

# Exploring the Utility of the Future in Pennsylvania



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*for* ENERGY POLICY  
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# About the Kleinman Center

The Kleinman Center for Energy Policy was established at the University of Pennsylvania in 2014 in order to enhance the University's leadership on energy policy and cultivate the next generation of energy experts.

The Center's inward facing goals include enhancing educational and career opportunities for students, and increasing academic research efforts into energy policy and technology issues.

The Center's outward facing goals include providing non-biased information to policymakers on critical energy issues.

# Agenda

- 9:00 Breakfast, Registration and Introductions
- 9:30 National Overview of Future Utility Proceedings and Trends
- **David Owens**, Executive Vice President of Business Operations and Regulatory Affairs, Edison Electric Institute
  - **Becky Harrison**, CEO, GridWise Alliance
- 10:45 The Minnesota Perspective
- **Carolyn Brouillard**, Manager, Regulatory Policy and Strategy, Xcel Energy (by Phone)
- 11:15 Insights into the NY REV Experience
- **John Stewart**, Vice President, Concentric Energy Advisors
- 11:45 Open Q&A and Discussion with Speaker
- 12:00 Lunch with additional Q&A time with Speakers
- 1:00 EDC-Only Discussion
- 4:30 Conclude

# PROCESS

# Value of Kleinman Center Process

- Coordinate education from experts
- Safe place for dialogue
- Research capacity
- Space to think and innovate
- Facilitate broader stakeholder engagement

# Discussion of Final Report Structure

## Objectives:

- Identify challenges and opportunities facing utilities in PA. (the utility perspective)
  - Nest in broader national context
- Identify perspectives of key stakeholders
  - Regulators, consumer advocates, DER developers, environmental groups, etc.
- Present a menu of potential options for addressing challenges and creating value.
  - Discuss benefits and drawbacks of each for PA.

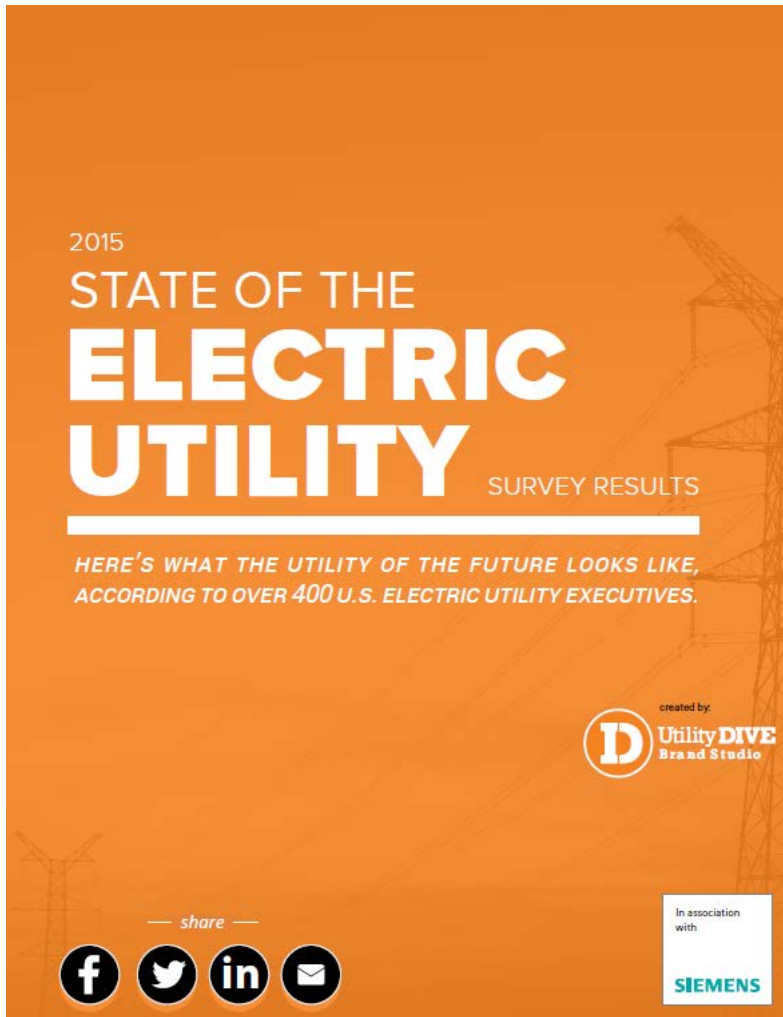
# Review of Planning Memo

- June 1 – 1<sup>st</sup> PA Future Utility Policy Series Meeting
- June 10 – Set date for 2<sup>nd</sup> meeting (early August) and begin to reach out to stakeholders.
- ~June 26 – circulate draft white paper to PA EDCs for review and comment.
- July 10 – Comments from EDCs due back to Kleinman Center
- July 24 – make draft white paper available for pre-selected stakeholder review prior to meeting.
- August ? – Second meeting of PFU Policy Series, stakeholder focus
- August ? – circulate white paper for stakeholder and EDC comment (2 weeks)
- September – finalize white paper
- Fall 2015 – EDC and Stakeholder outreach to policymakers, as appropriate
- 2016 – Continue developing initiative based on policymaker, EDC and stakeholder feedback

