Light Company (IPL)

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## IPL's Mission

To serve our customers' needs for electric power in ways that provide exceptional value to our customers, shareholders, people and communities.



## IPL's Vision

Be The Best electric utility for the world by balancing excellence in customer service, reliability, rates, shareholder value, environmental performance, safety, people engagement and community leadership.



- IPL is an electric utility subsidiary of AES Corp. and provides 10% of AES's net income
- IPL provides electric service to approximately 470,000 residential, commercial and industrial customers in Indianapolis and other Central Indiana Communities.
- IPL owns and operates 3,450 MW of generating capacity in four Indiana power plants.
- IPL has the best system reliability of any utility in Indiana and ranks in the top quartile for reliability among investor-owned utilities nationwide.
- IPL customers enjoy some of the lowest rates in the industry. In fact, IPL's residential customers have the lowest rates of the United States' 20 largest cities served by an investor-owned electric utility.

# IPL's Operating Philosophy



IPL is committed to being the best electric utility for the world through the continuous application of our Be The Best<sup>SM</sup> (BTB<sup>SM</sup>) operating philosophy, which keeps us focused on excellence in areas that are most meaningful to our numerous stakeholders.





# Our Philosophy on Innovation

- Go Early - Go Small
  - 1<sup>st</sup> utility in IN to offer a Green Power option (1998)
  - Early wind PPA
  - Until recently, only utility in IN to offer a feed-in tariff
- Why?
  - Want to be viewed by regulator and customer as innovative
  - 99% cheap, coal fired generation
  - Need to balance low rates our customers expect with new offerings they want



# Wind



## Hoosier Wind Project

- 106 MW Wind Farm - near Fowler, Indiana
- Commercial operation began in November 2009
- Hoosier Wind Park powers 29,000 homes

## Lakefield (MN) Wind Project

- 150 MW Wind Farm
- Expected to be operational in late 2011



# Electric Vehicles

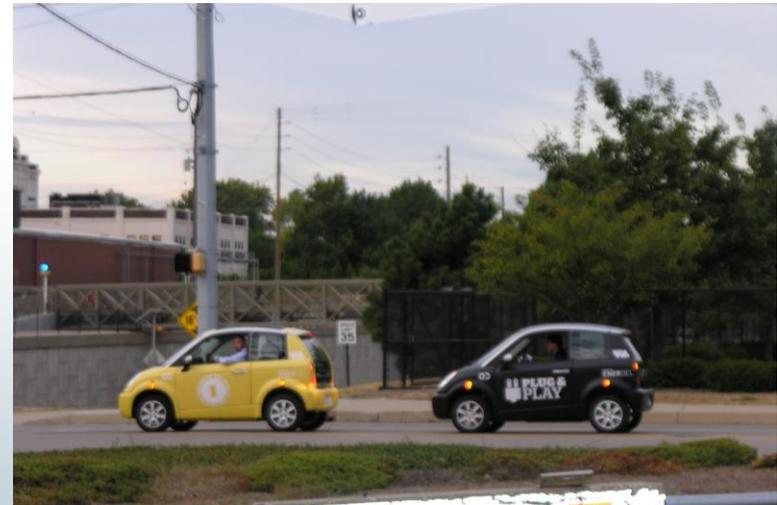


## Project Plug-IN

- Pilot of plug-in electric vehicles and smart grid technology working together
- Leverage partners' manufacturing and technical expertise
- Time based rates for EV charging
- Measure grid impacts
- Small number of vehicles available for the demo
- Between 50 and 100 vehicles added in service territory through late 2010



**THINK!  
ENERGY  
INDIANA**





# Energy Storage Technology

- What is it good for?
  - Complimenting intermittent resources
  - Peak shaving
  - Alternate power during service interruptions
  - Frequency and voltage regulation
  - Back up power for the grid
- For IPL, batteries are the practical energy storage technology



# IPL Energy Storage Projects

- Time of Use (TOU) rates for electric vehicle charging
- “Whole House” TOU - Stationary Home Energy Storage (HES)
- Partnership with Ener 1, an IN lithium-ion battery manufacturer



# What we hope to learn

- End Users
  - Prove it works and determine usage patterns
- Technical
  - Determine interconnection and system protection requirements
  - Determine UL listing/certification
  - Test interplay between HES and EVs
- Policy/Business Case
  - Determine appropriate size for home installations
  - Engage Midwest ISO on market issues
  - Develop business case for large scale deployment
- Publish study in late 2012



# Feed-In Tariffs

- What is a feed-in tariff (FIT)?
  - “ Generally speaking, the term “feed-in tariff” refers to a mechanism whereby the electricity produced by a small independent renewable generating facility (e.g., wind, solar, biomass, and other renewable resources), is fed-in to a utility’s electric system and used to provide electric service. The idea is that the utility enters into a long-term contract with the owner or operator of the renewable generator and pays a price for the facility’s output that is designed to assure the financial viability of renewable energy facilities. Arguably, if the development of renewable energy technologies could be accelerated, the cost-competitiveness of the technology may also be improved via economies of scale and other innovations.”



# Some Background

- Distinguished from net metering: one meter v. two meters
- Development began in Europe- Germany and Spain the leaders
- In United States, six states with FIT or quasi-FIT policies, ten states considering FIT legislation



# Issues with FITs

- Costs
- Jurisdiction - FERC v. the states
- Motivations and expectations



# The IPL Experience

- Offered FIT as part of a DSM filing
- Intended to existing customers who wanted to develop their own renewable energy projects
- Changes in economics and tax law with unexpected consequences
- Withdrawing FIT



# Conclusions

- Stop the Happy Talk
- The Four Imperatives:
  1. Power density
  2. Energy density
  3. Cost
  4. Scale
- Renewable energy will likely be a niche market for our lifetimes



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