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Ms. Larine A. Moore
Docket Room Manager
FE-34
U.S. Department of Energy
PO Box 44375
Washington, D.C. 20026-4375

Re: FE Docket No. 12-32-LNG

Dear Ms. Moore:

Please accept for filing in the above-referenced docket the accompanying Answer of Jordan Cove Energy Project, L.P. to Protests. The Answer is being transmitted on this date by email to you as indicated above, as well as to the persons identified below. In addition, in accordance with 10 C.F.R. § 590.107(e), it is being served by mail to all persons listed on the attached Certificate of Service.

Please acknowledge receipt of this Answer by email to darbyj@dicksteinshapiro.com. Should you have any questions, do not hesitate to contact me at (202) 420-2745. Thank you for your attention.

Sincerely,

/s/ Joan M. Darby

Joan M. Darby

cc:

DOE/FE

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**UNITED STATES OF AMERICA
DEPARTMENT OF ENERGY
OFFICE OF FOSSIL ENERGY**

In the Matter of:)
) **Docket No. 12-32-LNG**
JORDAN COVE ENERGY PROJECT, L.P.)

**ANSWER OF JORDAN COVE ENERGY PROJECT, L.P.
TO PROTESTS**

Pursuant to 10 C.F.R. § 590.304(f), Jordan Cove Energy Project, L.P. (Jordan Cove) hereby responds to the Protests to its Application to the U.S. Department of Energy Office of Fossil Energy (DOE/FE) for long-term, multi-contract authorization to export from its proposed terminal to be located on Coos Bay in the State of Oregon an annual volume of liquefied natural gas (LNG) equivalent to 292 billion cubic feet (Bcf) of natural gas over a 25-year term to any nation with which the United States currently does not have a Free Trade Agreement (FTA) (the Application). American Public Gas Association (APGA), Citizens Against LNG (CALNG) and the Sierra Club filed Protests and other groups and individuals filed interventions or comments indicating opposition (collectively, the Opponents).¹

The Application is governed by Section 3(a) of the Natural Gas Act (NGA),² which sets forth a directive that DOE/FE “issue such order upon application, unless, after opportunity for hearing, it finds that the proposed exportation ... will not be consistent with the public interest.”

¹ Klamath-Siskiyou Wildlands Center and Rogue Riverkeeper intervened to join in the Sierra Club Protest and Landowners United intervened to support both the CALNG and the Sierra Club Protests. Additional comments in opposition were filed by: Wim de Vriend; Jan Dilley; Paula Jones; and, Russell, Sandra and Kristofer Lyon. Forty commenters filed statements in support of the Application.

² 15 U.S.C. § 717b(a).

When authorizing Sabine Pass Liquefaction, LLC (Sabine Pass) to export LNG to non-FTA nations, DOE/FE acknowledged its longstanding position that “Section 3(a) creates a rebuttable presumption that a proposed export of natural gas is in the public interest, and DOE must grant such an application unless those who oppose the application overcome that presumption,” and to do so, they “must make an affirmative showing of inconsistency with the public interest.”³ As set forth in detail below, the Opponents have failed to overcome that statutory presumption and the Application should be approved by DOE/FE.

I. Opponents’ Environmental Concerns Are For the EIS Process

A. The Consolidated EIS Process is the Proper Forum For Consideration of the Vast Majority of the Opponents’ Submissions

The preponderance of the Sierra Club’s 71-page filing and most other Opponents’ submissions is devoted to environmental concerns, many of which relate to the construction and operation of the Jordan Cove LNG terminal and the Pacific Connector Gas Pipeline (PCGP) that will connect the terminal to the interstate pipeline grid. The proper forum for the consideration of these comments is not this DOE/FE proceeding at this time.

The Energy Policy Act of 2005 (EPACT)⁴ amending the NGA clarified the dual roles of FERC and DOE/FE relative to exports. Leaving untouched DOE/FE’s longstanding authority under NGA § 3 over the export of the commodity,⁵ EPACT specifically confirmed FERC’s

³ *Sabine Pass Liquefaction, LLC*, DOE/FE Opinion and Order No. 2961 (May 20, 2011) (*Sabine Order*) at 28 and n.38, citing *Phillips Alaska Natural Gas Corporation and Marathon Oil Company*, 2 FE ¶ 70,317 (1999).

⁴ Pub. L. No. 109-58, 119 Stat. 594.

⁵ NGA Section 3(a) refers to “the Commission,” but Section 301 (b) of the Department of Energy Organization Act of 1977 (Pub. L. No. 95-91, 91 Stat. 565 at 578) transferred authority from the Federal Power Commission to the Secretary of Energy. The Secretary’s authority has been delegated to DOE/FE, most recently pursuant to Redelegation Order No. 00-002.04E (Apr. 29, 2011).

“exclusive authority” under NGA § 3 over the export facility,⁶ as well as FERC’s role as lead agency in preparing an environmental impact statement (EIS) required by the National Environmental Policy Act of 1969 (NEPA).⁷ EPACT mandated that FERC establish a schedule for all federal authorizations related to an export,⁸ that agencies considering an aspect of any related federal authorization “cooperate with [FERC] and comply with the deadlines” it establishes,⁹ and that FERC “maintain a complete consolidated record of all decisions made or actions taken” by FERC and the other agencies, which is to be used as the record on review of any challenge to such agencies’ action or inaction.¹⁰

NEPA review is initiated in FERC’s pre-filing process, which for Jordan Cove and PCGP is well underway in FERC Docket Nos. PF12-7-000 and PF12-17-000. On August 2, 2012, FERC issued a Notice of Intent (NOI) to prepare an EIS for the terminal and pipeline. The NOI reflects the fact that the DOE is a cooperating agency for purposes of preparation of the EIS (EIS Process) and specifically acknowledges the NGA § 3 responsibility that DOE/FE is discharging in this proceeding.¹¹ The EIS Process begins with the identification (and possible resolution) of issues through public comment in scoping meetings and written comments during the pre-filing period, which includes the filing of draft environmental resource reports for agency and

⁶ 15 U.S.C. § 717b(e)(1).

