

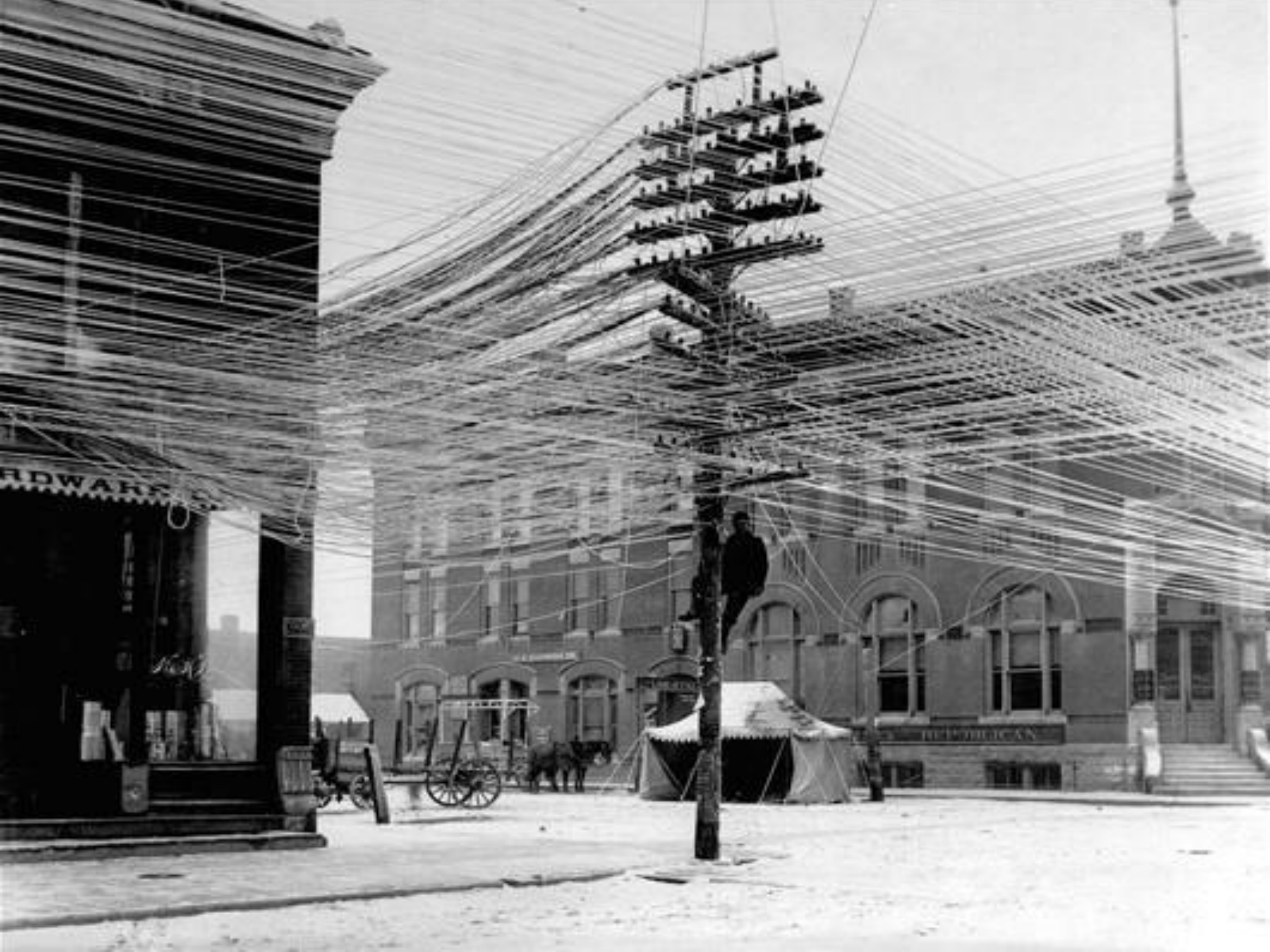
Energy Efficiency & The Evolving Utility Business Model

Mike Weedall,
Senior Advisor

Presented At The 2013 ACEEE Conference On
Energy Efficiency As A Resource
September 23, 2013



E Source

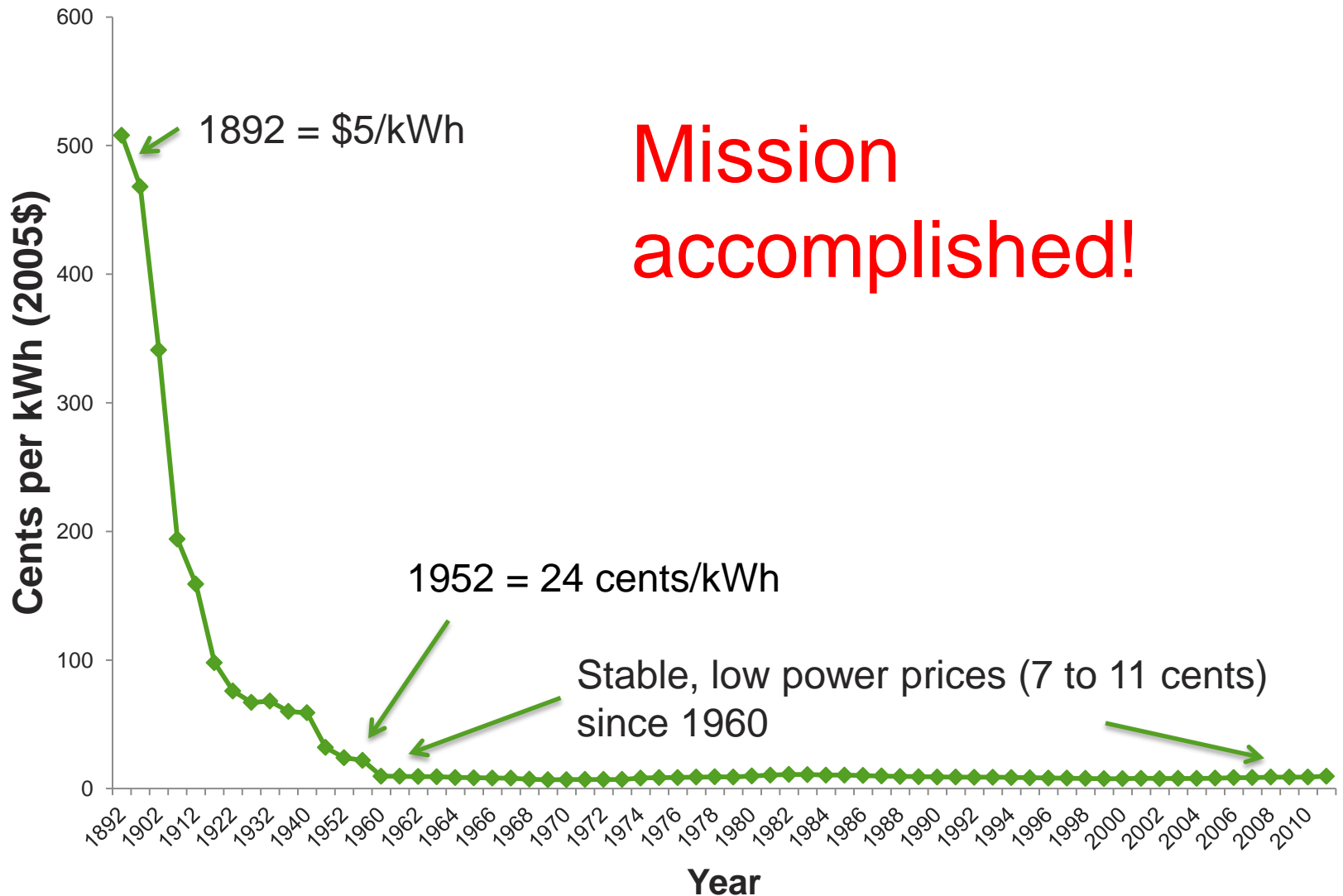


Utility Mission for the Past Century

To deliver reliable, inexpensive energy everywhere



Average Price of U.S. Electricity 1892 to 2011 (in constant 2005\$)



