

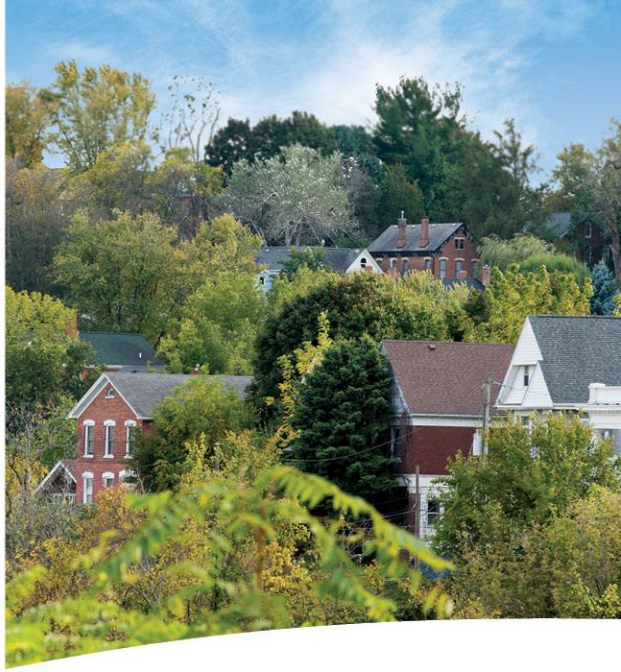

Interstate Power and Light Company (IPL)
Alternative Rate Design Discussion

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March 15, 2016

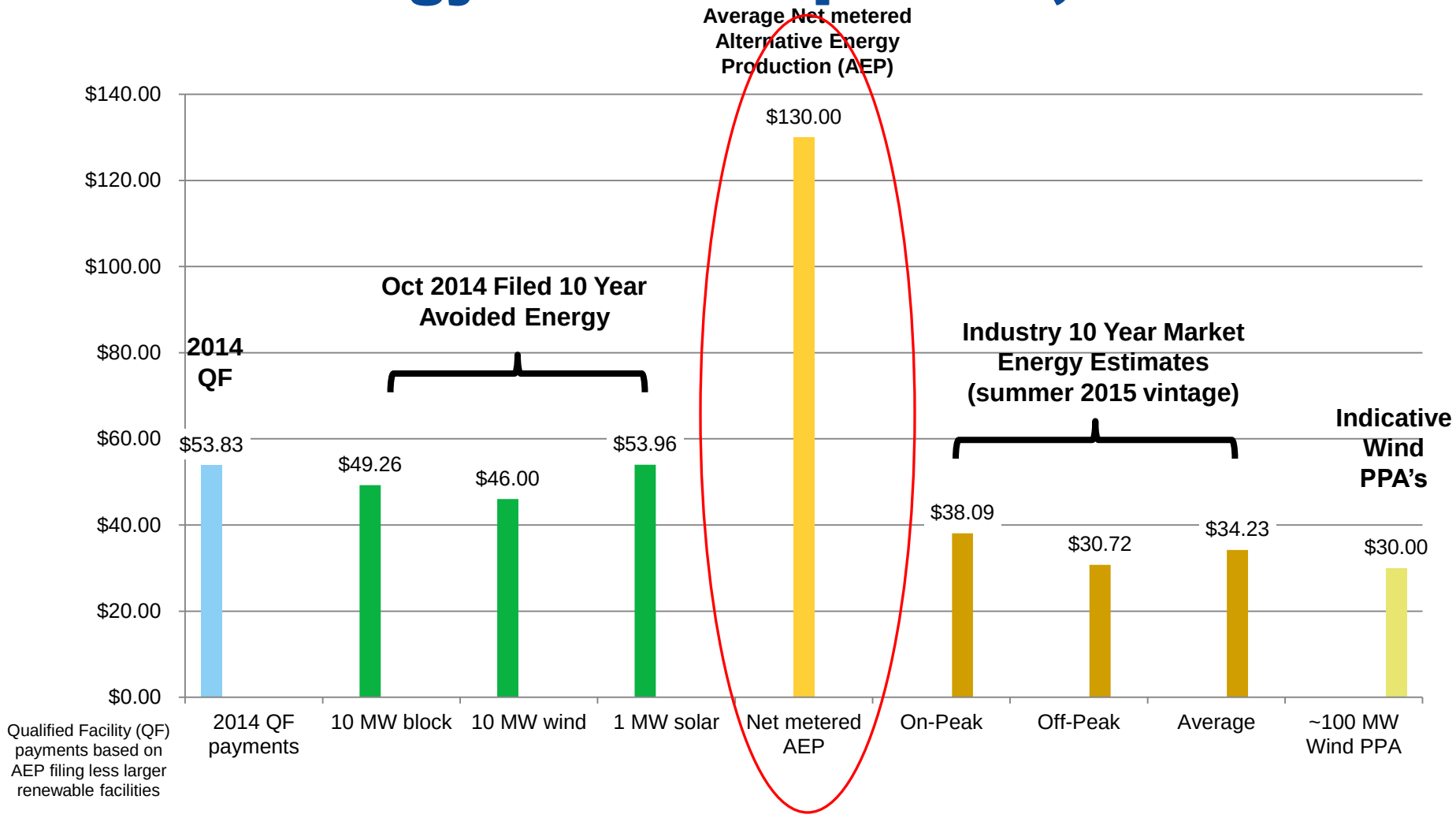
Today's Roadmap

- IPL's Renewables Strategy
- Rate Design Principles
- Distributed Generation (DG) Customer Data
- IPL's Long-Term Plan for DG Customers

IPL Renewable Strategy

- Renewable decisions are about pace and mix of adding to portfolio with a cost based consideration
  - Wind
    - Current wind Purchased Power Agreements (PPA's) are competitive and fit well into our portfolio
    - Wind Request for Proposal (RFP)
  - Solar
    - Indian Creek Nature Center-Cedar Rapids, Iowa
    - 10 Megawatt (MW) solar RFP-Iowa
    - Alliant Energy-Madison headquarters solar project