⁷ 15 U.S.C. § 717n(b)(1).

⁸ 15 U.S.C. § 717n(c)(1).

⁹ 15 U.S.C. § 717n(b)(2).

¹⁰ 15 U.S.C. § 717n(d).

¹¹ Notice of Intent to Prepare an Environmental Impact Statement for the Planned Jordan Cove Liquefaction and Pacific Connector Pipeline Projects, Request for Comments on Environmental Issues, and Notice of Public Scoping Meetings, *Jordan Cove Energy Project, LP and Pacific Connector Gas Pipeline, LP*, FERC Docket Nos. PF12-7-000 and PF12-17-000 (Aug. 2, 2012) at 8, available at http://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20120802-3020.

stakeholder review and the preparation of a Draft EIS that will be the subject of a further comment period. It will continue after the filing of Jordan Cove's and PCGP's formal FERC applications, which will include final environmental resource reports for both facilities (which will address the Opponents' concerns) and conclude with the issuance of a Final EIS. The EIS Process will afford the Opponents multiple opportunities to voice their environmental concerns and submit their evidence into the consolidated record for NEPA issues. Importantly, it will afford DOE/FE as a cooperating agency multiple opportunities to comment and make suggestions that will facilitate the development of an EIS that will permit it to discharge fully both its NGA § 3 and NEPA responsibilities. And, as a cooperating agency, DOE/FE may adopt lead agency FERC's Final EIS without recirculation if, after independent review, it "concludes that its comments and suggestions have been satisfied."¹²

DOE/FE recently recognized that the exercise of DOE's authority over the export of natural gas does not require "a broader or different environmental analysis" than the analysis required for the exercise of FERC's authority over export facilities as long as the EIS prepared in the EIS Process examines all reasonably foreseeable impacts of the exports.¹³ The Opponents' assertions about potential adverse environmental effects, as well as the Sierra Club's submissions about the types of impacts and alternatives to be analyzed, and whether a programmatic EIS is needed (S 13-19), are misplaced at this juncture. These matters are properly handled in the EIS Process where DOE/FE, the Opponents, Jordan Cove and PCGP will be able to make their submissions on these matters via participation in a structured process that gives all agencies,

¹² 40 C.F.R. § 1506.3(c), a Council on Environmental Quality NEPA regulation applicable to DOE/FE in its role as a cooperating agency. *See* 10 C.F.R. § 1021.342.

¹³ *Sabine Pass Liquefaction, LLC*, DOE/FE Opinion and Order No. 2961-A (Aug. 7, 2012) at 27 (*Sabine Final Order*).

including their technical, scientific and environmental staffs, and all stakeholders multiple opportunities for input on and analysis of exactly these issues. Accordingly, Jordan Cove respectfully defers its substantive responses to the Opponents' environmental concerns to the process led by FERC.¹⁴

B. DOE/FE Has Authority to Issue a Conditional Approval Pending Completion of the EIS Process

DOE/FE has a longstanding practice of issuing orders approving the export or import of natural gas conditioned upon the satisfactory completion of the EIS Process by FERC. That practice was first implemented by DOE/FE's predecessor agency, the Economic Regulatory Administration.¹⁵ DOE/FE adopted and has consistently utilized this approach even where the request for Section 3 authority was contested and even where the proposed import required the construction of major pipeline facilities in the United States and Canada.¹⁶ While this practice dates back to at least the 1980's, it continues to be DOE/FE's standard approach today.¹⁷

DOE/FE's authority to issue orders conditional upon completion of environmental review is plain. NGA § 3 provides that DOE/FE may grant an application "upon such terms and

¹⁴ These concerns are reflected in items 4-6, 8-9 and 11 of the CALNG Protest and pages 13-56 of the Sierra Club Protest.

¹⁵ See e.g., *Ocean State Power*, DOE/ERA Opinion and Order No. 243-A, 1 ERA ¶ 70,810 (1988) (noting that Order No. 243 granting conditional authorization to Ocean State to import natural gas from Canada was conditioned upon a final opinion and order from ERA after review by DOE of the final EIS being prepared for the Ocean State project by FERC).

¹⁶ *Brooklyn Union Gas Company, et al.*, DOE/FE Opinion and Order No. 368-A, 1 FE ¶ 70,370 (1990) (noting that the import authorizations granted in Order No. 368 were conditional upon completion by DOE of a review of the environmental impacts of the facilities proposed to import and transport the natural gas); see also *Atlantic Richfield Company*, DOE/FE Opinion and Order No. 301-B, 1 FE ¶ 70,346 (1990); *Midland Cogeneration Venture Limited Partnership*, DOE/FE Opinion and Order No. 305-A, 1 FE ¶ 70,327 (1990); *Tennessee Gas Pipeline Company*, DOE/FE Opinion and Order No. 254-A, 1 FE ¶ 70,262 (1989).

