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An Exelon Company

# Workshop on Application of Electron Beam (EB) Technology to Wastewater and Biosolids Treatment

## ComEd Perspective on Service Requirements

May 10, 2018

## Generation

- Exelon Generation has assets throughout the US and Canada.
- 33,300 megawatts of generation.
- Nuclear, natural gas, hydro, oil, wind, solar and landfill gas.



## Competitive Energy Sales

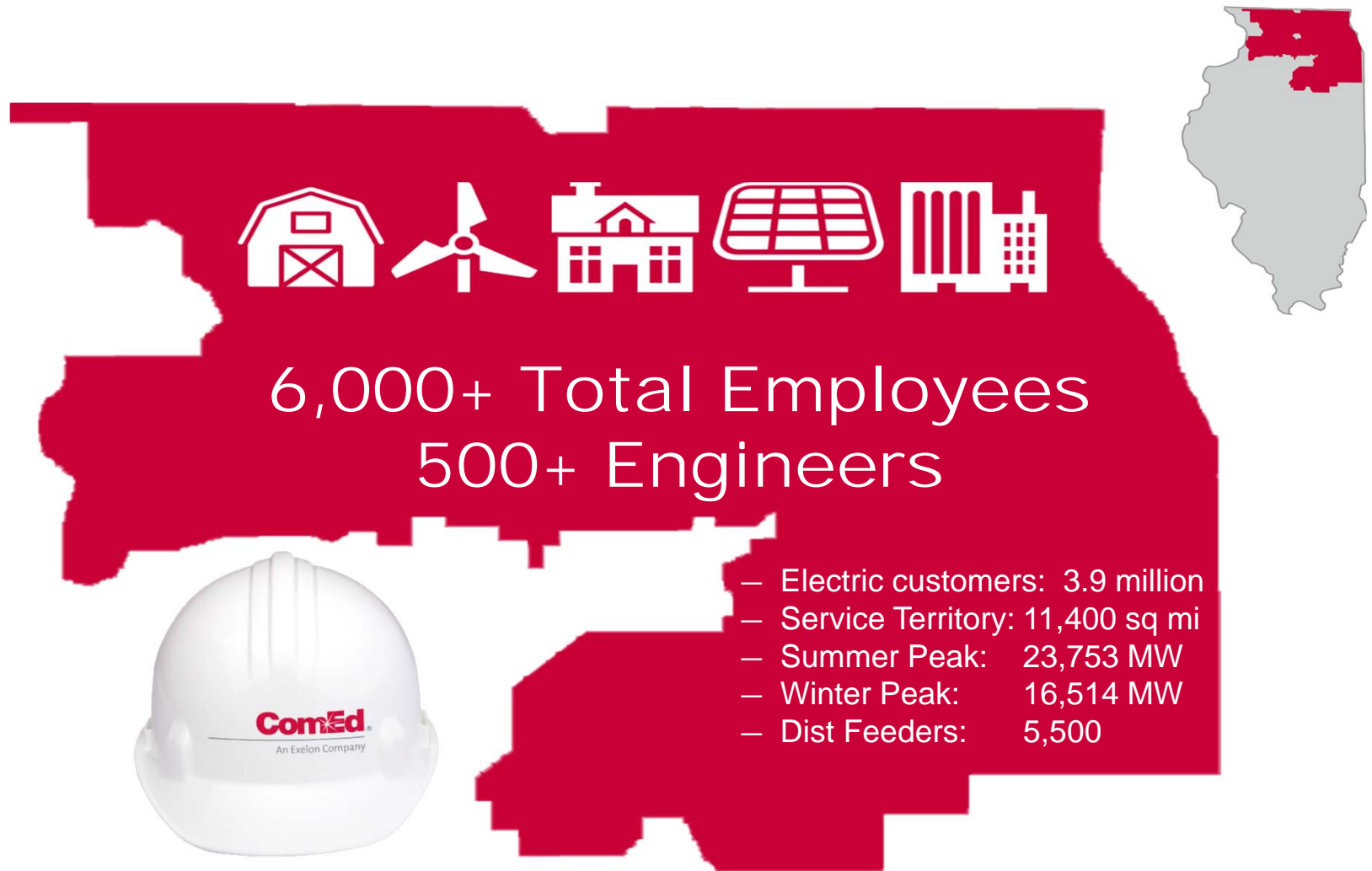
- Constellation has a presence in 48 states and Washington D.C.
- Competitive retail supplier serving commercial, industrial and public-sector power and gas users.



## Transmission & Distribution

- Exelon Utilities have a presence in 5 states and Washington D.C.
- 8.5 million electric customers.
- 1.3 million gas customers.