    - Exploring other utility-scale owned or purchased solar
- IPL's generation strategy has been focused on reducing emissions as well as growing renewables while meeting customer energy, capacity and reliability needs
  - IPL remains short on energy
    - Renewables can economically fill gaps
    - Low gas prices and falling wind energy prices continue to reduce coal dispatch
    - Renewables, energy efficiency and demand response are priority to fill future needs

2015 Energy Cost Comparison, $/MWH



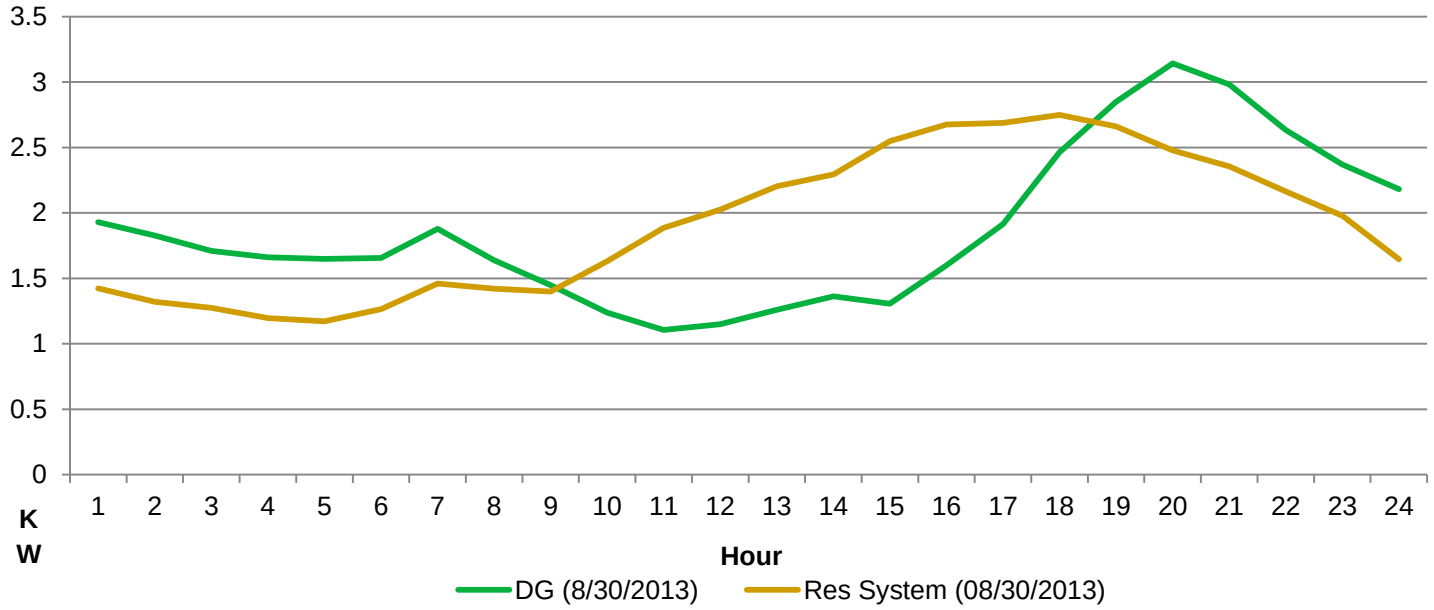
Qualified Facility (QF) payments based on AEP filing less larger renewable facilities

Key Takeaway: Market based energy and renewable purchases are currently and projected to be available at lower cost to all customers as compared with current net metering reimbursements.

