



# FEDERAL ENERGY REGULATORY COMMISSION

September 18, 2008

**Commissioner Jon Wellinghoff**

**Docket Nos.** CP06-365-000, CP06-366-000, CP06-376-000  
and CP06-377-000

**Item No.** C-1

## **Statement of Commissioner Jon Wellinghoff on Bradwood Landing LNG Project**

"The Congress of the United States in the Energy Policy Act of 2005 (EPAct 2005) amended section 3 of the Natural Gas Act to clarify the Commission's authority over the siting, construction, and operation of liquefied natural gas (LNG) terminals.<sup>1</sup> In exercising that authority, the Commission, by statute, must ensure that the LNG project under consideration is in the public interest. That determination must be made in a reasoned, responsible manner that reflects careful judgment with respect to evidence concerning the particular LNG project. My analysis below demonstrates that there are reasonable alternatives to the Bradwood Project to serve the projected energy needs of the Pacific Northwest in a more efficient, more reliable, and environmentally preferable manner. For these reasons, I conclude that the Bradwood Project is not in the public interest.

In contrast to my determination, the majority today grants authorizations to site, construct, and operate the Bradwood Project. In support of that conclusion, the majority finds that the Bradwood Project is needed to meet the projected energy needs of the Pacific Northwest. The majority also finds that there are no reasonable alternatives to the Bradwood Project.

My dissent in this case is premised on a number of considerations. First, the evidence contradicts the majority's finding that the Bradwood Project is needed to meet the projected energy needs of the Pacific Northwest. Second, despite the majority's finding to the contrary, there are reasonable alternatives for serving the projected energy needs of the Pacific Northwest, including construction of new domestic natural gas infrastructure and deployment of renewable and distributed energy resources that are abundantly available in the Pacific Northwest.<sup>2</sup> These alternatives are more efficient, more reliable, and environmentally preferable to the Bradwood Project. Finally, significant environmental concerns about the Bradwood Project have not been fully or fairly evaluated.

### **Project Purpose and Need**

The Bradwood Project would consist of an LNG import terminal 38 miles from the mouth of the Columbia River at Bradwood in Clatsop County, Oregon, and 36.3 miles of pipeline that would interconnect the terminal with the natural gas system of Northwest Pipeline Corporation. The Bradwood Project would have the capability of receiving and unloading approximately 125 LNG tankers per year, with a proposed sendout capacity of 1.3 Bcf per day.

Many commenters who express opposition to the Bradwood Project argue that the project is primarily intended to serve markets in California. They also argue that the Bradwood Project is not needed because supplies for the Pacific Northwest are sufficient at present, and future energy demand can better be met with domestic natural gas infrastructure and renewable and distributed energy resources.

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<sup>1</sup> Energy Policy Act of 2005, Pub. L. No. 109-58, § 311, 119 Stat. 685-88 (2005).

<sup>2</sup> Renewable energy resources include energy derived from wind, geothermal, biomass, hydro including hydrokinetic systems, and solar. Distributed energy resources include energy efficiency, conservation, demand response, and distributed generation such as distributed solar photovoltaic systems, combined heat and power systems, and waste heat recovery systems.



The majority disagrees with these concerns.<sup>3</sup> As noted above, the majority concludes that the Bradwood Project is needed to meet the projected energy needs of the Pacific Northwest.<sup>4</sup> In an attempt to support its conclusion that the project is needed to meet future Pacific Northwest energy requirements, the majority points to three studies conducted, respectively, by Wood Mackenzie Limited (WML),<sup>5</sup> ICF International (ICF),<sup>6</sup> and Northwest Gas Association (NWGA).<sup>7</sup>

The majority suggests that the WML study demonstrates a need for LNG in the Pacific Northwest. Examination of that study reveals that this is not the case. In fact, the WML study is not an analysis of need for energy resources in the Pacific Northwest, but rather a projection of physical gas flows from the Bradwood Project if the project is constructed and operated at its design capacity.<sup>8</sup> The WML study assumes a utilization rate and then determines which current Pacific Northwest gas supplies would be displaced by the LNG volumes. Critically, the WML study does not demonstrate or conclude that the Bradwood Project's sendout capacity of 1.3 Bcf per day is required to meet the projected demand for gas in the Pacific Northwest.