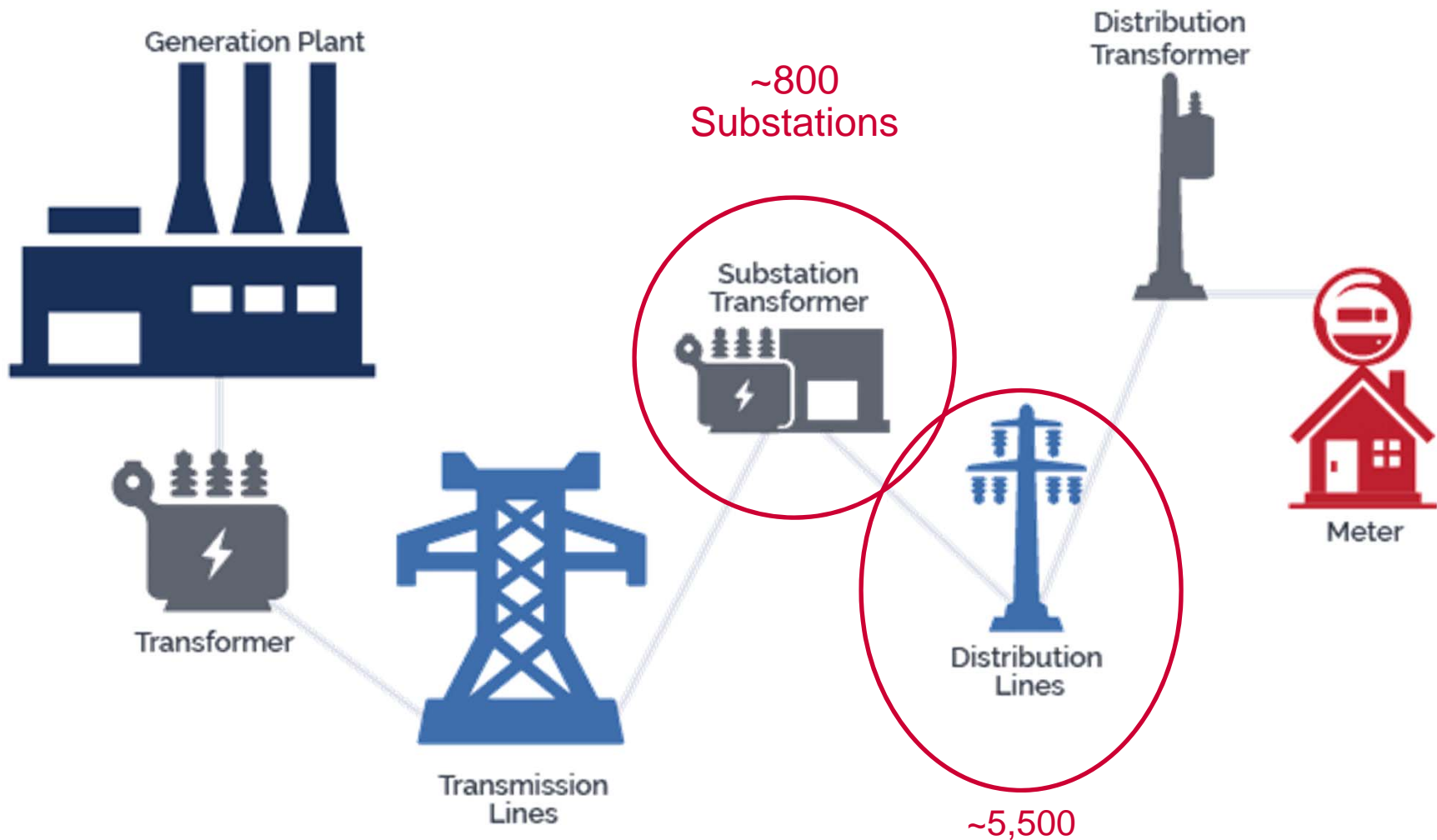




6,000+ Total Employees  
500+ Engineers

- Electric customers: 3.9 million
- Service Territory: 11,400 sq mi
- Summer Peak: 23,753 MW
- Winter Peak: 16,514 MW
- Dist Feeders: 5,500

# Basic Power System Overview



- Summer Peak: 23,753 MW
- Winter Peak: 16,514 MW

# Typical Substations

## ✓ 138kV to 12kV substations

- Four 40MVA transformers
  - ~185MVA of capacity (167MW @ 0.9PF)
  - ~24-32 feeders (7.5MVA Normal - 345A / 11MVA Emergency - 515A ratings)

## ✓ 138kV to 34kV substations

- Four 60MVA transformers
  - ~277MVA of capacity (~250MW @ 0.9PF)
  - ~12-16 lines (24MVA Normal - 400A) / 35MVA Emergency - 600A rating)

