WINDPOWER IN VIRGINIA?
BARRIERS:

• Geographically limited resources

• Local opposition – zoning and noise restrictions (discussed in more detail by others)

• State policies – Renewable Portfolio Program design

• Appalachian Power (“APCO”) Decision

• Virginia Marine Resources Commission Report
Wind Power Classification

<table>
<thead>
<tr>
<th>Wind Class</th>
<th>Resource Potential</th>
<th>Wind Power Density at 50 m (W/m²)</th>
<th>Wind Speed at 50 m (m/s)</th>
<th>Wind Speed at 50 m (mph)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>0 - 200</td>
<td>0.0 - 6.6</td>
<td>0.0 - 12.5</td>
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<tr>
<td>Marginal</td>
<td>200 - 300</td>
<td>6.6 - 6.4</td>
<td>12.5 - 14.3</td>
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<tr>
<td>Fair</td>
<td>300 - 400</td>
<td>6.4 - 7.0</td>
<td>14.3 - 15.7</td>
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<tr>
<td>Good</td>
<td>400 - 500</td>
<td>7.0 - 7.5</td>
<td>15.7 - 16.8</td>
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<tr>
<td>Excellent</td>
<td>500 - 600</td>
<td>7.5 - 8.0</td>
<td>16.8 - 17.9</td>
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<tr>
<td>Outstanding</td>
<td>600 - 800</td>
<td>8.0 - 8.8</td>
<td>17.9 - 19.7</td>
<td></td>
</tr>
<tr>
<td>Superb</td>
<td>&gt; 800</td>
<td>&gt; 8.8</td>
<td>&gt; 19.7</td>
<td></td>
</tr>
</tbody>
</table>

*Wind speeds are based on a Weibull k value of 2.0.*

Tazewell Area, Virginia
50 m Wind Power Map

The annual wind power estimates for this map were produced by ThyStyle Solutions using their Wind Map system and historical weather data. It has been validated with available surface data by NREL and wind energy meteorological consultants.
Virginia Renewable Portfolio Goal (RPG)

• Voluntary, but cost recovery and substantial incentives (0.5% increase in rate of return on equity) for participation.
• Goal is a percentage of 2007 non-nuclear generation; 4% through 2016, 7% through 2025, 12% thereafter.
• “Anyway” Renewable Energy Certificates (RECs) are a legislated priority.
• “Renewable energy from existing sources owned by the participating utility or purchased as allowed by contract at no additional cost to customers to the extent feasible.”
• Offshore R&D expenses qualify
Virginia RPG Participation Incentive

- Estimates provided in State Corporation Commission staff review of Dominion’s application; Case No. PUE-2009-00082 (Nov 20, 2009) and in Dominion’s application.
- Net present value (NPV) of the cost of Dominion’s plan to use Tier II RECs through 2025: $7.9 million
- NPV of the cost if Dominion were to use Tier I RECs: $221 million.
- All costs, including REC and administrative expenses are reimbursed.
- Participation bonus (0.5 percent on equity), nominally $39 million per year, NPV $330 million, but performance incentive could increase to a NPV of $987 million through 2025.
“Anyway” RECs

• “Renewable” includes hydro, wind, solar, geothermal, landfill gas, biomass, energy from waste, and anaerobic digestion.
• Prioritizes use of RECs from pre-existing sources owned by participating utilities – in state “anyway RECs”.
• Next priority --out of state anyway RECs (from as far away as Michigan) that are as inexpensive as possible.
• Allows unlimited use of Tier II RECs that are limited in other states and that are cheaper than even Tier I anyway RECs.
• Maryland audit: majority of RECs from two HPP (constructed in the early 1900s) and three 1970s vintage pulp mills burning black liquor – almost no new renewable generation.
• NC and DE (among others) allow only “new” renewables.
“Anyway” REC and “real” REC prices
APCO State Corporation Commission Decision

• Rejects APCO Power Purchase Agreement (PPA) for “reasonably priced” wind power

• Treats minimum requirement for participation in RPG bonus rate of return as a “ceiling” for cost recovery

• Looks to low priced “anyway” RECs to determine whether cost of renewable is prudent

• Treats pricing information in proposed PPA as confidential business information
Legislative Response to APCO Decision

• As proposed

In determining the reasonableness or prudence of a utility providing energy and capacity to its customers from renewable energy resources, the Commission shall consider the extent to which such renewable energy resources, whether utility-owned or by contract, further the objectives of the Commonwealth Energy Policy set forth in §§67-101 and 67-102.”

• Amended to add

and “whether the costs of such resources is likely to result in unreasonable increases in rates paid by consumers”.

VMRC Excludes All Virginia Bottomlands without Serious Examination of Available Options
IT ALL DEPENDS ON YOUR OUTLOOK

North Span Chesapeake Bay Bridge Tunnel

Entrance to Copenhagen Harbor

Thank you