Moreover, other evidence strongly suggests that the primary purpose of the Bradwood Project is not to meet the projected energy needs of the Pacific Northwest, but rather is to serve other markets. For example, the ICF study finds that local load in the Pacific Northwest is too variable and not large enough to be economic for an LNG terminal.<sup>9</sup> The ICF study further finds that access to Northern California markets would be necessary to site an LNG terminal in the Pacific Northwest at a size that would be economic, at an initial send out rate of at least 1.0 Bcf per day.<sup>10</sup> It is also noteworthy that in its December 15, 2006 S-1 filing with the Securities and Exchange Commission (S-1 Filing), NorthernStar Natural Gas identified the target markets for the Bradwood Project as the states of California, Idaho, Nevada, Oregon, and Washington.<sup>11</sup>

The conclusion that the Bradwood Project must serve markets outside the Pacific Northwest to be economically sustainable is also supported by the gas demand and supply projections for the Pacific Northwest in the studies cited by the majority. On the demand side, in 2007, total natural gas consumption in Oregon and Washington was estimated to average 1.2 Bcf per day.<sup>12</sup> The NWGA study estimates that natural gas consumption in the Pacific Northwest will increase at an average of 1.9 percent per year, for a total rise of 7.2 percent through 2012.<sup>13</sup> The ICF study projects Pacific Northwest gas consumption to increase at an annual rate of 3.1 percent.<sup>14</sup> Based on these figures, gas consumption in 2012 for Oregon and Washington would be approximately 1.3 or 1.4 Bcf per day, a difference from current levels of 0.1 to 0.2 Bcf per day.

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<sup>3</sup> The majority states that our Certificate Policy Statement presumes that a proposed project is in the public interest if the project can be constructed without subsidies from current customers and if any adverse economic or environmental effects can be mitigated. While I agree with a market-based approach, the Commission cannot authorize a project solely on this basis. Such facts alone do not satisfy the requirement to analyze and consider reasonable alternatives before finding that a proposed project is in the public interest.

<sup>4</sup> 124 FERC ¶ 61,257 at P2 (2008).

<sup>5</sup> *An Independent View of Markets Served by Bradwood Landing*, Wood Mackenzie Limited, July 2007.

<sup>6</sup> *Review of Pipeline Utility Corridor Capacity and Distribution for Petroleum Fuels, Natural Gas and Biofuels in Southwest Washington*, ICF International, November 16, 2007.

<sup>7</sup> *Northwest Gas Outlook*, Northwest Gas Association, Fall 2007.

<sup>8</sup> Cover letter from Bradwood Landing submitting the WML study to the Clatsop County Planning Board, Volume 4 of 7, Tab 16.

<sup>9</sup> ICF at 69.

<sup>10</sup> ICF at 69.

<sup>11</sup> S-1 Filing at 4.

<sup>12</sup> ICF at 55.

<sup>13</sup> NWGA at 2.

<sup>14</sup> ICF at 59.



On the supply side, the Pacific Northwest currently receives 0.3 Bcf of gas per day from the Northern Rocky Mountain area (Rockies) and 0.9 Bcf of gas per day from the Western Canadian Sedimentary Basin (Western Canada). The ICF study states that the Rockies and Western Canada have significant reserves and estimated remaining resources to meet future market needs.<sup>15</sup> The ICF study estimates that Rockies production will increase from the current level of 8.1 Bcf per day to 12.2 Bcf per day by 2025. However, the ICF study projects that Rockies gas serving the Pacific Northwest will remain at 0.3 Bcf per day, due to “[m]inor growth in consumption in these markets” and pipeline capacity constraints.<sup>16</sup> The ICF study also projects that imports from Western Canada into the Pacific Northwest will trend downward through 2015 at an average annual decrease of 0.05 Bcf per day.<sup>17</sup> Based on this projection, the total reduction in those imports would be 0.25 Bcf per day by the projected 2012 in-service date of the Bradwood Project.

