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The National Wind Coordinating Collaborative (NWCC), through its Western Transmission Leadership Group (WTLG), ensures wind stakeholder engagement in transmission activities and develops and shares information about integrating wind into the Western grid through institutional, regulatory, and operational changes. These quarterly newsletters highlight transmission-related wind energy happenings in the Western Governors' Association (WGA) territory, along with updates on corresponding NWCC WTLG activities. This is our sixth newsletter; the previous volumes are available [here](#).

Feel free to pass this newsletter along to other individuals and groups who may be interested. Please [contact us](#) to be added to or removed from the newsletter distribution list. We welcome your [feedback](#) on the newsletter and [suggestions](#) for improving it. Also, if you have updates for the next edition, please [tell us!](#)

DOE Charting Course for Implementation of 20% Wind Vision

In May 2008, the U.S. Department of Energy released its "20 Percent Wind Energy by 2030" report on the technical requirements, including new transmission infrastructure, that would facilitate obtaining 20 percent of all U.S. electricity needs from wind power by the year 2030. The 20% figure represents growth from 16.8 GW to 304 GW of wind by 2030.

DOE is now planning for the implementation of this 20% vision, holding two workshops on August 27-28 and October 6-7 to help develop a strategic roadmap. Informed by the ideas generated at these workshops, DOE will produce a roadmap to achieving the 20% wind vision in the coming months.

For descriptions of the workshops and links to the presentations delivered there, visit http://www1.eere.energy.gov/windandhydro/wind_2030.html.

For a copy of the 20% Wind report, visit <http://www1.eere.energy.gov/windandhydro/pdfs/41869.pdf>.

NWCC Activities

On July 31 – August 1, the Midwestern Governors Association (MGA),

Transmission Project Announced

- Public Comments on DOE 2009 Transmission Congestion Study Available
- WIRES Issues Report on Renewables Integration

What Does That Mean?
Not sure what one of the terms here refers to? Try consulting our transmission glossary!

Contact Us!
Please send updates or suggestions for future editions to:

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We welcome your feedback!

For More Information

www.nationalwind.org

www.westgov.org

www.westgov.org/wieb/

www.awea.org

www.uwig.org

NWCC, and other co-sponsors hosted the meeting *Midwestern Wind Energy: Moving It to Markets* in Dearborn, Michigan. The event focused on implementing the wind and transmission aspects of the MGA *Energy Security and Climate Stewardship Platform for the Midwest* and on how MGA platform implementation could help achieve DOE's 20% wind vision. A session on the DOE *20 Percent Wind Energy by 2030* report was also included in the plenary program. Copies of the presentations and other meeting materials are available at <http://www.nationalwind.org/events/meetings/windenergy.htm>.

WREZ Technical Committee Update

In May 2008, the Western Governors' Association (WGA) and the US Department of Energy (DOE) launched the Western Renewable Energy Zones (WREZ) project. The WREZ is an international effort, involving 11 U.S. states in the Western Interconnect, in addition to two Canadian provinces and parts of Mexico.

The WREZ's two goals, as outlined by the WGA, are 1) to support the development and delivery of clean and renewable energy in the West through providing information to decision-makers and 2) to generate conceptual transmission plans for getting that energy to load centers. The WREZ's efforts will contribute to the WGA's goal of developing 30,000 MW of clean and diversified energy by 2015. Carrying out the work to achieve these goals are three workgroups, overseen by a Technical Committee and guided by a Steering Committee: the Zones Identification Technical Analysis Work Group (ZITA WG), the Environment & Lands Work Group (E&L WG), and the Generation and Transmission Modeling Work Group.

WGA Western Renewable Energy Zones Technical Committee Update

Update courtesy of Madeleine West, WGA

The Western Renewable Energy Zone project's Technical Committee met in Denver October 15 -16 to review progress on identifying renewable energy zones (REZs). The Committee approved a methodology for outlining candidate study areas – initial boundaries that have the potential to become REZs based on resource criteria – and approved a process for refining the candidate study areas into proposed REZs, which includes incorporating environmental exclusions and additional technology assessments. The Committee also approved an approach for producing cost estimates for generation within the REZs and supported a conceptual plan for developing the transmission model, which will ultimately calculate the delivered cost of power from one REZ to one load center. Committee members discussed several policy questions relating to Phase 1 (REZ identification) of the WREZ project, and approved an outline for the workplan of Phases 3 and 4.

