



**Innovative Collaboration:
Integrating Distributed Energy
Into A New Utility Model**

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IPPNY Energy Evolution: Power the Future Grid
Albany, NY
May 21, 2014

Introduction

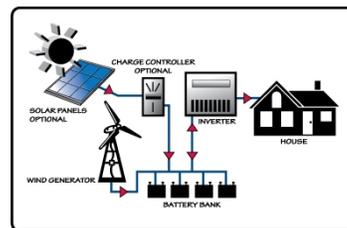
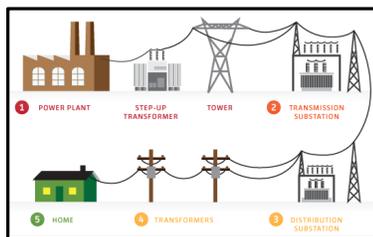


The New England Clean Energy Council is a clean energy business organization whose mission is to accelerate New England's clean energy economy to global leadership by building an active community of stakeholders and a world-class cluster of clean energy companies.

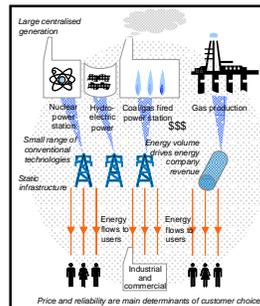
NECEC

- Represents business perspectives of hundreds of investors and clean energy companies across every stage of development
- Spans broad spectrum of clean energy, including energy efficiency, demand response, renewable energy, combined heat and power, energy storage, fuel cells, advanced and “smart” technologies
- Provides education and insight on issues vital to the clean energy sector
- Advocates policies to ensure consistent market signals to drive demand, investment and economies of scale
- Partners with industry and states on innovation and cluster development

Back to the Future



In the beginning,



In the end?



In the middle

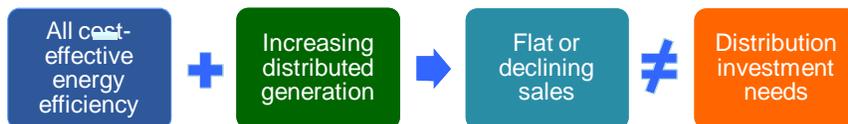
Evolution is the right word

- PURPA – 1978
- IRP – 1980-1995
- Restructuring
- REV / Grid Modernization / 21st Century Electricity System
- *Increasing competition – driving technology innovation and new business models*

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Changing Electricity Context

- Fundamental economics
- Technology innovation
- Public policy



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Different Responses



Monopoly Utilities Doomed Jim Rogers on the Pivot Ahead

BY MARTIN ROSENBERG EDITOR-IN-CHIEF, ENERGYBIZ 1-20-14
The many challenges ahead are going to fundamentally change this industry. Leaders in this industry in the future are going to have to run to the problems that they see on the horizon, embrace the problems, and then try to convert the problems and challenges they see into opportunities to create value for their customers as well as their investors.

THE OPINION PAGES | EDITORIAL Smarter Electricity in New York

By THE EDITORIAL BOARD MAY 12, 2014
In one of the most promising moves in the energy sector in years, New York State is proposing a way to get a head start on, and perhaps help lead, a revolution in the world of electricity generation. Starting this week, the main players in the state's complex electricity business will be asked to comment on a new report from the state's Public Service Commission that envisions more efficient and climate-friendly ways to produce electricity. "Business as usual just doesn't cut it anymore," said Audrey Zibelman, the commission's chairwoman. By the end of the year, she said, the commission hopes to produce new "rules of the road for utilities." In its most basic form, what the commission is talking about is an increasingly decentralized system dominated not by big generating stations but by smaller stations located throughout the state, many of them using renewable sources like solar or wind power.

