



## NATIONAL WIND COORDINATING COMMITTEE WIND ENERGY CONTRIBUTIONS IN A NATIONAL ENERGY STRATEGY

**Issue Forum  
May 18-19, 2006 • Washington, DC**

### ***Summary***

Representatives of a number of organizations involved in the energy sector convened in Washington, DC on May 18th-19th to discuss the future of the nation's energy supply and the role of wind power. The forum's objective was for the participants to share their perspectives on wind and other renewable energy sources and consider ideas for shaping a realistic vision of wind's contribution to national energy needs. Hosting the forum was the National Wind Coordinating Committee, which brings together stakeholders to identify key wind power issues and establish dialogue unified by a common vision -- commercial wind power markets that are environmentally, economically and politically sustainable.

At the forum, twelve participants gave presentations on major efforts to develop forward-looking energy strategies on a regional, national, and international level. Some focused specifically on the wind industry, while others considered wind in the context of larger efforts to promote sustainable energy strategies. While participants agreed a portfolio of options is needed to respond to the nation's energy needs, all presenters expressed the view that wind power has a significant role to play.

The speakers addressed a variety of topics, ranging from the National Commission on Energy Policy's report and recommendations on the future of U.S. energy supplies to an initiative by the 25x'25 alliance to promote agriculture-based fuels. Many of the presenters acknowledged the energy challenges that the country is facing, including:

- Concern about fossil fuel sustainability
- Environmental and health impacts of fossil fuel emissions
- Growing U.S. energy demands
- Price volatility of oil and natural gas
- U.S. dependence on imported fuels
- Continued economic prosperity in an increasingly competitive world.

In response to these challenges, the speakers pointed to the potential for wind power to address such concerns by providing a clean, renewable energy source that contributes to domestic economic development, particularly in rural areas. More details on each speaker's presentation are provided in the table on the following pages.

Presentation title & description	Presenter & organization	Drivers for change	Vision / projection for renewables / wind	Benefits of renewables / wind	Challenges for renewables / wind	Links
<p><i>Ending the Energy Stalemate</i>. Description of the NCEP report on US energy supply and recommendations, specifically regarding renewables.</p>	<p>Marilyn Brown, National Commission on Energy Policy (NCEP)</p>	<ul style="list-style-type: none"> <li>• Tax incentives</li> <li>• Dependence on foreign energy supply</li> <li>• Need for new energy infrastructure</li> <li>• Transmission capacity nearly 100%</li> <li>• Climate change</li> </ul>	<p><u>NCEP recommendations:</u></p> <ul style="list-style-type: none"> <li>• Increase federal funding for renewables</li> <li>• Extend &amp; expand Production Tax Credit (PTC)</li> <li>• Support integration of intermittent resources</li> <li>• Carbon cap and trade system</li> <li>• Impact: double non-hydro renewable electricity generation</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce climate change risks</li> </ul>	<ul style="list-style-type: none"> <li>• Costs (although have improved)</li> <li>• Technology</li> <li>• Siting</li> <li>• Federal energy R&amp;D spending declined</li> <li>• Wind variability</li> </ul>	<p><a href="http://www.energycommission.org/site/page.php?index">http://www.energycommission.org/site/page.php?index</a></p>
<p><i>25x'25 Initiative</i>. Outline of agriculture's potential contribution as a producer of fuel and the resulting opportunities for rural areas. The 25x'25 alliance works to promote the development of agricultural fuel products.</p>	<p>Allen Rider, 25x'25</p>	<ul style="list-style-type: none"> <li>• Fossil based fuels unsustainable</li> <li>• Dependence on foreign oil</li> <li>• Costs of fossil fuels and electricity rising</li> <li>• Environmental impact of fossil fuels</li> <li>• Growing energy consumption</li> </ul>	<ul style="list-style-type: none"> <li>• 25% of energy consumed in U.S. from agricultural &amp; public lands by 2025</li> <li>• Wind is one player of many to achieve vision</li> </ul>	<ul style="list-style-type: none"> <li>• Economic benefits for rural U.S.</li> </ul>	<ul style="list-style-type: none"> <li>• Building an alliance</li> <li>• Strengthening political support</li> <li>• Communications outreach</li> </ul>	<p><a href="http://www.25x25.org/">http://www.25x25.org/</a></p>
<p><i>Generation Technologies in a Carbon-Constrained World</i>. Comparison of future costs of fossil fuel and alternative technologies, with focus on wind opportunities.</p>	<p>Steve Gehl, Electric Power Research Institute</p>	<ul style="list-style-type: none"> <li>• Fuel cost and supply -- price volatility</li> <li>• Cost of carbon emissions</li> <li>• Improvement in wind technology</li> <li>• Problem of spent nuclear fuel storage</li> </ul>	<ul style="list-style-type: none"> <li>• Opportunity to develop low emissions portfolio by 2020</li> </ul>	<ul style="list-style-type: none"> <li>• No carbon emissions</li> <li>• Potential low future costs of low-carbon options relative to fossil fuels</li> </ul>	<ul style="list-style-type: none"> <li>• Capacity factor of wind</li> <li>• Wind variability</li> <li>• Integration</li> </ul>	<p><a href="http://my.epri.com/portals/server.pt?">http://my.epri.com/portals/server.pt?</a></p>