¹⁷ See e.g., *Sabine Final Order* at 3-4.

conditions as [it] may find necessary or appropriate.”¹⁸ The inclusion of identical language in the EPACT provision addressing LNG terminals represents additional affirmation by Congress.¹⁹ DOE/FE’s regulations also explicitly provide that it “may issue a conditional order at any time during a proceeding prior to issuance of a final opinion and order.”²⁰ Moreover, courts have upheld the authority of various regulatory agencies to issue conditional orders.²¹

The Sierra Club, without reference to any precedent, asserts that DOE/FE may not conditionally approve an export proposal until the EIS Process is completed (S 12-13). The Sierra Club’s contention is incorrect. First, a conditional order does not mean that DOE/FE “complete[s] a public interest determination without weighing environmental factors” as the Sierra Club suggests (S 12). Simply put, the public interest determination will not be complete until DOE/FE weighs those factors by conducting its independent review of the EIS and determining whether the record needs to be supplemented for DOE/FE to meet its statutory responsibilities.²² And, the Sierra Club offers not a shred of authority for its assertion that DOE/FE “must weigh environmental interests at the same time that [sic] weighs all other interests” (S 12). DOE/FE’s independent review of the EIS and its determination whether to

¹⁸ 15 U.S.C. § 717b(a).

¹⁹ 15 U.S.C. § 717b(e)(3)(A).

²⁰ 10 C.F.R. § 590.402.

²¹ See *City of Grapevine, Texas v. Department of Transportation*, 17 F.3d 1502, 1509 (D.C. Cir. 1994) (upholding the Federal Aviation Administration’s approval of a runway, conditioned upon the applicant’s compliance with the National Historic Preservation Act); *PUC of California v. FERC*, 900 F.2d 269, 282-83 (D.C. Cir. 1990) (affirming FERC’s determination that, contingent upon the completion of environmental review, there were no non-environmental bars to construction of a proposed pipeline; an agency can make “even a final decision so long as it assessed the environmental data before the decision’s effective date”); and *Idaho v. Interstate Commerce Commission*, 35 F.3d 585, 598 (D.C. Cir. 1994) (agency had not given final approval, but merely set forth the conditions under which the railroad could proceed).

²² See *Sabine Final Order* at 27.

follow a conditional order with a final order will constitute the completion of the public interest determination.

Second, the Sierra Club’s cobbling together a DOE regulation, 10 C.F.R. § 1021.211, and a Council on Environmental Quality NEPA regulation, 40 C.F.R. § 1506.1(a), to argue that a conditional order is not permissible at this stage does not hold together when those provisions are parsed. What is prohibited, prior to the decision on the EIS for purposes of this proceeding, is an “action,” which is defined by 10 C.F.R. § 1021.104(b) and 40 C.F.R. § 1508.18(b)(4) as an approval of a project. Only a final order constitutes such an “action.” It is noteworthy in this regard that FERC interprets its conditional orders as “‘incipient authorization[s] without current force and effect,’ since absent action by the applicant and other state and federal agencies, and following that further action on the part of the Commission, construction cannot start.”²³ In the same way, commodity exports cannot commence without further action by DOE/FE. In sum, because a conditional order permits no action, without a final order there can be no “action” that has an adverse environmental impact or limits the choice of alternatives, which is what is prohibited under 40 C.F.R. § 1506.1(a).

Particularly nonsensical is the Sierra Club’s argument that a DOE/FE conditional order somehow ties the hands of FERC, a separate and independent agency, when evaluating the no-action alternative, citing to the Environmental Assessment (EA) for Sabine Pass (S 13). The no-action alternative analysis in that EA makes no reference whatsoever to a DOE/FE order. In fact, FERC makes its own purpose and need determination and utilizes that determination, not the

²³ *AES Sparrows Point LNG, LLC*, 129 FERC ¶ 61,245 (2009) at P 67, quoting *Crown Landing LLC*, 117 FERC ¶ 61,209 (2006) at P 21.

determination of any other agency, to evaluate alternatives, including the no-action alternative. FERC's substantive determinations are simply not impacted by a DOE/FE conditional order.

As FERC has explained, it “takes this [conditional order] approach in order to make timely decisions on matters related to its NGA jurisdiction that will inform project sponsors, and other licensing agencies, as well as the public.”²⁴ In the same way, DOE/FE's standard approach of issuing conditional orders both respects the division of labor established in the EIS Process²⁵ and allows DOE to focus first on the exercise of its primary jurisdiction over the export of gas and inform markets of its determinations on a timely basis. The importance of such signals to the sponsors and potential customers of LNG projects cannot be overstated, given the tremendous investments of time and money that they must make, the long-lead time for project development, and the inter-relationship of the various permitting processes. In this context, the signals given by DOE/FE in a conditional order are crucial to the development of facilities needed to serve national and international gas markets. The Sierra Club has offered no reason for DOE/FE to depart from its longstanding practice of issuing such orders.

²⁴ *Bradwood Landing LLC*, 126 FERC ¶ 61,035 (2009) at P 30.

²⁵ It also contributes to an efficient regulatory process. Were DOE/FE to determine that a proposed export is not in the public interest based on non-environmental grounds, there would be no reason to complete the EIS Process.

