

welcome

to the  
FirstEnergy

**Speakers**  
BUREAU

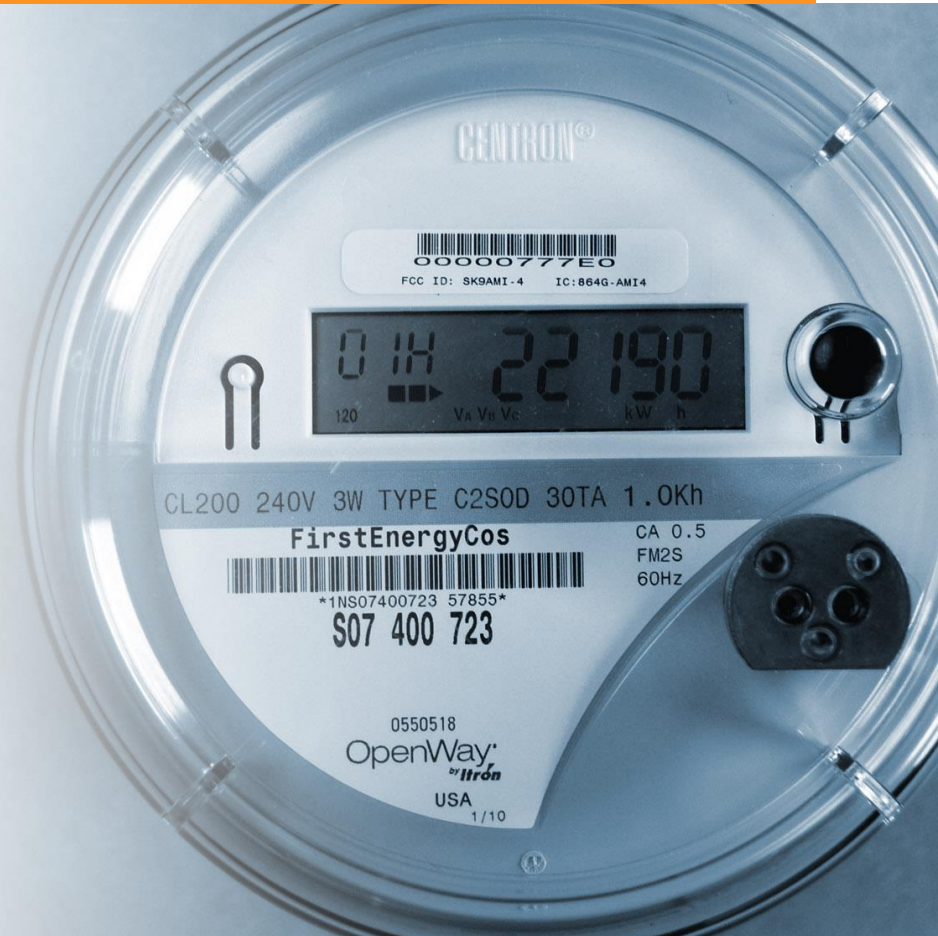


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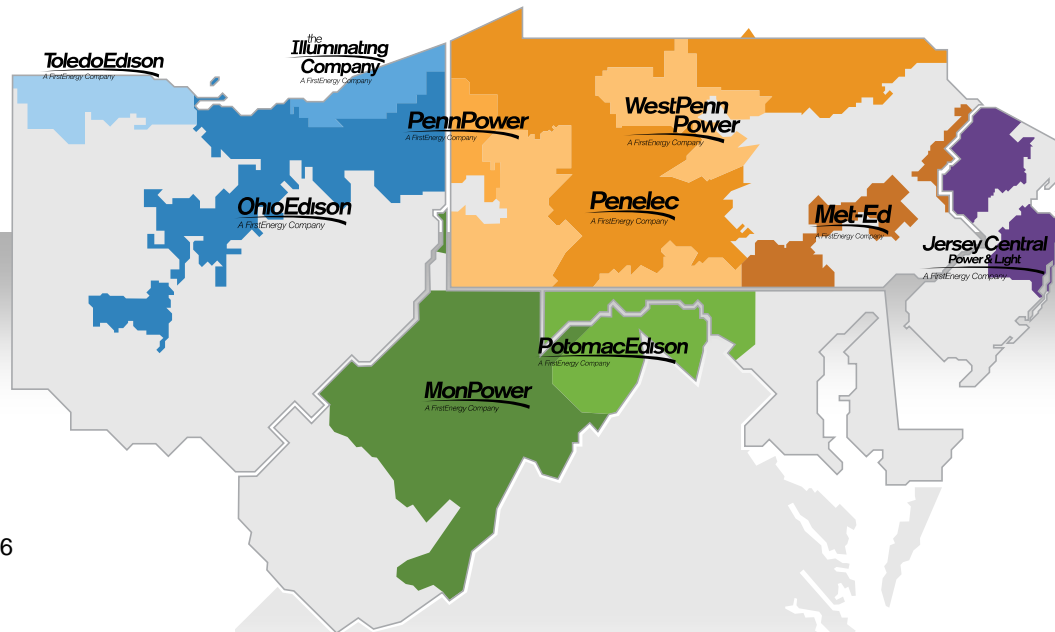
# Speakers BUREAU

# Smart Meters



# FirstEnergy Profile

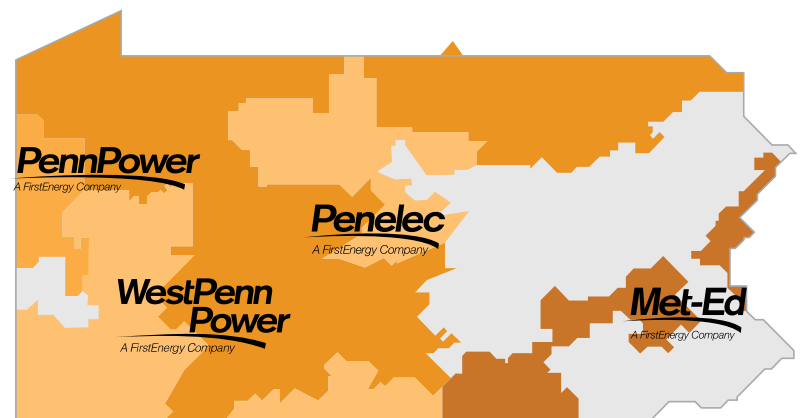
- Fortune 200 company based in Akron, Ohio
- Among the largest investor-owned electric systems in U.S.
- 6 million customers served in Midwest and Mid-Atlantic regions
- 10 electric utility companies in 6 states
- Approximately 17,000 megawatts of generating capacity
- 25,000 miles of transmission lines and 273,000 miles of distribution lines



Data as of Dec. 31, 2016

# FirstEnergy's Pennsylvania utilities

- **Approximately 5,000 employees**
- **More than 2 million customers**
- **89,000 miles of transmission and distribution lines**
- **Purchases about \$1 billion annually in local goods and services**
- **Pays approximately \$227 million annually in state, local taxes and other taxes**



Data as of Dec. 31, 2016

# Pennsylvania Act 129

- **In October 2008, the Pennsylvania General Assembly passed House Bill 2200, which became Act 129**
- **Under Act 129, all large electric utility companies are required to provide smart meters to their customers**
- **FirstEnergy's Pennsylvania Utilities required to deploy smart meters by 2022 in accordance with approved smart meter plan**