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<p><i>Energy Outlook 2006 and Related Assessments.</i> Overview of 2006 Annual Energy Outlook projections of U.S. energy markets through 2030 as well as analyses of several proposed laws &amp; regulations.</p>	<p>Chris Namovicz, DOE Energy Information Administration</p>	<ul style="list-style-type: none"> <li>• Wind can benefit from many different policies</li> </ul>	<ul style="list-style-type: none"> <li>• Wind market growth projections vary significantly with policy and technology assumptions</li> </ul>	<ul style="list-style-type: none"> <li>• Some, but not all, favorable wind policy results in significant greenhouse gas reduction</li> </ul>	<p><u>Costs of wind</u></p> <ul style="list-style-type: none"> <li>• Distance from transmission to load</li> <li>• Difficulty of building in windy areas</li> <li>• Restrictions on land use</li> <li>• Impact of wind variability</li> <li>• Capacity factor variability</li> <li>• Surplus wind curtailment</li> </ul>	<p><a href="http://www.eia.doe.gov/">http://www.eia.doe.gov/</a></p>
<p><i>Renewing America's Economy.</i> Analysis of wind's potential contribution to U.S. electricity under a National Renewable Energy Standard (RES).</p>	<p>Steve Clemmer, Union of Concerned Scientists</p>	<ul style="list-style-type: none"> <li>• High natural gas prices and supply constraints</li> <li>• Dependence on imports</li> <li>• Future limits on carbon emissions</li> <li>• Negative health effects of air pollution</li> <li>• Negative environmental effects of coal</li> </ul>	<ul style="list-style-type: none"> <li>• 20% renewable energy by 2020 under a national RES</li> <li>• Wind would supply an estimated 10% of US electricity under this standard</li> </ul>	<ul style="list-style-type: none"> <li>• Renewable energy creates jobs</li> <li>• Boosts rural economies</li> <li>• Conserves natural gas and lowers prices</li> <li>• Lowers coal and electricity prices</li> <li>• Reduces carbon emissions</li> </ul>	<ul style="list-style-type: none"> <li>• Policy instability – PTC boom &amp; bust cycle</li> <li>• No US policy to reduce carbon emissions.</li> </ul>	<p><a href="http://www.ucsusa.org/">http://www.ucsusa.org/</a></p>
<p><i>A Balanced Energy Plan for the Interior West.</i> Comparison of costs &amp; benefits of group's Balanced Energy Plan to business-as-usual (BAU) scenario.</p>	<p>John Nielsen, Western Resource Advocates</p>	<ul style="list-style-type: none"> <li>• Increasing energy demands in West</li> <li>• Trend toward fossil fuel reliance</li> <li>• Environmental impacts of BAU</li> <li>• High gas / coal prices</li> <li>• Risk of drought</li> <li>• Uncertainty of transmission system reliability</li> </ul>	<ul style="list-style-type: none"> <li>• Meet growing electricity demands in cleaner, more diversified way with more reliance on renewables</li> <li>• Reduce risks</li> <li>• Reduce costs of electricity</li> <li>• Reduce environmental impacts</li> <li>• Ensure system reliability</li> </ul>	<ul style="list-style-type: none"> <li>• Cost savings</li> <li>• Risk mitigation</li> <li>• Lower water usage</li> <li>• Less pollution</li> </ul>	<ul style="list-style-type: none"> <li>• Need for additional transmission system upgrades (but upgrades needed under Balanced Energy Plan are less than BAU because of energy efficiency)</li> </ul>	<p><a href="http://www.westernresourceadvocates.org/energy/bep.php">http://www.westernresourceadvocates.org/energy/bep.php</a></p>