The Bradwood Project’s 1.3 Bcf per day sendout capacity far exceeds the above-noted estimated increase in gas demand for the Pacific Northwest of 0.1 to 0.2 Bcf per day. Even if the potential decline in Canadian imports of 0.25 Bcf per day were assumed to reduce supplies to the Pacific Northwest,<sup>18</sup> the total increase in gas demand would be 0.35 to 0.45 Bcf per day, less than half of the Bradwood Project’s 1.3 Bcf per day sendout capacity. Furthermore, the Bradwood Project has been pre-engineered to expand to 2.0 Bcf per day of sendout capacity.<sup>19</sup>

The above analysis undermines the majority’s finding that the primary purpose of the Bradwood Project is to meet the projected energy needs of the Pacific Northwest. There is no credible support for that conclusion. It is not objectionable, in and of itself, for the Bradwood Project to serve markets outside of the Pacific Northwest. However, if the primary purpose of the Bradwood Project is to serve markets outside of the Pacific Northwest, then, at a minimum, the scope of reasonable project alternatives analyzed in the Final Environmental Impact Statement (FEIS) is insufficient and must be expanded to include alternative energy resources available to the wider region that the project is actually intended to serve.

## Project Alternatives

Setting aside the majority’s errors discussed above, an examination of the evidence concerning the Bradwood Project leads to the conclusion that there are reasonable, environmentally preferable alternatives for serving the future energy needs of the Pacific Northwest. Such alternatives include other domestic natural gas infrastructure and renewable and distributed energy resources.

### *Rockies Gas*

A recent study by Navigant Consulting, commissioned by the American Clear Skies Foundation, indicates a 50 percent increase in estimated natural gas reserves from estimates made as little as two years ago. The increase is attributable to new technology allowing for economically recoverable unconventional natural gas. Navigant Consulting concludes that the rapid escalation of unconventional gas production is continuing, and that the resource base is adequate to support significantly increased volumes of unconventional gas production for decades.<sup>20</sup> With regard to Rockies gas specifically, ICF estimates that the Rockies have a combined volume of proven reserves and estimated remaining resources of 142 Tcf, or 37 years of remaining supply at the current production level of 8.1 Bcf per day (2.9 Tcf per year).

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<sup>15</sup> ICF at 64, Exhibit 2.9.

<sup>16</sup> ICF at 68 (emphasis added).

<sup>17</sup> ICF at 67.

<sup>18</sup> In contrast to this assumption, the ICF study states that the net result of decreased Canadian imports and increased Pacific Northwest consumption would be fewer physical gas imports from Canada to California. ICF at 67.

<sup>19</sup>S-I Filing at 2.

<sup>20</sup> *North American Natural Gas Supply Assessment*, Navigant Consulting, Inc, prepared for American Clear Skies Foundation, July 4, 2008 at 14 and 15.



Furthermore, the Rockies producing area is projected to be one of the fastest growing production areas in North America, increasing to 12.2 Bcf per day (4.4 Tcf per year) in 2025.<sup>21</sup>

The effective delivery of Rockies natural gas to the Pacific Northwest could be accomplished with a direct pipeline or pipeline expansion to the region, or by displacement of capacity now used for other markets that passes through the region. It is noteworthy that there are several pipeline projects in development that would bring Rockies gas to the Pacific Northwest and California markets. These projects include the 655-mile Ruby Project and the 215-mile Palomar Project, both of which are in the Commission's pre-filing environmental review process. On June 25, 2008, El Paso Corporation announced that the Ruby Project had received more than 1.1 Bcf per day of binding commitments under 10 to 15 year contracts.<sup>22</sup> In addition, the Sunstone Project is a 618-mile pipeline that would parallel the existing Northwest Pipeline Corporation system between Opal, Wyoming and Malin, Oregon. On June 18, 2008, Energy Business Review reported that Sempra Pipelines & Storage, a unit of Sempra Energy, signed a memorandum of understanding to acquire a 25 percent ownership interest in Sunstone Pipeline and for a Sempra affiliate to contract for a significant amount of capacity.<sup>23</sup>