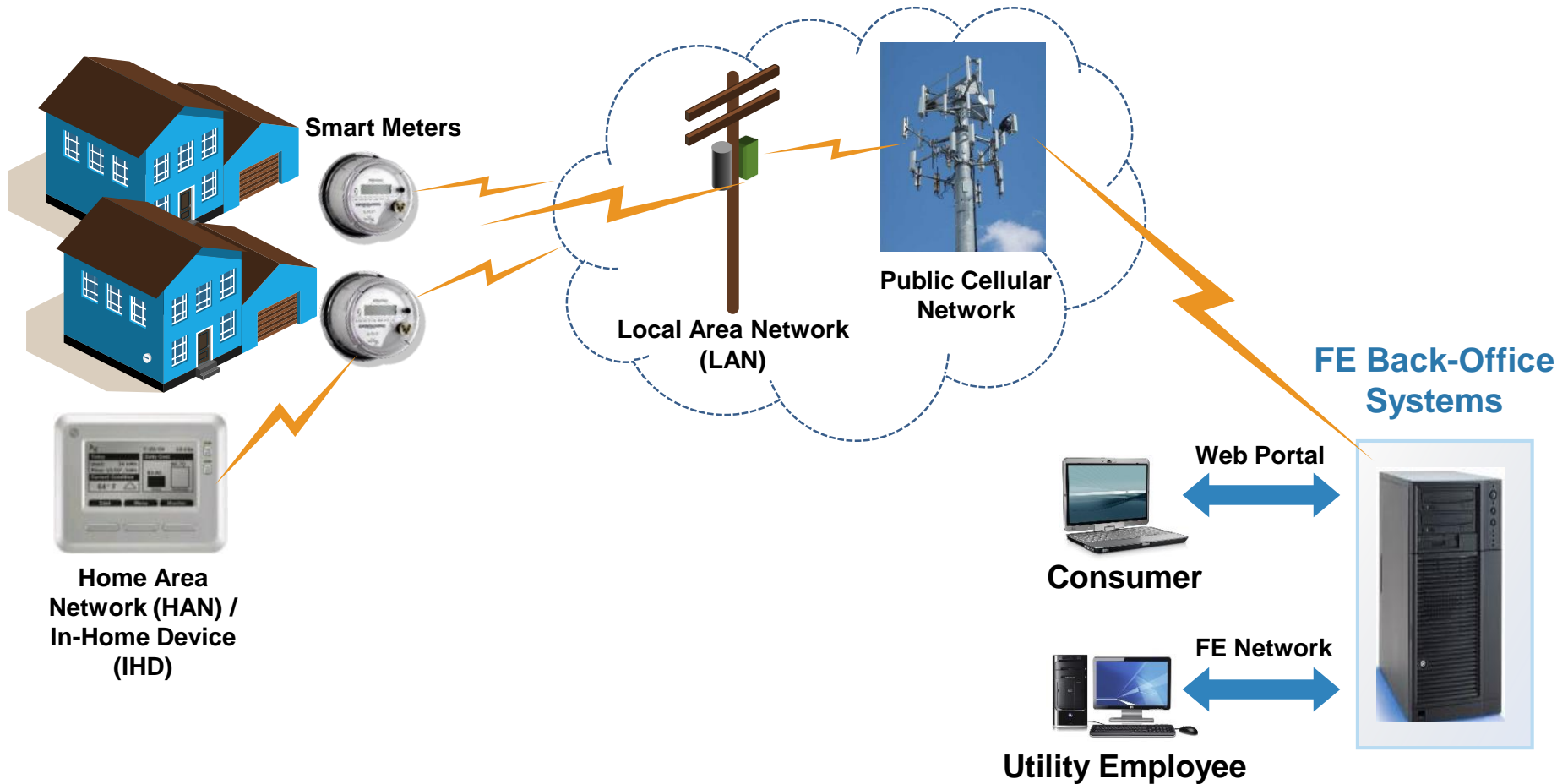


# What is a Smart Meter?

- **It's a digital electric meter that collects customer electricity usage information**
  - Key component of modernized electric system
  - Can help customers better manage their energy use
  - Capable of measuring electricity use in smaller intervals, such as hourly
  - Sends data to the local utility through secure network
  - Two-way communications could help electric utilities provide more reliable service by receiving accurate readings and up-to-date outage information

