# The Facts on Liquefied Natural Gas:
## *Why LNG is bad for Oregon*

*Prepared by Martha & Allen Neuringer, Oregon Citizens Against the Pipelines* *Updated 9/1/08*

**LNG stands for liquefied natural gas**. What's wrong with LNG? It differs in several important ways from the natural gas we are all familiar with:

- **It is an imported fossil fuel**, so it perpetuates our dependence on foreign energy sources.
- **Its supply is unstable**, coming from Russia, Qatar, Indonesia, Nigeria, Algeria and potentially Iran—not the most stable countries or our most reliable allies.
- **It is more expensive** than domestic natural gas: Global supply is limited, and existing terminals cannot obtain sufficient amounts because Europe, China and Japan will pay much higher prices – currently *nearly triple* the cost of domestic natural gas.
- **It is not clean energy:** LNG is supercooled to -260° F and 1/600$^{th}$ the volume of regular natural gas and shipped thousands of miles to the US, energy-demanding steps that increase its "carbon footprint" 35-50% over domestic natural gas and make it nearly as polluting as oil.
- **It would undermine Oregon's alternative energy initiatives** with a huge oversupply of fossil fuel. The state mandate for 25% energy from renewables by 2025 would become impossible.
- **It poses major safety risks:** 1) supertankers carry the energy equivalent of several nuclear bombs and are identified as a major natural security risk; and 2) *odorless* gas will be carried through many Oregon communities and forests in huge pipelines with high risk of leakage, explosion and fire.
- **We don't need it!** Most of the gas would go to California. But it is seriously questionable whether California needs it either—their energy companies project a *decrease* in need for natural gas through 2015, and they already have a new source projected to fill their needs for the next 50 years. Most importantly, a recent boom in domestic gas production will fill all U.S. needs for over 100 years. An Oregon Dept. of Energy study concluded that there is *no need for LNG in our state*.
- **Our environment and wildlife will be harmed** by supertankers, by dredging for the terminals in critical salmon migration routes on the Columbia, and by hundreds of miles of 36" pipelines crossing hundreds of streams and rivers and requiring the clear-cutting of millions of trees.
- **Farms, orchards, vineyards, nurseries, timber growers and rural communities will be hurt** and in many cases destroyed by pipeline right-of-ways the width of major highways.
- **Hundreds of properties will be seized by eminent domain to build the pipelines** with inadequate compensation, taken by private energy companies competing with one another for speculative profits. The bottom line: Billions in profits to major energy speculators in Texas and New York, while local landowners and communities pay the price.

**Want to know more? Here's a**

## Citizen's Primer on LNG in Oregon

### Environmental Impacts

- Although domestic natural gas is a relatively clean fuel, imported liquefied natural gas (LNG) is a different story. Cooling the gas to -260 degrees and transporting it from far corners of the globe are highly energy intensive and add 35-50% to greenhouse gas emissions, producing large amounts of carbon that contribute to global warming. With these factors included, LNG is nearly as dirty as oil. Expansion of LNG facilities is part of a "dinosaur" policy to continue to promote the fossil fuel industry, rather than put serious effort into alternative energy sources and conservation. The latest report of the Intergovernmental Panel on Climate Change (which won the 2007 Nobel Prize jointly with Al Gore) includes the most dire warnings to date on the accelerating pace of climate change, and

the UN Secretary-General has said that "we are on the verge of a catastrophe." This is not the time to increase the use of fossil fuels—it is a suicidal strategy.

- Two of the LNG terminals represent egregious environmental risks to the Columbia River migration corridor essential to the survival of many fish species. Threats include the planned dredging of 47 acres of a sensitive aquatic zone for the Bradwood terminal; the "blender" action of supertankers on fish in a critical river channel; the use of billions of gallons of Columbia River water for warming LNG and for ballast, sucking millions of fish through unscreened intake pipes; and LNG leaks from hundreds of supertankers with the devastating environmental consequences of explosions and fires. Each pipeline would cross hundreds of streams and rivers, many of them prime salmon habitat. The terminals and pipelines would undo the investment of billions of federal and state dollars spent to restore fish runs in the Columbia and many other Oregon rivers and their tributaries.

