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INSTITUTE for
ELECTRIC INNOVATION

*NCSL Webinar
Evolving Electric Distribution Grid
September 14, 2017*

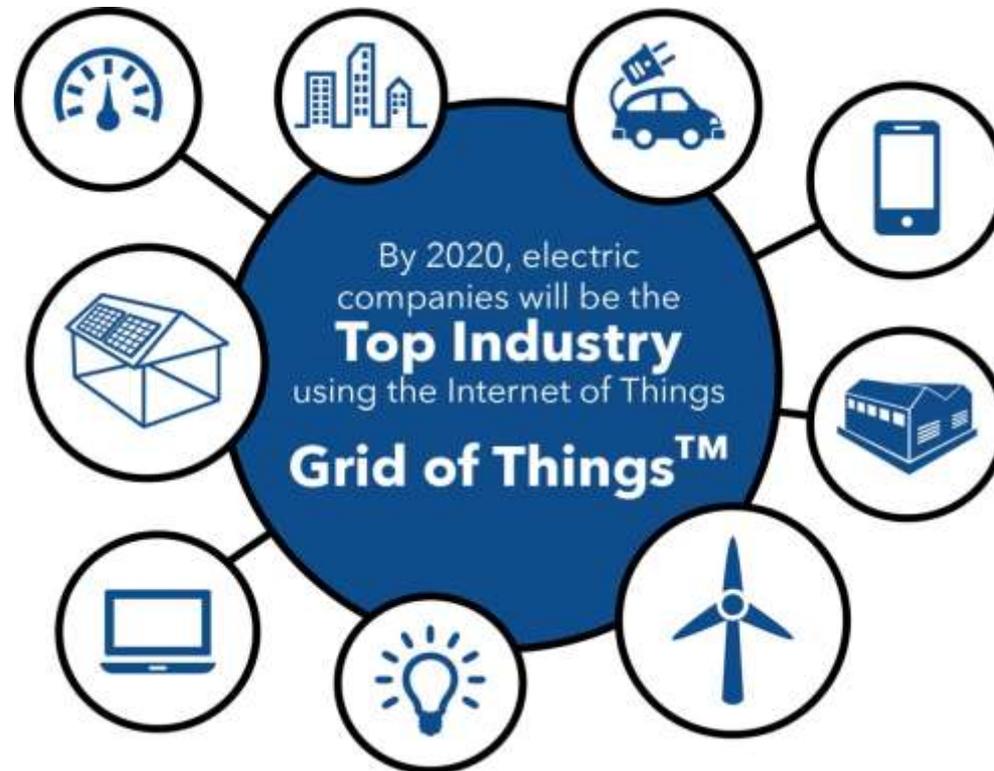
Presented by
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21st century “smarter” energy grid: safe, reliable, affordable & more digital, distributed, resilient

- U.S. energy grid is evolving into a plug and play platform to meet three critical needs
 - > Integrate clean energy resources
 - Renewable power, distributed energy resources (DERs): distributed generation, microgrids, storage, energy efficiency, and demand response.
 - > Provide and integrate customer solutions
 - Energy management information
 - Price signals
 - Customer-sited resources
 - > Optimize the grid platform itself
 - Detect outages automatically and avoid or restore power faster
 - Automatically respond to system disturbances
 - Improve grid visibility and increase resiliency
- Distribution grid investment and planning is critical!

Similar to the Internet of things, a “Grid of Things” connecting many resources and devices is evolving



Evolving U.S. power grid: more digital and distributed

- In U.S., electric companies invested about \$32 billion in the distribution grid alone (2016)
 - > Electric companies have already made significant investments in grid modernization – 70 million digital smart meters (1/2 of U.S. households), thousands of sensors on the power grid, communications and IT
 - > As result of past major storms, electric companies are investing in grid resiliency and it's paying off (e.g. major role in hurricane recovery)!
- Drivers – technologies, customers, policy
- Regulatory policy is needed to support distribution grid investments. Cost recovery is critical.

Smart meters at a glance: regulatory policy is a key driver



Continued investment in smart meters is key to building a **SMARTER ENERGY INFRASTRUCTURE**

Evolving customer trends

- Individualization of customer services growing
 - > Large commercial customers increasingly want renewable energy to meet corporate sustainability goals.
 - > Cities and towns are becoming “smart” communities; and
 - > More & more residential customers want to produce energy or buy into local energy sources (e.g., private or community solar).
 - > Residential customers increasingly want to manage their energy using devices like iPhones and NEST thermostats.
- Traditional customer categories (e.g., residential, commercial, industrial) – no longer relevant.



Evolving policy issues – flexible regulation and electricity pricing reform

- Allow for flexibility in providing services to customer
 - > Many customers simply want safe, reliable, increasingly clean, and affordable **electricity** service.
 - > Some customers want **additional services** from their electric companies. Allow electric companies to provide services at a price.
 - > Need flexibility to provide services customers want.
- Reform electricity pricing to be more transparent about the types of “services” electric companies provide
 - > Energy grid services – majority of grid costs are collected today thru volumetric charges rather than via a grid access fee
 - > Electricity supply services (e.g., retail rate)
 - > Additional services

Questions?

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