# CHALLENGES FACING ELECTRIC UTILITIES



# Resource to Facilitate Discussion

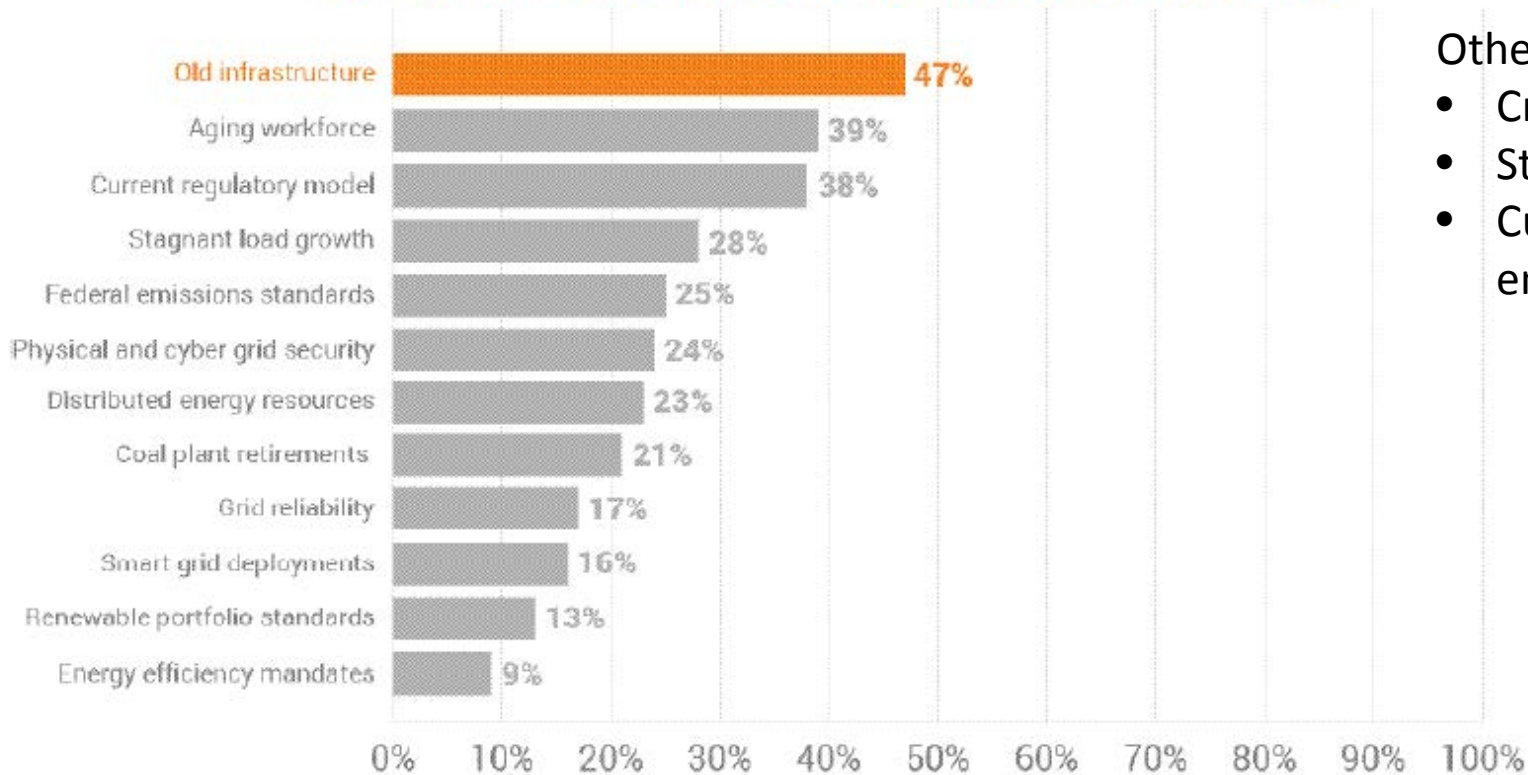


What type of utility do you work for?	
Investor-Owned Utility	<b>57%</b>
Municipal Utility	<b>18%</b>
Public Power Agency	<b>13%</b>
Electric Cooperative	<b>12%</b>

433 U.S. Electric Utility  
Executives Surveyed

# Challenges

Q. What are the three most pressing challenges for your utility?



Other Challenges:

- Credit rating
- Storm resiliency
- Customer engagement

Image Source: "2015: State of the Electric Utility" survey results from Utility Dive



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# Load Growth

Q. What load growth trends are your utility seeing in its service territory?

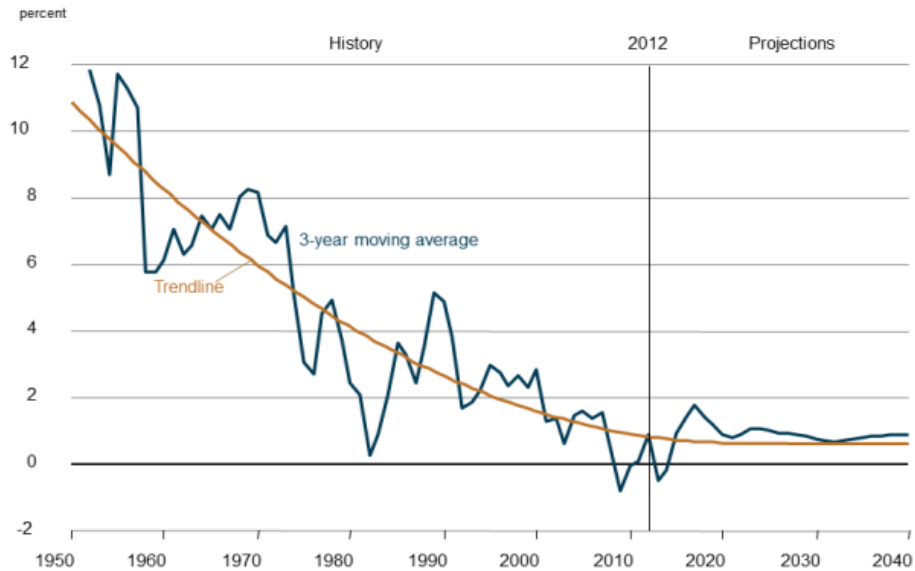


Image Source: "2015: State of the Electric Utility" survey results from Utility Dive

What is the best way for utilities to mitigate the impact of stagnant load growth?	
Develop new unregulated business models	23%
Develop new regulated business models	22%
Revenue decoupling	17%
Increased fixed bill charges	14%
Offer premium power options to customers	13%
Lost revenue adjustment mechanism	5%
Other	5%



Figure MT-29 U.S. electricity demand growth in the Reference case, 1950-2040



Source: U.S. EIA AEO2014 Market Trends Figure Data MT-29, (May 7, 2014)



Figure 3 Pennsylvania retail energy usage (GWh)

Source: PA PUC 2014 EPO

- In PA, PUC 2014 EPO-reported load growth for EDCs (small and large) ranged from 0% – 1.1% annual average, with statewide average of 0.72%.