- The pipeline routes go through hundreds of miles of Oregon's forests, including 35 miles of ecologically sensitive areas in the Mt. Hood National Forest. Assuming just half of the total pipeline route goes through forests, construction of *each one* of the three proposed pipelines would involve cutting approximately one million trees, compounding the LNG projects' impact on global warming.

## The Need for Natural Gas

- **Does Oregon need LNG?** Oregon's current peak usage of domestic natural gas is 0.7 bcf/d (billion cubic feet per day). *Each* of the two proposed import terminals and pipelines through NW Oregon would have a capacity of 1.3 bcf/d; so just one of them would *triple* Oregon's gas supply! In contrast, increases for demand in the Northwest are projected to be quite small and should be met by the state's initiative to increase use of renewable energy. Oregon Senate Bill 838, passed on June 6, 2007, mandates that Oregon utilities get 25% of their energy from renewal sources by 2025, and provides incentives for production of at least 3 megawatts of clean power. Meeting the state goals would take care of most of Oregon's future energy needs. A huge oversupply of natural gas would undermine Oregon's law and energy policy, and would divert resources from the urgently needed development of renewable energy sources that promote independence and lessen global warming. **Gov. Kulongski asked the state Dept. of Energy to conduct an assessment of the need for LNG. Their conclusion: it is not needed and would be too expensive and too environmentally damaging.**

- **Does California need LNG?** The Federal government and Gov. Kulongoski argue that regional (meaning California's) needs must be considered. But the 2006 California Gas Report, released by a consortium of California gas and electric utilities, projects that gas demand in California will *decrease* through 2015. In April 2008 an LNG terminal become operational in Baja California, Mexico that can transport 1 bcf/d of gas to California. California's Lieutenant Governor has stated that this will provide all of the state's needs for the foreseeable future; furthermore he has said that plans to bring LNG to California through the Oregon "back door" undermines California's priorities and energy policy, including its aggressive programs to promote conservation and renewable energy sources and reduce carbon emissions. These programs are projected to reduce the need for natural gas by 333 bcf by 2010 and 444 bcf by 2015.

- **Does the United States need LNG?** LNG proponents say that the need for LNG is urgent because of an impending severe shortage in supplies of domestic and Canadian natural gas. But during the last 2-3 years, massive new reserves of natural gas have been found in shale deposits in the southern, northeastern and western U.S., and new technologies now make it cost-efficient to extract this gas. These changes have led to a boom in natural gas drilling. The energy industry is now bemoaning a "glut" of domestic natural gas that will pull down prices! The LNG industries response? Two existing U.S. terminals are now requesting permission to ***re-export*** LNG to the countries paying the highest

prices. Two new projects in British Columbia plan to export LNG. And Alaska just renewed its license to export LNG to Japan. So how can they still claim that the urgent public need to supply foreign gas to the U.S. justifies the use of eminent domain to build their terminals and pipelines?

## Geopolitics and Economics of LNG

- Our country has a goal of reducing dependence on imported energy that is strongly endorsed by both politically parties. Imported LNG does not reduce this dependence but rather perpetuates it. The major sources of LNG are Indonesia, Algeria, Nigeria, Russia and Qatar; Russia has the world's largest gas reserves and Iran is second. Russia, Iran and Qatar met in Tehran in October to finalize plans for an OPEC-style natural gas cartel. These are not the most stable countries or our best allies. Therefore supplies and costs of LNG would be unstable, and we could be at the mercy of numerous political and economic factors, just as we currently are for our supply of imported oil. Russia and its gas monopoly, Gazprom, are now Europe's biggest energy supplier, giving them huge political power; they regularly threaten to shut off energy supplies to countries they disagree with, and this power keeps European countries from standing up to them on issues such as Kosovo and Georgia. Gazprom has been working to "get a foothold" in the North American gas market. Increasing our dependence on LNG would put private profit ahead of our country's national security.