II. Opponents Do Not Overcome the Public Interest Presumption or Jordan Cove’s Evidence

A. Jordan Cove Has Demonstrated the Benefits of Its LNG Exports to the Local, Regional and National Economies, and the Opponents Have Failed to Disprove Those Benefits

1. The ECONorthwest Construction, Operations, Upstream Contributions and Balance of Trade Studies Are Reliable

In each of its Construction, Operations and Upstream Contributions Studies,²⁶ ECONorthwest used the economic modeling software IMPLAN (Impact Analysis for Planning),²⁷ explaining that IMPLAN has been well-developed with the benefit of public and private feedback since its introduction in 1972, is transparent and allows for inclusion of data specific to the proposed project.²⁸ The Sierra Club criticizes IMPLAN, alleging that it does not “consider counterfactuals and foregone opportunities” (S 62). But the Sierra Club’s argument that a federal agency, when evaluating an application for a particular project to be undertaken by private investors on private land, must use a model that “ask[s] how the economy might have grown had investors and regulators made different choices” (S 62-63) carries the regulatory process well beyond any reasonable jurisdictional scope. Moreover, the IMPLAN economic model and its use in ECONorthwest’s Construction, Operation and Upstream Contribution Studies are only a part of the public interest case for the Jordan Cove project. DOE/FE undoubtedly will evaluate the economic benefits that these Studies demonstrate, but it will also focus on the nation’s need for the gas, the security of its supplies and the promotion of

²⁶ ECONorthwest Construction Study (Appendix C to the Application); ECONorthwest Operations Study (Appendix D to the Application); and ECONorthwest Upstream Contributions Study (Appendix E to the Application).

²⁷ The ECONorthwest Balance of Trade Study (Appendix F to the Application) did not use IMPLAN. No Opponent has raised any objection of any sort to that Study.

²⁸ Construction Study at 11-12; Operations Study at 9-10; Upstream Contributions Study at 21-22.

competition in the marketplace.²⁹ In addition, in the course of developing the EIS for Jordan Cove, the DOE/FE, FERC and a variety of other federal and state agencies will thoroughly address alternatives to the Jordan Cove proposal, its effects on existing resources and potential other uses of those resources. Thus, the fact that the IMPLAN model does not explicitly address those matters is without import.

In fact, IMPLAN has never purported to serve the broad purpose of answering the public interest question before DOE/FE (S 64). What it does do, and does well, is calculate a project's economic effects. IMPLAN is used for that purpose by over 2000 public and private institutions, including many Federal Government agencies, at least 40 states, and a myriad of academic, local government, non-profit and private institutions,³⁰ making it "the most widely employed and accepted regional economic software analysis for predicting economic impacts."³¹ Indeed, notwithstanding the Sierra Club's criticisms of IMPLAN, the Sierra Club itself frequently relies on the model when the conclusions drawn from an IMPLAN analysis further its cause.³²

²⁹ *Sabine Order* at 29.

³⁰ http://www.implan.com/v4/index.php?option=com_content&view=article&id=64&Itemid=25

³¹ http://www.implan.com/v3/index.php?option=com_content&view=article&id=282%3Awhat-is

³² *See:*

(1) Busch, Chris; John Laitner; Rob McCulloch and Ivana Stosic, 2012, "Gearing Up: Smart Standards Create Good Jobs Building Cleaner Cars," Washington, DC: BlueGreen Alliance (noting the Sierra Club role in the BlueGreen Alliance at inside cover page, use of IMPLAN at 7, 11, 13 and 16 and lack of consideration of the counterfactual of job creation potential in other manufacturing sectors at 4), *available at*

http://www.bluegreenalliance.org/news/publications/document/AutoReport_Final.pdf (August 28, 2012);

(2) American Council for an Energy-Efficient Economy, 2009, "Shaping Ohio's Energy Future: Energy Efficiency Works," Washington, DC: American Council for an Energy-Efficient Economy (posted on the Sierra Club's Website and noting use of IMPLAN at 44 and assumption that consumer savings will be spent at 44),

In addition, the Sierra Club’s general criticisms of IMPLAN are not applicable to Jordan Cove. For example, ECONorthwest’s analysis “accounts for earnings used for taxes, savings, or spending outside the two states [of Oregon and Washington],”³³ thereby reflecting likely spending patterns and excluding what does not impact the local economy. ECONorthwest also took great care to ensure that its measure of the number of jobs created in each year did not produce the type of results criticized as misleading by the Sierra Club. It defined one job as equal to 2,080 hours of construction work in a calendar year, regardless of job composition (e.g., a steamfitter working seven months and a welder for five month together constitute one job) and

available at <http://www.sierraclub.org/coal/oh/downloads/ACEEE-report.pdf> (August 14, 2012);

(3) Ackerman, Frank, 2011, “Employment effects of coal ash regulation,” Somerville, MA: Stockholm Environment Institute – U.S. Center Tufts University (noting the Sierra Club funding at 2 and use of IMPLAN at 8; static model for projecting job creation that focuses on a fixed-term expense), available at http://sei-us.org/Publications_PDF/Ackerman-coal-ash-jobs-Oct2011.pdf (August 14, 2012);

(4) Hintz, James and Robert Pollin, 2010, “The Economic Benefits of a Green Chemical Industry in the United States,” Amherst, MA: University of Massachusetts, Amherst (noting commissioned by the BlueGreen Alliance on cover page, the Sierra Club role in the BlueGreen Alliance at 2 and use of IMPLAN at 33 and 39; static model for projecting job creation that does not factor in technological change), available at http://www.peri.umass.edu/fileadmin/pdf/other_publication_types/green_economics/Green_Chemistry_Report_FINAL.pdf (August 20, 2012); and

(5) Tharp, William, PhD, 2009, “An Analysis of the Economic Impact of Energy Efficiency and Renewable Energy in the East Kentucky Power Cooperative Region,” Chattanooga, TN: Ochs Center for Metropolitan Studies (posted on the Sierra Club’s Website and noting use of IMPLAN at 6; model projects construction employment without distinguishing intermittent and continuous employment), available at http://www.sierraclub.org/coal/ky/downloads/Green_Jobs_Report.pdf (August 14, 2012).

