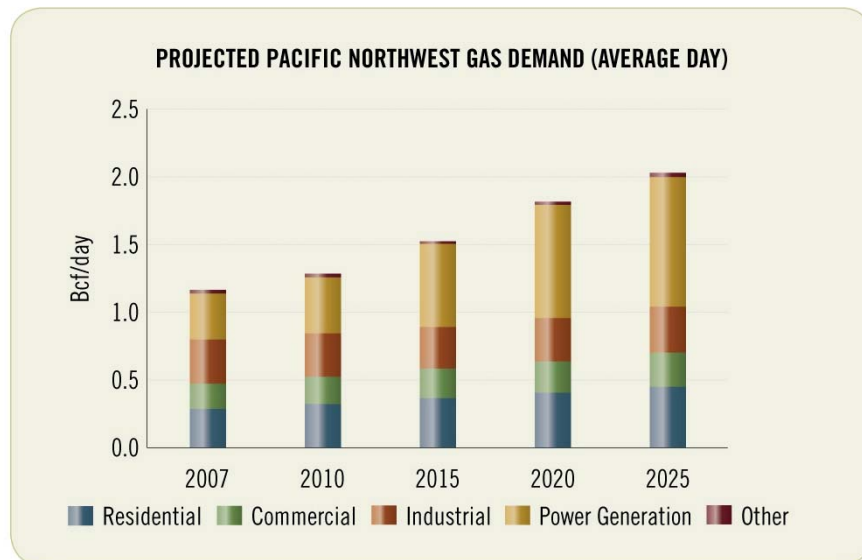


State of natural gas in the Northwest

Realities of Rising Demand

- Today, the United States uses more energy per capita than any other nation. As global economies such as China and India progress, it is causing a major impact on demand worldwide for natural gas. Already, demand has doubled over the past several decades and will continue to grow.
- Demand for natural gas is rising for many reasons, but climate change issues and higher oil prices are key drivers. Because natural gas is a clean-burning fuel, it has become the environmentally preferred choice for generating needed electricity. Experts say it is the only clean, reliable resource able to meet the Northwest's energy needs while still helping to reduce regional greenhouse gas emissions.
- According to a study by Metro, about a million more people will be living in Oregon by 2030. In 2020, the projected population of the region is 2.3 million, an increase of 51 percent from 1994.
- In the Northwest, demand for natural gas is projected to increase more than 7 percent by 2012, according to the NWGA's 2007 Gas Market Outlook and by more than 50 percent by 2025, according to the ICF International Report for State of Washington Energy Facility Site Evaluation Council, Nov. 2007.
- To meet future demand, the ICF International Report also concluded that Pacific Northwest access to LNG and to additional gas from the Rocky Mountains would be advantageous to the region.
- There is widespread agreement that there is a need for additional gas infrastructure and increased access to new gas supplies in the Northwest, as verified by a recent Oregon Department of Energy report.