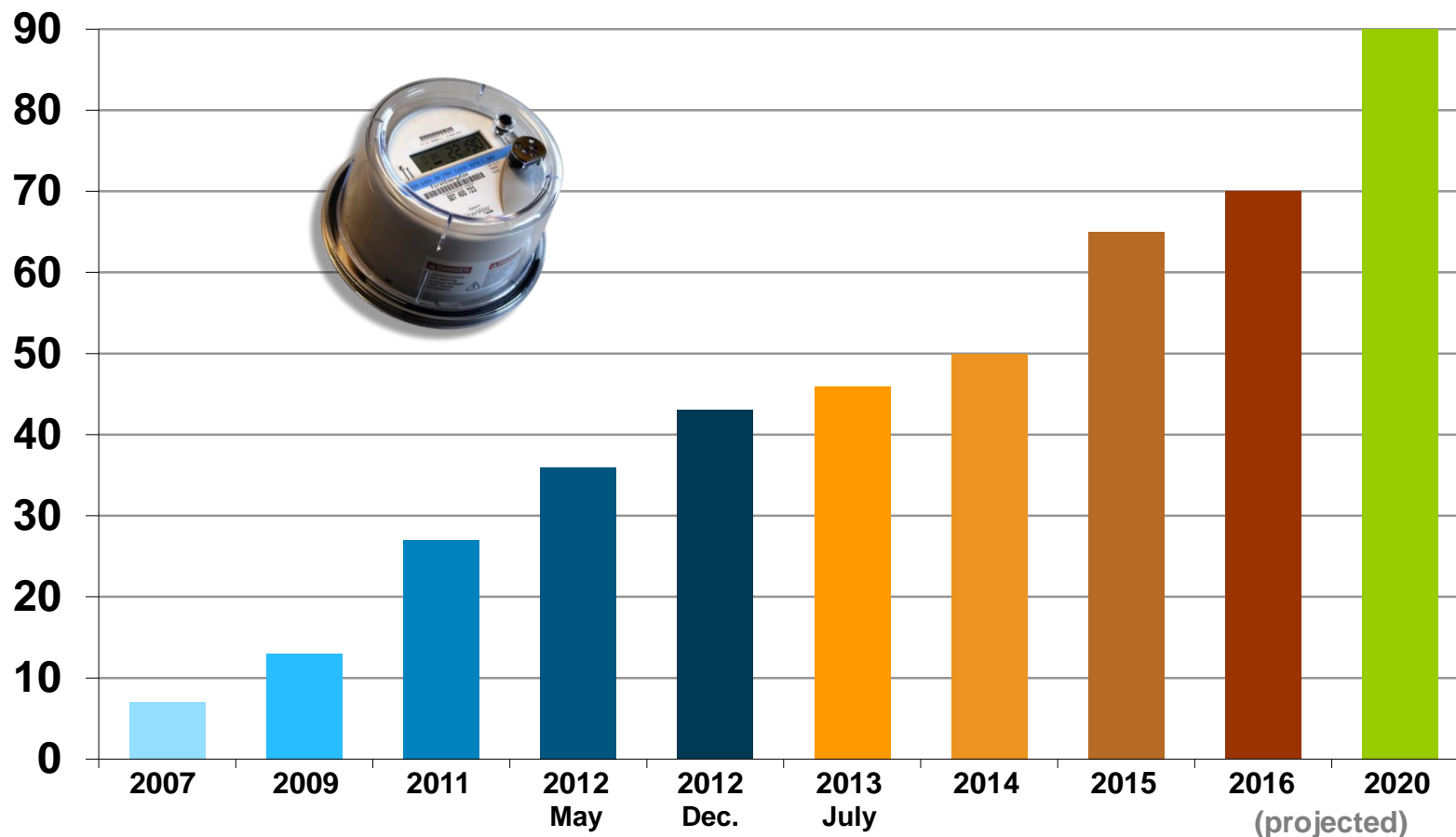


# How Smart Meters Work



# Smart Meter Installations in the U.S.

(millions)