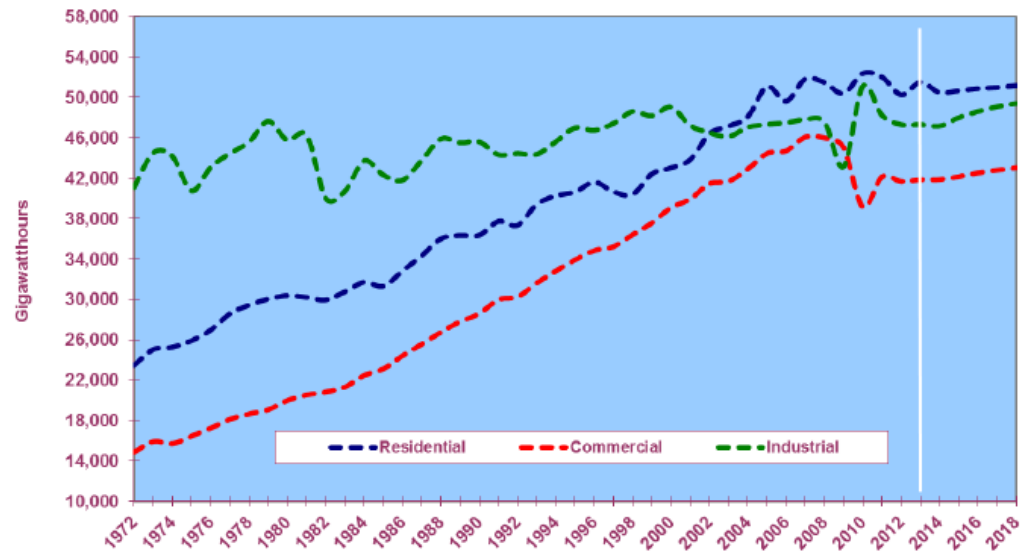


Figure 6 Duquesne energy usage (GWh)

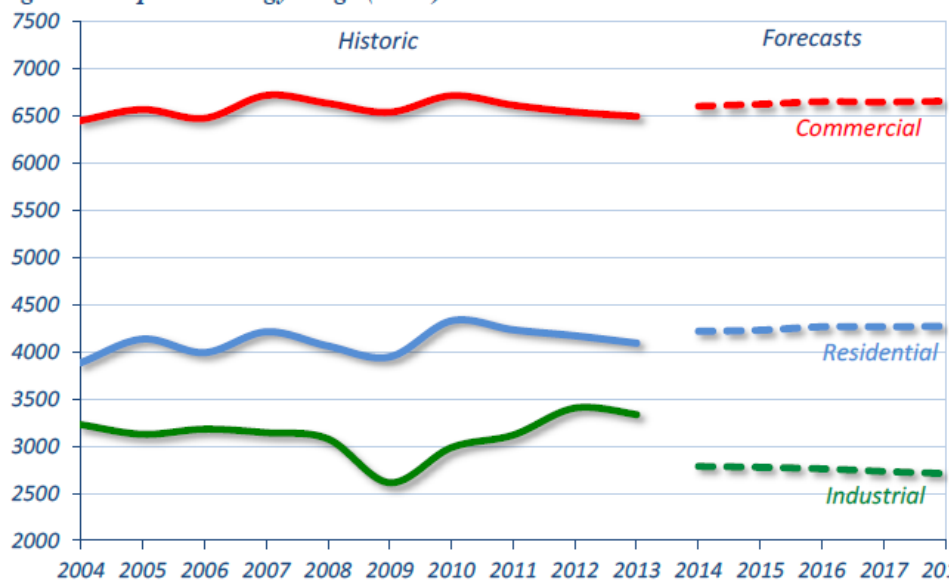


Figure 16 PECO energy usage (GWh)

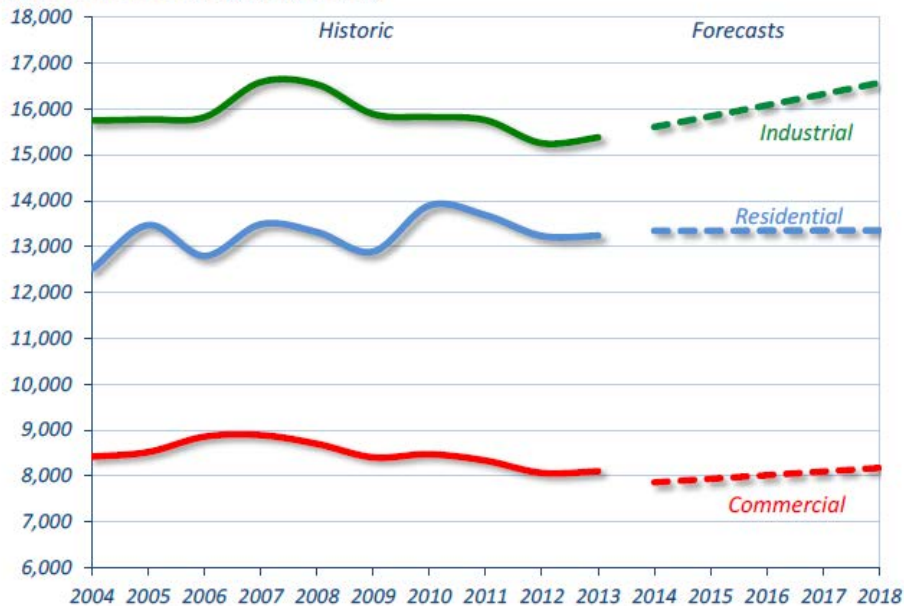


Figure 18 PPL Electric Utilities Corporation energy usage (GWh)

