# Industry Perspective: Overcoming Revenue Challenges

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#### **About Us**

EXC

Exelon is headquarted in Chicago and trades on the NYSE under EXC.

Exelon is the #1 utility company on the FORTUNE 500 (#89 overall).

Exelon is America's #1 zero-carbon nuclear energy provider.

\$31**.**4B

Operating revenue in 2016

Presence in 48 states

Exelon is a FORTUNE 100 company that works in every stage of the energy business: bower generation, competitive energy sales, ransmission and delivery.



Exelon's Constellation business serves approx. 2.2 million residential, public sector and business customers.

Exelon was named to Fortune magazine's 2 017 list of the "World's Most Admired Companies."

#### 33,300

Megawatts of total power generation

### 20,200

Megawatts of nuclear generation

Learn more about our family of companies Want to learn more? Download our Fact Sheet.



## U.S. Nuclear Energy Market A Nuclear Operator's View



#### **Economic Challenges to Nuclear Energy**





#### **Premature Nuclear Plant Shutdowns**

Plant	MWe	Reason	Closure Year	Latest Electricity Generated (bkWh/year)	Latest CO2 Emissions Avoided (million tons/year)	
Crystal River 3	860	Mechanical	2013	7.0	5.3	
San Onofre 2 & 3	2,150	Mechanical	2013	18.1	8.8	
Kewaunee	566	Market	2013	4.5	4.8	
Vermont Yankee	620	Market	2014	5.1	2.7	
Fort Calhoun	479	Market	2016	3.5	3.7	
FitzPatrick*	838	Market	2017*	5.9	3.3	
Clinton*	1,065	Market	2017*	8.7	9.2	
Quad Cities 1 & 2*	1,819	Market	2018*	15.6	13.2	
Pilgrim	678	Market	2019	5.0	2.6	
Oyster Creek	610	Policy	2019	5.3	4.4	
Diablo Canyon 1 & 2	2,240	Combination	2024-2025	18.5	8.3	
Three Mile Island 1	838	Market	2019	7	2.9	
Indian Point	2,069	Market	2021	17	8.5	

• 13,156 MWe of baseload capacity

77 million short tons of CO2 avoided

• 15% of Clean Power Plan's 2030 414-million-ton target

• Approximately 9,550 direct jobs



\* Closure avoided due to revised legislation in Illinois and New York

#### **Rising Nuclear Plant Costs**



#### **Reactor Size/Scale Impacts Costs**

	Category	Number of Plants / Sites	Fuel	Capital	Operating	Total Operating (Fuel + Operating)	Total Generating (Fuel + Capital + Operating)
All U.S.		60*	6.76	6.82	20.42	27.17	34.00
Plant Size	Single Unit	25	6.77	8.37	25.83	32.60	40.97
	Multi Unit	35	6.75	6.34	18.75	25.50	31.85
Operator	Single	12	7.18	8.51	21.05	28.23	36.74
	Fleet	48	6.63	6.33	20.24	26.87	33.20

- Costs exclude shutdown plants
- Source: Electric Utility Cost Group (EUCG)



#### **Declining Wholesale Electricity Prices**



#### **10-Year Power and Gas Price Degradation - PJM**



The power price is set by the price of natural gas; both have deteriorated substantially over the past 10 years. Energy prices in PJM are at a 10-year low and lower than forward projections from just a year ago.



#### **Fracking's Impact on Cost**



As production increases, prices decrease.



#### **Uneven Compensation**

#### Revenue Received per Unit of Production in 2013



Due to the Production Tax Credits for wind, that technology is growing in otherwise uneconomic markets, suppressing prices and driving out unsubsidized competitors. The subsidy insulates it from market feedback.



# U.S. Nuclear Energy Market Valuing Nuclear Energy



#### **Valuing Our Generation Fleet**







Ginna employees at a rally for the RSSA



NY Governor Andrew Cuomo at a rally at FitzPatrick with the Nine Mile Point cooling tower in the background.



#### **Valuing Our Generation Fleet**



Illinois Governor Bruce Rauner celebrating the legislation at a local high school

#### KEEPING ILLINOIS NUCLEAR PLANTS OPEN: GOOD FOR OUR COMMUNITIES & ILLINOIS

As Polde Chief In Citinon, i know risthaid of the significant impact the Citinon Power Station has one way community. I employs seally 700 of our triends and neighbors and funds local government services Including schools, fire and emergency response through the \$12.6 million (tipsy in taxes every year.

Cutdated energy policies are forcing social energy plants nationwide to close down and Cation could be next, even though it is a state-ofthe art plant with many years of useful life left. These closessis devisitate local communities. Jobs are lost. Services are cit. Recently, a Vermont town eliminated its eatire police department after its local plant closed own.

Cinton cannot afford this and nether cas illinois. That is why i support a legislate proposal called the Next Generation Energy Ran. This proposal is good for our state's economic nealth and would help prevent plants the Clation Power Station from closing. Please help communities the my own from suffering this devestitating loss.

I URGE OUR LEGISLATORS IN SPRINGFIELD TO VOTE YES ON THE NEXT GENERATION ENERGY PLAN BY MAY 31ST - BEFORE ITS TOO LATE. JOIN OUR CAMPAIGNE WWW. NUCLE ARPOWERSTILLINOIS.COM



#### FUTURE ENERGY JOBS BILL





#### **Other States Take On Reform**







Pennsylvania created the nation's first state "Nuclear Energy Caucus" with more than 60 members of the legislature



Local coalition formed after TMI announcement. For more details, visit <u>www.CleanJobsforPennsylvania.com</u>



### **Capacity Markets Help**



The PJM capacity market creates prices that attract energy-related investments and power supply resources needed to meet consumer needs for electricity years into the future

Clearing determined by the intersection of the supply and the demand curves.

P.JM@2010



## U.S. Nuclear Energy Market Operators' Focus Areas



#### **In Our Control... Operations**



- Exelon is consistently one of the lowest-cost and most efficient producers of electricity in the nation
- Over the next five years, Exelon Nuclear projects a negative cost CAGR, while maintaining strong generation performance



#### **Example: Average Nuclear Refueling Days**





# **U.S. Nuclear Energy Market** Licensing to Support 80 Years



### **Subsequent License Renewal**

- On June 7, 2016, Exelon announced it is seeking an additional 20-year operating license for Peach Bottom
- Allow operation until 2053 and 2054
- File formal application for license extension in 2018
- Ongoing discussions with Nuclear Regulatory Commission (NRC) on licensing process
- Clear path forward for relicensing to 80 full years







#### Why Peach Bottom?

- Strong Record of Performance
- 95.83% capacity factor in 2016
- No automatic trips in more than 10 years
- Five consecutive breaker-to-breaker runs
- Completed major extended power uprate in 2015, under budget and ahead of schedule, that increased site output by more than 12%





#### **License Renewal & Costs**

- Industry's clear path to license renewal is undercut by declining profits and even substantial losses across the industry
- State policies are helpful, RTO-level changes would better position sites to withstand the market fluctuations over the long-term
- National energy policy?







### **Questions?**

