New energy alternatives and load forecasting

June 3, 2014

Prepared For pjm
Agenda

1. Opower

2. Non-traditional resources and load

3. Uncertainty and resource choices
Opower: A big-data customer engagement platform for the world’s leading utilities

Company
» Working with 93 utilities in 8 countries
» Over 300 billion meter reads under analysis
» 40% of US household data under management
» 500 people in Tokyo, Singapore, London, San Francisco, and Arlington, VA (HQ)

DNA
» Behavioral science
» Big data analytics
» Consumer marketing
» User-centric design

Impact
» 1.5-3% reduction in per household consumption
» 4 TWh and 6B pounds of CO2 abated to date
» 5% reduction in peak demand
» 5% average increase in customer sentiment
» 50-100% increase in sales of new services and adoption of new tariffs (e.g., TOU)
Opower works with 93 utilities in 8 countries to engage 32 million customers with their energy use.
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Let’s distinguish “demand” from “load”

**Demand**
- Economic growth
- Energy intensity of the economy

**Load**
- Economic growth
- Energy intensity of the economy
- Alternatives for meeting demand
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**Demand**
- Economic growth
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**Load**
- Economic growth
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Alternatives for meeting demand

- Energy efficiency
- Demand response
- Distributed generation
The alternatives are here to real...
…and will only get bigger

Based on savings targets required by current EERS policies, states can expect annual savings ranging from only about 1% (Texas) to nearly 30% (New York and Maryland) in 2020 if they choose to continue setting and enforcing targets and if incremental savings targets are met each year. If states continue to meet savings targets—and legislators and regulators maintain these targets in years leading up to 2020—the combined annual electricity savings from the 26 states with EERS policies will be equivalent to 6.2% of electricity sales in the United States in 2020.
The load impact of alternatives doesn’t need to be scary

$$\text{Annual load impact} = \text{Deployments per year} \times \text{Impact per deployment}$$

KNOWABLE

CONTROLLABLE
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Resource choices will reflect uncertainty

» Modular investments
  » Small modular reactors
  » Solar and wind facilities that can be expanded

» Uprates
  » Get the most out of existing resources

» Demand-side investments
  » Energy efficiency
  » Demand response
  » Distributed generation
Policies need to support utility investment in demand-side resources

» Regulatory systems should reward demand-side investments
  » Decoupling is the bare minimum
  » Incentives to reward efficiency are critical

» Use an efficiency standard to bring efficiency within the utility’s control
  » Make efficiency part of the utility planning process
  » Get the most operationally useful investments

» Wholesale markets need to find ways for “retail” products to participate
Thank you!