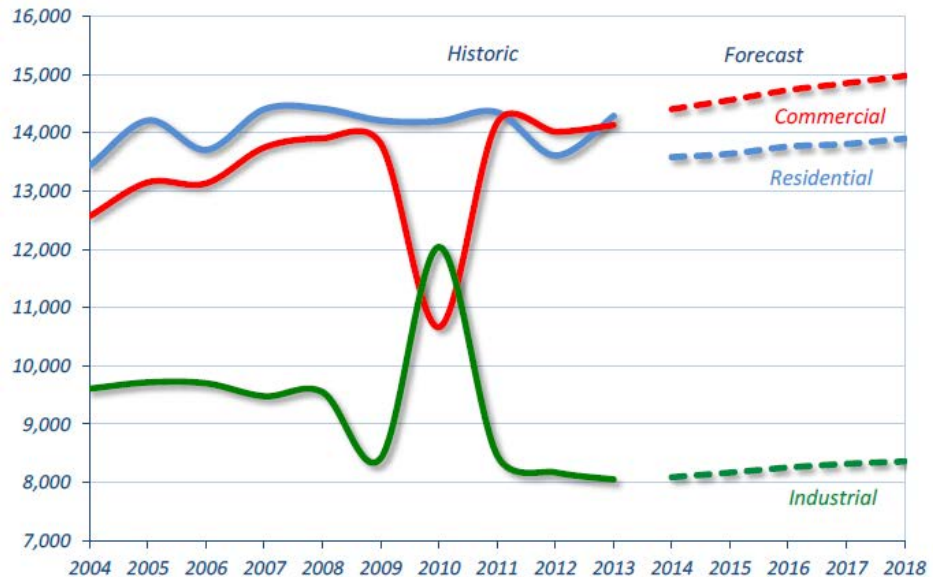


Figure 21 Pike County Light & Power energy usage (GWh)

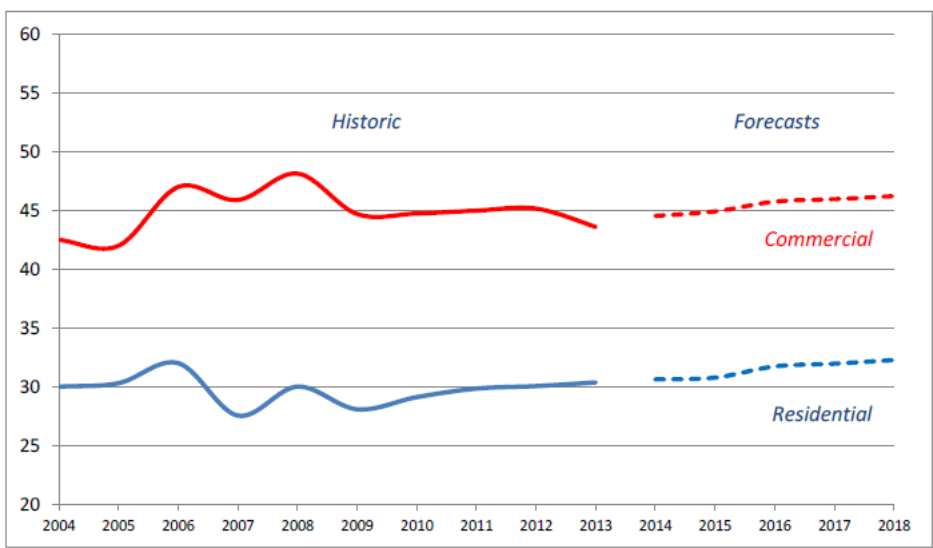




Figure 8 Met-Ed energy usage (GWh)

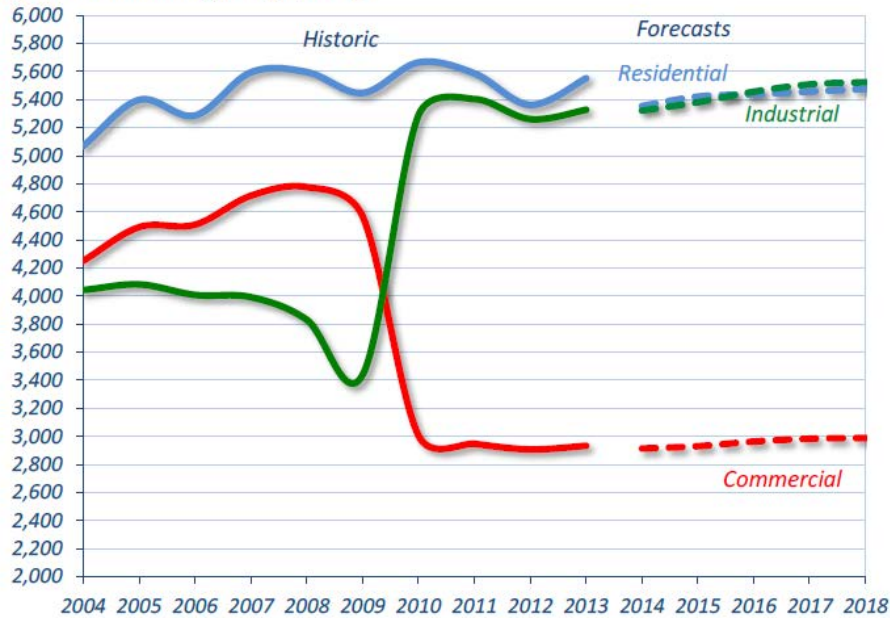


Figure 14 West Penn energy usage (GWh)

