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Overview of Energy Infrastructure Modernization Act (EIMA)

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Exelon Utilities

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BGE (Baltimore, MD)

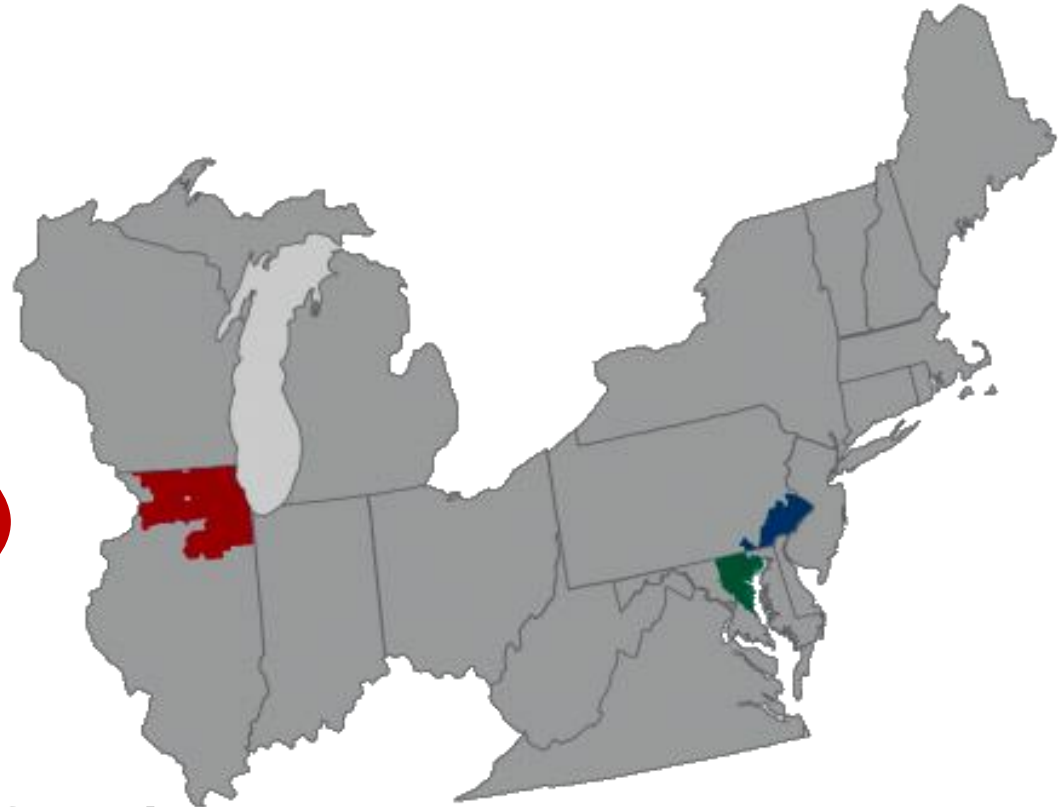
- 1.2 million electric customers
- 0.7 million gas customers
- Service Territory: 2,300 sq mi
- 7,236MW

ComEd (Chicago, IL)

- 3.8 million electric customers
- Service Territory: 11,300 sq mi
- 23,753MW

PECO (Philadelphia, PA)

- 1.6 million electric customers
- 0.5 million gas customers
- Service Territory: 2,100 sq mi
- 8,983MW



We are one of the largest integrated energy provider in the United States.
6.6 million electric customers

What Is A “Smart Grid”?

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✓ A smart grid is an electrical grid that uses information and communications technology to gather and act on information to improve the efficiency, reliability, economics, and sustainability of the production and distribution of electricity.