**Mission
accomplished!**

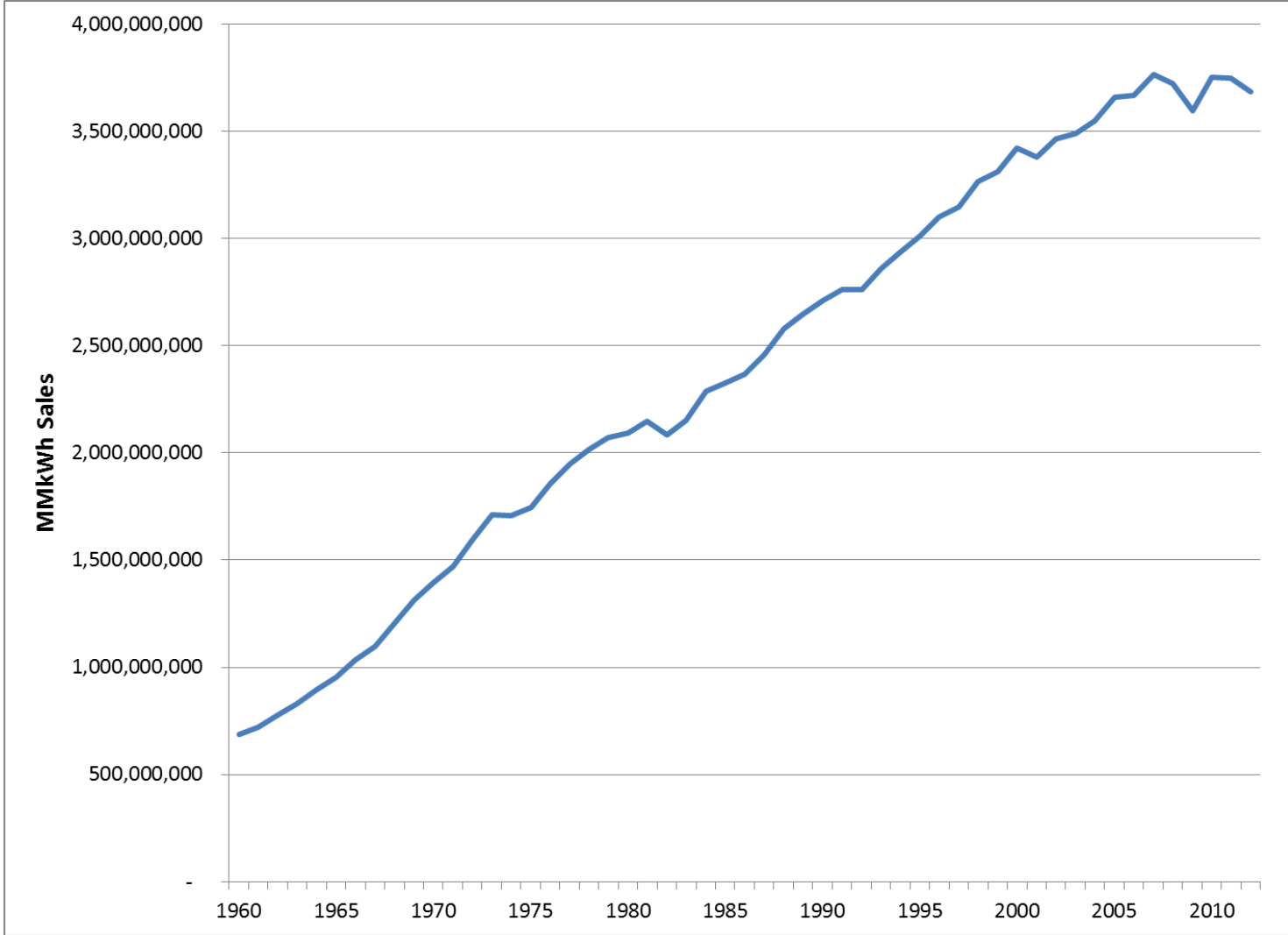


A Perfect Storm of Challenges . . . and Opportunities

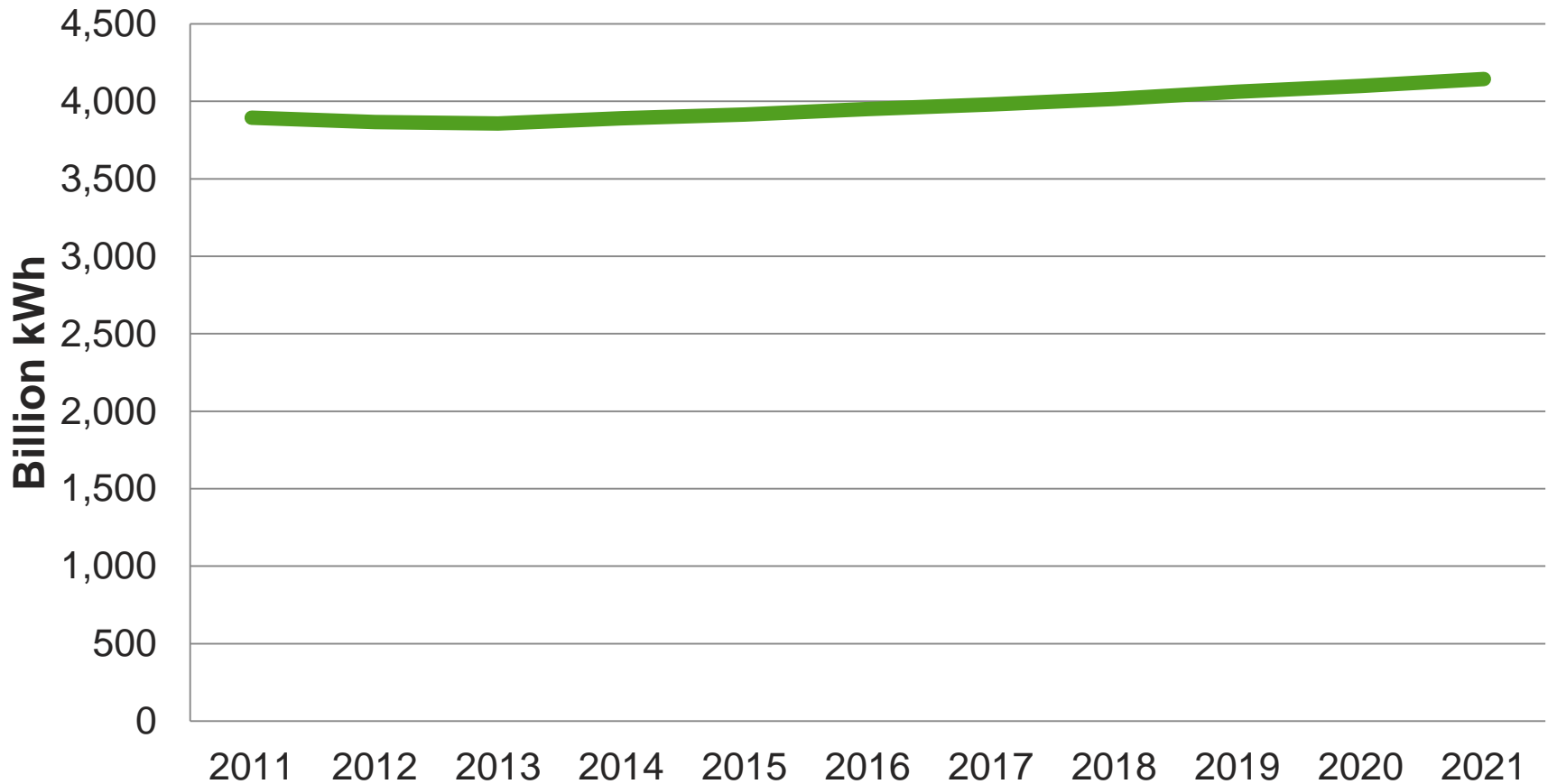
- Environmental
- Financial
- Disruptive technologies
and new entrants