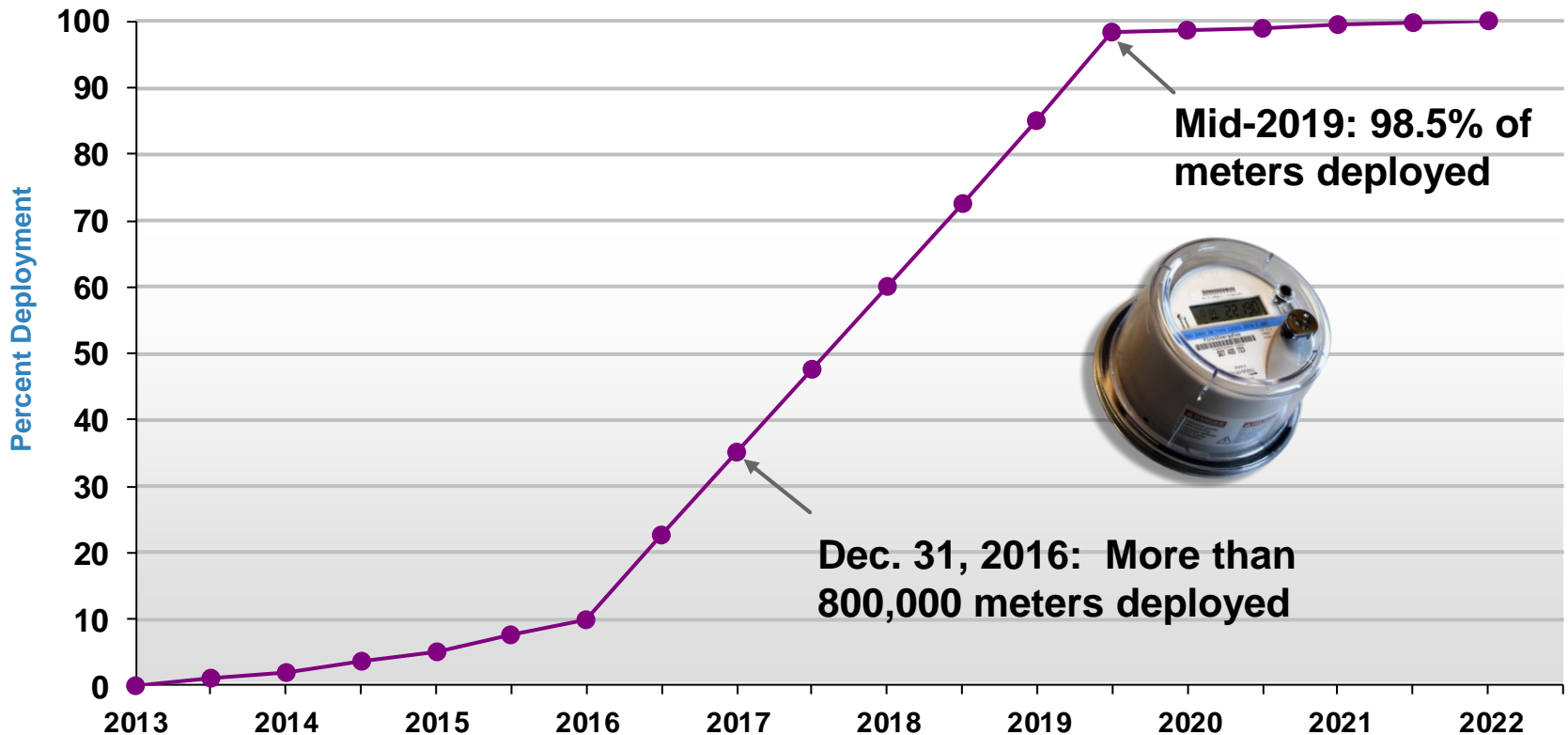


Source: The Edison Foundation, Institute for Electric Innovation, Electric Company Smart Meter Deployments: Foundation for a Smart Grid, October 2016: <http://www.edisonfoundation.net/iei/publications/Documents/Final%20Electric%20Company%20Smart%20Meter%20Deployments-%20Foundation%20for%20A%20Smart%20Energy%20Grid.pdf>