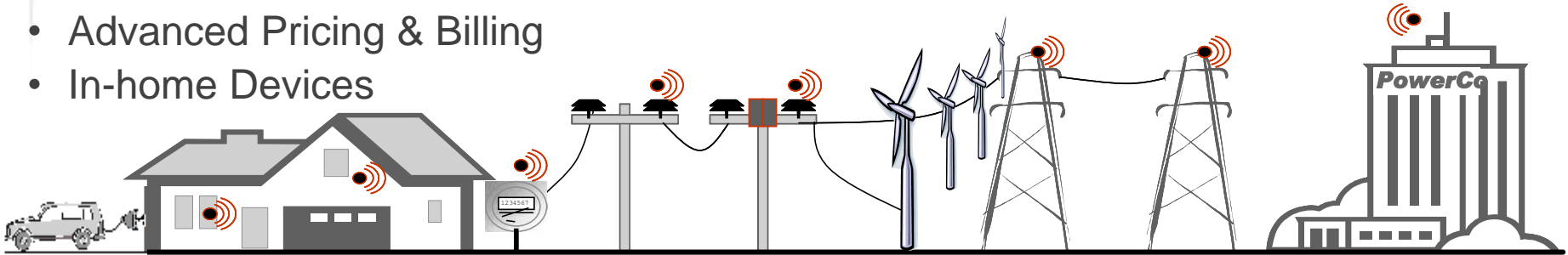
Leveraging **integrated** communication systems and information processing

What Is A “Smart Grid”?

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Customer End-Use

- Advanced Pricing & Billing
- In-home Devices



Distributed Energy

- Plug-in Electric Vehicles
- Self-generation

Customer Gateway

- Advanced Metering Infrastructure (AMI)

Grid Modernization

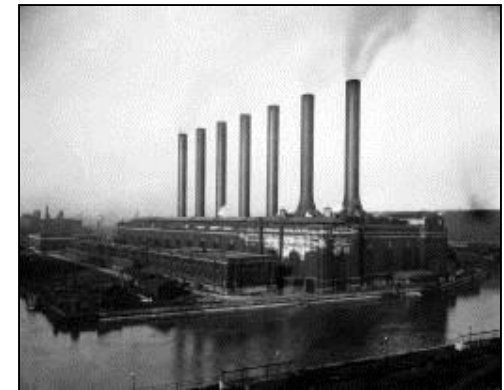
- Distribution Automation
- Smart Substations
- Renewable Interconnection

- ✓ In October 2011, the Illinois General Assembly enacted the Energy Infrastructure Modernization Act (EIMA).
- ✓ This industry leading legislation was designed to addresses:
 - Regulatory reform
 - Reliability performance metrics
 - Infrastructure modernization
 - Smart Grid investment

Regulatory Reform - The Case For Change

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- ✓ The prior regulatory model was developed by ComEd's founder Sam Insull.
 - 100 years ago...
- ✓ Rate case outcomes have been unpredictable and inadequate.
 - Some years return on investment was as high as 82%, other years it was as low as 17%.