- The LNG companies claim that imported LNG will reduce the cost of natural gas to Oregonians, but that is a false promise. Because of worldwide demand, ***LNG is currently twice as expensive as domestic natural gas.*** Its cost is not determined by local supply but by global supply; the global LNG supply is less than the demand and this imbalance is projected to get worse, not better. Europe and Asia are outbidding the U.S. for LNG, so that most of the existing U.S. terminals are sitting empty, unable to obtain a supply, and others are operating far below capacity. This means that the cost of imported LNG will be very high--if we can get it. LNG in Oregon and California would in fact *replace* supplies of cheaper, more secure domestic gas, and California's Lt. Governor has suggested it is a scheme to manipulate the market to jack up prices and profits.

## Risks to Safety and National Security

- Supertankers filled with LNG, and their receiving terminals, pose a frightening security risk. A typical tanker carries 30 million gallons of LNG. Richard Clarke, the Bush National Security Advisor who tried in vain to warn of the 9/11 attacks, identified LNG tankers and terminals as prime terrorist targets. A tanker explosion could release as much energy as 50 Hiroshima-sized atomic bombs, with a fireball at least 3 miles wide; release and ignition of $1/10^{th}$ of a tanker's cargo would fatally burn people a mile away, according to a report by Sandia National Laboratories. Several of the main sources of LNG, like Algeria and Indonesia, have serious terrorist issues, so one could imagine a tanker becoming a Trojan horse, loaded with time-delayed explosives. Plane crashes, accidental or deliberate, would be a serious threat. The proposed terminal at Warrenton would have a 17-story holding tank within the airspace of the Warrenton airport.

- Two of the LNG terminals, Bradwood Landing and Oregon LNG, would be on the Columbia River. The mouth of the Columbia is notorious as one of the most dangerous shipping routes in the country, where collisions, groundings and capsizings are regular events. Furthermore, the U.S Coast Guard released a Waterway Suitability Report calling the Bradwood Landing terminal site "unsuitable without extensive measures to improve safety and security," and these measures would have major impacts on both sides of the river because security restrictions would interfere with shipping, fishing and recreation. Large exclusion zones would be necessary around an LNG facility and around each supertanker as it travels down the river, including areas where all travel or activity is prohibited, flight paths restricted and bridges closed. The supertankers would effectively impose a rolling blockade of

the Columbia River. A serious accident would close the river to all traffic indefinitely, crippling a major shipping route and a good portion of the Northwest's economy. And local communities would be saddled with increased costs for security. For the LNG terminal in Boston Harbor, each incoming shipment costs Boston and neighboring communities $35,000 for tanker security.

- The LNG companies will tell you than LNG can't burn. That's true while it's still at –260 degrees. But as soon as it is released into the air it warms up, mixes with oxygen in the air, and becomes potentially highly explosive. Large quantities burn so hot that the fires cannot be extinguished and have to burn themselves out. Pipelines are known to spontaneously rupture and explode with disastrous consequences. There were 866 natural gas pipeline accidents in the U.S. from 2000 to 2007—about 1 every 3 days. A few years ago, two boys in Washington state were killed by an exploding gas pipeline, and a pipelines exploded and started fires several times in the past year. The gas in the proposed pipelines would be odorless—so that leaks are not detected—and under high pressure, and the pipelines can carry 22,000 cubic feet of gas per second. Therefore ruptures can cause large explosions and fireballs with a "blast zone" of 1500-1700 feet. Yet the pipeline routes go near many schools and homes. And imagine an explosion in a forested area during the dry summer season. Communities around the terminals and along the pipeline routes do not have adequate fire and emergency services to cope with such disasters, and would be saddled with the increased costs of security and fire protection.

- Each of the planned three pipelines will be 36 inches in diameter, about 220 miles long, and buried just 3-5 feet underground. The proposed routes travel through the Coast Range mountains, over steep hillsides with unstable soils and frequent landslides, along earthquake faults, and under or through hundreds of rivers and streams known to flood and change course, making pipeline failures just a matter of time.