A summary of the meeting, as well as next steps and related presentations, will be posted at www.westgov.org. The next in-person Technical Committee meeting is being scheduled for mid-January 2009. The WREZ Steering Committee, comprised of Governors and PUC Commissioners from the 11 Western Interconnection states, will also likely meet in January to approve proposed REZs. The REZs will be sent out for a public comment period in early 2009 before they become finalized. Additional information on the schedule for all phases of the WREZ project can be found at www.westgov.org.

NWCC Activities

The WREZ concept was initially proposed at the September 2007 WGA / NWCC Summit *Increasing Renewable Energy in the Western Grid*. A summary, copies of presentations, and other materials from that meeting are available here:

<http://www.nationalwind.org/events/summit/default.htm>.

The NWCC August 19 Transmission Update conference call featured an update on the WREZ process and on the California Renewable Energy Transmission Initiative (RETI). For a brief of the Update, please visit

<http://www.nationalwind.org/publications/transmission/updates/default.htm>.

Guest Feature: Reasons Renewables-First Transmission May Become Dominant

By Dave Olsen, Western Grid Group

To what extent can transmission be approved and financed—that is, found to be commercially cost-effective—when transporting renewables, either primarily or exclusively? This is a critical issue for state and national energy policy.

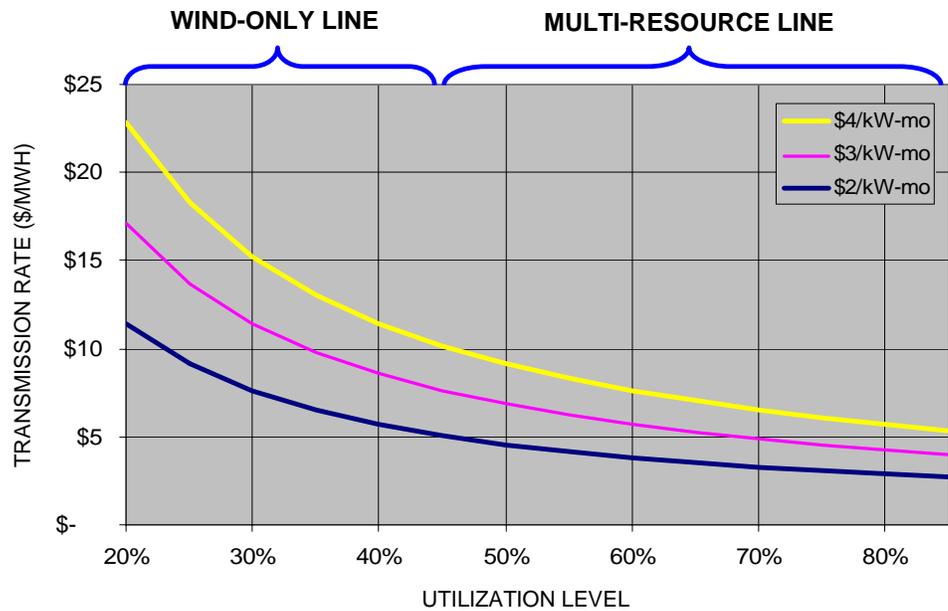
In the last issue of the NWCC newsletter, my colleague Jerry Vaninetti made the case that wind-only¹ transmission lines are economically disadvantaged, relative to more highly utilized lines. He points out that adding fossil generation to raise line utilization factors will reduce the transmission charge component of the total cost of delivering wind power to consumers. He also argues that wind-only transmission is likely to be restricted to a few unique situations. Here are reasons to challenge both conclusions:

Cost and Value: Jerry is certainly correct that higher line utilizations reduce the transmission component of delivered cost of power, but the cost difference is small. By focusing only on transmission, the analysis overlooks much larger potential savings in generation costs.