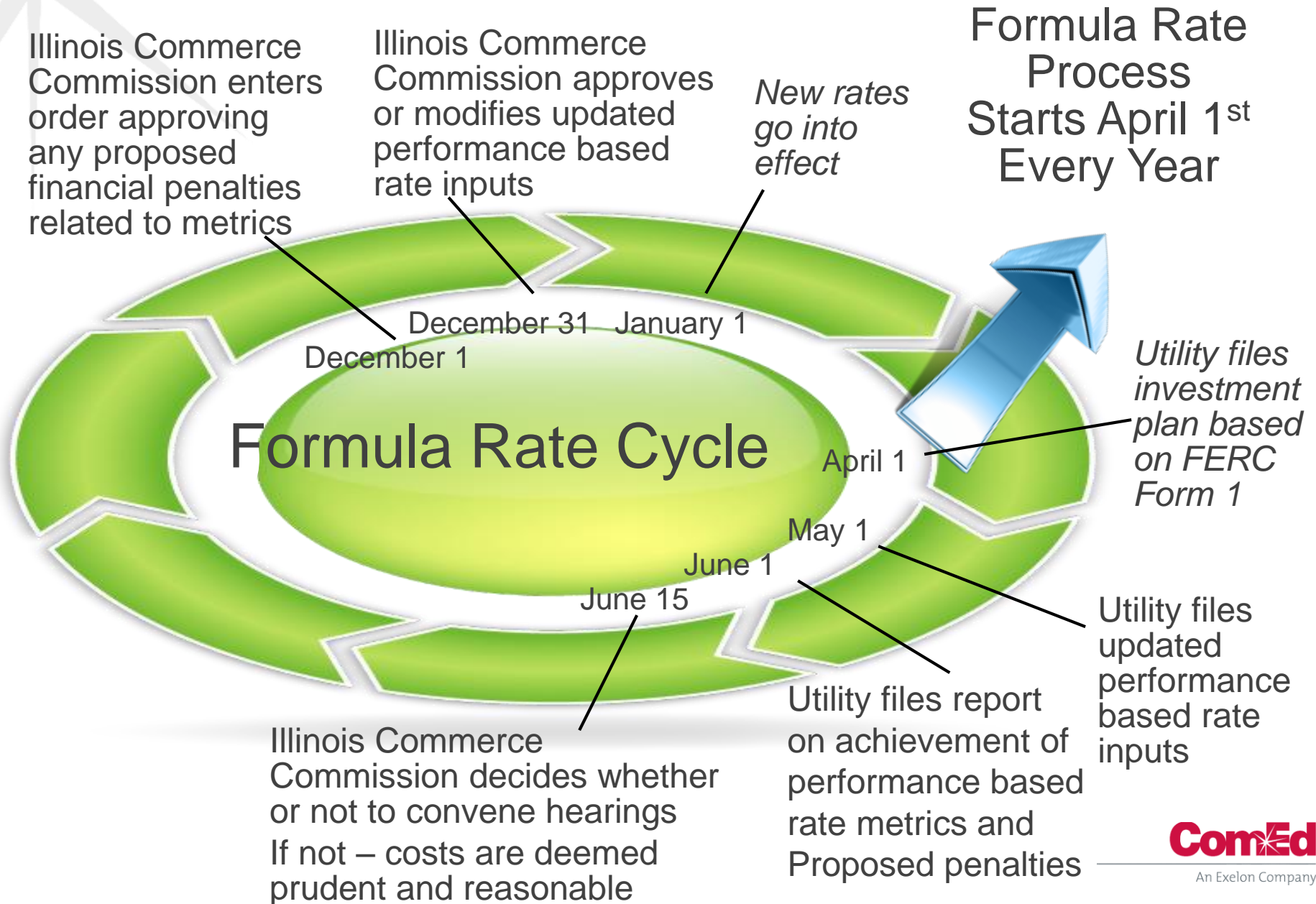


No business could commit to modernization investments if it only recovered 17% of those costs!

- ✓ One of the most distinctive features developed for the Illinois Energy Infrastructure Modernization Act is its provision for performance-based formula rates.
 - Formula rates have been in use for years by FERC...
- ✓ The formula rate creates a predictable, repeatable rate making process:
 - Provides for recovery of prudently and reasonably incurred utility costs.
 - Provides a formula for calculating the utility's cost of equity and rate of return.

Performance Based Formula Rate

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- ✓ Fewer and shorter outages
 - More than 500,000 customer interruptions were avoided in 2012–2013.
 - 15% reduction in outage frequency from 2012 (metric is 20%).
 - 27% reduction in outage duration from 2012 (metric is 15%).
- ✓ Supported 2,800 full-time equivalent jobs in 2013 alone.
- ✓ ComEd pumped over \$1.5 billion in supply chain spend into the Illinois economy in 2012–2013.



Infrastructure Investment Work

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- ✓ \$1.3B in infrastructure upgrades:
 - URD Cable
 - Mainline Underground Cable System
 - 69kV Transmission Cable
 - Wood Poles
 - Storm Hardening
 - Training Facility Upgrades
- ✓ \$1.3B in smart grid upgrades:
 - Distribution Automation
 - Cyber-secure Data Communications
 - Advanced Metering Infrastructure

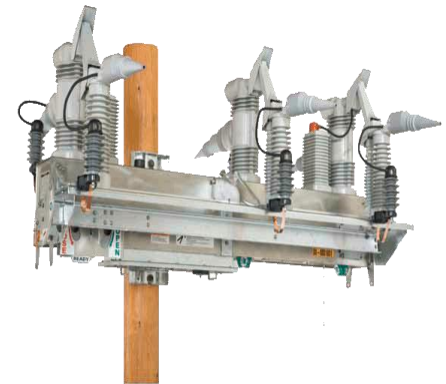


Objective is to improve system performance through accelerated investment in programs that address aging distribution infrastructure, storm hardening and expand smart grid technology.