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<i>Clean Energy for the West.</i> Description of Western Governors' Association Clean and Diversified Energy Initiative.	Doug Larson, Western Governors' Association	<ul style="list-style-type: none"> <li>• Growing energy demands in West</li> <li>• Policies such as Renewable Portfolio Standards (RPS), carbon policies, and extension of the PTC</li> </ul>	<ul style="list-style-type: none"> <li>• Illustrate the potential for clean and diversified energy and energy efficiency if the right incentives are provided.</li> <li>• Wind could generate 9,000-54,000 MW for the region by 2015, depending on transmission.</li> </ul>	Wind can help meet need for clean & diversified energy in the West	<ul style="list-style-type: none"> <li>• Wind resources depend on transmission proximity &amp; loading</li> <li>• Wind development may be driven by state RPS, IRP, and carbon policies</li> <li>• Current wind turbine cost uncertainties</li> <li>• Integration of large amounts of wind given wind's variability</li> </ul>	<a href="http://www.westgov.org/wga/initiatives/cdeac/wind.htm">http://www.westgov.org/wga/initiatives/cdeac/wind.htm</a>
<i>Prospective Wind Contributions in the UK.</i> Description of current and prospective wind energy deployment in the UK.	John Overton, UK Department of Trade & Industry	<u>Government policies:</u> <ul style="list-style-type: none"> <li>• Signing Kyoto treaty</li> <li>• Putting UK on a path to cut UK's CO2 emissions by some 60% by about 2050 with real progress by 2020</li> <li>• Maintaining reliability of energy supplies</li> <li>• Promoting competitive markets</li> <li>• Ensuring homes adequately &amp; affordably heated</li> <li>• Renewables Obligation: market-based mechanism to reward most competitive form of renewable energy, typically wind</li> </ul>	<ul style="list-style-type: none"> <li>• 10% of UK electricity supply from renewable in 2010 – wind will be key contributor</li> <li>• Double the share of electricity from renewables to 20% by 2020</li> <li>• Cut carbon emissions by 60% by 2050</li> </ul>	<ul style="list-style-type: none"> <li>• On target to meet Kyoto commitments</li> <li>• Good wind resources in UK</li> <li>• Reducing import dependence</li> </ul>	<ul style="list-style-type: none"> <li>• Rising price of steel</li> <li>• Length &amp; consistency of approval process</li> <li>• Radar issues</li> <li>• Grid issues</li> <li>• Public opposition</li> <li>• Wildlife impacts</li> </ul>	<a href="http://www.dti.gov.uk/">http://www.dti.gov.uk/</a> <a href="http://www.dti.gov.uk/energy/sources/renewables/index.html">http://www.dti.gov.uk/energy/sources/renewables/index.html</a>
<i>GE Perspective on Wind Contributions in U.S. and International Markets.</i> Vision of renewables' current and future role in energy markets.	Jim Lyons, GE Global Research	<ul style="list-style-type: none"> <li>• Energy security</li> <li>• Price stability</li> <li>• Marginal oil constraints</li> <li>• Public policy can accelerate</li> </ul>	<ul style="list-style-type: none"> <li>• Latest prediction: renewables industry will grow to \$167 billion in annual revenues by 2015, one third of which will be from wind</li> </ul>	<ul style="list-style-type: none"> <li>• Wind as a hedge against volatility of natural gas</li> </ul>	<ul style="list-style-type: none"> <li>• Investment in renewables must make economic sense</li> <li>• Need to know what returns will be</li> </ul>	<a href="http://www.gepower.com/businesses/ge_wind/energy/en/index.htm">http://www.gepower.com/businesses/ge_wind/energy/en/index.htm</a>