Massachusetts Makes Smart Grid Mandatory

A new law requires smart meters, grid planning, and new models to value it all.
Jeff St. John
December 31, 2013
Massachusetts has joined a growing list of states demanding that its investor-owned utilities invest in the smart grid -- and find new models for how those investments should be valued. Consider it the latest move in a state-by-state reconfiguration of utility business models, aimed at creating new rules for sharing the costs and benefits of grid modernization between utility shareholders and customers.

Today's Challenge

- "Integrating" distributed energy resources (DER)
- Regulatory framework that advances evolution
 - Massachusetts Grid Modernization
 - New York Reforming the Energy Vision
- Objective to capture full value of DER for customers and system
 - Enhance resiliency
 - Ensure reliability
 - Improve efficiency
 - Reduce costs
 - Address environmental imperatives

MA Grid Modernization Goals

2012 Notice of Investigation

- Enhance the reliability of electricity services
- Reduce electricity costs
- Empower customers to better manage their use of electricity
- Develop a more efficient electricity system
- Promote clean energy resources
- Provide new customer service offerings



December 2013 Straw Proposal

- Reduce the effects of outages
- Optimize demand, including reducing system and customer costs
- Integrate distributed resources
- Improve workforce and asset management

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Value for Customers

- More and enhanced products and services
- Controlling/managing energy usage and costs
- Integrating and optimizing distributed energy resources
- Hedging price volatility
- Increasing choices
- Reducing environmental impacts

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MA Clean Energy Caucus' Grid Modernization Principles



Integration of distributed energy resources (DER) into electricity system to capture full value

- Planning to take DER into account
- Evaluating benefits and costs broadly – “business case” approach
- Regulatory framework that encourages modernization
- Visibility into status of system (information to utilities)
- Time varying rates (information to customers)
- Customer education and protection

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Planning for a Modern Grid



- Long-term focus
- Create “optionality”
- Two-way communications and power flow
- Link wholesale and retail markets
- Accelerate innovation
- Assess effects on reliability, resiliency, operations, usage, peak load, prices and bills

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“Business Case” Approach



- Accounts for benefits and costs broadly, including
 - Value to customers
 - Quantifiable and difficult to quantify benefits
 - System benefits to utility
 - Societal benefits that contribute to state policy goals
- More fully accounts for the effects of new technologies
- Considers risk and uncertainty and “optionality”

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Utility of the Future, Today



- A new regulatory framework
 - Forward looking and performance-based
 - Applies to grid modernization and all spending
 - Forecasted multi-year rate case
 - Capital investment plan consistent with grid modernization objectives
 - “Business case” for investment, taking into account benefits, costs, risks and uncertainty
 - Annual reconciliations after review of performance
 - Budget for innovation demonstrations

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Other Key Elements

- Rate Design
 - Time Varying Rates
 - Fixed v. variable charges
 - Minimum monthly bills
- Distribution Services Pricing
- Stakeholder Engagement
- Data Access

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New York REV

- What is the Distributed System Platform Provider?
 - Platform?
 - Service provider?
 - Both?
- Roles of distribution company, customers, third party providers
 - Who owns distributed generation?
 - Who operates and maintains it?
- What does integration look like?

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Conclusion

- Opportunity (and objective) to
 - Align utility, customer and other interests
 - Integrate distributed energy resources
 - Increase efficiency and add value
 - Enhance reliability, resiliency, security, operational efficiency
 - Improve environmental performance
 - Advance new technologies, services and industry models
- Restructuring 2.0?

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Additional Information

- MA DPU 12-76 NOI, October 2, 2013
<http://www.env.state.ma.us/dpu/docs/electric/12-76/10212dpuvtord.pdf>
- MA Grid Modernization Steering Committee Report to DPU, July 2, 2013
<http://www.mass.gov/eea/docs/dpu/electric/grid-mod/ma-grid-mod-working-group-report-07-02-2013.pdf>
- MA DPU Order 12-76-A, December 23, 2013
<http://www.mass.gov/eea/docs/dpu/electric/12-76-a-order.pdf>
- For additional information, contact Janet Gail Besser at jbesser@cleanenergycouncil.org

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