Those Were the Days: U.S. Electricity Sales 1960-2012



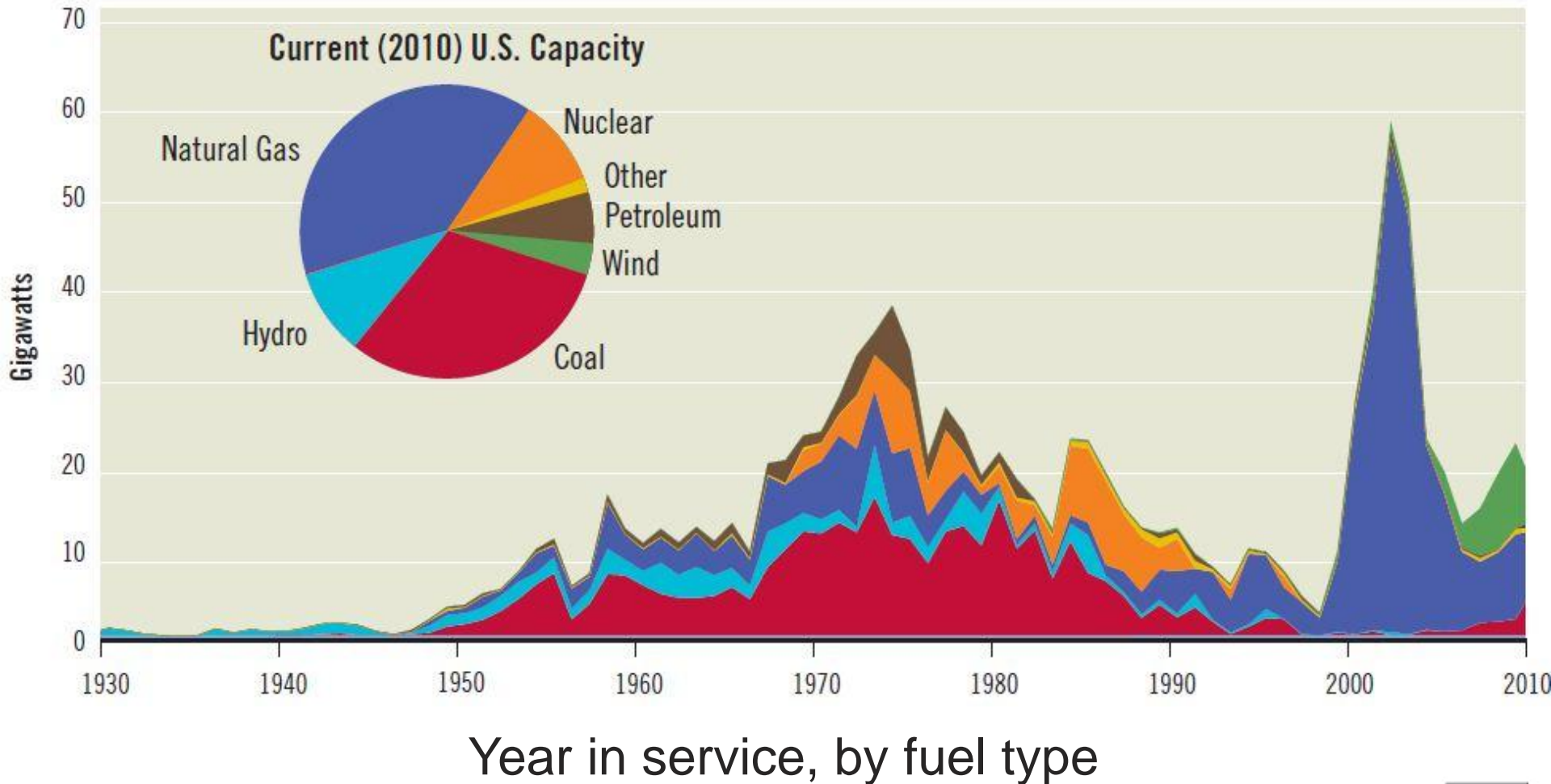
Flatlined: Projected U.S. Electricity Use 2011 to 2021; Similar Story for Natural Gas



Source: U.S. Energy Information Administration



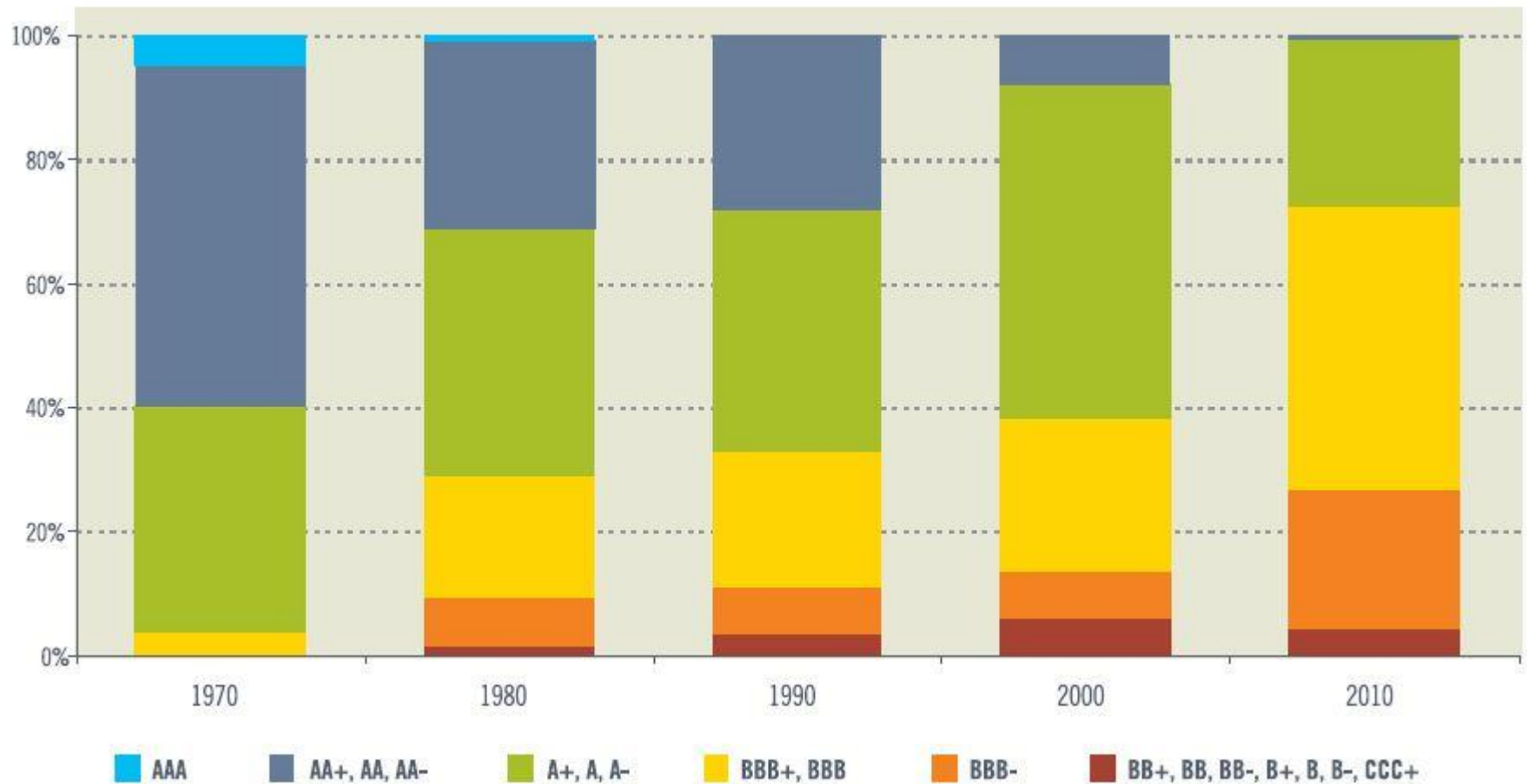
An Aging Fleet: 70% of U.S. Generation Is More Than 30 Years Old