³³ Construction Study at 6.

avoided an outcome based on counting every trade position on a construction project, even if lasting only a few weeks, as one job created.³⁴

In sum, the Construction, Operations and Upstream Contributions Studies reliably project Jordan Cove's significant employment and fiscal benefits locally, regionally and nationally.

2. The Opponents Do Not Carry Their Burden to Show that Jordan Cove's LNG Exports are Contrary to the Public Interest

The Sierra Club did not conduct or submit its own analysis of the economic effects of Jordan Cove exports. What it offers instead is no substitute. The Sierra Club merely refers to "empirical analysis" contained in seven cited and attached reports (S 64-68 and Exs. 83-89), each of which concerns solely the Marcellus Shale development. While these reports may be relevant to the Sierra Club's opposition to that development (the apparent motivation for its intervention in this proceeding), they have no relevance to Jordan Cove or to the economic benefits documented by the ECONorthwest Studies.

Simply put, the lengthy discussion about the labor impacts of a boom in Pennsylvania and New York is irrelevant. It has no bearing whatsoever on the job and economic benefits demonstrated in the Construction and Operations Studies. It is also irrelevant to the benefits demonstrated in the Upstream Contributions Study. Both the domestic and Canadian portions of the natural gas that will be exported from the Jordan Cove terminal will be sourced, not from the Marcellus Shale, but from long-established and well-developed natural gas producing basins in Canada and the U.S. Rocky Mountains. The industry and its employees in those basins are experienced and more than capable of making the shift from conventional oil and gas to shale-based production. Moreover, as that transition occurs, it is likely to ameliorate the boom and

³⁴ Construction Study at 10 n.3, 14, 16, 17.

bust cycles that have traditionally plagued natural gas production, because the exploration risk with shale gas is significantly less, and the production process is significantly more manageable, than is the case with conventional gas development.³⁵ Thus supply is much more responsive to demand and there is no reason to expect a bust cycle for the predicted employment increase of 5,210 jobs over the four states of Montana, Utah, Wyoming, and Colorado.³⁶

CALNG is similarly misguided in predicting that Jordan Cove will cause “massive unemployment” post-construction (C 4) and end up being “a job loser” when in operation (C 5). First, CALNG cites outdated construction employment figures from the Final EIS for the import proposal (C 4 & n.6) and ignores the figures in the Construction Study for the export proposal: based on direct employment data from the Jordan Cove and PGCP, and Black & Veatch (the builder of the terminal), direct employment for the terminal and pipeline will average 1,768 jobs a year over four years, with total direct labor income over that period of \$730 million.³⁷ Most of these employees will come from Coos Bay and its surrounding areas,³⁸ a region that has a high

³⁵ Navigant Whitepaper (Appendix B to the Application) at 9.

³⁶ Upstream Contributions Study at 1. It bears emphasis that the benefits documented by this Study are domestic U.S. benefits and do not include the benefits in Canada. Canadian benefits are an additional positive of the Jordan Cove export project, not a negative as CALNG suggests (C 9-10). One of the objectives of the North American Free Trade Agreement (NAFTA) is to “increase substantially investment opportunities in the territories of the Parties” and NAFTA requires not only that “[e]ach Party shall accord to investors of another Party treatment no less favorable than that it accords, in like circumstances, to its own investors with respect to the establishment, acquisition, expansion, management, conduct, operation, and sale or other disposition of investments,” but also accord them most-favored-nation treatment. NAFTA Articles 102. 1. c), 1102. 1., and 1103, *available at* <http://www.nafta-sec-alena.org/en/view.aspx?x=343&mtpiID=122> and <http://www.nafta-sec-alena.org/en/view.aspx?x=343&mtpiID=142>. These NAFTA provisions also are the reason that the Opponent Lyons Family’s statement that profit to a foreign corporation should preclude the use of eminent domain is not correct.

³⁷ Construction Study at 2, 17.

³⁸ Construction Study at 5.

concentration of trained but unemployed construction workers.³⁹ For these workers, temporary work and the income it supplies will provide a lifeline during a prolonged period of searching for longer term work. For workers without construction skills, employment will provide critical training and experience, increasing their future potential employment opportunities. If CALNG's position is that providing short-term jobs over a period of several years is worse than providing no jobs at all, it runs counter to the many comments submitted in this proceeding by area residents and businesses stating that any increase in employment in Coos Bay would be a most welcome development.

Second, for post-construction regional unemployment to be higher than current unemployment, as CALNG alleges (C 4), temporary construction workers would have to relocate their families permanently to Coos Bay in large numbers. The potential population increase caused by workers who do relocate – estimated by ECONorthwest to be 244 households⁴⁰ -- is not sufficiently large to increase unemployment and could in fact be absorbed by the permanent jobs that Jordan Cove will create. These permanent jobs will total 736, including 150 jobs created or directly funded by the Jordan Cove and PCGP⁴¹ and an additional 586 indirectly

³⁹ Calculated by ECONorthwest based on changes in employment by occupation 2007 to 2011, BLS Occupational Wage Survey, available at <http://www.bls.gov/oes/home.htm>. See also ECONorthwest, 2012, "The Impact of the Jordan Cove Energy Project on Coos County Housing and Schools," at 7, attached hereto as Appendix 1 (ECONorthwest Housing and Schools Study).