# Smart Meter Deployment Plan

- **FirstEnergy's Pennsylvania utilities will be installing smart meters for over 2 million Pennsylvania customers in accordance with Act 129**



# Smart Meter Deployment Plan



## Stage 1: 2013 – 2014

*Post-Grace Period*

- Initial rollout
- Limited functionality
- Based on customer requests and on new construction



## Stage 2: 2014 – 2015

*Solution Validation*

- Ramp-up period
- Achieved goal to install approximately 170,000 meters in Penn Power's service area



## Stage 3: 2016 – 2019

*Full-Scope Deployment*

- Mass deployment
- On track to install meters to 98.5% of every home and business in our Pennsylvania service area
- Meters will measure usage, detect power outages and verify service restoration
- Full deployment by 2022 in accordance with approved smart meter plan

# Smart Meters: Features and Benefits

- **While upfront costs of deployment are significant, there can be long-term benefits to customers and utilities**
  - Modernizes the metering infrastructure by replacing mechanical analog meters with digital meters
  - Provides customers with more detailed information about electricity use
  - Helps customers make better-informed decisions on their energy use
  - Features and programs will be phased in over time
    - As software and infrastructure is more fully implemented, special pricing programs may become available through alternative generation suppliers



# Smart Meter Costs

- In accordance with Act 129, customers pay for the development and deployment of smart meter technology
- Following Pennsylvania Public Utility Commission's approval of our utilities' rate case in April 2015, cost of Smart Meter Program was rolled into Customer Charge for most customers
  - For West Penn Power residential customers, cost is part of Distribution Charge



# Major Smart Meter Milestone Achieved

- **In August 2016 our Pennsylvania Smart Meter Program began implementing automated billing**
  - Enables utilities to bill customers based on automated meter reads
  - Significant step toward providing more detailed energy information to our customers
  - Automated meter readings reduce need for estimated reads and nearly eliminate need for readers to manually record customers' usage
  - Automated billing currently available for Penn Power customers, while Met-Ed, Penelec and West Penn Power customers will be transitioned to automatic billing beginning in March 2017

# Smart Meters: **Fact or Fiction?**

Smart meters are an invasion of privacy

**FICTION:** Smart meters accurately measure how much energy you use, based on time of day, not on how you use that energy

No personally-identifiable customer information – such as names and addresses – is stored in the meters or transmitted across the network. And information is transmitted to local utility through a secure network



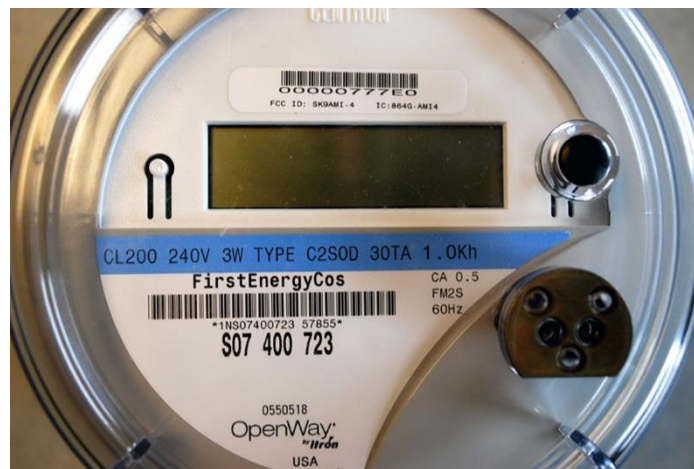
# Smart Meters: **Fact or Fiction?**

Smart meters only benefit the utility and do not provide any consumer benefits

**FICTION:** Smart meters can help customers better understand their energy use

May enhance service restoration efforts during power outages

Meter readings are automated



# Smart Meters: **Fact or Fiction?**

Smart meters will be installed for all Pennsylvania electric customers

**FACT:** FirstEnergy's Pennsylvania utilities are required by PUC-approved smart meter plan to provide smart meters to all Pennsylvania customers by 2022

