NCASI Input to Regional Greenhouse Gas Regulation Development

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GHG Regulation Development in Oregon

• Two bills introduced in Oregon legislature January 2016
  – LC 42:
    • Requires electric utilities to eliminate coal-fired resources from companies electricity supply
  – SB 1574:
    • Repeals existing GHG emission goals, requires Environmental Quality Commission to adopt new statewide emission goals and limits and adopt carbon pollution market
    • Requires ODEQ to administer auctions of carbon allowances under carbon pollution market
  – Very little detail in the bills on how either program would function
  – Neither bill made it out of committee

• NCASI helped regional industry understand potential impacts
NCASI Support on Proposed OR GHG Regs

- NCASI developed/provided:
  - Estimates of cost to the Oregon forest products industry
  - Historical GHG emission reductions by Oregon mills
  - Required emission reduction pathway for sector

### Required Emission Reduction Path

<table>
<thead>
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<th>Year</th>
<th>$12.71/mt CO₂</th>
<th>$25.00/mt CO₂</th>
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<tbody>
<tr>
<td>2025</td>
<td>$2,700,000</td>
<td>$5,250,000</td>
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<td>2035</td>
<td>$4,850,000</td>
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<td>2050</td>
<td>$7,500,000</td>
<td>$14,700,000</td>
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GHG Regulation Development in Washington

• “Clean Air Rule” (CAR)
  – Proposed January 5, 2015
  – Withdrawn February 26
  – Re-proposed May 31
  – Finalized September 15
  – Effective October 17, 2016

• Is a “cap and reduce” program

• Biomass CO₂ is not included

• Pulp and paper listed as an EITE sector

• NCASI helped regional industry understand potential impacts
Cost to Affected P&P Mills

• Five Washington mills covered by proposed CAR
• Simplified assessment of compliance cost
  – Assume facilities meet obligation solely by purchasing allowances issued by California cap and trade program
    • I.e., facility emissions remain constant at the baseline
    • Not allowed after 2022
    • 2016 annual auction reserve price $12.71/ton CO₂ eq.

• Direct compliance cost:
  – $200,000/year

• Indirect cost of compliance (e.g., purchased power)
  – Too uncertain to estimate
GHG Emission Intensity Trends for Washington Pulp and Paper Facilities

- Early Actions at WA Mills:
  - Boiler and power generation improvements
  - Switching to lower GHG emitting fuels
  - Process efficiency improvements
    - E.g., board machine rebuild
Benchmarking Used to Set Emission Reduction Pathway for EITE facilities

• NCASI provided analysis of difficulties involved in benchmarking our sector by production category

• NCASI calculated GHG emission intensities of pulp and paper mills by NAICS code
  – Sector was categorized by 6-digit NAICS code
    • Overly broad for rational benchmarking for the sector, but frequently used for benchmarking industrial sectors.
  – Average GHG emission intensities from Washington mills were compared to various national averages.
US Pulp and Paper Sector
Scope 1 GHG Emission Intensity

Scopes 1 (mt CO₂eq/mt final product)

- 322130 Paperboard Mills
- 322121 Paper Mills, except Newsprint Mills

NAICS Code
Potential Leakage Effects Caused by Washington Carbon Policy

• EITE industries are vulnerable to leakage
  – The shifting of production to locations without carbon regulation.
  – Leakage to areas with higher emission intensities increases overall GHG emissions
  – Washington state has significant forest resources AND low GHG emitting purchased power

• NCASI estimated change in indirect emissions corresponding to 5% leakage
  – 34,000 mt CO$_2$ eq. / year (Canadian average)
  – 260,000 mt CO$_2$ eq. / year (Chinese average)
Industrial CHP as an Alternative Emission Reduction Measure

• Industrial CHP is listed as an alternative emission reduction measure but no method is provided

• NCASI proposed a method
  – Emission reductions are equivalent to the difference in emissions between CHP electricity relative to purchased power (considering T&D losses)

• Forest product CHP emissions are much lower than those of purchased power, and could generate significant ERUs
  – 40,000 to 100,000 ton CO₂ eq/year for 15 MW system
What’s Next?

• Oregon likely to introduce GHG cap and trade legislation in 2017

• Washington will have to develop benchmarks for our sector, NCASI will likely be called on to help

Questions?