⁴⁰ ECONorthwest Housing and Schools Study at 8.

⁴¹ Opponent de Vriend is wrong in suggesting that all but a couple of dozen permanent jobs will be in Coos Bay, with the remainder "inland" (V 4). In fact, Jordan Cove's analysis of the personnel required to safely staff the LNG terminal and associated South Dunes Power Plant is a minimum of 120 employees, all of whom would be anticipated to reside within daily commuting distance of the terminal site in Coos County. An additional 20 newly-created positions within the Coos County Sheriff's Department would be fully funded by Jordan Cove.

supported.⁴² The benefits of this employment represent net economic gains for Coos County and surrounding areas in both the long and short-term.

CALNG is also incorrect in suggesting that the Jordan Cove export project will have a negative net economic impact. While CALNG quotes extensively from the Final EIS issued for the import project to describe existing resources in the Coos Bay area, it ignores completely the overall conclusion of the Final EIS that most of the impacts of construction and operation of the project on these resources would be “less-than-significant” if the proper mitigation measures are deployed.⁴³ What Jordan Cove’s project will do, in addition to creating jobs and employment income, is bring tax and other revenues to the area.⁴⁴ CALNG and Opponent de Vriend challenge Jordan Cove’s claim of tax benefits based on the location of the terminal in an Enterprise Zone, but both acknowledge that the associated tax exemption is of limited duration (C 19-20, V 4). In any event, Jordan Cove has committed by tax treaty to compensate Coos County from the start by making a \$30 million annual contribution, which is initially slated to

⁴² The employment impacts of Jordan Cove’s project in the typical operating year will include 99 direct jobs at the Jordan Cove terminal and the PCGP pipeline, 51 indirect jobs paid by Jordan Cove (Sheriff’s deputies, firefighters, tugboat crews and emergency planners), 404 other indirect jobs and 182 induced jobs for a total of 736 jobs that would provide an average annual compensation rate of \$44,679, for a total labor income of \$32,886,070. Operations Study at 13.

⁴³ Final Environmental Impact Statement, *Jordan Cove Energy Project, L.P.*, FERC Docket No. CP07-444-000, May 2009 at ES-8-9 (JC FEIS). All of the analyses underlying this conclusion will be undertaken anew during the course of the preparation of the new EIS for the export proposal, with ample opportunity for input from CALNG and the other commenters in this proceeding (*see* 3-4 *supra*).

⁴⁴ Jordan Cove’s proposal will also benefit the local infrastructure. For example, it will include a Marine Terminal Slip that will have space available for a berth for other marine and commercial uses, improving the economics faced by the Port that Opponent de Vriend cites (V 5). CALNG’s suggestion that thermal and vapor exclusion zones will preclude the use of the berth for other purposes (C 18) is incorrect. *See* JC FEIS at 1-4 (“The LNG terminal and slip were designed on the basis that the thermal and vapor exclusion zones would not constrain the use of the western berth by other commercial ships, in the event that the Port secures a tenant and further develops plans for the cargo berth (see further discussion in section 4.12.4 of this EIS).”), *available at* <http://www.ferc.gov/industries/gas/enviro/eis/2009/05-01-09-eis.asp>.

provide \$20 million a year for public K-12 education and \$10 million a year for projects of the Bay Area Urban Renewal Association.⁴⁵

The bottom line is that Jordan Cove has substantiated the economic benefits of its proposed LNG exports with reliable studies and the Opponents have not done the same to establish any of the negative impacts they allege. Instead they point to evidence that is inapposite and make claims that are just plain wrong.

B. Jordan Cove Has Demonstrated the Natural Gas Market Benefits of Its LNG Exports, and the Opponents Have Failed to Disprove Those Benefits

1. The Navigant Study Is Reliable

a. The Navigant Study's Modeling of Export Volumes is Valid

The Opponents' barbs directed at the Navigant Study⁴⁶ miss their mark. Contrary to the oft-repeated suggestions of APGA and the Sierra Club, the relevant export volumes for study are not the total volumes of all proposed projects,⁴⁷ and they certainly are not, as APGA suggests (A 4, 7), additive of both FTA and non-FTA volumes. The capacity of each LNG terminal is the maximum that that terminal would physically be able to export even if the terminal were to hold separate FTA and non-FTA authorizations, each for that maximum capacity.⁴⁸ More to the

⁴⁵ Operations Study at 17 (*see also* 9).

⁴⁶ The Navigant Study is Appendix A to the Application.

⁴⁷ These include: "the total export capacity applied for" (A 4); "actual proposed exports" (A 7); "[t]he total amount of export authority requested" (A7); "the full scope of planned exports" (A 7); "the true volume of pending exports" (A 8); "all pending export proposals" (S 58); and, "the volume of proposed exports" (S 60).

⁴⁸ DOE/FE has recognized this fact in its posting of its "Summary of LNG Export Applications," as footnote (d) to the posted table states: "Total facility is limited to this quantity (i.e., FTA and non-FTA volumes are not additive at a facility." *See* "Applications Received by DOE/FE to Export Domestically Produced LNG from the Lower-48 States (as of August 17, 2012)," *available at* http://www.fossil.energy.gov/programs/gasregulation/reports/Long_Term_LNG_Export_Table_08_17_12.pdf.

point, the relevant export volumes for study, and for purposes of DOE/FE's deliberations, are the quantities that are likely "in the real world" to be exported from the United States.

