



Economic consequences of new models

Utilities in a Time of Change
Scottsdale 16-18 Nov 2015

Edward Kee

Agenda



Traditionally, utilities have been known for their security as an investment, their regular dividend payments and their long-term dependability.

They have been well rated by the agencies, and their stock has done well in a time of low interest rates.

But their future is cloudy.

If the traditional model is broken, what do they offer investors?

Will their Wall Street ratings decline (there are indications that is already happening) and will raising money be more difficult?

Panel 3



- The economic consequences of new models
 - Llewellyn King, Moderator
 - Stuart Pearman, Scott Madden
 - Swami Venkataraman, Moody's
 - Edward Kee, NECG
 - Walter S. Howes, Verdigris Capital LLC

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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

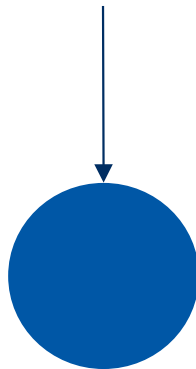
minimize short-term marginal cost of electricity

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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