



# Economic consequences of new models

*Utilities in a Time of Change*  
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# “How to close the US nuclear industry: Do nothing”

Peter A. Bradford, Bulletin of the Atomic Scientists, 4 March 2013

# Big problems for existing US nuclear . . .



- Merchant units in dire situation
  - Financial losses in electricity markets
  - More early closures coming
- Regulated units w/ maint issues closed
- Public power or regulated units may be next
  - Cash operating costs > market value of power

. . . and for new US nuclear units

- Vogtle/Summer approved in about 2007
  - Very favorable state laws/regulation
  - IRP analyses done before natural gas glut known
- All other proposed new units on hold or cancelled
- Preferred generation option is natural gas CCGT

### EIA (AEO 2015) LCOE

NG CCGT	\$64 /MWh
Advanced nuclear	\$96 /MWh

# Why?



- **Low natural gas prices**
  - Low demand/load growth
  - Low value of capacity
  - Electricity market issues
  - Nuclear power operating costs
  - No value for zero carbon nuclear electricity

# Long term planning missing from reformed electricity industry



- Traditional electricity industry approach – regulated/government utilities plan and build a portfolio of generation units to:

**minimize long-term total cost** of electricity

- New market-based electricity industry approach - electricity markets manage system dispatch to

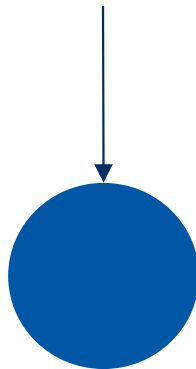
**minimize short-term marginal cost** of electricity

# Public benefits not reflected in private nuclear projects

Net profits  
in  
electricity  
market



Uncompensated  
products



Positive  
economic  
impact





# Role of federal government



- Ownership
  - Electricity + nuclear industry (China, France, Korea, etc.)
  - Nuclear sector only (British Energy)
  
- Incentives
  - UK EMR / Hinkley Point C CfD
  - US EPA Act of 2005 Incentives
  - Government entity as power buyer
  
- Clean Power Plan – value for carbon-free electricity

# Role of state government



- Iowa - Duane Arnold PPA extension
- New York - Ginna RSSA
- Ohio - Davis Besse CfD?
- Illinois - Low Carbon Portfolio Std (see next slide)?
- New York - NYPA re-purchase of FitzPatrick?
- Other?

# Private assets and public benefits create conflicts



## Improved finances trip up Exelon's push for nuclear bailout - 7 Nov 2015



Exelon's push to get state lawmakers to approve a ratepayer financed rescue package for the company's nuclear power plants is running out of gas.

In a sign of how the state's energy policy dynamics have changed, a senior executive at the clout-heavy company now says Exelon is open to an alternative to a bailout - creating a state or regional market to put a price on power plant carbon emissions.

The company continues to say that it wants Springfield to increase electricity rates statewide or it may have to close plants. But Exelon repeatedly has postponed acting after lawmakers failed to meet its deadlines for new legislation. And a brighter financial outlook for plants previously pegged as money losers is making for a difficult sale. Five of Chicago-based Exelon's six Illinois nukes now are projected at least to break even within the next few years.



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