In its LNG and Natural Gas Review conducted for the Governor of Oregon, Oregon Department of Energy (ODE) details several considerations that make gas from domestic sources via newly proposed pipelines preferable to imported LNG.<sup>24</sup> One reason is price. Based on its analysis, ODE concludes that Rockies gas will continue to cost substantially less than LNG.<sup>25</sup> The majority responds to the ODE conclusion by stating that natural gas and LNG prices at Henry Hub were comparable for the January to May 2008 period. This comparison has no probative value. Because LNG will be imported only when it is competitively priced with domestic supplies, as the majority acknowledges, the price of actual volumes sold at Henry Hub should converge.

There is other evidence, however, that supports ODE's conclusion regarding the relative cost of Rockies gas to LNG. For example, WML conducted a separate study assessing the availability of LNG in the global market.<sup>26</sup> The LNG Supply study finds that the development of new LNG supply capacity is increasingly failing to keep pace with demand. Exporting countries are delaying projects due to concerns about their own increasing demand for gas, rising exploration and production costs, environmental pressures, and political/geo-political issues. In short, the LNG Supply study concludes that, from 2011 forward, the probability of an LNG market in which demand is constrained on a sustained basis by lack of supply looks increasingly realistic.<sup>27</sup> Another indication is the growing gap between the number of countries importing and exporting LNG. Shell Gas and Power estimates that by 2012, importing countries will increase from 17 to 29, but the number of exporting countries will only increase from 15 to 18.<sup>28</sup>

We are already seeing market signals that are consistent with these findings that LNG supply capacity is struggling to keep pace with demand. Korea Gas Corp recently agreed to buy LNG for the 2010 to 2012 period for \$20 per MMBtu.<sup>29</sup> Also, the existing LNG terminals in the United States are only operating at 50 percent of capacity, with imports clustered around the summer months.<sup>30</sup> These analyses and facts

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<sup>21</sup> ICF at 64 and 66.

<sup>22</sup> [http://investor.elpaso.com/phoenix.zhtml?c=97166&p=irol-newsArticle&ID=1169301&highlight=.](http://investor.elpaso.com/phoenix.zhtml?c=97166&p=irol-newsArticle&ID=1169301&highlight=)

<sup>23</sup> [http://www.energy-business-review.com/article\\_news.asp?guid=D4E8C283-CF67-4969-A36F-904101368876.](http://www.energy-business-review.com/article_news.asp?guid=D4E8C283-CF67-4969-A36F-904101368876)

<sup>24</sup> Response to Governor Kulongoski's Request for LNG and Natural Gas Review, Oregon Department of Energy, May 8, 2008.

<sup>25</sup> ODE at 14-16.

<sup>26</sup> *Seller's Market for LNG Set to Last*, Wood Mackenzie, April 2007 (LNG Supply).

<sup>27</sup> LNG Supply at 4.

<sup>28</sup> *LNG: Demand Opportunities and Supply Challenges*, A presentation by Shell Gas and Power at the EIA 2008 Energy Conference, (April 7, 2008).