The export volumes on which the Navigant Study's projections are based represent Navigant's best professional judgment as to the likely development of U.S. LNG exports. Despite APGA's suggestion (A 10), there is no need to consider a range of aggregate export capacities just for the sake of doing so. Most if not all industry experts acknowledge that not all proposed projects will come to fruition due to market, financial, corporate, regulatory, legal or other risk considerations. Indeed, the consensus of industry experts who have expressed an opinion is that market forces make it most unlikely that LNG exports from the United States would exceed six Bcf/d.⁴⁹

⁴⁹ Ebinger, Charles; Kevin Massy and Govinda Avasarala, May 2012, "Liquid Markets: Assessing the Case for U.S. Exports of Liquefied Natural Gas". Washington, DC: Brookings Institute at 40-41 (threshold beyond which exports may not be commercially viable is "expected by many experts to be roughly 6 bcf/day by 2025"), *available at* http://www.brookings.edu/~media/research/files/reports/2012/5/02%20lng%20exports%20ebinger/0502_lng_exports_ebinger.pdf; *see also*:

(1) U.S. Energy Information Administration, August 2012, "Assumptions to the Annual Energy Outlook 2012" at 7 ("For AEO2012, LNG exports and re-exports were set exogenously and assumed to reach and maintain a total level of 903 billion cubic feet per year [2.48 Bcf/d] by 2020."), *available at* [http://www.eia.gov/forecasts/aeo/assumptions/pdf/0554\(2012\).pdf](http://www.eia.gov/forecasts/aeo/assumptions/pdf/0554(2012).pdf);

(2) International Energy Agency, May 2012, "Golden Rules for a Golden Age of Gas, World Energy Outlook Special Report on Unconventional Gas" at 86 ("With the United States developing as an LNG exporter over the period to 2020 and Canada also starting to export LNG from its west coast, exports from North America reach 35 bcm [3.4 bdf/d] by 2020, after which they stabilise just above these levels as the opportunities for export start to narrow."), *available at* <http://www.worldenergyoutlook.org/goldenrules>;

(3) Pickering, Gordon, April 2012, "The Resurgence of the U.S. Petrochemical Industry and the Natural Gas Industry – 'Strange Bed Fellows' or a 'Match Made in Heaven'?", NGMarket notes, Sacramento, CA: Navigant Consulting, Inc. at 4 ("Shale gas development in foreign countries, and growing international competition from LNG suppliers in the Middle East and Australia, are likely to constrain the magnitude of future U.S. LNG exports. Navigant projects that total

The Sierra Club is plainly wrong to suggest that DOE/FE “must consider the cumulative impacts of all pending export proposals” because the public will experience the pending proposals cumulatively (S 58); the public will experience only those terminals that are authorized and that have the market and financial support to be constructed and operated. For this reason, the Sierra Club’s assertion that DOE/FE must determine “whether [a proposal] will cause harm if all reasonably foreseeable proposals were approved” (S 59) cannot mean that DOE/FE must assume LNG exports totaling all proposed exports when assessing supply and price. Nor does the passage in the *Sabine Order* cited by APGA (A 7 & n.14) lead to that conclusion. DOE/FE simply noted that when considering any requested authorization it will consider the cumulative impact of all authorizations issued⁵⁰ -- not that any natural gas market analysis should be based on the total volumes of all possible export projects. In fact, as the Sierra Club observes (S 60), even the study performed by the U.S. Energy Information Administration (EIA) at the request of DOE/ FE (EIA Study)⁵¹ analyzed, as its high scenario, volumes that are less than the total volumes of proposed exports.

U.S. LNG exports will be on the order of 2-4 Bcfd by 2020....”), *available at* http://www.navigant.com/insights/library/energy/2012/natural_gas/ng_notes_april; and

(4) Morse, Edward, et al., March 2012, “Energy 2020 North America, the New Middle East?,” New York, NY: Citigroup at 44 (“[T]otal gas exports from the continental US could perhaps rise to as much as 5-Bcf/d by the end of the decade”), *available at* <http://fa.smithbarney.com/public/projectfiles/ce1d2d99-c133-4343-8ad0-43aa1da63cc2.pdf>.

This expert consensus refutes the Sierra Club’s assertion that the possibility that all proposed LNG exports will be exported is not “remote and speculative” (S 58). And, the case cited by the Sierra Club for that standard is in any event inapposite as it does not relate not to the economic modeling under discussion here, but solely to NEPA analysis.

⁵⁰ *Sabine Order* at 33.

⁵¹ U.S. Energy Information Administration, January 2012, “Effect of Increased Natural Gas Exports on Domestic Energy Markets,” *available at* http://www.eia.gov/analysis/requests/fe/pdf/fe_lng.pdf.