Source: Ceres, Standard & Poor's



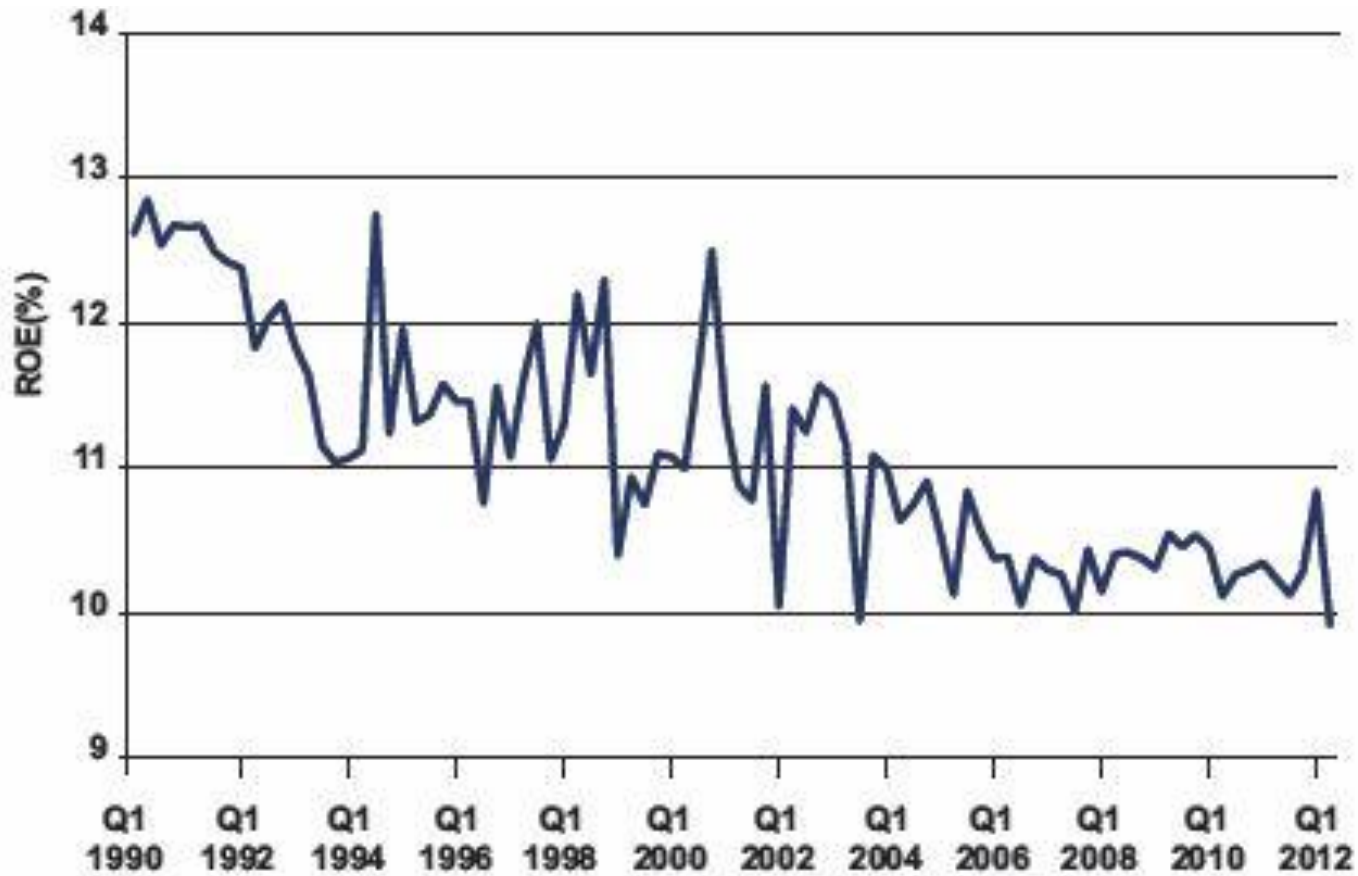
Decline in U.S. IOU Credit Ratings (1970 to 2010)



Source: Ceres, Standard & Poor's



Allowed Return on Equity for U.S. Investor Owned Utilities (1990-2012)



