




Edison Electric  
INSTITUTE

# The Electric Industry – Key Issues Shaping the Transformation

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David K. Owens  
Executive Vice President  
Edison Electric Institute

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# The Electric Distribution System in Transition

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As of 2015,  
utilities deployed

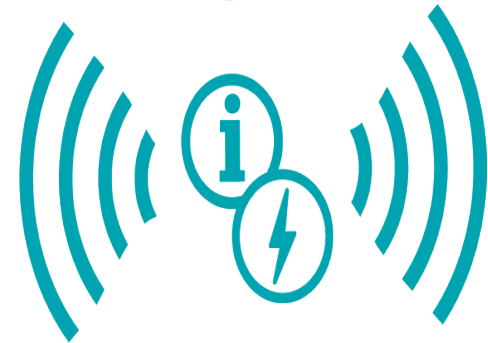


**SMART METERS**

Utilities are  
investing  
**MORE THAN**  
**20B**  
**ANNUALLY**  
in the  
distribution grid

Digital grid enables

**TWO-WAY**



power and  
information flows

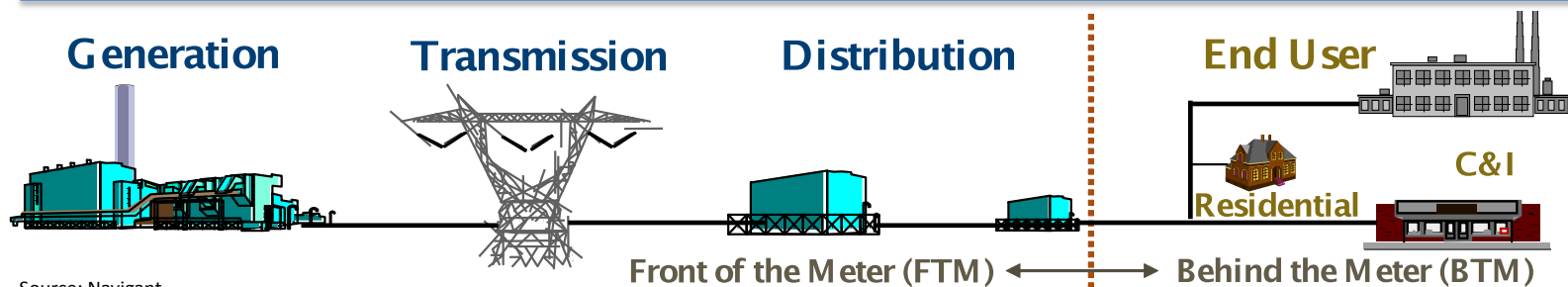
# Grid Evolution Requires Increasing Investment

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- Grid Technologies
- Digitization
- Data Analytics
- Distribution system sensing and monitoring
- Controls to enhance operational efficiency and to integrate new resources to improve reliability and grid resiliency, achieve power supply diversity, and achieve evolving clean energy goals.

# Energy Storage

Energy storage can be deployed in all parts of the grid, has applications in all parts of the value chain.



Source: Navigant

Bulk Energy Services	Ancillary Services	Transmission Infrastructure Services	Distribution Infrastructure Services	Customer Energy Management Services
<ul style="list-style-type: none"> <li>• Electric energy time-shifts (Arbitrage)</li> <li>• Electric supply capacity</li> </ul>	<ul style="list-style-type: none"> <li>• Regulation</li> <li>• Spinning, non-spinning and supplemental reserves</li> <li>• Voltage support</li> <li>• Black start</li> </ul>	<ul style="list-style-type: none"> <li>• Transmission upgrade deferral</li> <li>• Transmission congestion relief</li> </ul>	<ul style="list-style-type: none"> <li>• Distribution upgrade deferral</li> <li>• Voltage support</li> </ul>	<ul style="list-style-type: none"> <li>• Power quality</li> <li>• Power reliability</li> <li>• Retail electric energy time-shift</li> <li>• Demand charge management</li> </ul>
FERC Regulated Matters	State Regulated T&D	End user		

Source: Adapted from DOE/EPRI Handbook

# **Evolving Distribution Grid Public Policy Issues**

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**The public policy issues relating to the evolving distribution grid fall into five categories:**

- What planning process should be employed for the evolving grid?
- How should the grid be designed and constructed?
- How and by whom should the grid be operated?
- How and by whom should the grid DER marketplace be designed and managed? What services behind the meter can be provided and by whom?
- How should services be priced and rates determined?

# Industry Goal

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**Strike a Balance Among Reliability,  
Sustainability, and Affordability**

**Attain  
Customers'  
Desired Level  
of Electric  
Reliability ...**

**Reliability**

**... And  
Society's  
Clean Energy  
Policy Goals ..**

**Sustainability**

**... At as Low  
a Cost to  
Electricity  
Customers as  
Possible.**

**Affordability**