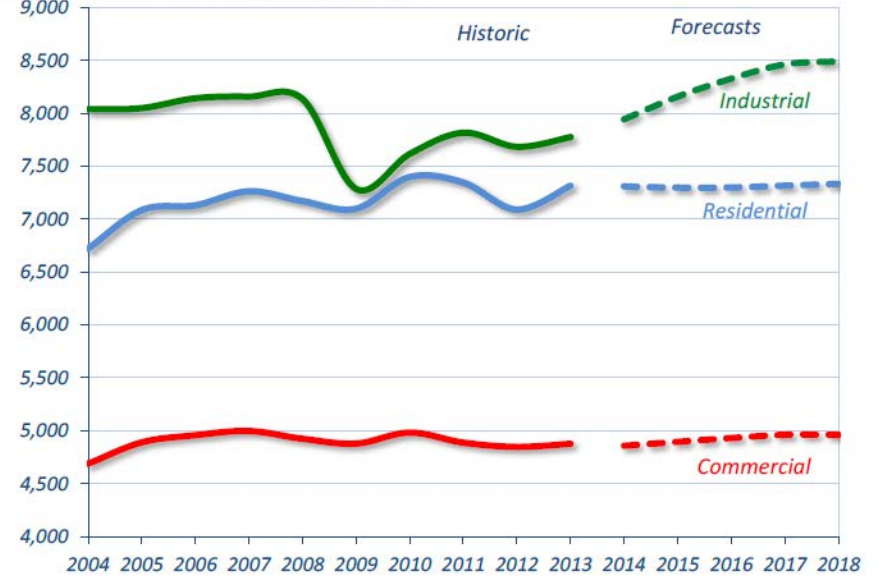


Figure 10 Penelec energy usage (GWh)

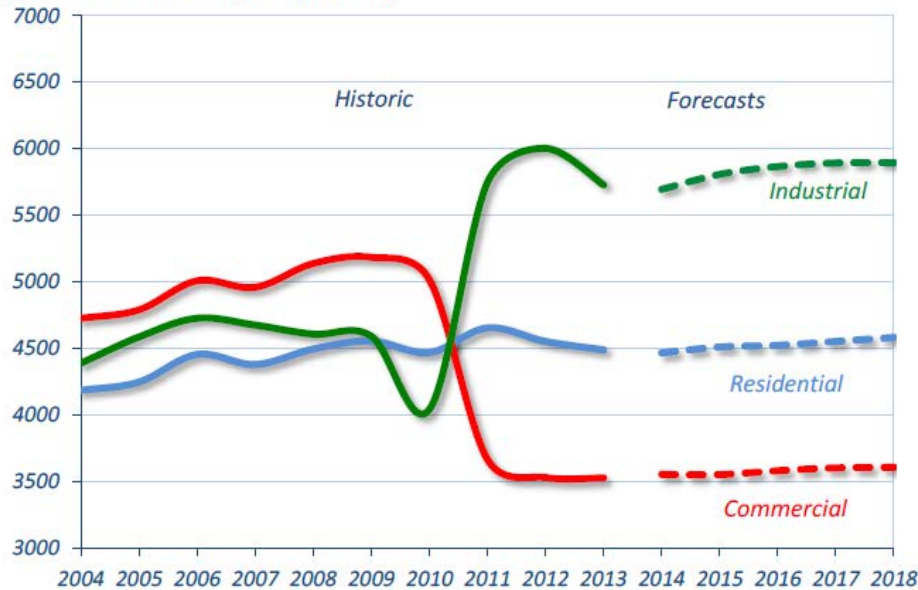
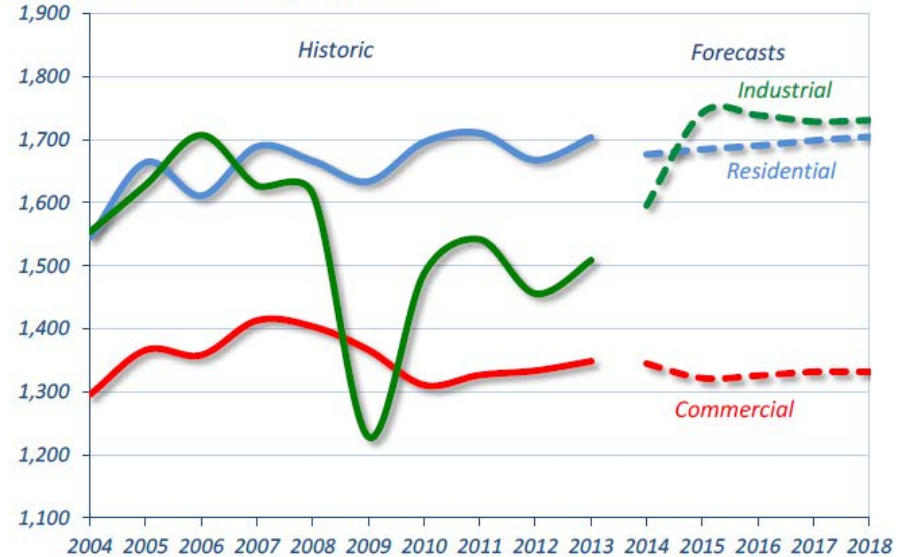