Fundamental Rate Design Principles

- Rates should
  - Reflect costs to provide service
  - Be transparent
  - Follow Board rules and appropriate principles of ratemaking
  - Provide appropriate pricing signals to promote the appropriate behavior by customers and energy providers
  - Be equitable across customers
- Residential and General Service rates are currently designed to cover most costs through the volumetric charge
  - DG customers still need to be connected to the Power System, but net metering allows bypassing of system costs (e.g. transmission and distribution, customer-related and energy efficiency costs). Those system costs are shifted to non-DG customers

Example - Daily Residential Load System Profile - IPL

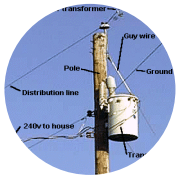


- The graph represents an average residential customer and an average residential DG customer electric usage for the peak day in 2013
- Peak demands are not going away, but are moving to later in the day—investment costs in the grid are not diminished
- DG is different than energy efficiency since customer load is not diminished but just temporarily displaced by generation
- Individual customer demand substantially unchanged, impact on system unknown

Residential and General Service Customer Cost Overview

Customer Service

Meter and Service Line



Transformer & Secondary Lines

Primary Distribution & Substations

Transmission

Generation—Capacity and Energy

Pricing Components of a Customer Bill

Current Full Requirements Customer Rate Design

Fixed Charge

Energy Rate

DG (Partial Requirements) Customer—Net Metering

Fixed Charge

Subsidy

Energy Cost averted

Demand Rate – Three Part Rate Design

Fixed Charge

Demand Rate

Energy Rate

Distributed Generation Customers at IPL

- As of January 2016
  - Alternative Energy Production tariff (net metering)
    - ~1,700 customer-owned projects (residential, certain farms, school districts, small commercial, municipalities, etc.)
    - ~24MW of capacity, of which ~20 MW of solar
    - ~0.6% of retail sales and ~0.4% of retail customers
- Receiving ~30 interconnection applications per month
- Current estimated annual subsidy that would be collected from other customers at IPL's next rate case ~$2 million
  - ~$665 annual subsidy to an average DG residential customer which equates to 6 months of an average non-DG customers bill
  - ~$1785 annual subsidy to an average DG general service customer

IPL's Long-term Pricing Signals for DG Customers

- Gradualism approach—IPL will:
  - Propose a rate design pilot through the DG NOI process
  - Focus Energy Efficiency Plans on not only usage of kilowatt-hours (kWhs) but also demand of kilowatts (kWs)
    - Educate residential and general service customers on demand (kW) through behavior and other technology based tool pilots
  - File an alternative class cost of service study with a separate partial requirements class in the next electric rate case (expected in April 2017)
    - Cost to serve supplemental service to DG customers
    - Costs based upon load research data reflecting unique usage characteristics
  - Develop an advanced metering technology strategy to compliment alternative rate designs
  - In the long-term – design "demand rates" for all customers

Appendix

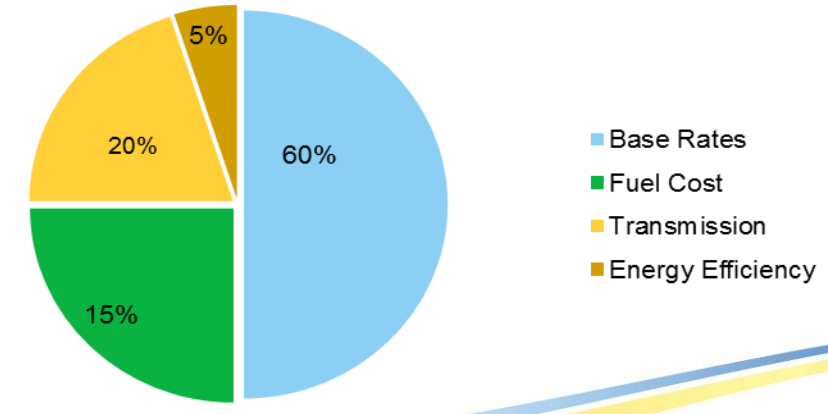
IPL Net Metering Pricing Signals

- Distorted pricing signals results in economic inefficiencies
  - Compensation at full retail is not sustainable
  - Utility Scale vs. Customer Owned (same environmental benefit)
  - Banking carryover provision does not promote right sizing
- Commodity pricing vs. service/value pricing
  - Electric service is more than an kWh it is a kW as well
  - Distance (energy) vs. Speed (demand)
- Balance the growth of renewables with the overall cost to the customers and grid impacts
- IPL has rich data for DG customers