<sup>29</sup> [http://www.downstreamtoday.com/News/Articles/200807/Korea\\_Gas\\_To\\_Pay\\_Record\\_Price\\_for\\_Indone\\_12056.aspx](http://www.downstreamtoday.com/News/Articles/200807/Korea_Gas_To_Pay_Record_Price_for_Indone_12056.aspx)

<sup>30</sup> FEIS at 1-3.



support ODE's conclusion that Rockies gas will continue to cost substantially less than LNG.<sup>31</sup>

Environmental considerations are also relevant to this comparison. The FEIS indicates that at full capacity the Bradwood Project would receive 125 LNG tankers per year, or approximately 10 tankers per month. Year after year, these LNG tankers would continually traverse round trip a 76 mile section of the Columbia River. By contrast, construction of a domestic pipeline over the high desert of Utah, Nevada and eastern Oregon would involve a one-time intrusion, which is likely to be environmentally preferable to continual ecological damage done by LNG tankers to the Columbia River biota over the lifetime of the project.

## Renewable and Distributed Energy Resources

In the FEIS, each type of renewable resource is assessed as a substitute, on a stand-alone basis, for the total sendout capacity of the Bradwood Project. For example, the FEIS finds 220 MW of existing and under construction wind power capacity in Oregon<sup>32</sup> and concludes that this amount is only 4.3 percent of the 5,200 MW equivalent of the 1.0 Bcf sendout capacity of the Bradwood Project.<sup>33</sup>

There are several significant problems with this analysis of the reasonable alternatives to the Bradwood Project. First, the analysis erroneously assumes that the entire 5,200 MW equivalent of the 1.0 Bcf of sendout capacity is required to meet the energy needs of the Pacific Northwest. The gas demand and supply projections discussed above indicate that, at most, 45 percent (or an equivalent of 2,340 MW) of the capacity from the Bradwood Project is needed to meet the future energy needs of the Pacific Northwest. Consequently, the majority's approach is a mismatch between the source of the renewable energy to be evaluated and the purpose of the project. The analysis must either take into consideration renewable resources in the larger market area that includes California, Nevada, and Idaho, or constrain the analysis to the Bradwood Project capacity actually required to meet the projected energy needs of Pacific Northwest.

A second error in the majority's approach is that it is inconsistent with the well understood practice and goals of integrated utility system resource planning, which many states conduct in order to spread risk of resource acquisition over a diversified supply portfolio that takes into consideration cost, performance, and risk factors of potential alternatives. For example, both Oregon and Washington have established renewable portfolio standards (RPS) that encourage a diversified portfolio of renewable energy resources to meet required targets. Oregon's target is to have 25 percent of its electricity needs supplied by a portfolio of renewable resources by 2025. Washington's target is 15 percent by 2020.<sup>34</sup> Because the states are developing and analyzing renewable resources on a portfolio basis, it would be more appropriate and consistent with state law for the FEIS analysis of renewable resources available in those states to also reflect that approach.

Third, the majority's above-noted 220 MW figure is a significant understatement of the existing and proposed wind power in Oregon. Currently, Oregon has 3,743 MW of wind power that is either operating or proposed, consisting of 759 MW operating, 1,441 MW approved for construction, and 1,543 MW under siting review.<sup>35</sup>

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<sup>31</sup> It is also noteworthy that, in a letter to Governor Kulongoski dated July 10, 2008, ODE stated that information received in response to the LNG and Natural Gas Review indicates that the amount of available Canadian imports had been understated and greater volumes are likely to be available from British Columbia.

<sup>32</sup> The 220 MW is derived by de-rating to one-third 660 MW of existing and under construction wind power capacity in Oregon as of 2005.

<sup>33</sup> FEIS at 3-8. There is no explanation for the use of a sendout rate of 1.0 Bcf in the discussion of alternatives instead of the maximum sendout rate of 1.3 Bcf that is authorized. In addition, the FEIS states that 34,000 wind turbines would be necessary to produce an amount of electricity equivalent to what could be generated by the total capacity of the Bradwood Project. That calculation is inaccurate. Using the assumptions made in the FEIS (3.6 MW units operating at 33 percent of nameplate capacity), 4,337 wind turbines would be necessary. However, as discussed in the analysis above, even this number is inaccurate and substantially overstates the number of wind turbines necessary to equate to the Bradwood capacity necessary to meet the energy needs of the Pacific Northwest.