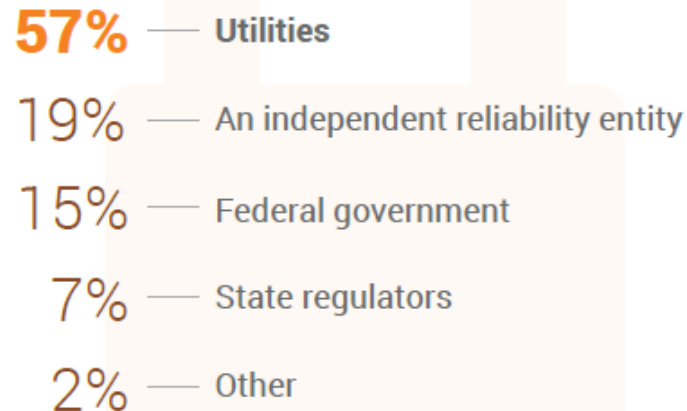
Figure 12 Penn Power energy usage (GWh)



# Cyber Security



Q. Who do you think should be primarily responsible for grid security?



Q. Is your utility's investment in grid security changing?

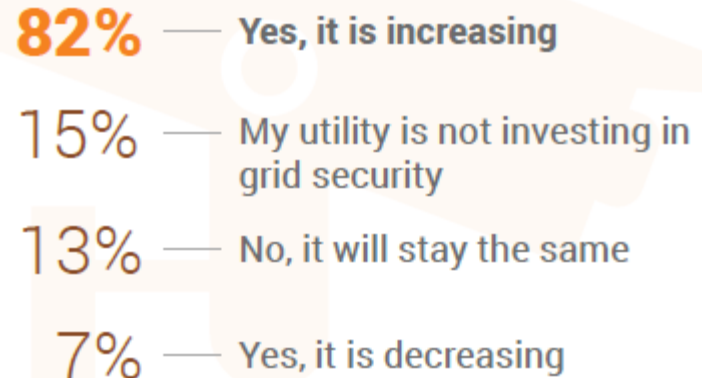


Image Source: "2015: State of the Electric Utility" survey results from Utility Dive

- PUC Cybersecurity regulations – written cybersecurity plans, self certify
- PA PUC "Cybersecurity Best Practices for Small and Medium PA Utilities"
- PUC workshops



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# Aging Workforce



**Q. What best describes your feelings about the age of your utility's workforce?**

- 53%** — I am concerned about the fact that it is growing older
- 36%** — I am optimistic because my utility is working to recruit younger workers
- 11%** — I don't think my utility needs to worry about an aging workforce

*Image Source: "2015: State of the Electric Utility" survey results from Utility Dive*



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# Distributed Generation

What is the biggest challenge your utility has with regard to distributed energy resources?	
Grid Operations	32%
Profitability	32%
Resource Planning	29%
Other	8%

Q. Does your utility see distributed energy resources as an opportunity?

56% — Yes, we see an opportunity, but aren't sure how to build a business around DER

33% — Yes, we are already building business models around DER

12% — No, we do not see an opportunity

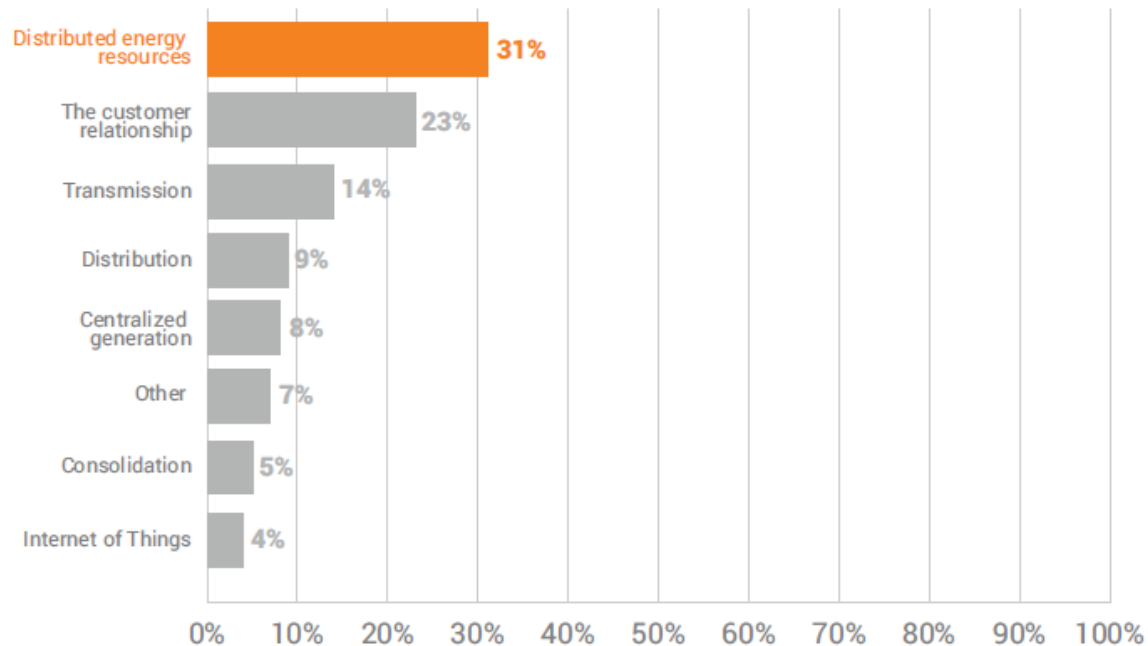
Image Source: "2015: State of the Electric Utility" survey results from Utility Dive

- PA solar penetration for EY 2015-2016 is 0.25%
- PA PUC's net metering rule proposed changes

# OPPORTUNITIES

# Opportunities

What does your utility see as its biggest growth opportunity over the next five years?



