National Grid
Creating a Smart Power Grid: How Technology is Revolutionizing our Relationship to Energy

Marcy Reed, President, Massachusetts
August 8, 2017
National Grid US

- 3.4 M electric and 3.6 M gas customers
- $26.5 B assets in service
- $3.1 B annual capital investment
- 16,246 employees

20 M people served daily
The energy transformation is creating challenges and opportunities

Our shifting energy market …

- Decarbonization
  - Generation migrates from large central plant to smaller intermittent & flexible renewable assets
- Decentralization
  - Generation units decrease in size and move downstream, closer to consumption
- New technology
  - Rise of electricity assets like storage and new digital platforms

… creates challenges and opportunities …

- Price volatility increases
  - Renewables export at lower power prices
  - Expensive peaking generation plugs the gap
- Networks congested during peak periods
- Asset utilization reduced
- Forecasting becomes increasingly challenging
- Real time balancing & operations are difficult

… which drive the need for flexibility

Storage, and other flexibility tools, can help:

- Improve asset performance & utilization
- Support system balancing & ancillary services
- Reduce wholesale energy and capacity costs
The Pace of Innovation

New Energy Solutions is an agile team focused on developing and launching innovative solutions and technologies that unlock value for National Grid’s customers and communities and accelerate progress toward a sustainable future.

National Grid Ventures was created to meet the challenges of a changing energy landscape. Focused on strategy, technology and innovation, and business development, the team supports the company’s regulated business.
Underway in New England and NY

- Smart Energy Solutions (Worcester, MA)
- Volt/Var Management Project (with Utilidata)
- Buffalo Niagara Medical Campus Investment
- Potsdam Microgrid Site
- Clifton Park Smart Grid
- Community-owned Solar
- Partnership with OPower: big data behavior
In Massachusetts, National Grid has a grid modernization proposal pending with state regulators.

An upgraded modernized electricity grid:
- Translates into fewer and shorter outages
- Grid modernization will provide customers more choices and control over energy usage and ways to save money
- Renewables will be added to the grid, creating a cleaner, greener, and more sustainable energy future

Grid modernization provides an opportunity to:
- Create a modern, resilient and integrated electric grid to meet 21st century needs
- Enable integration of distributed energy resources into the operation of the grid
- Promote greater use of efficiency and renewable generation
“The electric light did not come from continuous improvement of candles”

(Oren Harari)
Thank you!