Changes in the Utility Business
Practical lessons from New York REV

March 6, 2019
Overview: Structure of Con Edison

Consolidated Edison, Inc

Regulated Businesses

Con Edison Company of New York (CECONY)

Orange and Rockland

Regulated Utility (New York & New Jersey)

Clean Energy Businesses

Con Edison Development

Con Edison Energy

Con Edison Solutions

Con Edison Transmission

CET Electric

CET Gas

Regulated Transmission (FERC)
Overview: Our Regulated Utility Business

CECONY
- 3.4 million electric customers
- 1.1 million gas customers
- 1,700 steam customers
- 724 MW of regulated generation

O&R
- 0.3 million electric customers
- 0.1 million gas customers
Regulatory Overview

<table>
<thead>
<tr>
<th>Generation</th>
<th>Transmission</th>
<th>Distribution &amp; Retail Customers</th>
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<tbody>
<tr>
<td>Federal Energy Regulatory Commission (interstate, wholesale)</td>
<td>State Public Utility Commissions (in-state, retail)</td>
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Traditional vs. Restructured Industry

All assets owned by one company (integrated utility)

Vertical integration (1880s – 1990s)

- Power plant generates electricity
- Transmission lines carry electricity long distances
- Distribution lines carry electricity to houses
- Transformer steps up voltage for transmission
- Neighborhood transformer steps down voltage
- Transformers on poles step down electricity before it enters houses

Industry Restructuring (1990s – Today)

- Independent Power Producers
- Independent System Operator, ‘open access’
- Distribution Utility
New York Utility Industry Characteristics

- Restructured industry
  - Electric utilities are distribution companies and earn profit on distribution function
  - ‘Exempt’ wholesale generation; profits based on selling ‘capacity’, energy and ancillary services
  - Independent transmission operation with open access (NYISO)
  - Full retail access for supply, many 3rd party suppliers; utilities can provide supply, but at cost
- Regulatory compact for distribution utilities (monopoly service, regulated profit)
- Private ownership of distribution utilities (except LI, small munis) and most generation
- State ownership of some generation (hydro and conventional), some HV transmission
- Encouragement for distributed resources; net metering of customer renewables
- Transmission constraints – and challenging to site electric or gas transmission
- Relatively clean conventional generation fleet
- Very active efforts to achieve state environmental goals
- Support for upstate nuclear plants; agreement to close Indian Point
- Growth in natural gas for heating, generation; natural gas the ‘fuel on the margin’ for generators
New York State Energy Plan for 2030

Headline Targets

- 40% reduction in Greenhouse Gas (GHG) emissions from 1990
- 50% of electricity generation from renewable resources
- 600 Trillion BTU increase in statewide energy efficiency

Guiding Principles

- Market transformation
- Community engagement
- Efficiency
- Private sector investment
- Innovation and technology
- Customer value and choice

Regulatory Mechanisms

- Reforming the Energy Vision (REV)
- Clean Energy Standard
Overview of REV Proceeding

REV Presents Opportunities as Industry Evolves

Track One: Implementation Order issued February 2015
- Use of Distributed Energy Resources (DERs) to defer traditional transmission and distribution system investments
- Establishes utility role to develop distribution-level markets and technical platforms, and integrate system planning & operation

Track Two: Regulatory & Ratemaking Order issued May 2016
- Includes Earnings Adjustment Mechanisms, sharing of net benefits when DER defers traditional investments, and ability to earn on customer incentives within utility ratemaking design

Track Three: Large Scale Renewables Order issued August 2016
- Promotes carbon reduction and establishes 50% renewable goal by 2030 within NY’s Clean Energy Standard
- Expanded for ZECs to upstate nuclear units and 2,400 MW offshore wind target
Defer $1BN infrastructure with DER

Portfolio of DER to meet customers needs
Non-wires Solutions
As DSP, utility needs to strategically compose and dispatch non-wires alternative portfolio

Resource portfolio based on customer, technology, and load curve characteristics in target network

Sample network 2016 peak day curve
What is Con Ed’s product? What do we sell?
What is Con Ed’s product? Access to a network....
How does Con Ed make money in a REV world?
# How do we make money in a REV world

## Traditional Earnings opportunities

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## New rate base opportunities

| • Regulatory assets               |
| • Distributed system platform and software |
| • Energy storage                  |

## Earnings adjustment mechanisms (EAMs)

| • System efficiency              |
| • Energy intensity               |
| • Interconnection                |
| • Carbon reduction               |

## Platform service revenues (PSRs)

| • Marketplace transaction fees   |
| • AMI network utilization        |
| • Other                          |

## Non-wires alternatives and demonstration projects
# How do we make money in a REV world

## Earnings opportunities

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### Non-wires alternatives and demonstration projects

- Energy storage
- System efficiency
- Energy intensity
- Interconnection
- Carbon reduction
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- Carbon reduction

## Regulated electric earnings mix over time

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<th>Mid term</th>
<th>Long term</th>
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<td>EAMs</td>
<td>Mix of EAMs and PSRs</td>
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*Diagram showing the shift from traditional rate base opportunities to innovative earnings opportunities.*
How do we pay for this?
Current mass market rates do not work in DER future

Under current mass market rate structures, there is a misalignment between revenues and costs

Why Do We Care?
- Delivery costs are mainly fixed/demand related, but a significant portion of delivery costs are recovered through volumetric charges
- Critical to shift delivery rate design to a more cost-based rate structure to drive efficient customer behavior
But change is not easy.....

Save solar
Stop #vder
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