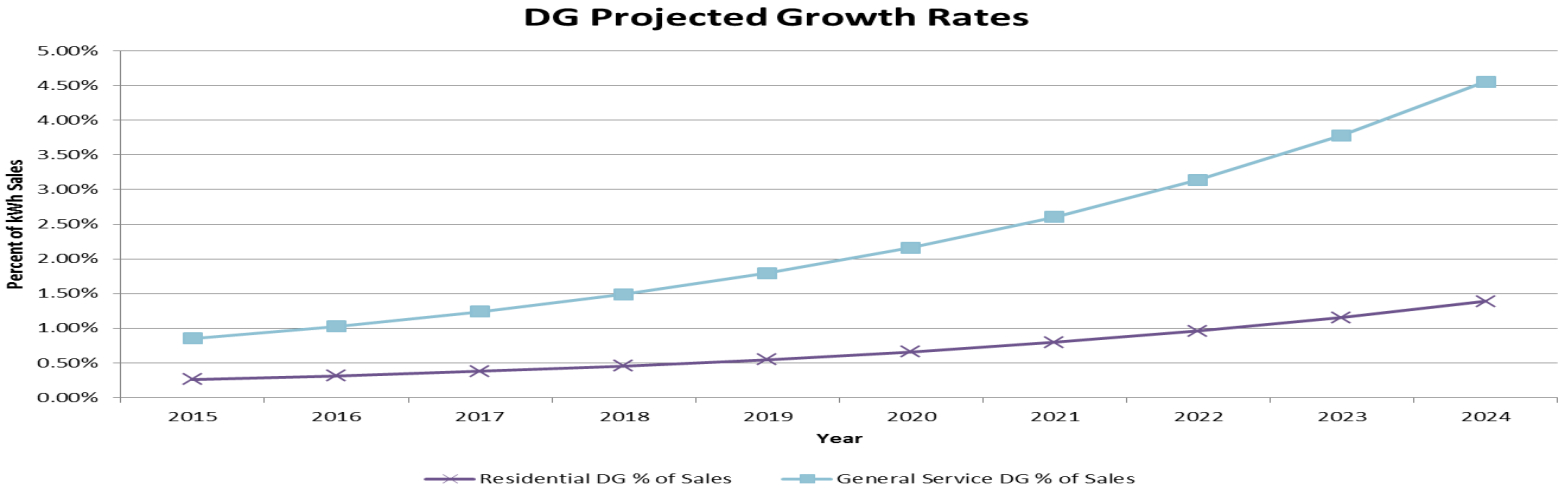
2015 Estimated Average Annual Impact of Current Net Metering Subsidy

	Residential Net Metered Customer	General Service-Net Metered Customer
Transmission Capacity Cost	$140	$435
Generation and Distribution Capacity Cost	$490	$1,215
Energy Efficiency Under Recovery	$35	$135
Annual Impact to Non-Net Metered Residential Customers	$665	$1,785