<sup>34</sup> In addition, on a regional basis, the Northwest Power and Conservation Council prepares a diversified plan recommending the development of a portfolio of resources, including distributed resources and renewables, to assure an adequate supply of electric power for the Pacific Northwest.

<sup>35</sup> <http://oregon.gov/ENERGY/RENEW/index.shtml> (at link to Wind Energy in the Columbia Plateau Region).



Fourth, even if the majority's above-noted 220 MW figure were accurate for wind resources in Oregon, it would inappropriately fail to account for other wind resources in Washington. Currently, Washington has 2,011 MW of wind power that is either operating or proposed, consisting of 1,164 MW operating, 439 MW approved for construction, and 408 MW under siting review.<sup>36</sup>

Based on these figures, as of March 2008, Oregon and Washington have a total of 3,831 MW of wind power approved for construction or under siting review.<sup>37</sup> Using the assumption made in the FEIS to discount this figure for the average capacity factor of wind at 33 percent produces a net output for planned Oregon and Washington wind systems of 1,277 MW, not the majority's 220 MW figure. Further, assuming the Pacific Northwest needs 45 percent of the capacity of the Bradwood Project or an equivalent of 2,340 MW, the 1,277 MW of wind resources for the Pacific Northwest could supplant as much as 57 percent of the energy to be supplied by Bradwood, not the 4.3 percent calculated by the majority. Moving from wind to other renewable resources, the Northwest Power and Conservation Council estimates the geothermal potential in the region to be between 340 and 3,300 MW, with 940 MW most likely to be developed.<sup>38</sup> The Geothermal Energy Association states that there are currently 322 MW of developing geothermal projects in Oregon and Washington.<sup>39</sup> If only the geothermal resources currently being developed are considered, rather than the 940 MW projected as most likely to be developed, then geothermal resources could displace 13 percent of the Pacific Northwest's maximum potential need for capacity from the Bradwood Project. Keeping in mind the above-noted discussion of a portfolio approach to renewable resources, it is noteworthy that 70 percent of the potential need for the Bradwood Project in the Pacific Northwest could be supplanted by these two energy sources alone.

Although the FEIS concludes that biomass has no role as an alternative to the Bradwood Project, Oregon currently has 280 MW of biomass-fired generation capacity.<sup>40</sup> ODE estimates that an additional 524 MW is currently available from unused or underutilized woody biomass, agricultural residue, and other forms of biomass in the state.<sup>41</sup> Also, Washington has 300 MW of operational biomass generation capacity and estimates an additional 1,600 MW in technical potential.<sup>42</sup> Only 300 MW of potential of biomass development would be required to meet the remaining 30 percent of potential need for the Bradwood Project in the Pacific Northwest.

Even beyond these three renewable resources, there are other resources that could and will contribute significantly to the supply portfolio to serve the projected energy needs of the Pacific Northwest.<sup>43</sup> For example, the FEIS finds that due to weather conditions, solar has never made a significant contribution to the energy mix in the Pacific Northwest. In contrast, according to ODE, solar energy is Oregon's largest renewable resource.<sup>44</sup> The state has significant efforts underway to encourage development of this resource through tax credits, loans, and other incentives for residences and businesses to substitute solar power for other fuels in hot water and space heating.<sup>45</sup> It should be noted that these two end uses often use natural gas or electricity that may be produced by natural gas. In addition, Washington has enacted

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<sup>36</sup> *Id.*

<sup>37</sup> The technical potential for wind power in Oregon and Washington is estimated to be over 16,000 MW. Renewable Energy Transmission Initiative, Phase 1A Final Report for RETI Stakeholder Steering Committee, Black & Veatch, April 2008, at 6-65 to 6-67 (RETI Phase 1A).

<sup>38</sup> *Biennial Monitoring Report on the Fifth Power Plan*, Northwest Power and Conservation Council, (January 5, 2007) at Appendix G-3 (Fifth Power Plan).