Distribution Automation

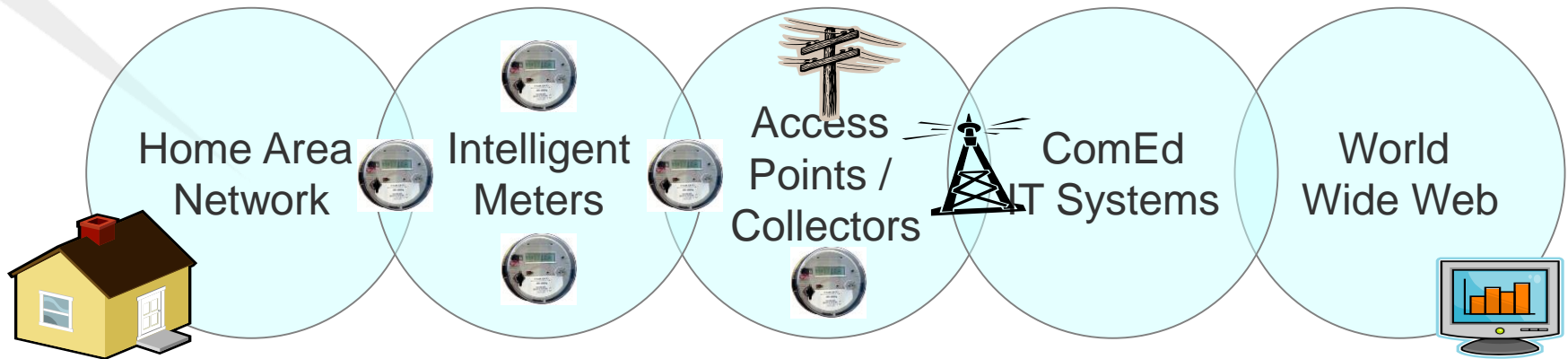
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- ✓ Distribution Automation (DA) refers to a system that can automatically:
 - Identify
 - Isolate
 - Restore power
- ✓ The Distribution Automation (DA) program is designed to:
 - Install 2,600 new devices
 - Install secure, modern communication system
 - Upgrade 34kV field devices with newer software

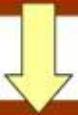


- ✓ Security is built into every element of the smart grid including hardware, software and transactions.
- ✓ Data is secured to ensure that customer privacy is maintained at all times.
- ✓ Customer data is encrypted using methods similar to those used for ATMs and online transactions.