## Impact on Landowners and Neighborhoods in the Pipeline Path

- ***By Federal law, land can be taken for LNG pipelines by eminent domain, against the wishes of landowners, based on "public necessity".*** If a mutual agreement cannot be reached between the pipeline company and the landowner, a judge will decide what compensation the landowner will receive. Compensation is not based on the full value of the land—it is not for *purchase* of the land but only for an *easement*, which typically is worth about 6-10% of the land value (and the landowner continues to pay the property tax). In similar cases in southern Oregon, landowners received "pennies on the dollar". This does not take into consideration that a pipeline corridor may alter or restrict use of the entire property, cut it in half, and/or in many cases make it impossible to continue previous activities such as farming and timber management. Furthermore, with a pipeline in place or even planned, property values will plummet and land will become unsellable. Landowners have been told they could not get insurance. The result for many will be loss of their livelihood *and* their life savings. ***It is an extraordinary abuse of power that two competing, privately owned corporations can use the eminent domain power of the federal government to seize land, against the will of owners, for the purpose of energy-company profits, not for the greater good of the community.***

- Pipeline construction will require a temporary "easement" of 120-150 feet (the width of a 6- to 8-lane highway) that would be cleared, with all forests clearcut. The companies would take a permanent 50- to 60-foot-wide easement that would be maintained by them, with access rights at any time. No trees or deep-rooted perennial crops could be replanted, but invasive weeds will proliferate. In other places easements were sprayed with herbicides to control brush. Furthermore, once a pipeline is built and the route established, additional pipelines could be built alongside it—in other places up to 5 additional pipelines were added, with ever widening "easements" taken from property owners.

- The pipelines will destroy hundreds of family farms and small timberlands, ruining families who have acted as conscientious stewards of their land, in some cases for generations. These people are the heart and soul of Oregon. They deserve to be protected, not sold out for the profit of energy speculators.

## The Current LNG Proposals and Players

Two LNG terminals on the Columbia River are now seeking approval from FERC. A third one is planned for Coos Bay on the Southern Oregon coast. Each of these terminals connects to a large-diameter pipeline running through hundreds of miles of Oregon forests and farmlands, including many miles of National Forest.

- The **Bradwood Landing** LNG import terminal would be 30 miles east of Astoria on the Columbia River, near Wauna and just across from Puget Island. It is a project of **NorthernStar Natural Gas**, a Texas-based company that has never built a terminal or pipeline. It includes a 35-mile pipeline under the Columbia River to Kelso, Washington to connect to the existing Williams pipeline supplying the Northwest. However, the Williams pipeline operators have stated that their pipeline is up to capacity and could not handle the gas from Bradwood without displacing domestic natural gas. Therefore Bradwood Landing will also connect to the new Palomar pipeline. **FERC issued its Final Environment Impact Assessment for Bradwood in June 2008 and, as expected, approved the project this September. It is now up to Oregon to deny permits and block the project.**

- The **Palomar pipeline** is a joint venture of NW Natural Gas and TransCanada, which operates a major pipeline going from Canada to northern California. It would be 36 inches wide and would travel from Bradwood Landing about 110 miles to Molalla (Clackamas County), and from there another 110 miles east (including 35 miles in Mt Hood National Forest) to Maupin (Wasco County) to connect to a large interstate TransCanada pipeline to California. If the Bradwood terminal is not built, the east half of the pipeline, from Molalla to Maupin, could still be built as a new route to bring domestic natural gas into the Willamette Valley. ***But the only reason to build the western half of the Palomar pipeline is to connect the Bradwood terminal to the TransCanada pipeline so that its gas can go to California.*** The Palomar pipeline and Bradwood terminal need each other and are essentially two parts of the same project—the statements of the two companies that they are "independent" are nonsensical. Northwest Natural Gas has indicated that it would buy less than 1/10th of the output of the Bradwood terminal, and has stated that it could not afford to build the Palomar pipeline by itself without other customers (that is, California energy companies).

- **A second terminal and pipeline have been proposed by Oregon LNG** (owned primarily by **Leucadia** Corp. based in New York), and the project is in competition with the Bradwood Landing/Palomar project. Oregon LNG was formerly the **Skipanon** Natural Gas Facility owned by **Calpine**, which went bankrupt and sold the project to Oregon LNG in January 2007. (Leucadia is well known for buying bankrupt companies, turning them around and quickly selling them at great profit.) This terminal and processing plant would be in Warrenton at the mouth of the Columbia, on a site already leased and zoned for the facility and adjacent to the Warrenton airport. The pipeline would run parallel to the Palomar route--***only 1–2 miles apart*** over most of the route and criss-crossing several times. Like the Palomar pipeline, it would then feed into a Molalla-to-Maupin pipeline to connect to the interstate TransCanada pipeline. Meetings about the Oregon LNG project were conducted by FERC at three cities along the pipeline route last September. At the meetings hundreds of citizens eloquently expressed their anger and fears about the project and the damage it would do to their land, their livelihoods and their communities, as well as their frustration with the lack of information or notification about the hearings from either Oregon LNG or FERC.

