GRID MODERNIZATION AROUND THE COUNTRY & A CLOSE UP ON NY REV

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Advanced Energy Economy
Technology innovation is changing power delivery and customer engagement

- Greater customer engagement
- High DER penetration
- New products and services
- Two-Way Energy Flows
- Greater focus on value vs. cost
- Digitalization of the Grid

Source: Navigant, 2015
Expectations of what the grid should deliver are evolving

<table>
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<tr>
<th>Core Attributes</th>
<th>Emerging Attributes</th>
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<tr>
<td>• Universal access</td>
<td>• Environmental sustainability</td>
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<td>• Safety</td>
<td>• Resiliency</td>
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<td>• Reliability</td>
<td>• Adaptability/flexibility</td>
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<td>• Affordability</td>
<td>• Greater customer control &amp; service options</td>
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<th>Additional Pressures</th>
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<td>• Aging infrastructure (rising costs)</td>
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<td>• Flat/declining load growth (falling revenues)</td>
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<td>• Variable RE integration</td>
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<td>• Cyber and data security</td>
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States are approaching grid modernization in different ways

- DRPs, IDER, retail rate redesign, energy storage requirement, EVs, DR, AMI, etc.
- Reforming the Energy Vision ("REV") Proceeding
- Grid Modernization proceedings ("Grid Mod") and Time Varying Rates
- Addressing high PV penetration with multiple orders/proceedings
- e21 stakeholder process; Grid mod process started this fall

Other states exploring utility reform/grid mod: DC, NH, RI, CT, PA, IL
States approach the key elements of regulation in different ways

Basic role of monopoly utility vs. competitive market

Regulatory Framework

Utility business model

How the utility “makes money”

Rate design

The “interface” between customers and the utility

Different Approaches Include:

• Most states are focusing on only one or two of these elements

• New York is addressing all of them and is the only state that is considering substantial utility business model reforms.
NY REV in context

Proposed changes in REV seek to:

- Offset utility Capex by harnessing private investment in Distributed Energy Resources (EE, DR, DG, and storage)
- Unlock economic efficiency by leveraging investments in DER that consumers have made for their own benefit to also benefit the grid and save on system costs

This results in investments that are contrary to general utility profit drivers.

Simplified utility profit formula

- Capex
- Opex

Impact of REV

- Capex
- Opex
REV requires a new approach

A modified “clawback” mechanism allows utilities to earn short-term profits (until the next rate plan) on avoided Capex, if the utility can more efficiently replace Capex with DER/Opex. (solution proposed by staff)

Yearly profit from a traditional CapEx solution

- Depreciation on CapEx
- Return on Equity
- Cost of Debt

Yearly profit from an OpEx/DER solution under modified clawback

- OpEx payment for DER
- Starting Year 4

All years

Years 1-3
Earnings Impact Mechanisms - EIMs

- EIMs are metrics for utility performance that are tied to adjustments to utility profits.
- In most cases, these are positive only incentives, but may be tied to bi-directional adjustments to profits.

Diagram:
- Energy Efficiency
- Inter-connection
- Affordability
- Customer Engagement & Data Access
- Peak Demand Reduction
Market Based Earnings - MBEs

- Earnings from services based on the Distributed System Platform (DSP)
- Mostly focused on providing services to support DER. DER providers would pay for these services
- Some proposed services could be provided by the competitive market. We have concerns about ensuring a level playing field.

| Basic Platform Service Revenues | • Scheduling, Dispatch, Transaction Clearing, Planning, Optimization |
| Value-Added Platform Service Revenues | • Advertising, Customer Referrals and Originations, Co-Branding |
| Competitive Services | • Microgrid Engineering, Data Analysis, Enhanced Power Quality |
Fitting it all together

A gradual shift over time from rewarding utilities based on counting inputs (Capex) to delivering outcomes.

These changes are intended to orient utilities toward pursuing resources like energy efficiency over traditional capital investments if they are more cost-effective.
For questions and follow-ups:

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