Source: SNL Financial/Regulatory Research Associates (RRA), EEI Rate Department



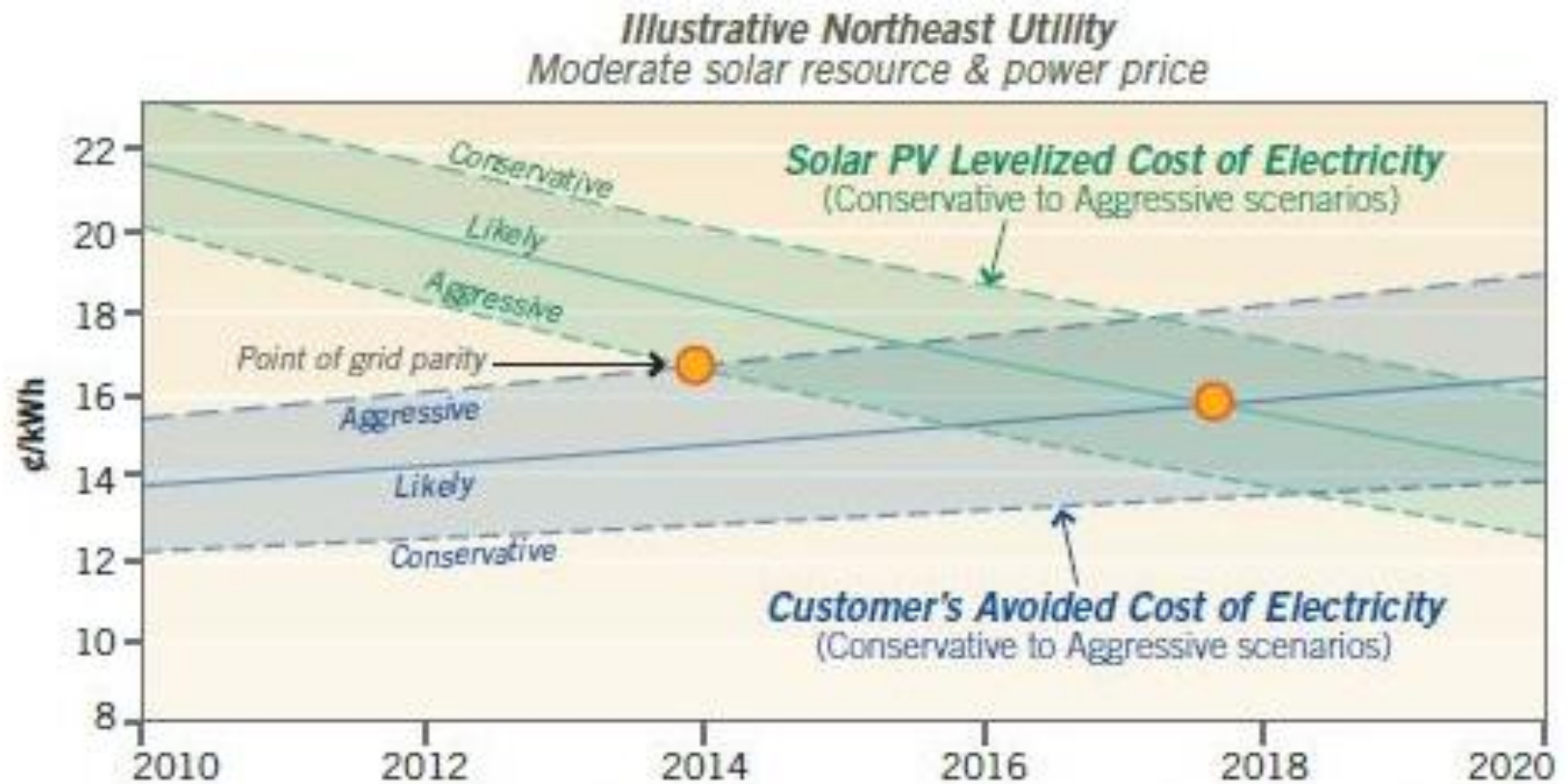
“The real price of electricity has been flat for 50 years. It’s going to rise dramatically in the next 20 to 30 years.”

—Jim Rogers, Chairman and
CEO, Duke Energy

As if that weren't bad enough, here comes . . .

“Socket Parity” for Distributed Renewables

Likely Socket Parity By 2017 in Northeast

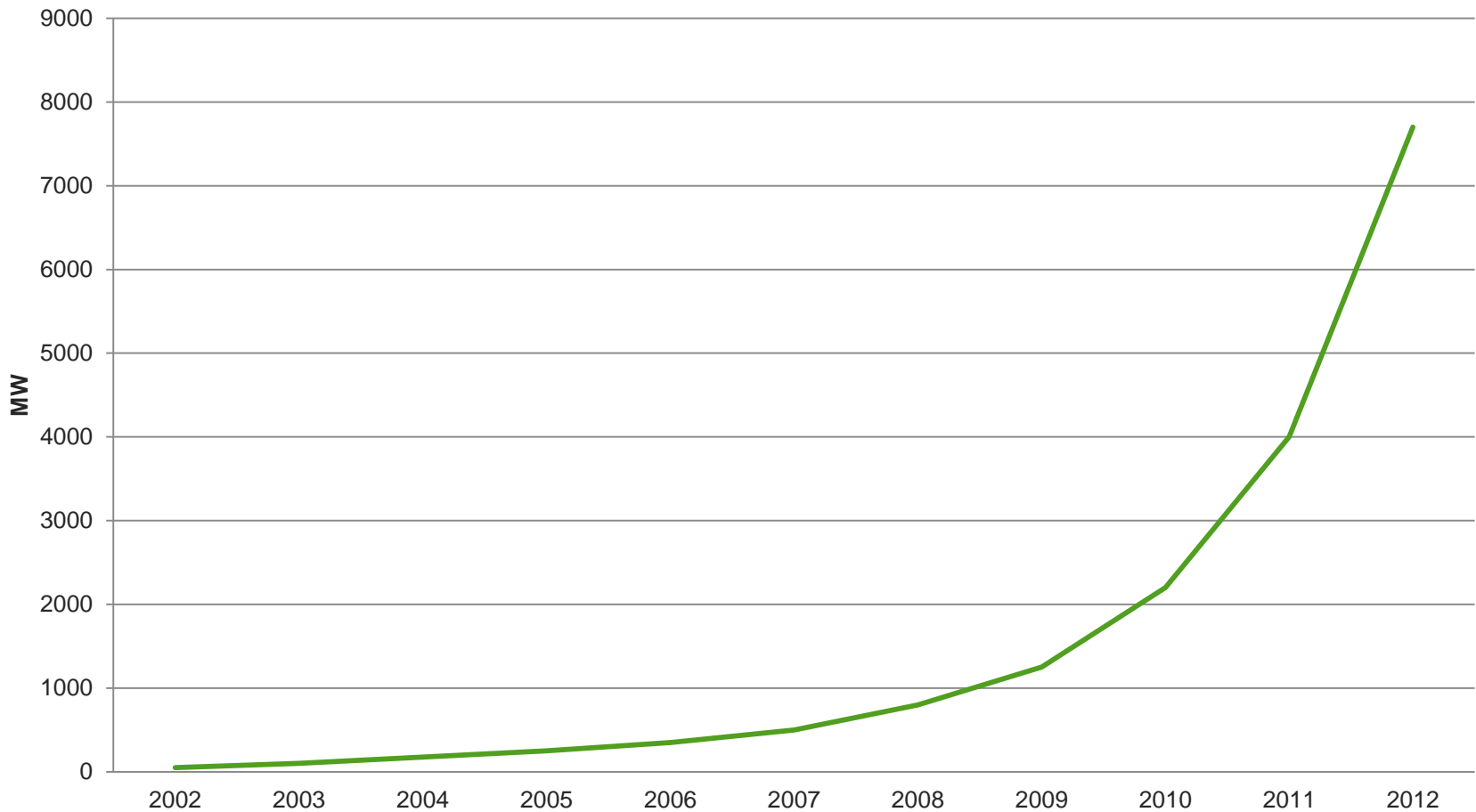


PV cost/performance typical for the Northeast US; Debt 8% equity 10% (80:20), 10 yrs debt, 25 yr lifetime, 30% ITC (assumed beyond 2016); includes state incentives; 2010 electricity costs are typical for Northeast states with EIA electricity escalation rates.

Source: Ceres, Navigant



Cumulative U.S. Grid-Tied PV Capacity (2002-2012)



Source: IREC, SEIA



“I’d put my money on the sun and solar energy.
What a source of power! I hope we don’t have to
wait ’til oil and coal run out before we tackle that.
I wish I had more years left!”