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<i>Positioning for a 20% U.S. Wind Energy Vision.</i> DOE program efforts in response to Advanced Energy Initiative vision of wind supplying 20% of US electricity.	Stan Calvert, U.S. DOE Wind Energy Program	<ul style="list-style-type: none"> <li>• Energy security</li> <li>• Economic development</li> <li>• Environmental quality</li> </ul>	<ul style="list-style-type: none"> <li>• DOE / AWEA-led roadmapping to define credible timeframe for aggressive wind penetration in support of Advanced Energy Initiative</li> </ul>	<ul style="list-style-type: none"> <li>• Clean energy</li> </ul>	<ul style="list-style-type: none"> <li>• Transmission planning</li> <li>• Siting</li> <li>• System performance &amp; reliability</li> <li>• Integration</li> <li>• Acceptance</li> <li>• Cost of energy</li> <li>• Environmental concerns</li> </ul>	<a href="http://www1.eere.energy.gov/windandhydro/">http://www1.eere.energy.gov/windandhydro/</a>
<i>American Wind Energy Association Perspective on Wind Energy Contributions.</i> Comparison of European Wind Energy Association and AWEA visions for wind energy.	Rob Gramlich, American Wind Energy Association (AWEA)		<ul style="list-style-type: none"> <li>• EWEA: 300 GW by 2030 (23% of forecast electricity demand)</li> <li>• AWEA: 100 GW by 2020 (6% of forecast electricity demand)</li> </ul>		<ul style="list-style-type: none"> <li>• Challenges similar in the US and Europe</li> <li>• Grid integration</li> <li>• Improved system operation</li> <li>• Grid infrastructure upgrade</li> <li>• Capacity credit</li> <li>• Competitive reform</li> <li>• Research &amp; development</li> <li>• Public perception</li> </ul>	<a href="http://www.awea.org/">http://www.awea.org/</a> <a href="http://www.ewea.org/">http://www.ewea.org/</a>
<i>Modeling High-Penetration Wind Scenarios.</i> Overview of results from modeling of four different high-wind penetration cases.	Walter Short, National Renewable Energy Laboratory	<ul style="list-style-type: none"> <li>• Carbon tax</li> <li>• PTC extension</li> <li>• Plug-in hybrids</li> <li>• High gas prices</li> </ul>	Forecast potential of different scenarios: <ul style="list-style-type: none"> <li>• Carbon tax: double wind capacity by 2050</li> <li>• PTC extension: could result in 20% wind by 2020</li> <li>• High gas prices: don't increase wind penetration in long term</li> </ul>		<ul style="list-style-type: none"> <li>• Access to and cost of transmission</li> <li>• Resource variability</li> </ul>	<a href="http://www.nrel.gov/">http://www.nrel.gov/</a>

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<i>A Strawman Vision for Wind Power in the U.S.</i>	Ed DeMeo, Renewable Energy Consulting Services	<ul style="list-style-type: none"> <li>• Need to address dependence on fuel imports, to increase the nation’s economic competitiveness, and to improve environmental health &amp; combat climate change.</li> <li>• Development of plug-in hybrid vehicles offers an opportunity</li> </ul>	<ul style="list-style-type: none"> <li>• Wind supplying 20% of nation’s electrical energy</li> <li>• Additional substantial prospective contributions in transportation and fuels sectors</li> </ul>	<ul style="list-style-type: none"> <li>• Affordable energy costs</li> <li>• Reducing dependence on fuel imports</li> <li>• Domestic economic development</li> <li>• Emissions reductions</li> </ul>	<ul style="list-style-type: none"> <li>• Power-system evolution to accommodate wind variability</li> <li>• Transporting wind electricity &amp; fuels to market</li> <li>• Wildlife and siting issues</li> </ul>	

In the subsequent discussions, participants commented on the obstacles that wind power development is facing, including integrating wind energy into the nation’s electrical grid, siting of new wind plants, and impacts on wildlife. They also touched on potential policies that would favor wind development, such as the establishment of a tax on carbon emissions, as well as ideas for building alliances to promote wind power and engaging policymakers to encourage greater use of wind energy.

In the final session of the forum, Ed DeMeo of Renewable Energy Consulting Services set forth a strawman proposal of a vision of wind power’s role in the United States, along with a rationale supporting the vision. The goal of the session was to stimulate discussion of the options for a realistic, shared vision rather than to attempt to arrive at consensus. Several participants supported a vision of wind as a major contributor to the nation’s energy supply, with some favoring a goal of wind power supplying 20% of U.S. electrical energy. Members of the group commented on the feasibility of the various options for a common vision and reflected on how to shape a unified approach, offering suggestions on strategies for reaching out to policymakers and for building support for a wind power vision with the public.

Having come together to reflect on wind power’s potential, participants considered options for moving forward as a group. Several members, with AWEA and DOE in the lead, agreed to hold follow-up discussions to help identify fruitful paths to take in order to promote a forward-looking vision of wind power in the United States. NWCC is likely to provide a forum for ongoing efforts to define this vision and the activities needed to pursue the vision.

*For more information, or to receive copies of NWCC publications, contact:*

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#### ***About NWCC Issue Forums***

The National Wind Coordinating Committee (NWCC) is a collaborative formed in 1994 and comprised of representatives from the utility, wind industry, environmental, consumer, legislatures, and state, federal and tribal government sectors to support the development of an environmentally, economically, and politically sustainable commercial market for wind power.

The issue forum concept was developed to provide members with information about wind interaction topics outside of regularly discussed areas like wildlife, transmission, and siting.

This Brief is intended to make available some of the information from the Issue Forum to NWCC Members, interested parties, and others. Presentations from this session are available online at <http://www.nationalwind.org>.