Jerry presents a graph (below) which shows that at a 50% utilization rate (achievable with wind-only lines) the transmission cost at a tariff rate of \$3/kW-month is about \$7.50/MWh. At a 70%-80% utilization rate (highest practical loading), the transmission cost is ~\$5/MWh, a difference of about \$2.50/MWh, suggesting that consumers would pay \$2.50/MWh (\$0.0025/kWh) more for renewables-only transmission.

Generation makes up about 70% of customer bills; transmission accounts for from 5-10% of customer bills, or around 7%.² If renewables on the lines displace natural gas, savings to consumers in generation cost are likely to be much larger than the small added cost of lower utilization-rate lines. Designing electric supply to optimize transmission cost may well pessimize the aggregate generation-transmission cost to customers. Renewables-only transmission may not be the least-cost transmission approach (until carbon is appropriately valued), but it may very well

provide the best value—for customers, as well as for the environment.



Sideshow or Central Approach to Transmission Expansion? Jerry makes the case that wind-only transmission is likely to be restricted to a few unique situations: those involving unusually high quality wind resources with over-built wind generating capacity; projects designed to access wind over wide geographic areas; wind trunk lines; and other approaches made possible only by public policy initiatives. Also, he points out that network facilities cannot be restricted to renewables.

The contrary case looks at the huge amounts of very high capacity factor (class 6-7) wind resource in Mountain and Plains states—enough to support hundreds of renewables-first generation-transmission projects. Projects designed to tap these resources can provide line loadings of 50% or more. Studies show regional power cost differentials to be the dominant factor in making such projects economic; transmission cost (\$/MWh of delivered power) is not large enough to be a decisive factor in overall project viability.

There are at least eight wind projects larger than 3,000 MW in active development in North America. All are designed as integrated generation-transmission projects, in which the delivered cost of power builds in line loadings achievable with renewables. An expanding market for renewables is likely to encourage many more such projects, perhaps enough to anchor a major increment of new transmission infrastructure.

Renewables trunklines, meanwhile, are the result of new FERC policy to provide access to remote resources. The cost of lines having radial (one-way) flow from a generating plant to the grid are normally paid by generators. Many renewable resources are remote from the grid, and accessing them often requires radial connections. Relatively small renewables projects cannot afford to pay for large-scale transmission upgrades, making radial connections a major barrier to renewables development.

To ensure cost recovery for building transmission to access the Tehachapi

wind resource area, Southern California Edison proposed that FERC treat high-voltage lines built to access renewables as if they were part of the transmission network. Because network upgrade costs are paid by all users of the grid, this meant wind generators would not have to pay for new Tehachapi transmission facilities up front. FERC understood the problem, and approved a new category of transmission to Location-Constrained Resources (LCR). Singling out renewables would have been discriminatory, so the policy refers to “resources,” but it is thought that FERC intends this policy to apply to renewables in every part of the country.

Far from being unique, renewables trunklines (now called Location-Constrained Resource Interconnection facilities in the CAISO tariff), have potential to become widely employed—for example, to provide access to all Renewable Energy Zones already being identified in CO, NV, CA and that may be identified in the Western Governors’ Association Western Renewable Energy Zones (WGA-WREZ) process or national Renewable Energy Zone legislation. Many, if not most, of these lines will of necessity carry only renewable generation.

As for renewables transmission connected as part of the network (with two-way flow on the lines), Mr. Vaninetti is correct that there is no guarantee that only renewables will flow on new “network upgrades.” Given that such new lines are interconnected with the rest of the grid and electricity flows by the laws of physics, other power may flow on those lines. However, network upgrades can in many cases be designed, approved and economically justified solely or primarily to accommodate renewables. Examples include the Tehachapi wind resource area, where at least 4,000 MW of the 4,500 MW flowing on the new transmission (and perhaps 100%) will be wind. The multiple lines to Texas CREZ are connected with the rest of the Texas grid, but most will carry largely or only wind. Northern States Power (MN) facilities from Buffalo Ridge are another example of network lines with scheduled flows mostly or solely wind. All indications are the first 900 MW expansion of the Wyoming-Colorado Intertie will be subscribed with wind.

