Energy Gateway and Renewable Resources

Major new regional transmission network supports renewable resource development

Energy Gateway Transmission Expansion Project

PacifiCorp's Energy Gateway is an enormous transmission expansion project which will add more than 1,900 miles of new transmission lines across the West. Siting and permitting for the various segments is underway, and construction on certain segments begins in 2008, with many major segments in service by 2014. Energy Gateway's innovative design specifically helps incorporate renewable resource areas as well as traditional resources, and strengthens system reliability.

For more information, please visit **www.pacificorp.com/energygateway**.

New renewable resources are important to the region, and PacifiCorp's Energy Gateway is key to the development of these resources. It's time to take action, and PacifiCorp is doing just that.

- Consumer interest and regional policies that target diverse energy resources and reduced environmental impacts already are in place in several Western states, and underscore the need to bring more renewable resource options into service quickly.
- With its "hub and spoke" design, Energy Gateway is being built to energy "hubs" – geographic areas with strong generation potential, much of that renewable, from which power can be moved out through the various "spokes" to serve customers.
- This design is a change from past practice, where transmission was built to serve specific generating facilities. It reflects a changing industry.
- The flexibility that Energy Gateway will add to the region will allow smaller, primarily renewable generation projects improved access to transmission.

Many of the changes that have been made to the Energy Gateway project are based on input from stakeholders and provide further renewable resource benefits.

- The 500 kilovolt eastern terminus was moved from central to eastern Wyoming, and the new Aeolus hub was created to serve an area of strong wind potential in eastern Wyoming.
- Lines from Windstar to Aeolus facilities, both in eastern Wyoming, were changed from 345 kilovolt to 230 kilovolt to more efficiently integrate wind projects in the area.

PacifiCorp is committed to lower-impact and renewable generation.

- The company has no plans to build a new coal-fueled generating resource in the next 10 years. Cost uncertainty associated with potential carbon dioxide regulations; new state energy policies in Oregon, Washington and California; permitting issues and challenges, and uncertainty regarding the availability and costs of clean coal technologies were factors in this decision.
- While Energy Gateway is resource neutral, it is not designed to add more coal to the region's grid. It connects to existing transmission, including infrastructure near existing thermal generating plants, for system reliability and cost efficiency reasons.

The current transmission system is full. Regardless of the generation resource, new transmission to move the energy is essential. Energy Gateway will significantly alleviate congestion and increase reliability.

- Energy Gateway complements all current and future plans and resources. It will provide added resource flexibility to help ensure customers' needs are met with the most efficient, low-cost resource options, even accounting for wind resource variability, forecasting and scheduling.
- To the extent feasible, the added transmission capacity will provide opportunities for others to bring in new resource options. Among these are smaller renewable energy projects, evidenced by the American Wind Energy Association's recent note of a significant backlog of smaller renewable energy projects waiting to sign interconnection agreements.

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Energy Gateway is compatible with renewable energy zones.

- There currently is insufficient transmission capacity to carry the projected growth in wind, solar, geothermal and biomass generation. This is recognized nationally and is one of the drivers in current discussions about creating renewable energy zones – identifying areas with considerable renewable electricity potential then working through what barriers, including transmission capability, stand in the way of development.
- The Western Governors' Association has an initiative underway to establish Western Renewable Energy Zones and several of our states, notably Utah, have similar state efforts underway.
- Because Energy Gateway targets high capacity renewable development areas, PacifiCorp anticipates Energy Gateway will fulfill a significant portion of the transmission needs identified by these renewable energy zone planning processes.

In addition to their benefits, the unique features of renewable resources add to the costs and complexities of the critical updates needed to the region's aging transmission system. Energy Gateway addresses all of these issues.

- In the Northwest, adding wind generation to an already full transmission grid is stressing a system that was originally built around hydroelectric generation.
- The transmission system must accommodate the full range of capacity from all generating options – from wind, which is generally available 20 to 40 percent of the time, to conventional resources, which can be available up to 90 percent of the time.
- Preference is to build transmission to areas with strongest renewable energy potential, such as Wyoming, where wind availability means the overall cost per generating unit is less. High wind areas potentially generate the same output with fewer turbines, reducing project costs and land impacts.
- There are siting limitations for renewable resources. Unlike fuels such as coal or natural gas, which can be transported to the generating plant, most renewable energy facilities must be sited where there is the best resource potential.
- Renewable resource areas often are more remote, far from existing transmission grids and often far from the populated areas that need the electricity. New transmission for this generation is critical if the region is to meet its renewable energy priorities.

Renewable projects likely will fill new transmission capacity over the next decade. However, operators can't exclude other generating options from transmission systems.

- FERC policy requires open access to all transmission customers, regardless of resource type.
- There are currently no "renewable only" lines. Even Southern California Edison's proposed Tehachapi Project, which will integrate large amounts of planned geothermal, solar and wind generation upon completion in 2013, has provisions to sell unsubscribed capacity to generators of any fuel type in its proposed California Independent System Operator tariff, following FERC policy.
- All new facilities – whether generation or transmission – are integrated into the existing system. There is no way to physically distinguish one source of electrons from another source traveling along the transmission lines.
- The region will need all types of resources to meet the growing demand for energy, and conventional resource types, particularly natural gas, will continue to play an important role in coming years.
- Our future energy challenges will have many solutions, and significant new transmission is needed for almost all of them.

Why PacifiCorp?

- PacifiCorp, through Pacific Power and Rocky Mountain Power, serves 1.7 million customers in six Western states. The company is committed to the increased development of renewable generation throughout the region.
- By the end of 2008, PacifiCorp will have enough renewable energy – owned and purchased – to supply 332,538 average residential customers.
- By year-end 2013, the company is committed to adding a total 2,000 megawatts of new renewable resources into its generation portfolio.
- PacifiCorp is investing more than $1 billion in coming years to further reduce regulated emissions from its existing fossil-fuel units, to help address concerns about carbon dioxide emissions and climate change.
- PacifiCorp is part of MidAmerican Energy Holdings Company, a worldwide leader in low-carbon energy, with more than 18 percent of its current overall generating capacity produced from renewable resources.