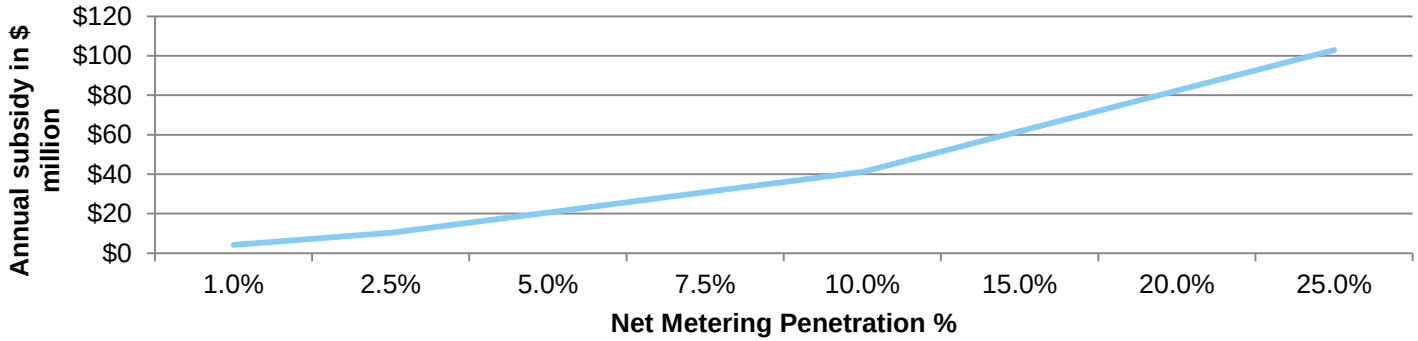
Bill Breakdown



Potential Growth of DG Impact



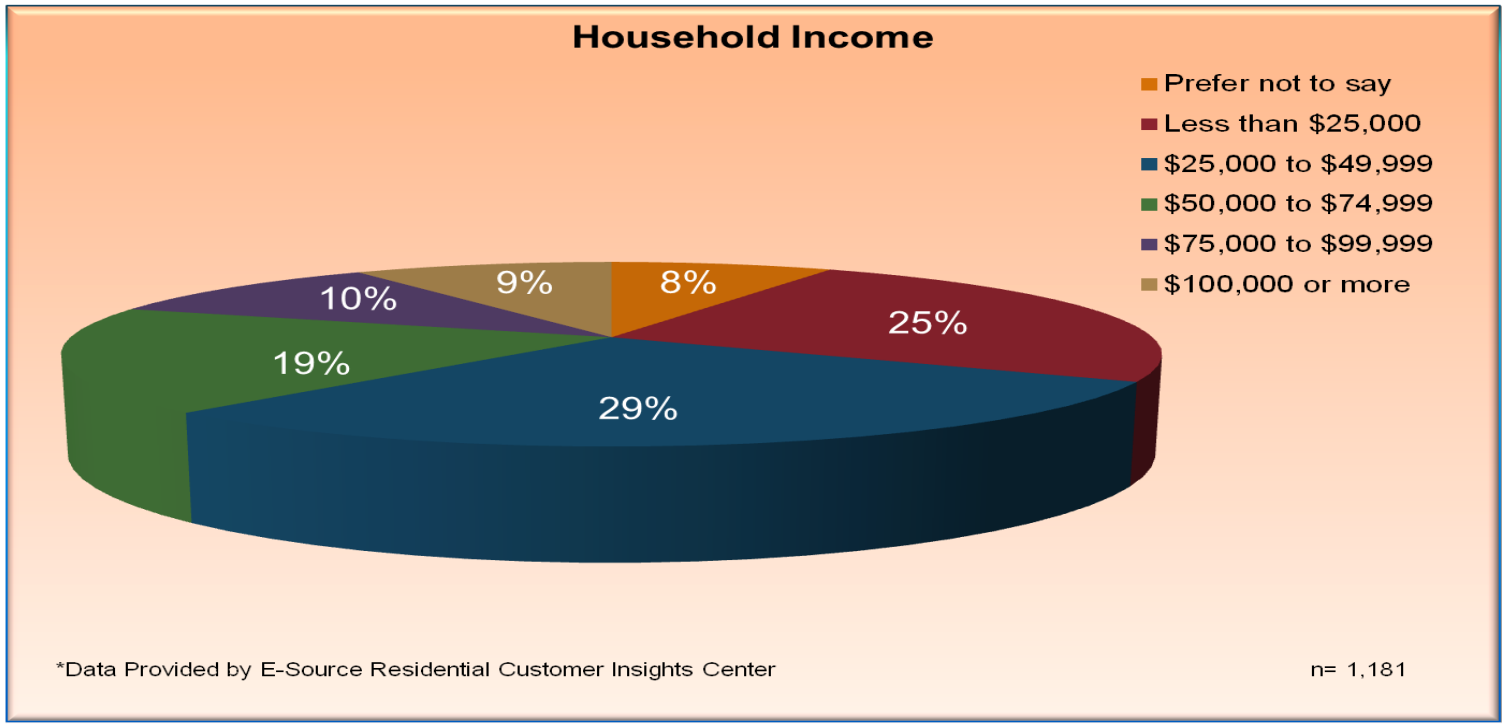
Graphs based on 2015 data



For every 1% increase in penetration of net metering customers (Residential and General Service), there is a ~$4M cost shift

At what point is the impact material?

2014 IPL Customer Income Demographics



54% of our customers earn less than $50K per year

Recent Rate Reform Activity

Table 1: Summary of Proposed and Accepted Distributed Generation Rates by State

			Demand Charges	Buy-Sell	Fixed Charge	Capacity Charge	Installed Capacity Fee	DG Output Fee	Inter-Connection Fee	Minimum Bill	Standby Rates	TOU Energy Charges	Grand-fathering	DG-Specific
[1]	Arizona	Arizona Public Service	X	X	X		✓					X	Yes	Yes
[2]	Arizona	Salt River Project	✓		✓							✓	Yes	Yes
[3]	Arizona	UNS Energy Corporation	✓	✓	✓								Yes	Yes
[4]	California	Investor-Owned Utilities	X	✓	X	X	X		✓			✓	Yes	Yes
[5]	Hawaii	Hawaiian Electric Company		✓						✓			Yes	Yes
[6]	Illinois	Statewide	✓											
[7]	Kansas	Westar Energy	X		X								Yes	Yes
[8]	Maine	Statewide		✓										Yes
[9]	Minnesota	Statewide		✓	✓								Yes	Yes
[10]	Mississippi	Statewide		✓										Yes
[11]	Nevada	Nevada Energy	X	✓	✓							✓	No	Yes
[12]	New York	Statewide												
[13]	Oklahoma	Oklahoma Gas and Electric	✓		✓							✓	Yes	Yes
[14]	South Carolina	Investor-Owned Utilities		✓										Yes
[15]	South Carolina	Santee Cooper		✓	✓		✓						No	Yes
[16]	Texas	El Paso Electric Company	✓		✓									Yes
[17]	Texas	Southwestern Public Service Co.			✓									No
[18]	Wisconsin	Madison Gas and Electric			✓								No	No
[19]	Wisconsin	We Energies		✓	✓		X						Yes	Yes
[20]	Wisconsin	Wisconsin Public Service Corp.		✓	✓									No

Note: This is drawn from utility-specific summaries in Section IV of this report. Each utility rate offering is unique and may not correspond exactly with the categories defined above.