- A third terminal, by **Jordan Cove** Energy Project, is planned for Coos Bay, with a 230-mile pipeline connecting at Malin in south central Oregon to the TransCanada pipeline to California. The pipeline would run through old-growth forest, the habitat of many endangered and threatened species, and 30 miles of National Forest. The Coos County Commission approved the proposal last year, but the Land Use Board of Appeals ruled that they failed to consider key environmental concerns.

## The FERC Review Process

- LNG projects are evaluated and approved by the **Federal Energy Regulatory Commission (FERC)**. The members of FERC have been appointed by President Bush. Expansion of LNG infrastructure has been actively promoted by the Bush administration, and the current FERC approval process was set up to "streamline" project approvals by disenfranchising states and local governments. In the past projects would have been evaluated by the Oregon Energy Facilities Siting Council, but since passage of the Energy Policy Act of 2005, ***FERC has essentially all the power to evaluate and approve LNG projects; states and local jurisdictions have no role in evaluating projects and very little legal power to block or modify them.*** But there are three critical exceptions: states can attempt to block projects based on the Clean Air Act, Clean Water Act or Coastal Zone Management Act.

- Once FERC approves a terminal or pipeline (and it has turned down only one in the last 8 years), it can use issue a "Certificate of Public Necessity" which grants the energy companies the power of eminent domain to seize private property. Once eminent domain is invoked, hundreds of landowners would lose most of the value of their land, while energy companies make billions. This amounts to use of eminent domain for private, corporate gain—not for the good of the community.

- FERC is doing no assessment of the nation's overall need for imported LNG, the total number of terminals and pipelines that might be necessary to meet national or regional needs, or the best sites for terminals--it just reviews each proposal independently. In 2005 the U.S. now had 5 LNG terminals, including one in Alaska. Since then applications have been filed for *an additional 55 terminals*, including 3 in Oregon. In the current process companies are racing each other to be first to gain approval and reap huge profits. Governor Kulongoski and Oregon's members of Congress have called on FERC to provide a comprehensive assessment of the need for LNG, to consider the relative and cumulative impacts of all projects and to consider conservation and renewable energy strategies as alternatives. FERC refused based on their explicit philosophy to "let the market decide."

- FERC released a Draft Environmental Impact Statement on the first of the LNG terminal proposals, Bradwood Landing, in September, 2007. They issued the opinion that the project would have "limited significant environmental impacts", posing "no unacceptable environmental problems." Several Oregon state agencies blasted the Statement as "superficial," "inadequate" and "incorrect" (Hillsboro Argus, 11/30/07), and called for consideration of risks of tsunami, floods and wildfires. The 2005 Energy Policy Act provides for only a 45-day period for comments by landowners and citizens, but this was extended to 12/24/07 after repeated demands from Rep. David Wu. FERC has now approved the project, and both Oregon and Washington states are demanding a rehearing.

- The FERC review process has been opaque, confusing and inconsistent. Adequate notice of hearings has not been provided, even to directly affected landowners, in direct violation of FERC's stated requirements. Although these deficiencies have been brought to FERC's attention repeatedly, they are repeated time after time. One of the FERC commissioners, Jon Wellinghof, met with state officials and concerned members of the public in Feb. 2008 and declared that he was shocked and dismayed at

the abuses of FERC's process in Oregon. He apologized and vowed to correct the problems. And yet they have continued.

- ***We have been told that the most effective strategy to oppose these projects is to get the support of the citizens of Oregon and their representatives, from local officials up to the the Governor and our state and congressional representatives, who in turn can pressure FERC. These projects can be stopped -- but only if widespread opposition gives our representatives the courage to stand up to the rich and powerful oil and gas lobby and protect our citizens and our environment.***