Background: Vertically Integrated Utilities or Not?
Background: Vertically Integrated Utilities or Not?

- **In most states** electric utilities are “vertically integrated,” meaning they own generation, transmission and distribution.
- **In 16 states**, utilities do NOT own generation.
Utilities are “wires” companies
They only own transmission and distribution
Through rates set by regulators, utilities recover their cost of service but get their profit based upon a regulated rate of return on capital
Background: Structure of Utilities in New York State

• Utilities are “wires” companies
• They only own transmission and distribution
• Through rates set by regulators, utilities recover their cost of service but get their profit based upon a regulated rate of return on capital
• Utilities do not make more money if customers use more electricity
Utilities can’t own Distributed Energy Resources (DER)
• DER must be owned by market participants, not utilities
• Owners can be companies, homeowners, businesses, or communities

Policy rationale:
• DER not a natural monopoly
• Entrepreneurs will develop projects efficiently
• Markets bring innovation
Background: The Grid Of Today
Renewables have been “bolted on” to the grid
To achieve our climate objectives, we will need much more energy efficiency, much more storage, EVs and electric heating.

We cannot achieve our climate objectives mandate by continuing to “bolt on” Distributed Energy Resources (DER) and renewable energy to a grid architecture that wasn’t designed for those types of resources.
The Challenge: Creating the Grid of Tomorrow
Why aren’t we building the 21st century grid?
The Challenge

Because we have policies and regulations that keep us rebuilding the old grid
Reforming the Energy Vision (REV) is a set of new policies and regulations designed to build the 21st century grid.
Why is REV market-based:
• Markets mobilize large amounts of money quickly
• Markets bring innovation
• Markets can bring efficiency
Why Markets Can Work

The good news:
• The current grid is energy inefficient (it was not designed that way)
• The current grid is financially inefficient
The Challenge: Underutilized Assets

Capacity utilization of New York’s electric grid is 54%
Low capacity utilization:
The grid is built for the hottest hours or days of the year, but customers pay all year long
Why Markets Can Work

Capacity Utilization by Industry

- **Electric Utility**
- **Copper Mining**
- **Hotels/Resorts**
- **Paper Products**
- **Airlines**

- **Capital Intensity (Capital/Revenue)**
  - 2.5
  - 2.0
  - 1.5
  - 1.0
  - 0.5
  - 0.0

- **Annual Capacity Utilization**
  - 40%
  - 50%
  - 60%
  - 70%
  - 80%
  - 90%

77% US Industry Average
Low capacity utilization:
Because the current grid is so financially inefficient, in New York State we can largely build the new grid within the “cost envelope” of the existing bill.
Creating the Grid of Tomorrow

Three Elements of Reforming the Energy Vision:
1. Establish locational value for Distributed Energy Resources
2. Change regulated utility incentives and business practices
3. Stimulate grid edge activity with government resources
Three Elements of Reforming the Energy Vision:
1. *Establish locational value for Distributed Energy Resources*
2. Change regulated utility incentives and business practices
3. Stimulate grid edge activity with government resources
1. Locational Value: Grid “Opportunity Zones”
Market Transition Credit

Environmental Value (E)

installed Capacity Tag (ICAP)

day-ahead Locational Based Marginal Price (DA LBMP)

Demand Reduction Value (DRV)

Net Metering Rate

Value of DER Just Exceeds Net Metering
Three Elements of Reforming the Energy Vision:

1. Establish locational value for Distributed Energy Resources
2. Change regulated utility incentives and business practices
3. Stimulate grid edge activity with government resources
2. Changing Utility Financial Incentives

Traditional Utility Business Model:

- Through rates, utilities recover costs of providing service plus a regulated return on capital deployed (known as *rate based regulation*).
- The more capital deployed, the greater the profit.
- The more capital deployed, higher rates unless there are more customers to share costs.
What’s wrong with the model:
• It’s expensive: excess capital deployed
• It’s a deterrent to adoption of new technology
• It discourages use of distributed energy resources (DER)
2. Changing Utility Financial Incentives

Utility Revenue Sources

Fuel 45.84%
Income Taxes 9.18% - 2.11%
Other Expenses 13.44%
Capital Costs 15.63%

Other Taxes 5.57%
Depreciation and Amortization
Wages and Benefits 8.23%

UTILITY PROFIT: 6-7%
Old Utility Model:
• Commits capital to build the grid
• Gets paid for how much capital it deploys
• Is indifferent to energy efficiency
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- Commits capital to build the grid
- Gets paid for how much capital it deploys
- Is indifferent to energy efficiency

New Utility Model:
- Acts as systems integrator
- Gets paid for capital it deploys
- Gets paid for enabling more efficient deployment of other people’s capital
- Has positive incentive for energy efficiency
2. Changing Utility Financial Incentives
2. Changing Utility Financial Incentives

Traditional solution: $1.2 billion substation
2. Changing Utility Financial Incentives

Instead of Request for Proposals...
2. Changing Utility Financial Incentives

... request for **Non-Wires Solutions**

$200 million for:
- Solar
- Storage
- Efficiency
- CHP
- Demand response

*Instead of $1.2 billion substation*
Two Methods of Changing Compensation:

- “Performance Based Regulation”: determining rates of return based on achieving certain targets
- “Shared savings” models
2. Changing Utility Financial Incentives

Utility Revenue Sources

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Other Taxes: 2.11%
Depreciation and Amortization: 5.57%
Wages and Benefits: 8.23%

UTILITY PROFIT: 6-7%
We can go beyond “non-wires alternatives”:

- Utilities now have incentive to reduce power supply costs
- We will now see if “negawatts” are a possible business for utilities
Three Elements of Reforming the Energy Vision:
1. Establish locational value for Distributed Energy Resources
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3. Stimulate grid edge activity with government resources
Stimulating grid edge activity with government resources...
Previous support programs:
$1 billion per year – 85% in the form of one-time grants…
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$1 billion per year – 85% in the form of one-time grants…

Problem: Lack of Scale
One Time Grant: Good
Solar “Soft” Costs Greater than Panel Costs

**Soft Costs Breakdown**

- Permit Fee: 2%
- Permitting, Installation, Interconnection Labor: 2%
- Sales Tax: 5%
- Transaction Costs: 6%
- Installer/Developer Profit: 9%
- Indirect Corporate Costs: 9%
- Customer Acquisition: 9%
- Installation Labor: 11%
- Supply Chain Costs: 12%

**Total Soft Costs:** 64%
Funding a Community Meeting on Solar: Better
3. Stimulating Grid Edge Activity

Competitive Markets:
Building the IT Network on top of the physical grid
How the Pieces Fit Together

• Competitive markets build distributed nodes
• Utilities have financial incentive to encourage renewables, DER and Energy Efficiency, EVs
• Utilities and competitive market actors build IT system to help optimize system