



U.S. DEPARTMENT OF
ENERGY

Office of
Nuclear Energy

Improving the Economics of America's Nuclear Power Plants

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June 17, 2016

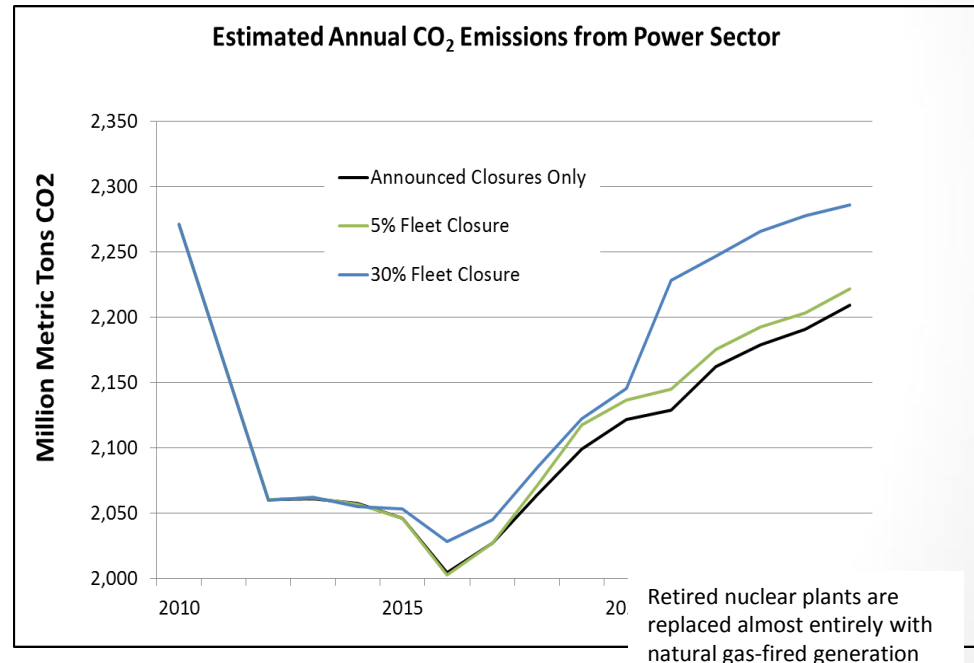
NEAC Meeting

Challenges and Changes to U.S. Nuclear Fleet

“Nuclear plants are under increasing economic pressure to close as a result of record low capacity prices..... Losing these plants has long-term implications both to the reliability of the system and on the nation’s emission profile.”

Federal Energy Regulatory Commissioner Moeller, April 2015

- Fitzpatrick, Pilgrim, Oyster Creek, Fort Calhoun slated to close
- Clinton, Quad Cities, Nine Mile Point-1, Ginna recently announced plans to close
- Several others at “at-risk” especially in deregulated markets
 - NEI estimates another 15-20 plants at risk of premature shutdown in the next 5-10 years



Some Actions are Occurring

- New York is considering a Clean Energy Standard and state ownership
- Illinois could act on Clean Energy Standard legislation
- Ohio is pursuing a Power Purchase Agreement
- FERC is considering price formation changes
- NEI is leading the “Delivering the Nuclear Promise” initiative to lower operating costs by 30%
- DOE sponsored the LWR Working Group to identify technical solutions
- QER 1.2 includes a focus on valuation

Summit on Improving the Economics of America's Nuclear Power Plants

- Purpose
 - Convene a meeting of experts and stakeholders to discuss the economic challenges facing a number of nuclear power plants and the unintended consequences that could arise from early plant retirements.
- Objective
 - Identify policy options that can be pursued at both the federal and state levels to address these concerns, as well as technical options that can be enacted by utilities to improve the economic competitiveness of operating nuclear power plants.
- Held May 19, 2016 in the Hart Senate Office Building
 - Archived webcast available at <https://gainl.inl.gov>

Summit Agenda

- Keynote by Secretary Moniz
- Industry Perspective – Marv Fertel, NEI
- Congressional Remarks
 - Senators Booker (D-NJ) and Crapo (R-ID)
 - Representatives Kinzinger (R-IL) and McNerney (D-CA)
- Lightning Talks
 - Labor/Jobs – Mike Langford, UWUA
 - Climate – Cesar Penafiel (for Michael Shellenberger), Environmental Progress
 - Local Community – Patty O’Donnell, Vernon, VT
- **Panel 1 – What Industry Can Do**
 - David Owens, EEI (moderator)
 - Bill Mohl, Entergy
 - Maria Korsnick, NEI
 - William Levis, PSEG
 - Mark Peters, INL
- **Panel 2 – What the States Can Do**
 - Gene Grecheck, ANS
 - Joe Kruger, RFF
 - Ann McCabe, NARUC / Illinois Commerce Commission
 - Sally Jameson, NCSL / Maryland House of Delegates
 - Jessica Lovering, Breakthrough Institute
 - Joe Dominguez, Exelon
- **Panel 3 – What Congress, FERC, and Regional Markets Can Do**
 - Dan Utech, White House (moderator)
 - Matt Bennett, Third Way
 - Sue Tierney, Analysis Group
 - Arnie Quinn, Ferc
 - Craig Glazer, PJM

Proposed Actions from the Summit

- Policy should be technology neutral
 - Focus on the end goal (i.e., reduced carbon emissions) rather than advancing a particular technology
 - Level the Playing Field – treat all clean technologies equally
- Outreach and education
- Near-term action by FERC on Price Formation
- Valuation needs to be considered by FERC / Markets
 - Zero-carbon, Reliability, Resiliency, Affordability, Fuel Diversity, Sustainability, Security, Flexibility, etc.
- Clean Energy Standards
- Reduce Operating Costs
 - Delivering the Nuclear Promise
 - LWR Working Group – technical advances
 - Provide additional energy services (i.e., process heat applications)
- Clean Power Plan Implementation
 - Mass-based with new source complement
- Power Purchase Agreements
- Legislation
 - Carbon Price, Production Tax Credit, Cap on NRC fees (Booker)
- Re-regulate

Valuation

Properties are reasonably independent but in some cases cannot be fully separated

Property	Definition	Common Metrics
Affordability	Ability to meet other objectives at the lowest cost to consumers	<ul style="list-style-type: none"> - Total system costs - Total payments
Reliability	Ability to respond to variable and uncertain internal conditions	<ul style="list-style-type: none"> - Reserve margins - SAIDI, SAIFI - Expected hours of outages, unmet load
Resiliency	Ability to withstand and, if necessary, recover quickly from extreme external events	<ul style="list-style-type: none"> - Expected hours of outages, unmet load
Security	Ability to prevent disruptions by actors with malicious intent, including cyber and physical attacks and loss of access to critical materials	<ul style="list-style-type: none"> - Expected hours of outages, unmet load - Reliance on foreign sources
Sustainability	Ability to serve consumers with minimal negative impacts on natural resources, community resources, human health, and safety	<ul style="list-style-type: none"> - Air/water emissions - Solid waste - Lost days of work
Flexibility	Ability to respond to short-term and long-term uncertainties within acceptable cost variations	<ul style="list-style-type: none"> - Price/cost volatility

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Next Steps

- A report summarizing the key policy and/or technical options will be published by early summer.
- Valuation work continues to inform QER 1.2.
- In the mean-time, various groups should take ownership and move forward quickly with identified actions.
 - DOE is available to provide technical assistance and will work with various groups to further define / clarify options and possible next steps.