Key:

✓ Approved

✓ Proposed (decision pending)

X Proposed & rejected or withdrawn

Source: Edison Electrical Institute-Feb 2016

Background - Demand Charges

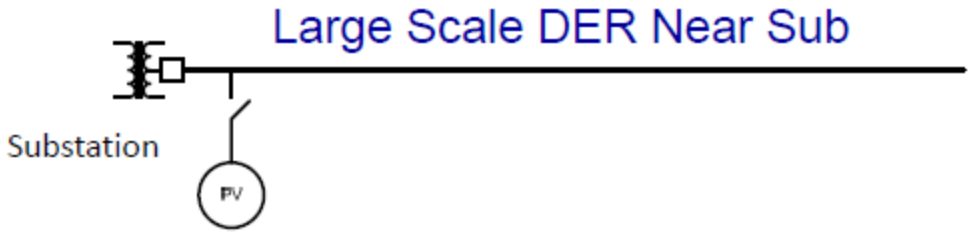
- Utilities use several common pricing methods, including demand charges, fixed monthly charges and energy charges. Demand charges provide more accurate pricing signals than simple volumetric charges.
- Utilities introduce demand charges ($/kW) for customer-generators to better collect the capacity costs associated with providing them electric service. This is in addition to collecting a monthly fixed charge ($/month) and a variable energy charge ($/kWh).
- A demand charge is based on a customer's maximum kW demand over a specified duration – typically the monthly billing cycle. Often, it's based on the customer's maximum demand across all hours of the month or on their maximum demand during peak hours of the month, or sometimes on both.
- Most capital system investments are driven by demand. A demand charge aligns the price of service with the cost of service.
- With this natural alignment, a formal demand charge helps customers make informed decisions about how much power to consumer and at what time.
- There is some evidence that residential customers do respond to the price signal given by demand charges.
- When faced with demand charges, residential customer-generators would have the incentive to buy smart digital technologies such as thermostats, load controllers, home energy management systems and smart appliances, along with batteries and other storage options. This will promote economic efficiency in both a static and dynamic sense.

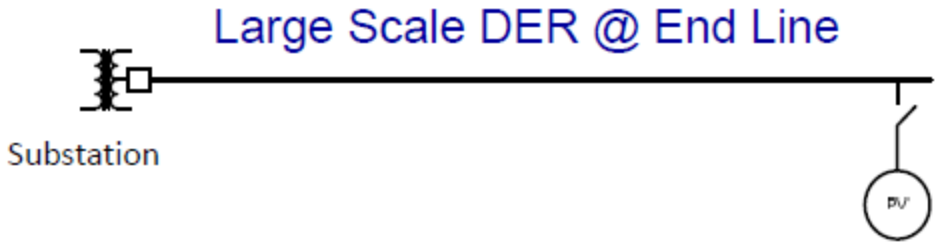
State of the Power System

- Current Strategy focuses on Reliability
  - IPL has over 20,000 miles of line and 594 substations serving approximately 490,000 customers over 37,000 square miles
- Future Strategy focuses on Reliability plus Robust, Resilient, Customer Options
  - Multi-directional, networked, transactional grid
- Strategy will be implemented over a number of years
  - Flexible for future innovations
  - Fit into the culture and evolving customer expectations which it serves
  - Transition risks and opportunities

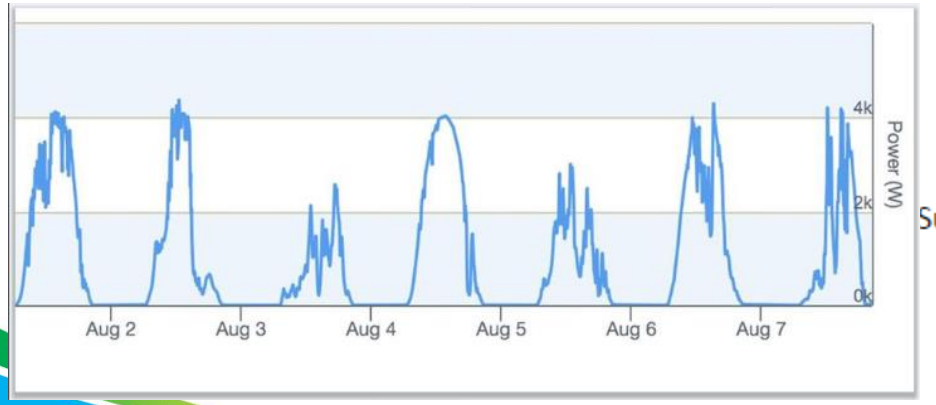
Factors Impacting Distribution Circuit DG Hosting Capacity and Operating Issues