<sup>39</sup> Geothermal Energy Association, U.S. Geothermal Power Production and Development Update, Aug. 2008, at 9.

<sup>40</sup> RETI Phase 1A at 6-15.

<sup>41</sup> [http://oregon.gov/ENERGY/RENEW/Biomass/resource.shtml#Summary\\_of\\_Biomass\\_Energy\\_Resources](http://oregon.gov/ENERGY/RENEW/Biomass/resource.shtml#Summary_of_Biomass_Energy_Resources)

<sup>42</sup> RETI Phase 1A at 6-19.

<sup>43</sup> No analysis is provided here for the potential of hydrokinetic ocean power and in river resources in the Pacific Northwest, but it should be noted that the Commission currently has approved preliminary permits for the development of hydrokinetic systems in the region constituting a potential of 333 MW in Oregon and 45 MW in Washington.

<sup>44</sup> State of Oregon Energy Plan 2007-2009 at 20.

<sup>45</sup> Oregon currently has over 17,000 solar water heating systems installed and provides tax credits up to \$1,500 or 35 percent of a solar water heating system costs. <http://www.energytrust.org/solar/water/index.html>.



extremely progressive legislation to promote investment in solar power.<sup>46</sup>

In addition to renewable energy resources, a comprehensive portfolio analysis of alternatives should assess distributed resources such as energy efficiency, conservation, demand response, combined heat and power, and waste heat recovery. Citing the benefits of lower cost and lower risk, a key conclusion by the Northwest Power and Conservation Council was to improve energy efficiency at an aggressive and sustained pace.<sup>47</sup> The integrated resource plans of utilities in the region also emphasize energy efficiency and conservation.<sup>48</sup> The Northwest Power and Conservation Council reports that the region has been largely successful in meeting these aggressive targets, which call for an incremental level of 700 MW of energy efficiency and conservation by 2009.<sup>49</sup> In order to achieve these targets, Oregon has established 58 programs to accelerate the installation of new energy efficiency measures in the state's residences and commercial structures.<sup>50</sup> Washington currently has in place 79 distinct state and utility sponsored rebate, loan, and grant programs to promote and foster the accelerated adoption of energy efficiency.<sup>51</sup>

In summary, a portfolio of renewable resources is a reasonable alternative to the new energy capacity proposed by the Bradwood Project. The renewable resources that would be needed for that purpose appear to be not only possible in the Pacific Northwest, but also likely to develop given state RPS requirements and other state renewable incentives, rebates, and tax credits.

## Adverse Environmental Impacts

A combined 20 to 50 million gallons of ballast and engine cooling water is typically taken on during offloading operations of each LNG tanker.<sup>52</sup> The FEIS finds that the impacts on sensitive aquatic resources would not be adequately mitigated to a less than significant level without a screening mechanism that minimizes entrainment and impingement of juvenile fish.<sup>53</sup> The FEIS also finds that the Columbia River is currently listed as impaired for water temperature. Because engine cooling water is approximately 19.4°F higher than the ambient waters, a direct discharge of engine cooling water into the Columbia River could exacerbate elevated temperatures in the vicinity of the wharf.<sup>54</sup>

As mitigation measures, Bradwood Landing and NorthernStar Energy propose to construct an on-site water supply system using a screened water intake located at the wharf. The applicants state that the screened water intake would avoid entrainment and impingement of juvenile fish. Moreover, the engine cooling water would be cycled through the ballast tanks to avoid the discharge of warm water back into the river.

LNG carriers, however, must be retrofitted to use such an on-site system. Although financial incentives will be offered for carriers to retrofit such systems, the applicants acknowledge that not all LNG carriers will do so. Therefore, the applicants filed a conceptual solution based on developing an external screening system for tankers that have not been retrofitted.<sup>55</sup> The majority requires the applicants to file a comprehensive plan for the external screening system, including engineering designs, within 60 days.