Other Opportunities:

- Rate reform
- TOU rates
- Performance-based regulation
- Smart meters
- Micro grids
- Energy storage

*Image Source: "2015: State of the Electric Utility" survey results from Utility Dive*



# Distributed Resources

Q. Does your utility see distributed energy resources as an opportunity?

**56%** — Yes, we see an opportunity, but aren't sure how to build a business around DER

**33%** — Yes, we are already building business models around DER

**12%** — No, we do not see an opportunity

How should utilities invest in distributed energy resources? (Check all that apply)

Partner with third-party providers	<b>55%</b>
Make regulated investments in DER where possible	<b>53%</b>
Procure power from customer-sited DER	<b>46%</b>
Compete through non-regulated subsidiaries	<b>37%</b>
Utilities should not invest in DER	<b>6%</b>
Other	<b>3%</b>

Image Source: "2015: State of the Electric Utility" survey results from Utility Dive



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# Solar Compensation

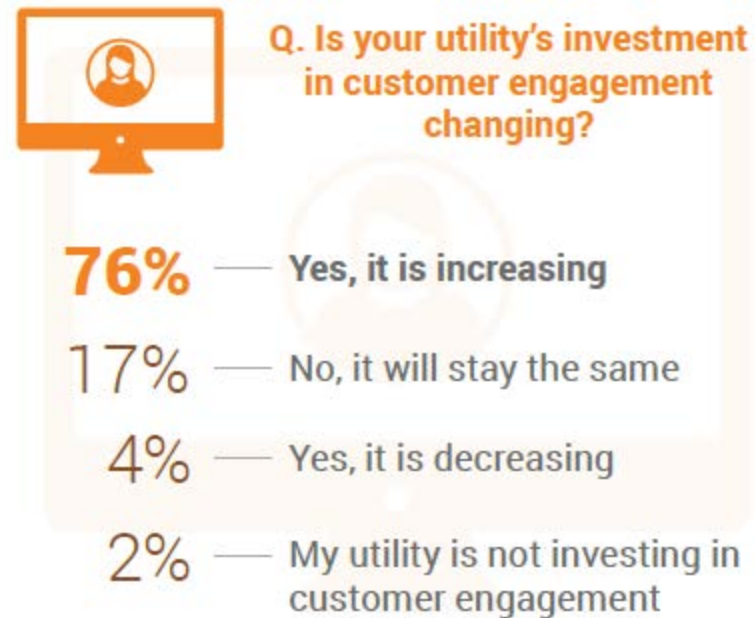
What is the best way to compensate rooftop solar for the electricity it sends back onto the grid?	
Net metering at the wholesale rate	42%
Net metering at the retail rate	18%
Value of solar tariffs	17%
Feed-in tariffs	11%
Rooftop solar should not be compensated	7%
Other	6%

*Image Source: "2015: State of the Electric Utility" survey results from Utility Dive*

# Customer Relationship

**What are the top ways in which your utility engages its customers? (Check all that apply)**

Billing and customer support	72%
Community education and outreach	63%
Conservation tips and peer comparisons	58%
Energy usage data	58%
Service offerings	50%
Power outages	49%
Discount and rebate promotions	45%
Demand response events	34%
Other	2%



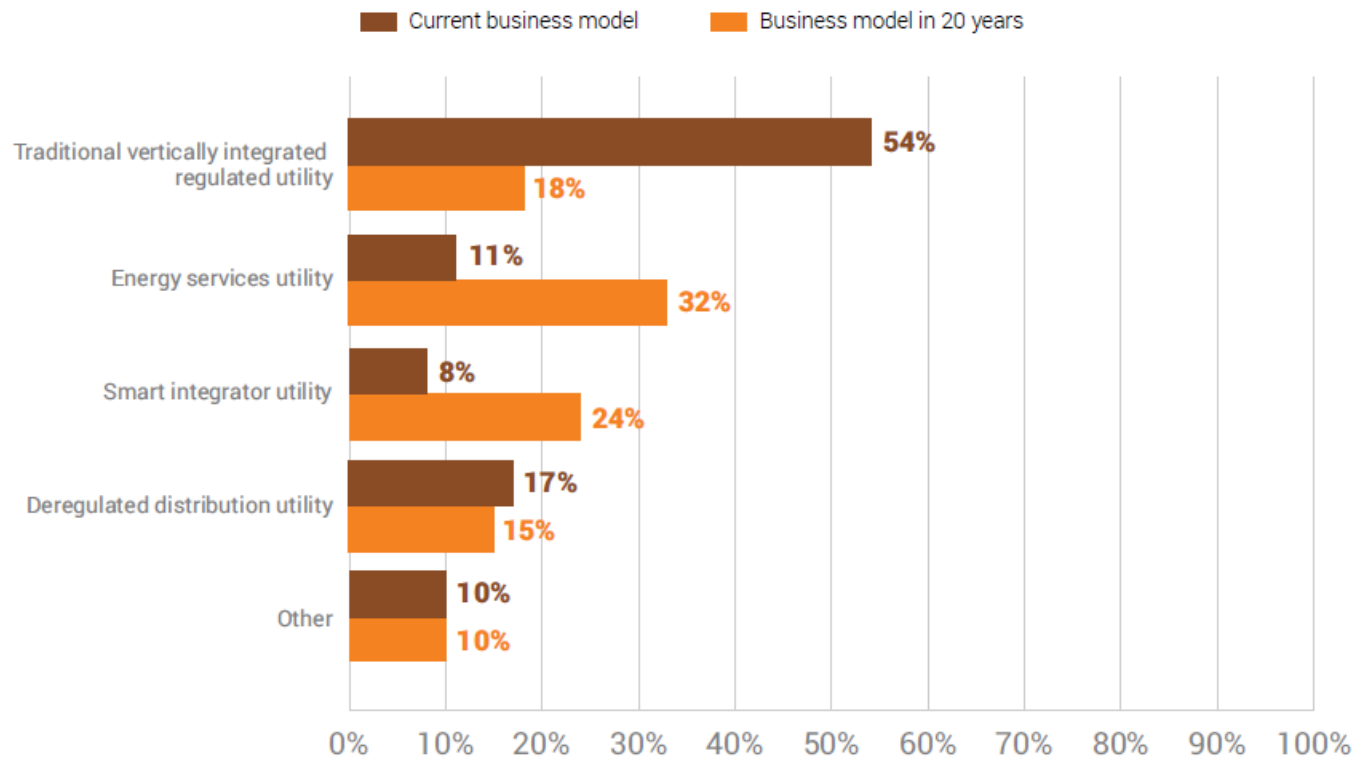
*Image Source: "2015: State of the Electric Utility" survey results from Utility Dive*



# BRAINSTORMING FUTURE VISION

# Future Vision

Q. What do you think your utility's business model will be in 20 years?



Other Visions?