Gas-fired generators may seek to locate their plants to take advantage of lines being built for renewables (one is doing so in Tehachapi and some may be proposed in west Texas). Renewables advocates cannot prevent this, and should not worry about it. The important point is that the transmission is proposed, designed and economically justified to access renewables. This is a wholesale reversal of the situation only a few years ago when new transmission was proposed primarily for fossil generation and renewables were relegated to fighting for small amounts of capacity on predominantly fossil lines.

Utilities, generators and regulators almost all agree on the need to expand our transmission infrastructure. Line approvals are contentious everywhere, but those carrying high-carbon resources face the most intense—and growing—opposition. It may be that planning the next major increments of transmission expansion to access low-carbon resources turns out to provide the shortest and strongest path to having new facilities approved and built.

NWCC Activities

The NWCC is writing a *Layperson's Guide to Wind Integration* in conjunction with the National Conference of State Legislatures. The advisory committee has provided feedback on an initial draft and revisions are underway.

FERC Approves WestConnect Experimental Regional Transmission Pricing

On September 18, 2008, the Federal Energy Regulatory Commission (FERC) approved an experimental regional transmission pricing plan proposed by a group of eight members of the WestConnect transmission group. The two-year initiative would allow customers the choice of purchasing hourly point-to-point transmission service at a set rate, replacing the rate pancaking currently offered by the systems' Open Access Transmission Tariffs. The experimental rate plan was proposed by Arizona Public Service Company, El Paso Electric Company, Nevada Power Company/Sierra Pacific Power Company, Public Service Company of Colorado, Public Service Company of New Mexico, and Tucson Electric Power Company.

For more information, visit <http://www.ferc.gov/news/news-releases/2008/2008-3/09-18-08-E-17.asp>.

Columbia Grid Revising Order 890 Attachment K Filings

Columbia Grid members are revising their Order 890 Attachment K filings in response to FERC's agreement with RNP and the American Wind Energy Association (AWEA) that the original filings did not adequately address regional cooperation and cost allocation. The filings are due October 15th.

On October 2, Columbia Grid posted documents supportive of its Attachment K filing for comment on its website. For more information, visit <https://www.columbiagrid.org/Notices-detail.cfm?NoticeID=38>.

As mentioned in the [May 2007](#) and [September 2007](#) issues of this newsletter, the FERC issued Order 890 in February 2007 to reform the *pro forma* open access tariff (OATT) and ensure non-discriminatory transmission service. Under Order 890, transmission providers must submit a new Attachment K detailing a transmission planning process that includes nine planning principles: coordination, openness, transparency, information exchange, comparability, dispute resolution, regional participation, economic planning studies, and cost allocation for new projects.

Nevada Utilities Begin Implementing Renewable Power Rebates

At the end of August, Sierra Pacific Power of Reno and Nevada Power of Las Vegas announced they would begin implementing the state's renewable energy program, enacted by the state Legislature in its 2007 session. Called RenewableGenerations, the program includes rebates for renewable energy installations at homes, businesses, schools, public buildings, and on agricultural land.

The rebates went into affect September 4, and are \$2.50/watt for private wind-turbine projects up to 10 MW. Projects of more than 10 MW can qualify for rebates of \$1.50/watt. Schools and public buildings are eligible for a higher rebate of \$4.60/watt, capped at 50 KW for schools and 30 KW for public buildings.

In addition to rebates for wind power, the companies are offering rebates for small hydroelectric projects and solar installations. By implementing these rebates, the utilities receive renewable-energy credits that count towards the state's renewables portfolio standard.

For more information on Sierra Pacific Power and Nevada Power's RenewableGenerations program, please visit <http://www.nevadapower.com/renewablesenvironment/renewablegenerations/>.

GreenHunter Wind and Duke Energy Claimed 70% of Wyoming-Colorado Intertie Capacity

During the "open season" for the proposed Wyoming-Colorado Intertie project, GreenHunter Wind Company LLC and Duke Energy Ohio Inc. claimed 585 MW of the line's available 850 MW capacity at auction.

