Issues discussed

- Uncertainties about national climate legislation add emphasis to alternative incentives for CCS deployment
- Potential job benefits of CCS development
- Need for regulatory cost recovery for CCS R&D investments
In 2007, multi-stakeholder EPA Advanced Coal Technology Work Group reached unanimous recommendation for legislation creating non-budget incentives for early CCS demonstration projects (independent of climate legislation).

Recommendation led to HR 6258 (Boucher-Barton et al) wires charge bill ($1B/yr for 10 years).
Climate legislation markers for CCS incentives

- 2007 Bingaman-Specter bill allocated 8% of allowances to CCS
- 2009 Waxman-Markey allocated 4.8% (~$150B) to CCS plus ~10 GW demonstration thru $1 Bil/yr wires charge*
- 2010 Kerry-Lieberman allocated 3.8%, plus demonstration funding via $2 Bil/yr wires charge*

*Subject to state PUC approvals.
Rockefeller S. 3591
(111th Cong., 2d Sess.)

- Rockefeller wires charge remains an option for ~20 GW demonstration plants (~$2 B/yr)
- Improved management structure for CCS demonstration project selection (DOE/Nat’l Labs/Tech Advisory Committee)
- Preserves Boucher state PUC approval authority (56% majority/22 state “disapprovals”)
- Offers additional incentives for CCS deployments through loan guarantees ($20 B), tax credits and CCS bonds ($5 B)
- Addresses liability/stewardship issues
Murphy Costa et al.  
(112th Cong., 1st Sess.)

- Bipartisan House proposal for major infrastructure investments
- Includes $220B funding for CCS to enable transition of coal fleet
- Funded by federal royalties from offshore oil & gas leases (CBO scoring?)
CEDA

- 21st Century Energy Technology Deployment Act borrows from Subtitle I of HR 2454 (Waxman-Markey)
- Restructures DOE loan guarantee programs, creates new Clean Energy Investment Fund and Clean Energy Deployment Administration within DOE
- Loans, loan guarantees and other incentives for clean energy projects including CCS
- Senate markup in progress; $10 B offset needed.
Incentives via EPA regulation?

- Potential EPA regulation of stationary source GHG emissions can (in theory) provide incentives for CCS at new and existing sources.
- Bonus allowances, allowance set-asides and similar measures can defray incremental CCS costs.
- EPA scheduled to propose GHG NSPS and "guidelines" in July 2011.
A new perspective of CCS

- Investments in CCS demonstration projects should be viewed as essential R&D for cost recovery purposes, similar to investments in SO2 scrubbers in the 1970-80s.

- EOR potential of ~3 MM B/D increased domestic production from CCS invites consideration of alternative incentive/compensation mechanisms for incremental CCS costs beyond CO2 revenues for EOR applications.
## Economic Benefits from Construction and O&M for 65 GW of Advanced Coal Facilities with CCS

### Economic Benefits from Construction (one-time)

<table>
<thead>
<tr>
<th>Economic Measure</th>
<th>Direct Benefit</th>
<th>Total Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td>$254.8 Billion</td>
<td>$711.9 Billion</td>
</tr>
<tr>
<td>Value-added</td>
<td>$108.6 Billion</td>
<td>$343.9 Billion</td>
</tr>
<tr>
<td>Employment</td>
<td>1.7 Million Job-years</td>
<td>4.5 Million Job-years</td>
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<tr>
<td>Labor Income</td>
<td>$94.5 Billion</td>
<td>$240.1 Billion</td>
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</tbody>
</table>

### Economic Benefits from Operations & Maintenance (annual)

<table>
<thead>
<tr>
<th>Economic Measure</th>
<th>Direct Benefit</th>
<th>Total Benefit</th>
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</thead>
<tbody>
<tr>
<td>Output</td>
<td>$16.0 Billion</td>
<td>$35.9 Billion</td>
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<tr>
<td>Value-added</td>
<td>$9.5 Billion</td>
<td>$19.9 Billion</td>
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<tr>
<td>Employment</td>
<td>31.6 Thousand Jobs</td>
<td>152.5 Thousand Jobs</td>
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<tr>
<td>Labor Income</td>
<td>$4.0 Billion</td>
<td>$10.4 Billion</td>
</tr>
</tbody>
</table>

Thanks to ...

- ACCCE for supporting this presentation
- NCSL and NARUC for the invitation today - and
- Views expressed are my own