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<sup>46</sup> Washington will provide tax breaks for renewable energy businesses that locate themselves in economically depressed and low population counties. Further, Washington has established a renewable energy "feed-in" production incentive. Under this program, homes and businesses with solar photovoltaics, wind power systems, and anaerobic digesters will earn 15 cents per kWh of electricity generated by their renewable energy systems. The earnings can increase, if the project's components are manufactured in Washington, to as much as 54 cents per kWh or \$2000 annually. The program will be in effect for nine years. <http://www.iinet.com/~solarwashington/action/WABills/BillsSigned.htm>.

<sup>47</sup> Fifth Power Plan at 1.

<sup>48</sup> Fifth Power Plan at Appendix K-2.

<sup>49</sup> Fifth Power Plan at Appendix I-1-4.

<sup>50</sup> <http://www.dsireusa.org/library/includes/map2.cfm?CurrentPageID=1&State=OR&RE=1&EE=1>

<sup>51</sup> <http://www.dsireusa.org/library/includes/map2.cfm?CurrentPageID=1&State=WA&RE=1&EE=1>

<sup>52</sup> FEIS at 2-7 and 4-84.

<sup>53</sup> FEIS at 4-163.

<sup>54</sup> FEIS at 4-85 and 86.

<sup>55</sup> Applicants' Response to FERC Staff's Recommended Mitigation Measures in the Final Environment Impact Statement, (July 7, 2008) (Applicants' Response).



Commenters argue that there is no evidence that the planned screening system will be effective. They suggest that a final design should be completed and subject to public review and comment. The majority disagrees that the final design needs to be completed at this time. The majority expresses confidence that an adequate final design will be developed by requiring compliance with the fish screen design criteria used by the National Marine Fisheries Service and the Oregon Department of Fish and Wildlife, along with technical review by Commission staff and post-installation water flow mapping.

As the Supreme Court has stated “NEPA does not require a complete plan be actually formulated at the onset, but only that the proper procedures be followed for ensuring that the environmental consequences have been fairly evaluated.”<sup>56</sup> The evidence does not support a finding that the planned screening system will effectively mitigate the project’s impact on sensitive aquatic resources to a less than significant level. While fish screening is a proven technology, its application to LNG carriers is novel. Thus, contrary to the majority’s suggestion, the use of fish screen technology on irrigation canals, industrial and municipal water supply pipes, and hydropower projects is not necessarily transferrable to LNG carriers. Further, the conceptual proposal for external screening for unmodified LNG carriers is particularly incomplete and uncertain. Even the applicants do not claim that the external screening system will adequately mitigate the project’s impact on juvenile fish to a less than significant level. The applicants only assert that the external screening system will reduce the risk of fish entrainment for unmodified LNG carriers.<sup>57</sup> Moreover, the LNG carriers that would use the external screening system would discharge engine cooling water directly into the Columbia River. The applicants have proposed performance metrics and monitoring methods for water temperature.

The appropriation of water by the LNG carriers during offloading for ballast and engine cooling is a significant aspect of the project. The record lacks the information necessary to fairly evaluate whether the proposed screening system, in particular the external screening concept, will adequately mitigate to a less than significant level the impacts on sensitive aquatic resources. Further, interested parties should have the opportunity to comment and provide evidence on these new proposals.

## Conclusion

The evidence demonstrates that the Bradwood Project is not in the public interest and, therefore, the subject application should be denied. There is inadequate support for the majority’s finding that the Bradwood Project is needed to meet the projected energy needs of the Pacific Northwest. Moreover, there are reasonable alternatives to the Bradwood Project to serve the projected energy needs of the Pacific Northwest in a more efficient, more reliable, and environmentally preferable manner. Finally, significant environmental concerns about the Bradwood Project have not been fully or fairly evaluated.

For these reasons, I respectfully dissent from today’s order.”

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<sup>56</sup> *Robinson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989).

<sup>57</sup> Applicants’ Response at 2.