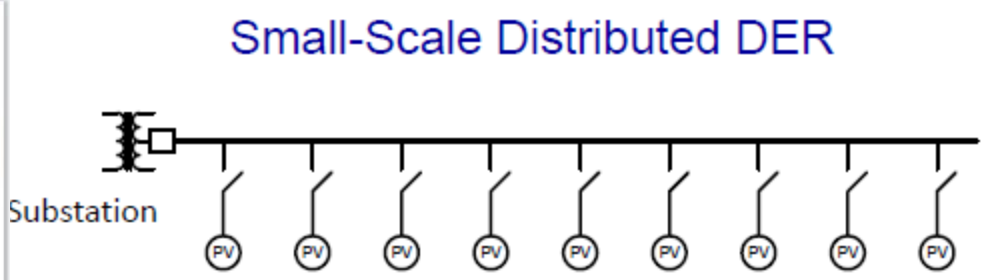
- Size of DER
- Location of DER
- Feeder characteristics
- Proximity to other DER
- DER control (e.g, smart inverters)



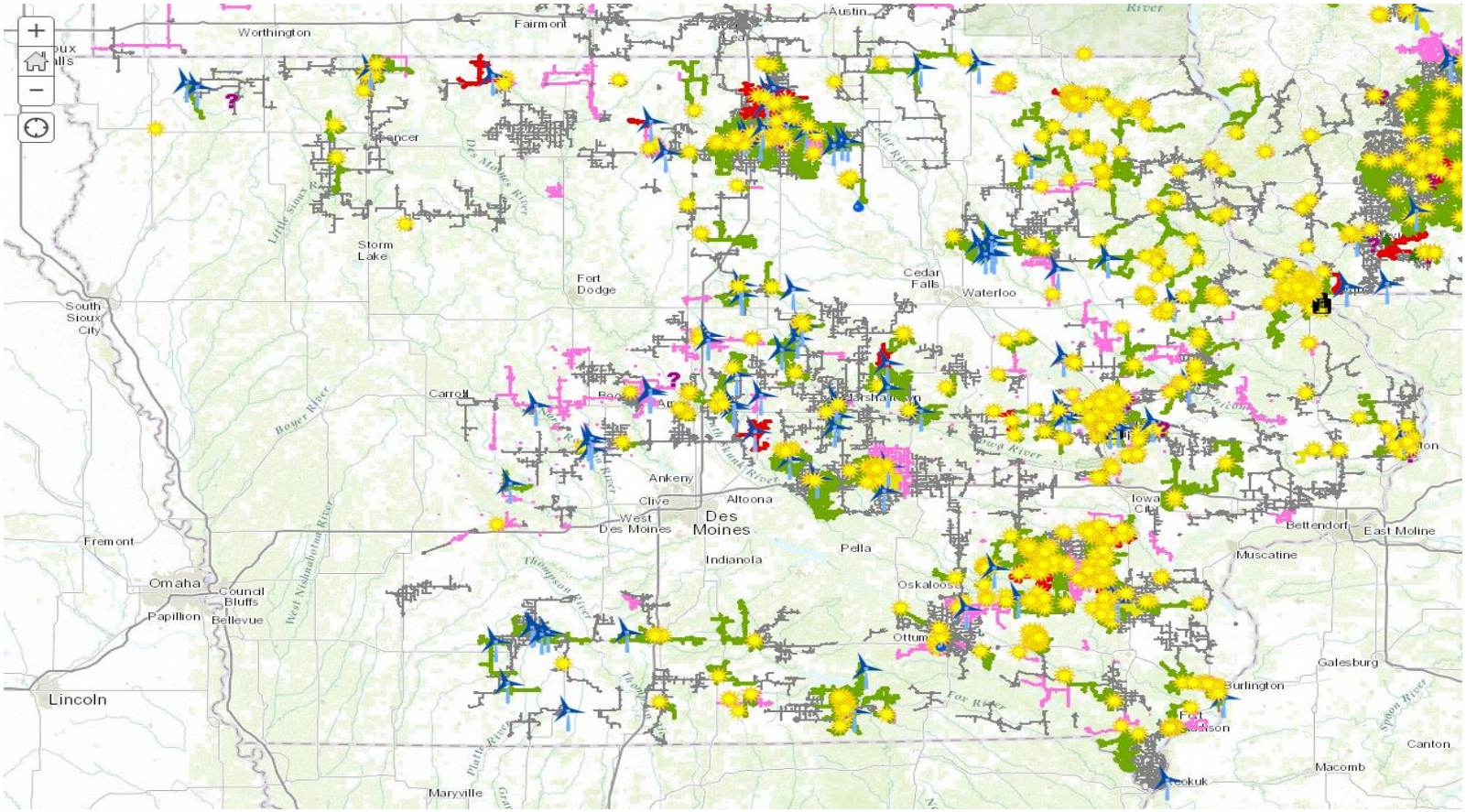


Production Uncertainty





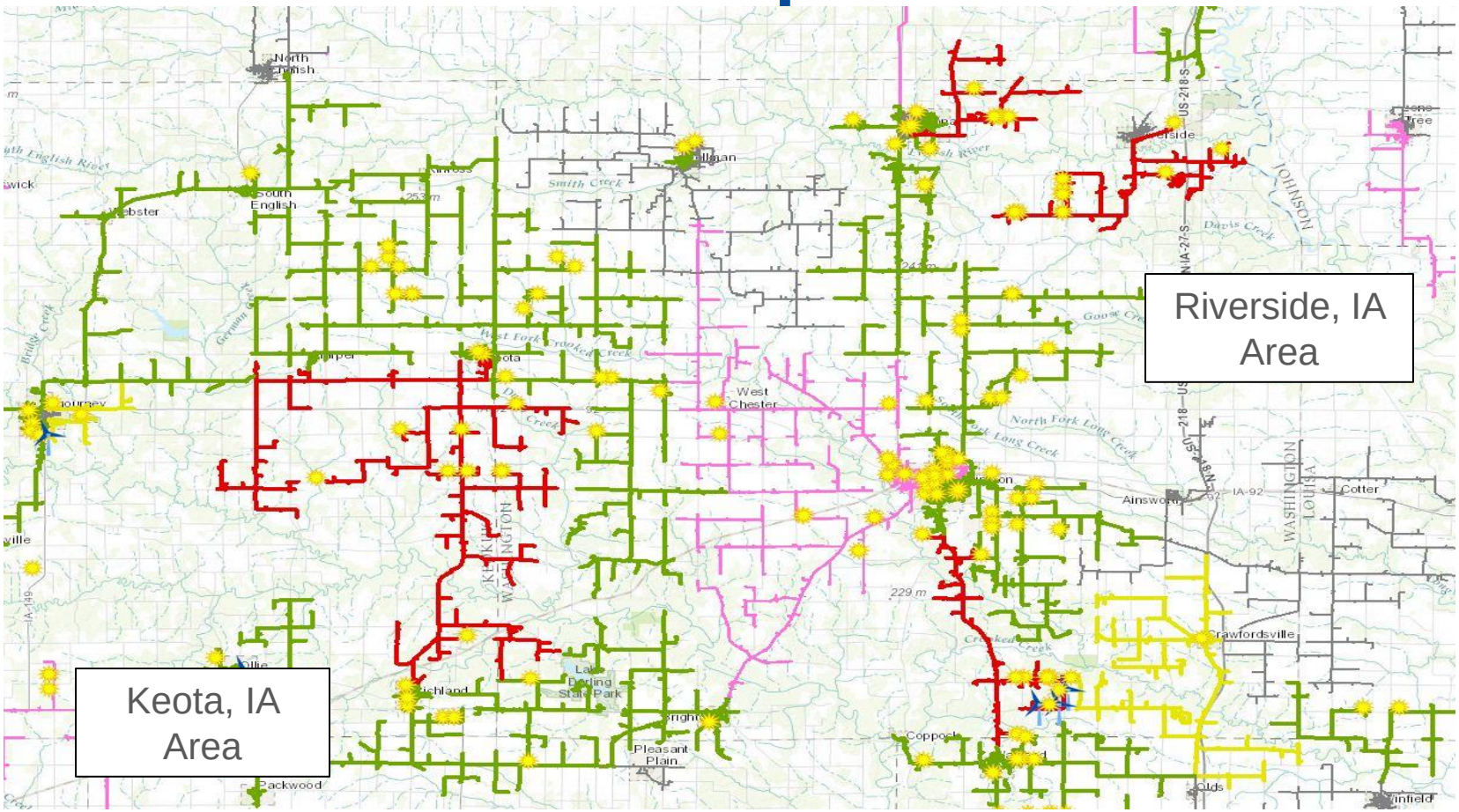
IPL Service Territory DG Installations



Yellow dots: DG installations
Red: New installations can not be added without system changes.
Yellow: Cautionary, studies needed for incremental additions
Green: Plenty of capacity left for incremental additions
Pink: No studies completed to-date

It's important to note that DG is not spread evenly across the system but is coming in high density pockets making system average judgments and decisions difficult.

DG Penetration Example in SE Iowa



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DG Customer Data Collection

- IPL currently has the following data for its DG customers:
  - kWh usage reduction by customer
  - 15-minute interval data after DG Installation
  - Nameplate capacity of DG system
  - Location of DG system
  - Bill impact by DG customer
  - Cost of DG system
  - Statistically-based load comparisons between non-DG and DG customers by customer class
  - DG technology (e.g. solar, wind, bio-digestor)
  - In-service date