Pennsylvania does not have an opt-out option





# Smart Meters: **Fact or Fiction?**

Smart meters pose health concerns because they use wireless signals

**FICTION:** Radio frequency emissions by smart meters are well below the limits set by the Federal Communications Commission and are below levels produced by other common household devices like cell phones, baby monitors, satellite TVs and microwaves



# Resources

- **Website: [FirstEnergyCorp.com/PaSmartMeter](http://FirstEnergyCorp.com/PaSmartMeter)**
- **Edison Electric Institute (EEI)  
Smart Grid: [smartgrid.eei.org](http://smartgrid.eei.org)**
- **Electric Power Research Institute (EPRI)  
Grid Modernization: [epri.com](http://epri.com)**
- **Institute of Electrical and Electronics Engineers (IEEE) Smart Grid: [smartgrid.ieee.org](http://smartgrid.ieee.org)**
- **Smart Grid Consumer Collaborative (SGCC)  
Consumer Resources: [smartgridcc.org](http://smartgridcc.org)**



# Smart Meters

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# Questions & Comments



thank you

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## Forward-Looking Statements

This presentation includes forward-looking statements based on information currently available to management. Such statements are subject to certain risks and uncertainties. These statements include declarations regarding management's intents, beliefs and current expectations. These statements typically contain, but are not limited to, the terms "anticipate," "potential," "expect," "forecast," "target," "will," "intend," "believe," "project," "estimate," "plan" and similar words. Forward-looking statements involve estimates, assumptions, known and unknown risks, uncertainties and other factors that may cause actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements, which may include the following: the speed and nature of increased competition in the electric utility industry, in general, and the retail sales market in particular; the ability to experience growth in the Regulated Distribution and Regulated Transmission segments; the accomplishment of our regulatory and operational goals in connection with our transmission investment plan, including, but not limited to, the proposed transmission asset transfer to Mid-Atlantic Interstate Transmission, LLC, and the effectiveness of our strategy to reflect a more regulated business profile; changes in assumptions regarding economic conditions within our territories, assessment of the reliability of our transmission system, or the availability of capital or other resources supporting identified transmission investment opportunities; the impact of the regulatory process and resulting outcomes on the matters at the federal level and in the various states in which we do business including, but not limited to, matters related to rates and the Electric Security Plan IV; the impact of the federal regulatory process on Federal Energy Regulatory Commission (FERC)-regulated entities and transactions, in particular FERC regulation of wholesale energy and capacity markets, including PJM Interconnection, L.L.C. (PJM) markets and FERC-jurisdictional wholesale transactions; FERC regulation of cost-of-service rates, including FERC Opinion No. 531's revised Return on Equity methodology for FERC-jurisdictional wholesale generation and transmission utility service; and FERC's compliance and enforcement activity, including compliance and enforcement activity related to North American Electric Reliability Corporation's mandatory reliability standards; the uncertainties of various cost recovery and cost allocation issues resulting from American Transmission Systems, Incorporated's realignment into PJM; economic or weather conditions affecting future sales and margins such as a polar vortex or other significant weather events, and all associated regulatory events or actions; changing energy, capacity and commodity market prices including, but not limited to, coal, natural gas and oil prices, and their availability and impact on margins and asset valuations, including without limitation impairments thereon; the risks and uncertainties at the CES segment, including FES, related to continued depressed wholesale energy and capacity markets, including the potential need to deactivate or sell additional generating units; the continued ability of our regulated utilities to recover their costs; costs being higher than anticipated and the success of our policies to control costs and to mitigate low energy, capacity and market prices; other legislative and regulatory changes, and revised environmental requirements, including, but not limited to, the effects of the United States Environmental Protection Agency's Clean Power Plan, Coal Combustion Residuals regulations, Cross-State Air Pollution Rule and Mercury and Air Toxics Standards programs, including our estimated costs of compliance, Clean Water Act (CWA) waste water effluent limitations for power plants, and CWA 316(b) water intake regulation; the uncertainty of the timing and amounts of the capital expenditures that may arise in connection with any