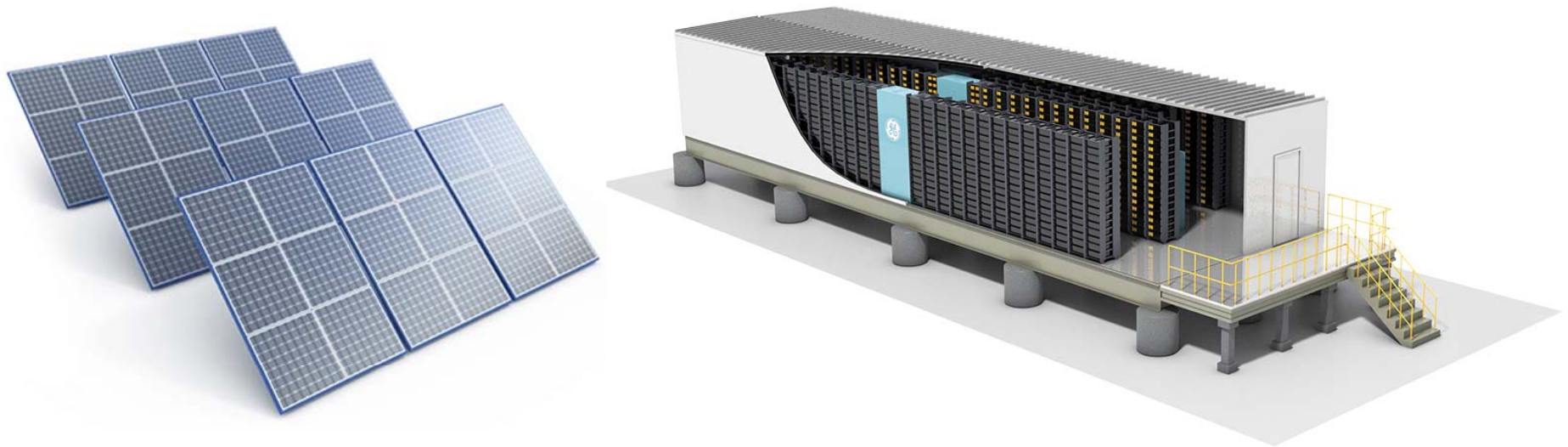


## So What Does a 1-20MW Load Mean?

- ✓ A 1MW load could be served by:
  - One 12kV feeder.
  
- ✓ A 10MW load could be served by:
  - Two 12kV feeders.
  - One 34kV line.
  
- ✓ A 20MW load could be served by:
  - Four 12kV feeders.
  - Two 34kV line.

## Alternative Sources – Solar + Storage

- ✓ A 1MW solar plant may require ~5 acres of land.
- ✓ Need battery storage to account for solar intermittency and night time operation.





## COMPETITIVE ENERGY MARKET

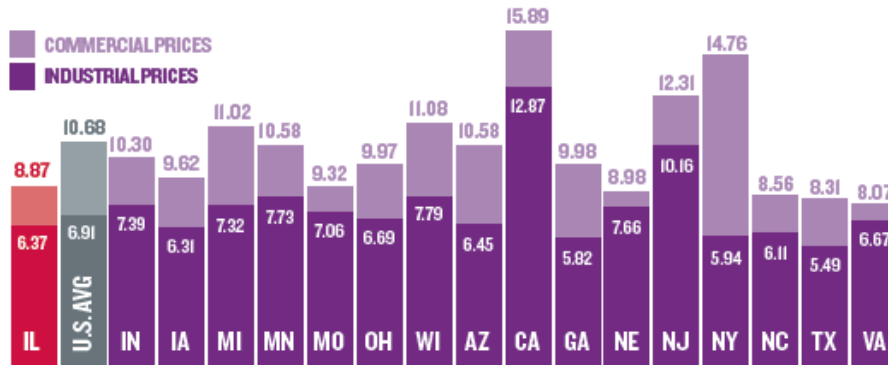
Deregulation resulted in more than

# \$50.6B

Total **ALL-SECTOR** improved price position\*\*\*

Illinois had the **SMALLEST INCREASE IN AVERAGE ELECTRIC PRICES** in the U.S. from 1997-2016 at 19%

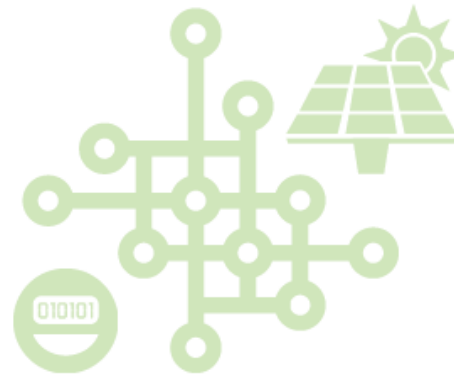
Just 19%!



**ILLINOIS INDUSTRIAL/COMMERCIAL PRICES ARE AMONG THE LOWEST** in the Midwest and compare favorably with other key states

Source: U.S. Energy Information Administration (EIA)

## ELECTRIC INFRASTRUCTURE FOR THE 21ST CENTURY ECONOMY



ComEd embarked on a 10 year, **\$2.6B INFRASTRUCTURE ENHANCEMENT** program to modernize northern Illinois' electric grid

**3.9M** NEW SMART METERS INSTALLED with full deployment projected by the end of 2018

## RENEWABLE ENERGY

- The Future Energy Jobs Act pivots Illinois to the clean energy economy, offering significantly expanded **ENERGY EFFICIENCY PROGRAMS** and **SOLAR ENERGY REBATES**
- Customers can obtain **100% RENEWABLE ENERGY** from 50+ energy suppliers
- ComEd offers a **\$250 REBATE** per installed kW of onsite solar energy

[ComEd.com/SmartGrid](http://ComEd.com/SmartGrid) | [FutureEnergyJobsAct.com](http://FutureEnergyJobsAct.com)