GreenHunter is currently constructing its 600-MW Wheatland Wind Project, which is about 15 miles from a section of the Wyoming-Colorado Intertie project. Duke Energy has bought land along the line for several proposed projects yet to be announced. The Wyoming Infrastructure Authority (WIA) estimates at least 25 wind projects under development along the line. The WIA and the Trans-Elect Development Company, who have partnered to develop this project, are confident that the remaining 265 MW of capacity will sell. The line is expected to be operational by mid-2013.

For more information of the Wyoming-Colorado Intertie project, please visit <http://www.wyia.org/wci/index.html>.

NWCC Activities

On July 7, 2008, the NWCC hosted a Transmission Update conference call on the Wyoming Infrastructure Authority's open season process for transmission capacity on the proposed Wyoming-Colorado Intertie transmission line project, and the Bonneville Power Administration's Network Open Season for generator interconnection requests. For an Update brief, please visit the NWCC website at <http://www.nationalwind.org/publications/transmission/updates/default.htm>.

ITC to Build Two Sections of "Kansas V-Plan"

Mid-Kansas Electric Co. and Sunflower Electric Power Corp. ITC have decided Great Plains, LLC will build two sections of the proposed 765-kV "Kansas V-Plan" transmission project. If the project is approved by the state and financing is secured, ITC will construct the first two sections

stretching from Spearville to Comanche County and from Comanche County to Medicine Lodge. Mid-Kansas and Sunflower Electric have offered the construction of the third section, which would run from Medicine Lodge to Sedgwick County and end outside Wichita, to Westar Energy. If Westar declines, ITC has indicated its willingness to build any part of the third section as well.

For more information, visit <http://www.nrel.gov/wind/news/2008/633.html>.

Gateway West Permitting Faces Stakeholder Challenges

At the August 20 meeting of the Public Utilities and Technology Interim Committee of the Utah Legislature, Rocky Mountain Power representatives were confronted by homeowners opposed to the company's proposed reinforcements to the Path C of its Gateway Project in northern Utah. Rocky Mountain Power is currently seeking permits for building the additional transmission.

As part of the environmental review of the Gateway West transmission project, the Bureau of Land Management (BLM) and the U.S. Forest Service (USFS) are holding nine public meetings in Wyoming and Idaho. Gateway West is the first of a series of transmission projects that could lead to 10,000 MW of new electricity generation, with a significant portion of that possibly wind generated. The project's proposed 1,250 miles route would cross public lands, including some sage grouse habitat. The U.S. Fish and Wildlife Service is currently reconsidering the status of that bird species as a threatened or endangered species.

For more information on the Gateway West transmission project, visit <http://www.idahopower.com/newsroom/projnews/Gateway/>.

Public Comments on DOE 2009 Transmission Congestion Study Available

From June through September 2008, the U.S. Department of Energy (DOE) held a series of six regional workshops in order to receive stakeholder input on its second Congestion Study. The Energy Policy Act of 2005 directs DOE to conduct a study on electric transmission congestion every three years. The first study was completed in 2006 and the second is due in August 2009.

For transcripts, webcast archives, agendas, and materials submitted at the 2009 Congestion Study workshops, please visit <http://www.congestion09.anl.gov/pubschedule/index.cfm>.

Public comments on the 2009 Congestion Study submitted to DOE are available at <http://www.congestion09.anl.gov/involve/searchcomment/index.cfm>.

In areas of congestion, DOE has proposed National Interest Electric Transmission Corridors where transmission is needed to help alleviate

congestion. For more information on the corridors, visit <http://nietc.anl.gov/nationalcorridor/index.cfm>.