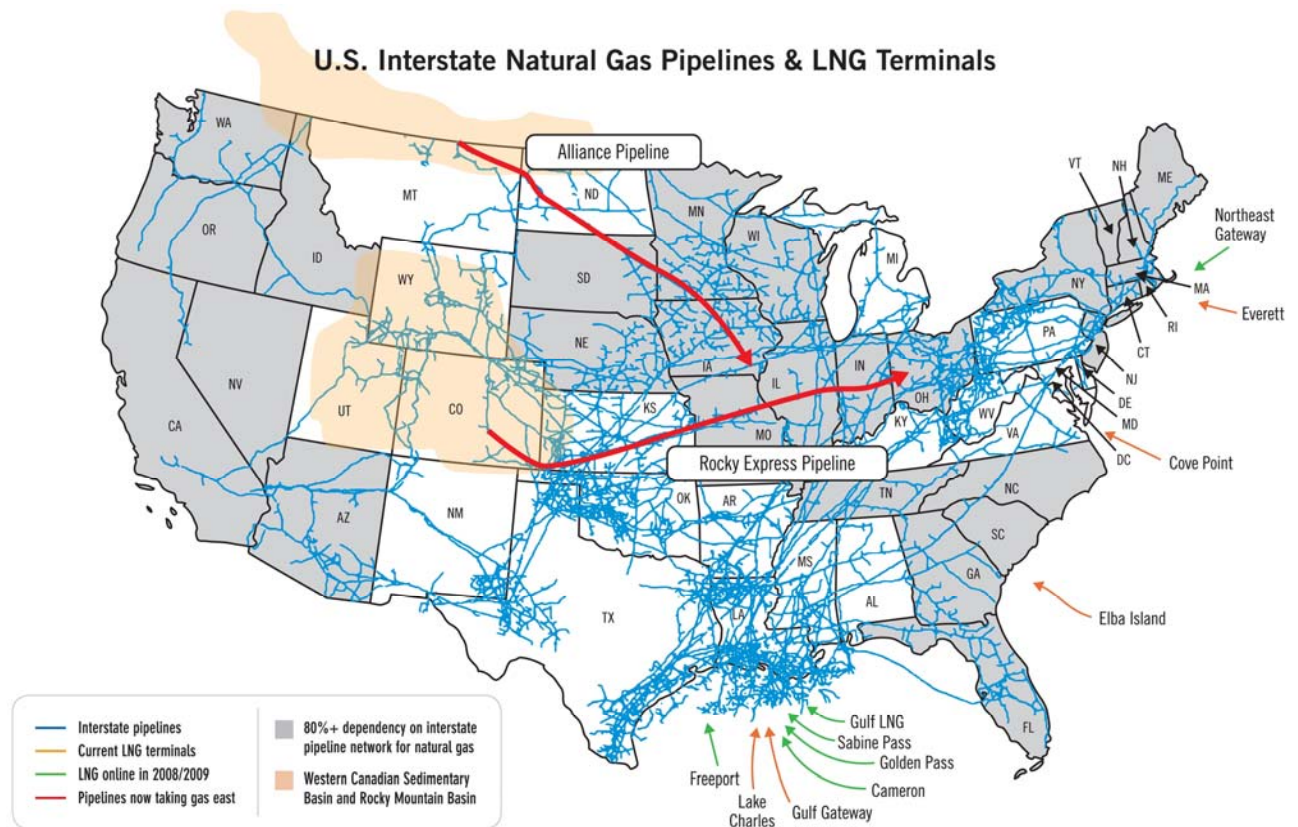


ICF International Report, 2007

State of natural gas in the Northwest

Strained Supplies

- Oregon imports nearly 100 percent of its natural gas. Two-thirds come from Canada and one-third comes from the Rocky Mountains.
- Canada is expected to use more of its natural gas for its own purposes, resulting in a significant decline of Canadian gas export to the U.S. according to both government and private sector sources (EIA, AEO 2008, NEB Energy Futures 2007; CERI 2007).
- Rocky Mountain supplies are increasing, but additional pipelines are now moving more natural gas to the Midwest and East Coast, increasing competition for supplies and resulting in higher prices. This is part of the reason why commodity costs for Northwest ratepayers have tripled in the past seven years.
- There is a serious lack of gas infrastructure in the West. There is plenty of natural gas available, but the Northwest must build the infrastructure it needs to serve growing demand in order to help keep costs in line with other regions.



Source: EIA and FERC, Jan. 2008

- Natural gas utility bills are composed of two parts: commodity and service. Commodity prices are driven by supply and demand and are greatly impacted by market forces, global prices and competition. Service costs are local utility operating costs for miles of gas line maintenance, including safety and operations management, as well as customer services.
- Local gas companies are highly regulated and are not allowed to profit from the sale of natural gas itself. The consumer pays only what the local gas company paid for the natural gas commodity, without markup.
- This year, commodity prices are mirroring the global rise in oil prices, which have hit record highs. The Northwest is not alone in facing dramatic rises in commodity costs, but it is particularly vulnerable to market forces given the lack of diversity in source supplies.
- In addition to other factors including weather, production and the economy, physical constraints on the region's delivery system can create supply scarcity and boost prices. Interconnection with other consuming markets also influences price. Strategies will involve demand-side action such as promoting energy efficiency, or supply-side actions like contracting for additional pipeline and storage capacity or investing in the development of new supply resources, according to a Northwest Gas Association report, 2005.
- According to Gas Daily (*June 30, 2008*) "From Montana to Illinois to Virginia, local distribution companies are warning...that natural gas bills next fall and winter will be 10% to 50% higher than a year ago." Examples of double digit rate increases for residential utility customers throughout the country include:
 - Missouri (predicted 22 – 44 percent increase in natural gas rates)
 - Pennsylvania (20 percent increase)
 - New Jersey (22 percent increase)
 - Utah (45 percent increase)
 - Wyoming (44 percent increase)