—Thomas Edison

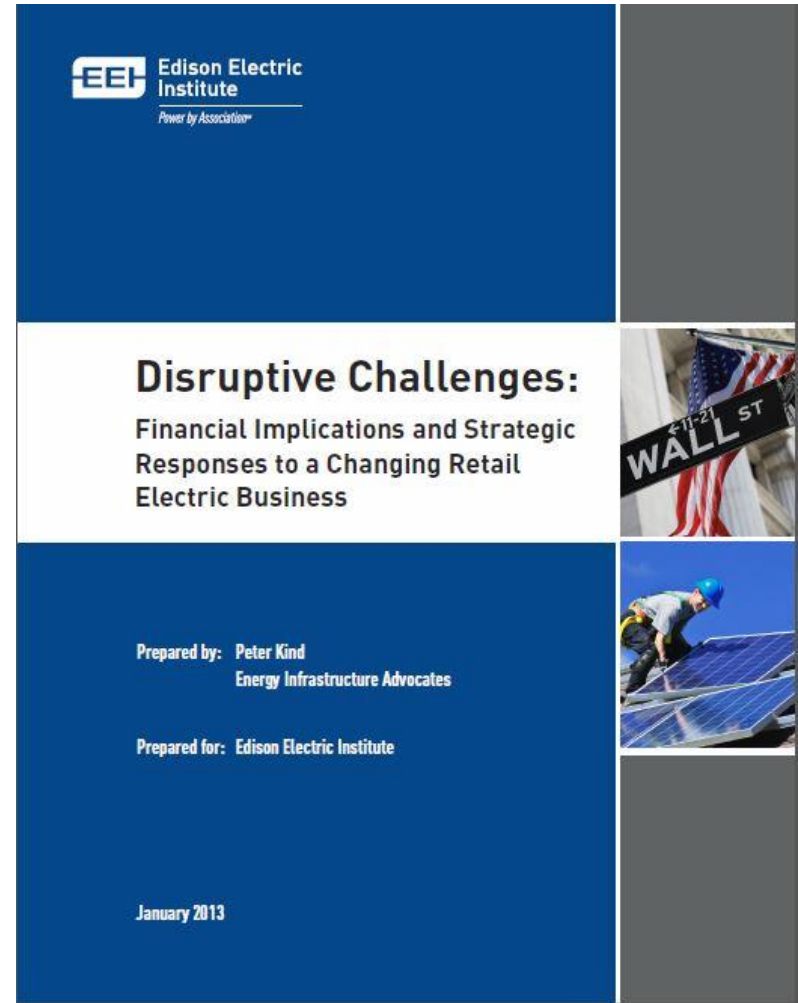
Wal Mart to Get ALL of its Power From Renewables By 2020 . . . To Save Money

- Installing PV on 1000 stores
- Their power purchase agreements already beat utility rates

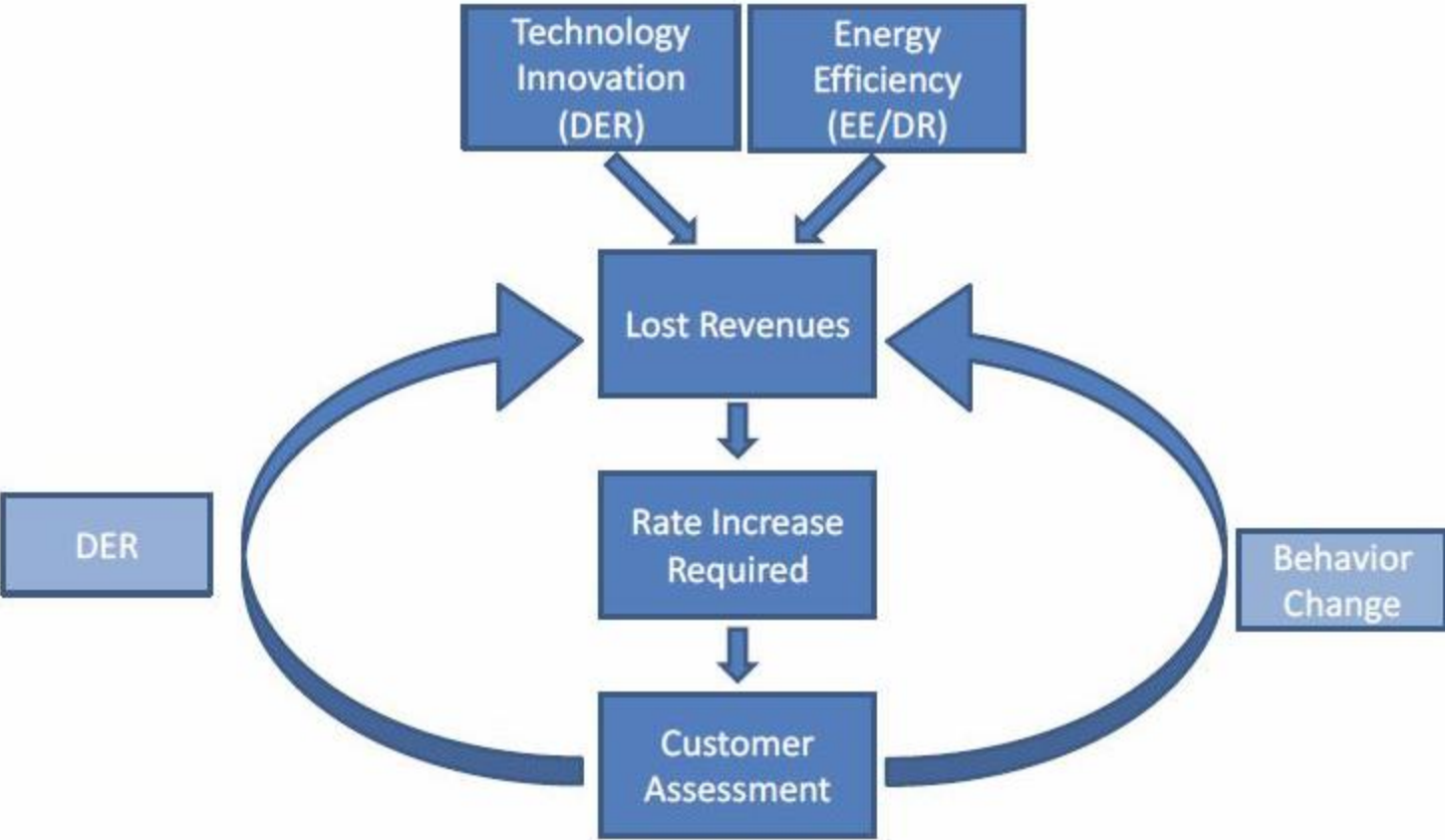


EI Sounds the Alarm

- PV is at socket parity today for 16% of U.S. electric market where power costs >15 cents/kWh
- Socket parity for one-third of market by 2017



EEL's Assessment: "Vicious Cycle from Disruptive Forces"



Disruptive Market Entrants and Technologies Will Challenge the Status Quo

- Will you try to beat 'em or join 'em?
- Can we find a model that aligns the interests of utility shareholders, customers, and the environment so that utilities prosper by promoting these disruptive alternatives?



Big Bang Disruption

- “. . .doesn't follow Clayton Christensen's classic model, entering the market as a cheap substitute to a high-end product and then gradually increasing in quality and moving up the customer chain. Instead, the innovation beats incumbents on both price and quality right from the start and quickly sweeps through every customer segment.”
- “Big-bang disruptions often come out of the blue from people who aren't your traditional competitors.”