WIRES Issues Report on Renewables Integration

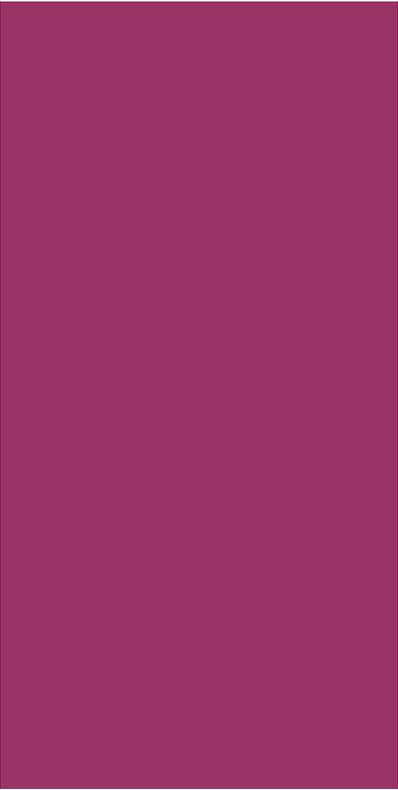
On October 20, the Working Group for Investment in Reliable and Economic Electric Systems (WIRES) released a new report entitled *Integrating Locally-Constrained Resources into Transmission Systems: A Survey of U.S. Practices*. The report concludes that while progress is being made in preparing the nation's transmission system for the integration of renewable energy sources such as wind, solar, and biomass, successfully integrating these resources on a large scale will require significant infrastructure and regulatory changes. Achieving these changes will call for the sustained commitment of utilities, regulators, and policymakers alike.

For more information and a copy of the report, please visit <http://www.wiresgroup.com/>.

NWCC Western Transmission Leadership Group

Recognition and thanks to members of the NWCC Western Transmission Leadership Group (WTLG) for their guidance and action to make more transmission available for renewable energy:

Bob Anderson, Bob Anderson Consulting	Steve Lindenberg, U.S. Department of Energy
Hap Boyd, GE Wind Energy	Carl Linvill, Aspen Environmental Group
Tom Carr, Western Interstate Energy Board	John McCaull, Geothermal Energy Association
Lynn Coles, National Renewable Energy Laboratory	Natalie McIntire, Renewable Energy Consultant
Brian Connor, U.S. Department of Energy	Michael Milligan, National Renewable Energy Laboratory
Craig Cox, Interwest Energy Alliance	Fred Morse, Morse Associates
Tom Darin, Western Resource Advocates	Brad Nickell, U.S. Department of Energy
Ed DeMeo, Renewable Energy Consulting Services	John Nielsen, Western Resource Advocates
Steve Ellenbecker, Wyoming Governor's Office	David Olsen, Center for Energy Efficiency and Renewable Technologies
Ned Farquhar, Natural Resources Defense Council	Amanda Ormond, The Ormond Group
Larry Flowers, National Renewable Energy Laboratory	Brian Parsons, National Renewable Energy Laboratory
Karl Gawell, Geothermal Energy Association	Kevin Porter, Exeter Associates
Katherine Gensler, Solar Energy Industries Association	Rhone Resch, Solar Energy Industries Association
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Rich Halvey, Western Governors' Association	Brian Smith, National Renewable Energy Laboratory
Roger Hamilton, West Wind Wires	Beth Soholt, Wind on the Wires
Scott Hennessey, Solar Energy Industries	



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Denise Hill, Horizon Wind Energy
Mike Jacobs, UPC Wind
Doug Larson, Western Interstate Energy Board
Ron Lehr, American Wind Energy Association
Debra Lew, National Renewable Energy Laboratory

Lisa Szot, New Mexico Renewable Energy Transmission Authority
Jerry Vaninetti, Trans-Elect
Steve Wegman, South Dakota Public Utilities Commission
John White, Center for Energy Efficiency and Renewable Technologies
Andrew Young, Horizon Wind Energy
Cameron Yourkowski, Renewable Northwest Project

¹ The “wind-only” and “renewable-only” terminology used here and in Mr. Vaninetti’s article refers to generation scheduled on the line. Actual power flows on interconnected AC circuits are determined by laws of physics, and power from specific generating sources cannot be physically segregated.

² *Editor’s note:* The transmission cost component of customer bills vary. *EIA sources suggest 7%*; at a conference held September 28, 2008 at GridWeek, Secretary Bodman (DOE) suggested the range is from 5-10%. The amount is set by state public utility commission cost recovery rules, and varies by electric service provider according to the amount of transmission assets being paid off.