Climate change issues

- Natural gas emits less than half the carbon dioxide as coal, 30 percent less than oil and no toxins. It accounts for less than six percent of the nation's total greenhouse gas emissions when used in homes and businesses (US EPA, Trends in GHG Emissions, 2005).
- Reducing greenhouse gases will require electric utilities to meet the growing demand without using more coal, which currently provides 40 percent of Oregon's electricity. New large-scale hydropower and nuclear plants are not politically feasible in the Northwest, and experts agree that clean-coal technologies are years away from being a viable alternative.
- The region faces an energy gap. Natural gas is the cleanest option available to enable the development of renewable energy resources and reliably meet growing energy demand. Predicted regional growth, market conditions and the pace of viable alternative energy resources means the Northwest will need multiple sources of energy in the coming years – with natural gas playing a major role.

The potential of alternatives

- Currently, about four percent of Oregon's electricity is generated by renewable alternatives such as solar, wind and biomass. That's equivalent to 14 days worth of electricity each year for the state.
- Because resources like wind only produce energy when the wind is blowing, the Northwest will still need to rely on other sources for electric generation, which means natural gas-fueled backup systems.

Impact of pipeline development

State and federal regulations provide strict oversight of all pipeline projects. Natural gas utilities and pipeline companies ensure strict adherence to extensive regulatory requirements by carefully monitoring transmission pipelines using the latest technology and executing aggressive inspection programs. In regard to pipeline development and land management, it's important to note that:

- Farmers can continue to plant almost all crops over pipelines.
- Organic farms can operate with pipelines on the property.
- Farms continue operation and land is restored within months of construction.
- Construction impacts a relatively narrow path of forestlands (20 feet on either side)
- Farmers are compensated fairly for any land impacted during or after construction.
- New technology allows construction that drills under rivers, streams and wetlands to avoid interfering with fish and wildlife habitat.

Pipeline project completed in 2004.

Dotted line shows pipeline location.

Source: *NW Natural*



The bottom line is that the Northwest region needs options and a variety of supply sources to ensure its energy security. To solve the region's pending energy gap, solutions must include a multi-pronged approach.

Conservation

Conservation is the least expensive solution that everyone has the power to influence. Utilities work with the Energy Trust of Oregon to help provide how-to information, education and resources that help customers save as much energy as possible. With predicted population growth, the impact on resources and the need to support business diversification, energy use will also continue to grow, making conservation all that much more important.

Direct use is also important. Using gas directly for space and water heating, rather than burning it to create electricity for the same purposes provides nearly twice as much energy value, using less gas and creating fewer emissions.

Renewables

Solar, wind, methane harvesting – renewable sources of energy are increasingly important. The state of Oregon's goal is that 25 percent of the energy consumed here is generated by renewable energy resources by 2025. Natural gas will play a key role in making that goal possible and in ensuring that the region's current and growing energy demand is met along the way.

Source diversification

In order to stay competitive, the region must build pipelines, storage facilities and the access to LNG it needs – in advance of the need rather than in response to a crisis. Another pipeline that would bring more natural gas from the Rocky Mountains and a liquefied natural gas (LNG) facility are viable options to help keep regional natural gas prices in line with the rest of North America.

Private investment helps finance new natural gas infrastructure. There are no public subsidies for these facilities. This is an opportunity to obtain the resources and energy diversification the region needs, without tax increases or other public funding.

Access and storage is also important. In order to be able to capitalize on favorable market prices for their customers, local natural gas companies need pipelines to a variety of key supply sources, as well as facilities to store energy purchased for later use when the price is lower.