Downes and Nunes, *Harvard Business Review*, March 2013



SolarCity just raised \$500 million from Goldman Sachs to fund solar projects and has a \$65 million deal with Honda to promote solar to Honda owners

“ . . . one can imagine a day when battery storage technology or micro turbines could allow customers to be electric grid independent. To put this into perspective, who would have believed 10 years ago that traditional wire line telephone customers could economically ‘cut the cord?’”

Edison Electric Institute 2013

David Crane Says “Change or Die”



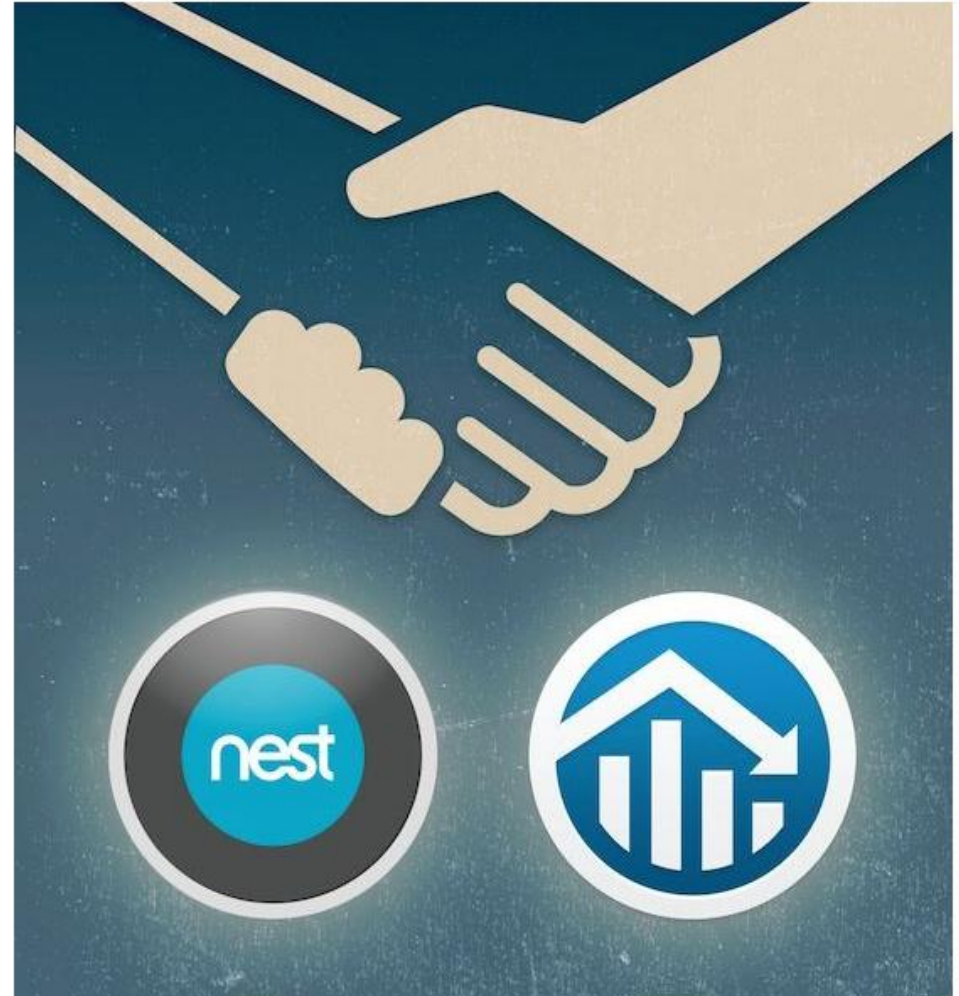
“The individual homeowner should be able to tie a machine to their natural gas line and tie that with solar on the roof and suddenly they can say to the transmission-distribution company, ‘Disconnect that line.’ ”

NRG CEO David Crane



Nest Acquires My Energy

- Nest provides web-enabled smart control and DR capability for HVAC and other loads
- MyEnergy enables users to track electricity, gas and water use
- They have users in all 50 states, gathering data from more than 1,500 energy providers



How to Avoid the Post-Officization of Utilities?



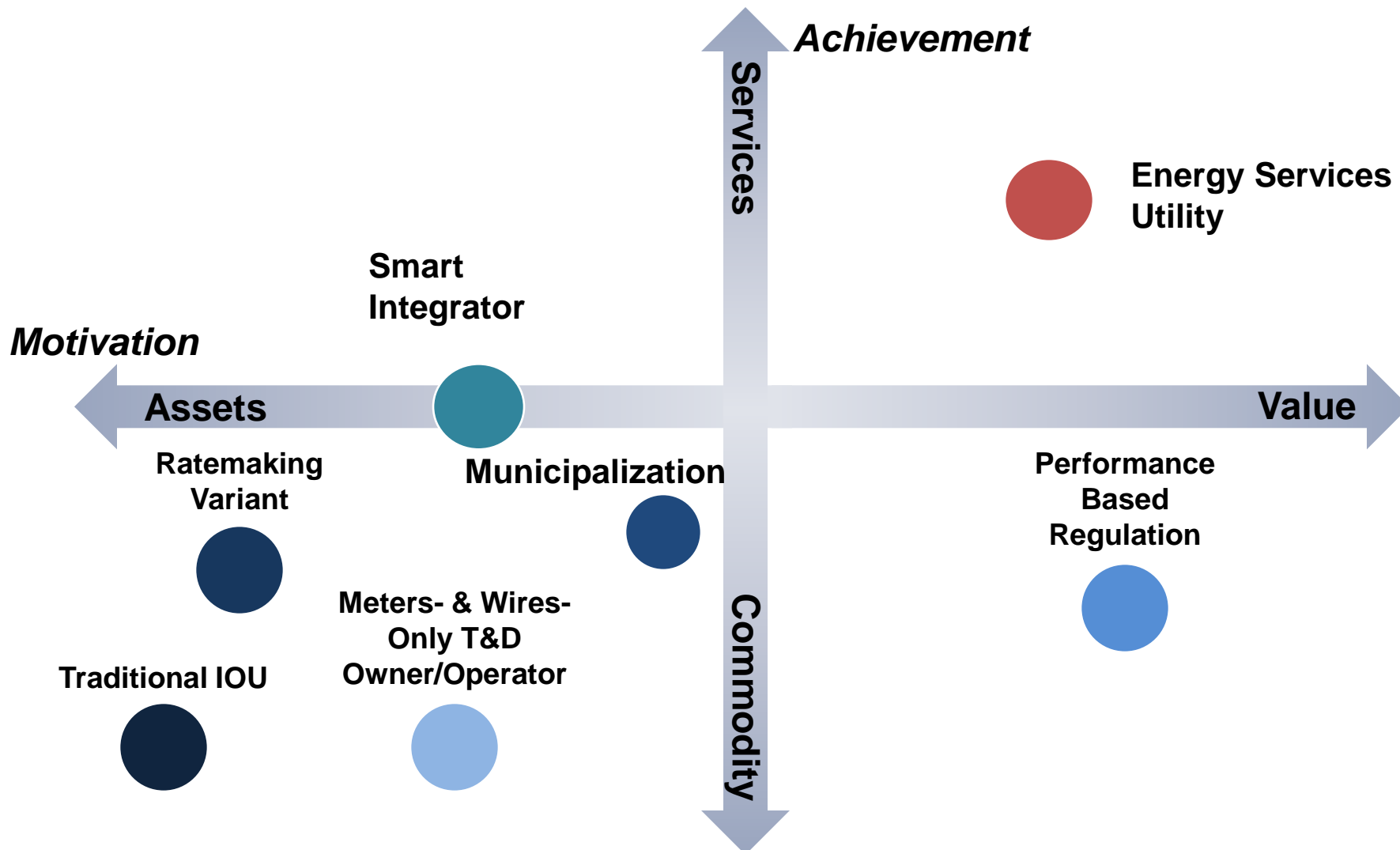
Many Initiatives Exploring New Utility Business Models