Image Source: "2015: State of the Electric Utility" survey results from Utility Dive



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# Business Model Options

## Q. What new business models is your utility developing?

**71%** — Energy efficiency and demand response

51% — Consumer information services

48% — Distributed generation

25% — Distributed system platform

21% — Premium power options

9% — Other

- Benefits and drawbacks of the cost of service model
- What is possible given existing PA laws?
- What would be ideal if laws could be changed?

*Image Source: "2015: State of the Electric Utility" survey results from Utility Dive*

# STAKEHOLDER ENGAGEMENT

# Stakeholder Goals

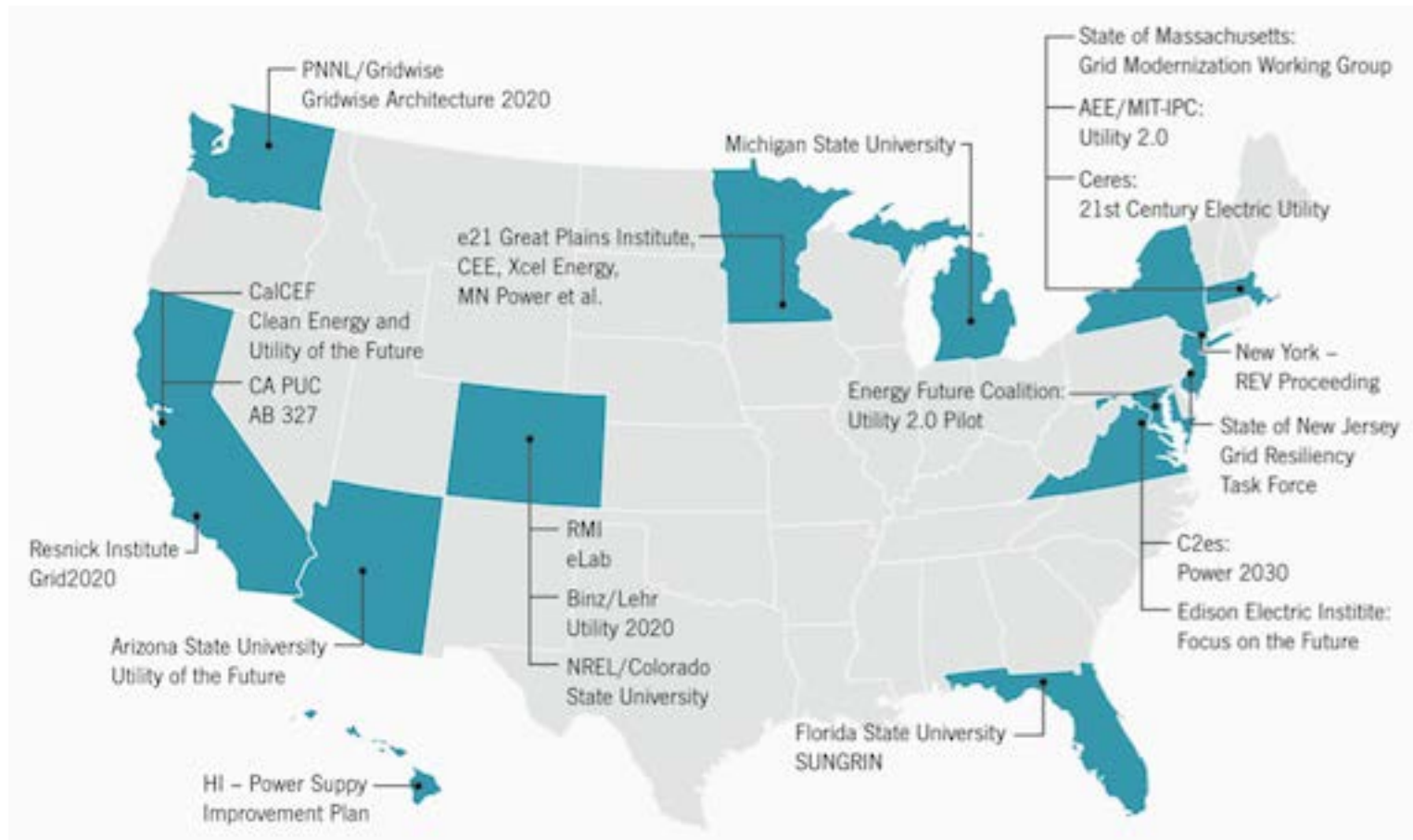
- Educate stakeholders about challenges facing EDCs (national and PA) and potential opportunities.
- Engage stakeholders in discussions about their priorities and perspectives.
- Help stakeholders understand financial and other implications of different ideas and options.
- Other goals?

# Potential Stakeholder Groups

- Utilities (large/small, IOU, municipal, coops)
- Regulators
- Policymakers
- Consumer advocates
- Associations/consultants
- Third-party providers/innovators
- Environmental advocates
- Vendors
- DER providers
- Others?

# POLICY RESEARCH INTERESTS

# Utility of the Future Projects



Source: GMT Research “Regulating the Utility of the Future: Implications for the Grid Edge” (January 13, 2015)



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# OTHER ITEMS & NEXT STEPS?