litigation, including New Source Review litigation, or potential regulatory initiatives or rulemakings (including that such initiatives or rulemakings could result in our decision to deactivate or idle certain generating units); the uncertainties associated with the deactivation of certain older regulated and competitive fossil units, including the impact on vendor commitments, such as long-term fuel and transportation agreements, and as it relates to the reliability of the transmission grid, the timing thereof; the impact of other future changes to the operational status or availability of our generating units and any capacity performance charges associated with unit unavailability; adverse regulatory or legal decisions and outcomes with respect to our nuclear operations (including, but not limited to, the revocation or non-renewal of necessary licenses, approvals or operating permits by the Nuclear Regulatory Commission or as a result of the incident at Japan's Fukushima Daiichi Nuclear Plant); issues arising from the indications of cracking in the shield building at Davis-Besse; the risks and uncertainties associated with litigation, arbitration, mediation and like proceedings, including, but not limited to, any such proceedings related to vendor commitments, such as long-term fuel and transportation agreements; the impact of labor disruptions by our unionized workforce; replacement power costs being higher than anticipated or not fully hedged; the ability to comply with applicable state and federal reliability standards and energy efficiency and peak demand reduction mandates; changes in customers' demand for power, including, but not limited to, changes resulting from the implementation of state and federal energy efficiency and peak demand reduction mandates; the ability to accomplish or realize anticipated benefits from strategic and financial goals, including, but not limited to, the ability to continue to reduce costs and to successfully execute our financial plans designed to improve our credit metrics and strengthen our balance sheet through, among other actions, our cash flow improvement plan and other proposed capital raising initiatives; our ability to improve electric commodity margins and the impact of, among other factors, the increased cost of fuel and fuel transportation on such margins; changing market conditions that could affect the measurement of certain liabilities and the value of assets held in our Nuclear Decommissioning Trusts, pension trusts and other trust funds, and cause us and/or our subsidiaries to make additional contributions sooner, or in amounts that are larger than currently anticipated; the impact of changes to material accounting policies; the ability to access the public securities and other capital and credit markets in accordance with our financial plans, the cost of such capital and overall condition of the capital and credit markets affecting us and our subsidiaries; actions that may be taken by credit rating agencies that could negatively affect us and/or our subsidiaries' access to financing, increase the costs thereof, and increase requirements to post additional collateral to support outstanding commodity positions, letters of credit and other financial guarantees; changes in national and regional economic conditions affecting us, our subsidiaries and/or our major industrial and commercial customers, and other counterparties with which we do business, including fuel suppliers; the impact of any changes in tax laws or regulations or adverse tax audit results or rulings; issues concerning the stability of domestic and foreign financial institutions and counterparties with which we do business; the risks associated with cyber-attacks and other disruptions to our information technology system that may compromise our generation, transmission and/or distribution services and data security breaches of sensitive data, intellectual property and proprietary or personally identifiable information regarding our business, employees, shareholders, customers, suppliers, business partners and other individuals in our data centers and on our networks; and the risks and other factors discussed from time to time in our United States Securities and Exchange Commission (SEC) filings, and other similar factors. The foregoing factors should not be construed as exhaustive and should be read in conjunction with the other cautionary statements and risks that are included in our filings with the SEC, including but not limited to the most recent Annual Report on Form 10-K and any subsequent Quarterly Reports on Form 10-Q. New factors emerge from time to time, and it is not possible for management to predict all such factors, nor assess the impact of any such factor on our business or the extent to which any factor, or combination of factors, may cause results to differ materially from those contained in any forward-looking statements. FirstEnergy expressly disclaims any current intention to update, except as required by law, any forward-looking statements contained herein as a result of new information, future events or otherwise.