- Massachusetts Grid Modernization Working Group
- Hoover Institution Task Force On Energy Policy
- California Public Utility Commission
- Energy Foundation Utilities 2020
- RMI E-Lab Initiative
- EEI Distribution 2020
- Minnesota Working Group
- New York & Maryland
- Cal Tech Resnick Institute & Other University Efforts
- State of Hawaii Reliability Standards Working Group
- Western Governor's Association
- NARUC & RAP
- DOE & National Laboratories



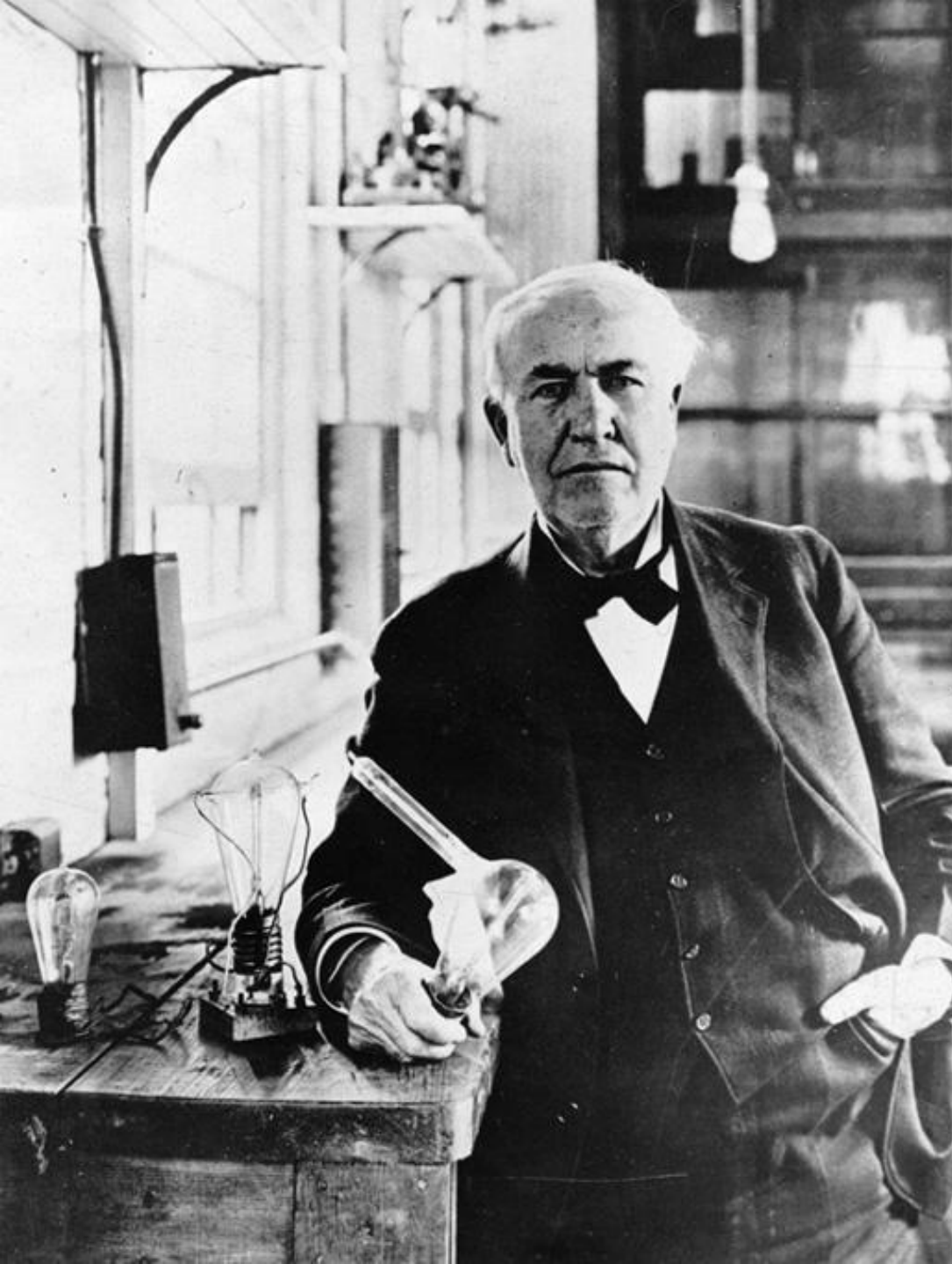


Continuum of Utility Business Models: Profit Motivation vs. Profit Achievement



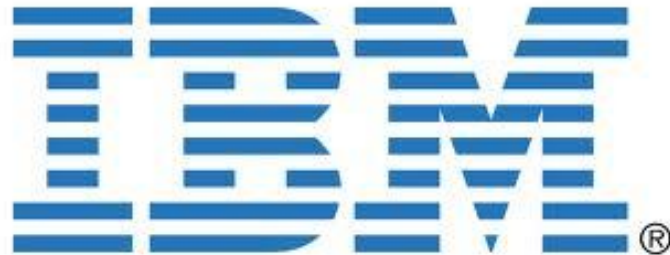
The industry will divide into camps that pursue different business models







imagination at work



Service and Value Oriented Utility Mission Statement for the Next Century

To improve our customers' lives, strengthen the communities we serve, and protect the environment through high-value, integrated energy services delivered on both sides of the meter



■ The Challenge For Energy Efficiency

- Sameo/Sameo—Just as over the past 30+ years changes have come to the utility industry, we have to find the need EE should fill
- Real opportunity here as utilities figure out what business they have to be in, how do we make energy efficiency part of that new core?



- **Some ways energy efficiency can be part of the core...**
- Decoupling as a bridge to remove disincentive
- Energy efficiency as a means to enhance customer engagement/loyalty
- Job creation/retention
- EE & DR to meet environmental drivers
- EE & DG in rate base or earn a ROR
- EE as a defense/response to 3rd party competitors



“Somehow, in the past 100 years, it was decided that utility property ended at the meter. It doesn’t have to be that way.

We are slowly redefining what has historically been called the rate base.

This produces not only a customer benefit, but an overall societal benefit and, quite candidly, a shareholder benefit.

Ralph Izzo
Chairman and CEO
PSE&G

“Our business in the 21st century is as an energy optimizer, not just of the grid, but an optimizer of every home, every business. Optimizing all the way from the device back to the generating plant.”

“If I can make as much money investing beyond the meter as I can in building and running power plants, I’d rather invest beyond the meter. We want to be the solutions provider, the Amazon.com of energy.”

Jim Rogers, Chairman and CEO
Duke Energy

Questions

Mike Weedall

Senior Advisor, E Source

503.891.8782 mike_weedall@esource.com

