ANS Washington DC Section
November 2014 Meeting

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2014 Election Takeaways
There is no such thing as "federal nuclear energy policy"

Federal responsibilities...
- Waste Management (DOE)
- Safety and security regulation (NRC)
- Research & Development (DOE)
- Insurance (Price-Anderson)
- "All-of-the-above" (Loan guarantees, production tax incentives)
- Export promotion (Commerce/Ex-Im bank)
- Export Control (123 and 810)
- Regional economic development (TVA)
- Regulation of CO2 as a pollutant (EPA)

What the feds don’t do...
- Provide “sovereign commitment” for nuclear
- Define generation mix
- Provide direct subsidies/strike prices
US Electricity Demand Growth

- History
- 2012
- Projections

3-year moving average
Trendline

Power generation capacity additions and retirements, 2013-2035

- United States: 200 GW net additions, 600 GW retirements
- European Union: 200 GW net additions, 600 GW retirements
- Japan: 200 GW net additions, 200 GW retirements
- China: 1400 GW net additions, 200 GW retirements
- India: 600 GW net additions
- Middle East: 200 GW net additions, 200 GW retirements
China is the main driver of increasing energy demand in the current decade, but India takes over in the 2020s as the principal source of growth.
EPA Clean Power Draft Rule

• States given individualized “performance” targets based on baseline emission rate, minus four “building blocks”:
  1. Heat rate improvement
  2. Coal-to-gas redispach
  3. Renewable and nuclear generation (at-risk and new)
  4. End-use energy efficiency

• States with NPPs given credit for 5.8% of “at risk” existing nuclear capacity.

• Under the rule, if all U.S. nuclear plants were shut down and replaced with NGCC, 15 states would “lower” their emission rates.
What’s our “ask”? 

1. Treat existing nuclear plants equally with other non-emitting energy sources
   - ANS recommendation: amend Best System of Emission Reduction (BSER) baseline rate determination formula to include 100 percent of each state’s existing nuclear generation.

2. Acknowledge and reward states with new nuclear plants under construction.
   - ANS recommendation: remove new U.S. nuclear plants under construction from the BSER formula and allow states to count the avoided emissions toward their compliance plans once they are operational.
US Carbon Free Electricity Generation

- Nuclear: 64%
- Solar, Wind, Geothermal: 23%
- Hyrdo: 14%

Graph showing capacity of gigawatts electric in GW (vertical axis) over different years (horizontal axis), with lines indicating different scenarios for licenses renewed and shutdown before 60 years. Arrows indicate best and worst case scenarios.
CA Non-Hydro Low Carbon Energy Generation
(for the last full year of operation)

Electricity Production (billion kWh/year)

<table>
<thead>
<tr>
<th>Source: Forbes; Jim Conca</th>
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<tbody>
<tr>
<td>Nuclear (Diablo Canyon)</td>
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<tr>
<td>Nuclear (SONGS)</td>
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<tr>
<td>Wind</td>
</tr>
<tr>
<td>Solar</td>
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<tr>
<td>Biomass</td>
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<td>Geothermal</td>
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Effects of VT Yankee shutdown

• MA: National Grid (MA) 37% rate increase effective November 1.

• NH: Liberty Utility energy charge from 7.73 cents per kilowatt hr to 15.4 cents per KwH.
Energy Gap

Average industrial electricity costs per kilowatt-hour

20 cents

Germany: 18.24 cents

U.S.: 6.99 cents

Sources: Europe’s Energy Portal; U.S. Energy Information Administration; IBD calculations
Special Committee on Nuclear and the States

- Review regional economic factors, generation mix, power grid structure and market mechanisms
- Identify state-specific barriers to new nuclear construction
- Provide recommendations on new nuclear generation.
State Renewable Energy Standards
# New Nuclear in the States:  
## Regulatory Structure of the Electric Utility Industry

<table>
<thead>
<tr>
<th>State regulation and New Nuclear Power</th>
<th># of States</th>
<th># of active NRC apps</th>
<th># under const.</th>
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</thead>
<tbody>
<tr>
<td>State with Restrictions on Nuclear Power Plant Construction:</td>
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<tr>
<td>CA, CT, HI, KS, KY, ME, MA, MN, MT, NJ, OR, RI, VT, WV, WI</td>
<td>16</td>
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<tr>
<td>Rate-of-Return Regulated State with AFUDC:</td>
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<td>AK, IA, MO, ND, SD, WY</td>
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<tr>
<td>Rate-of-Return Regulated State with CWIP:</td>
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<td>AL, AZ, AR, CO, FL, GA, ID, IN LA, MS, NE, NV, NM, NC, OK, SC, TN, UT, VA, WA</td>
<td>20</td>
<td>12</td>
<td>5</td>
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<td>Deregulated States:</td>
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<td></td>
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<tr>
<td>DE, MI, NH, NY, MD, OH, PA, TX</td>
<td>8</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>50</strong></td>
<td><strong>17</strong></td>
<td><strong>5</strong></td>
</tr>
</tbody>
</table>

Source: AEN, NEA, OECD, NRC
Regional Transmission Orgs.
Nuclear waste policy

Yucca Fundamentalism

BRC Realpolitik
You can always count on Americans to do the right thing - after they've tried everything else.

Winston Churchill
Thank you / Questions