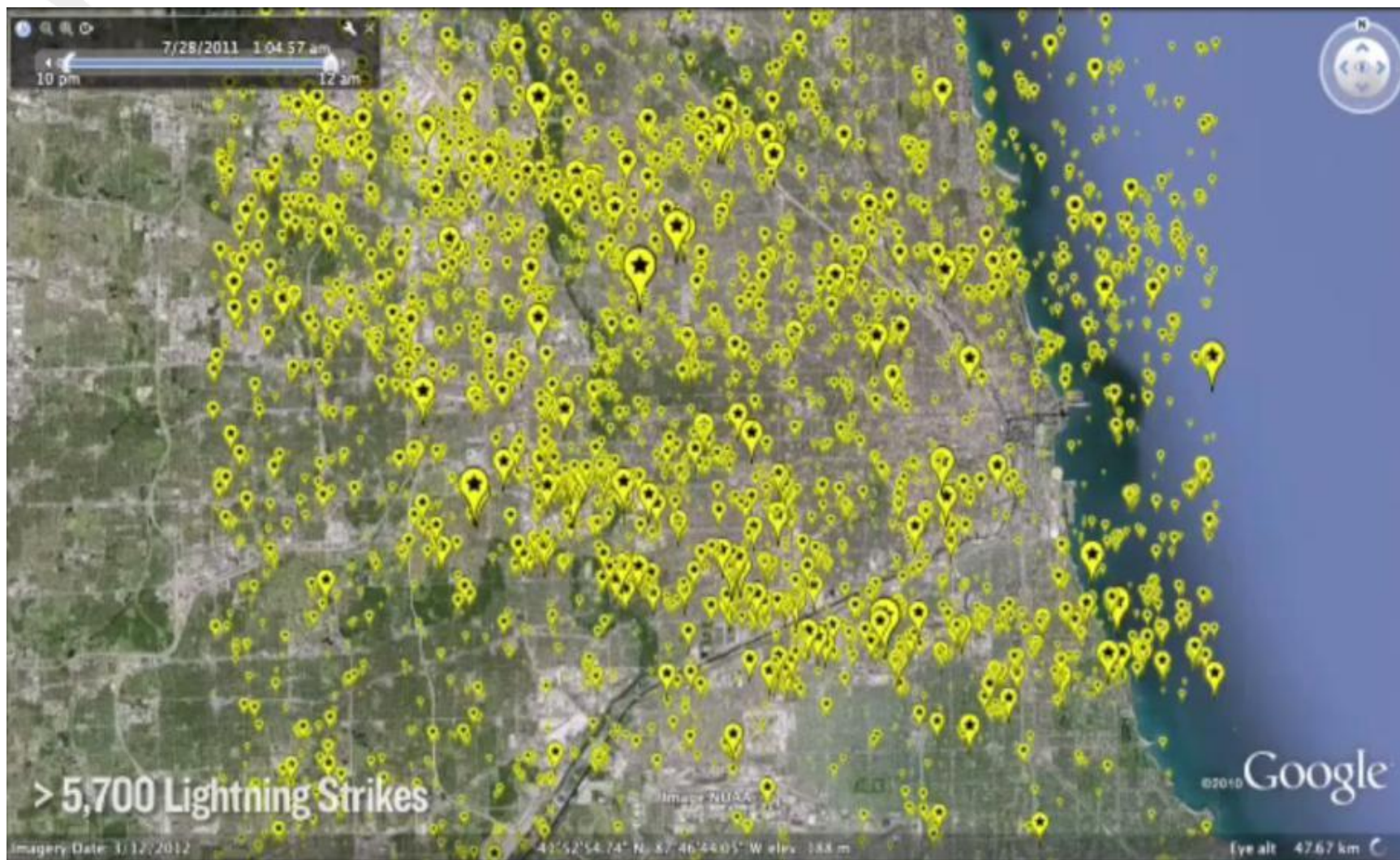




- ✓ Replacement of all 4 million meters on ComEd's system with Smart Meters by 2021.
- ✓ The Smart Meter system, including the wireless communication network, provides an infrastructure to support other customer services and smart grid applications such as outage management.



Smart Grid Technology Integration: Outage Management



For More Information Visit...

✓ ComEd website

- <https://www.comed.com/technology/smart-meter-smart-grid/Pages/default.aspx>

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✓ Illinois Commerce Commission (ICC) website

- <http://www.icc.illinois.gov/electricity/InfrastructureInvestmentPlans.aspx>



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EIMA Infrastructure Upgrades (Appendix slide 8)

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| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | Total |
|---------------------------|---------|---------|---------|---------|---------|-------|---------|
| DA Program (Devices) | | | | | | | |
| 12kV | 450 | 600 | 600 | 600 | 250 | | 2,500 |
| 34kV | 22 | 30 | 38 | 10 | | | 100 |
| Mainline Program | | | | | | | |
| Cable Replacement (miles) | 46 | 83 | 114 | 170 | 170 | 78 | 661 |
| Manhole (Assessment) | 8,008 | 6,025 | 5,765 | 5,765 | 4,850 | 1,613 | 32,026 |
| Cable Diagnostics | 120 | 121 | 133 | 223 | 216 | 116 | 929 |
| URD Program | | | | | | | |
| Replacement (miles) | 373 | 364 | 489 | 796 | 824 | 715 | 3,563 |
| Injection (miles) | 97 | 97 | 97 | 215 | 215 | 89 | 810 |
| Wood Pole Program | | | | | | | |
| Inspection | 137,152 | 149,000 | 149,000 | 149,000 | 149,000 | | 733,152 |
| Reinforcement | 1,179 | 1,400 | 1,400 | 1,400 | 1,400 | | 6,779 |
| Replacement | 1,559 | 2,600 | 2,600 | 2,600 | 3,000 | | 12,359 |
| Storm Hardening | | | | | | | |
| Program (\$millions) | \$ 21 | \$ 15 | \$ 25 | \$ 50 | \$ 50 | \$ 40 | \$ 201 |
| Intelligent Substation | | | | | | | |
| Stations | 1 | 2 | 2 | 2 | 2 | 1 | 10 |
| 69kV Cable | | | | | | | |
| Program (miles) | 7 | 4 | 11 | 5 | | | 26 |