In short, APGA and the Sierra Club are incorrect in contending that the Navigant Study is flawed because it did not analyze the totality of export proposals or include certain proposed export projects (A 7-8 and S 58-59). When considering whether authorized LNG exports would lead to problematic reductions in natural gas supply or increases in natural gas prices, DOE/FE should focus (as the Navigant Study does) on what LNG export volumes are likely to be – that is, the most likely scenarios discussed in Section II.B.2.b. (at 23 *infra*) -- not on what total volumes have been proposed. If the latter were the case, DOE/FE might find itself unable to approve any individual export, precluding the export of a reasonable volume of LNG supported by the market and consistent with the public interest. That result would surely run counter to the NGA and DOE's Policy Guidelines,⁵² as well as the nation's interest in achieving the economic benefits that flow from LNG exports.

b. The Navigant Study's Modeling of Supply is Valid

Both APGA and the Sierra Club try to make much of the reduction in unproved technically recoverable shale gas reflected in the EIA's Annual Energy Outlook 2012 (AEO2012).⁵³ Again they miss the mark because, whatever the adjustment in the shale gas portion of recoverable natural gas,⁵⁴ the fact remains that the total recoverable natural gas

⁵² Policy Guidelines and Delegation Orders Relating to the Regulation of Imported Natural Gas, 49 Fed. Reg. 6684 (Feb. 22, 1984) (DOE Policy Guidelines).

⁵³ U.S. Energy Information Administration, June 2012, "Annual Energy Outlook 2012" at 57 (Table 14), available at [http://www.eia.gov/forecasts/aeo/pdf/0383\(2012\).pdf](http://www.eia.gov/forecasts/aeo/pdf/0383(2012).pdf).

⁵⁴ This downwards adjustment from 827 Tcf to 482 Tcf first appeared in the EIA's AEO 2012 Early Release Overview that was available before the filing of Jordan Cove's Application in which (at 11 n.18) Jordan Cove noted the controversy surrounding the reduced estimate and stated that the final AEO2012 "may address the most controversial estimates prepared in the original Early Release" – and not that "EIA would increase its projection" as APGA states (A 8). In the end, EIA did not address the inconsistency across the various estimates in what resources are included in the final AEO2012. The problem is illustrated by APGA's explanation that "EIA revised its Marcellus Shale estimates due to a U.S. Geological Survey ("USGS") report that

resource is ample. After accounting for the reduction in the estimated shale gas resource, EIA's AEO2012 estimate of total recoverable natural gas resource as of 2010 is 2,203 Tcf,⁵⁵ which represents sufficient supply at current consumption rates for more than 90 years. That figure is virtually the same as Navigant's 2008 estimate of 2,247 Tcf, adjusted to 2,207 Tcf to account for two years of production.⁵⁶

More importantly, the key statistic for price forecasts is production, on which the movement in the resource estimate has negligible effect. Thus EIA's adjustment is of little consequence to the projections in the Navigant Study. The EIA itself confirmed as much: "Although the Marcellus shale resource estimate will be updated for every AEO, revisions will not necessarily have a significant impact on projected natural gas production, consumption, and prices."⁵⁷ Certainly then, the shale gas resource estimate reduction does not render the Navigant Study deficient and it absolutely does not "undermine the basis for Jordan Cove's application," both as alleged by APGA (A 3, 10).

concluded that there is only 84 trillion cubic feet of 'undiscovered, technically recoverable natural gas' in the Marcellus Shale formation" (A 8 *emphasis added*). In fact, in the USGS 2011 report cited by APGA (A 8 n.20), the estimate of undiscovered Marcellus Shale gas was increased to 84 Tcf from the 2009 estimate of 2 Tcf. See USGA Press Release dated Aug. 23, 2011, available at <http://www.usgs.gov/newsroom/article.asp?ID=2893>. And, undiscovered gas is a subcategory of unproved gas. See U.S. Energy Information Administration, August 2012, "Assumptions to the Annual Energy Outlook 2012" at Table 9.2 at 117, available at [http://www.eia.gov/forecasts/aeo/assumptions/pdf/0554\(2012\).pdf](http://www.eia.gov/forecasts/aeo/assumptions/pdf/0554(2012).pdf) (AEO 2012 Assumptions). In any event, the debates on the estimate will continue: the International Energy Agency estimated U.S. remaining recoverable shale gas resource at 24 Tcm, or 840 Tcf, a figure that is higher than the EIA's AEO2011 estimate of 827 Tcf of unproved technically recoverable shale gas resource that was adjusted downwards this year. See International Energy Agency, May 2012, "Golden Rules for a Golden Age of Gas, World Energy Outlook Special Report on Unconventional Gas" at Table 3.1 at 102, available at <http://www.worldenergyoutlook.org/goldenrules>.

⁵⁵ AEO 2012 Assumptions at Table 9.2 at 117; AEO2012 at 91.

⁵⁶ R. Smead, May 2012, "Simplifying the Natural Gas Story," NGMarket notes at 2, available at http://www.navigant.com/insights/library/energy/2012/ng_market_notes_may_2012.

⁵⁷ AEO2012 at 63.

The natural gas production forecasts on which Navigant’s modeling is based are informed by Navigant’s review and professional assessment of data on resource levels. Far from being “inflated” (A 10),⁵⁸ Navigant’s production forecasts are conservative. As explained in the Navigant Whitepaper, those forecasts only incorporate resource plays with actual current production.⁵⁹ The gas prices projected by the Navigant Study would trend lower if Navigant were to have incorporated large, but undeveloped, plays such as the U.S. portion of the Utica Shale in its production forecasts.

In sum, the DOE/FE can reasonably rely on the Navigant Study. The moderate price increases it forecasts are well-grounded on temperate and judicious natural gas supply and LNG export parameters.

2. The Most Likely Scenarios – Under Either the Navigant or EIA Studies -- Forecast Only Moderate Price Impacts

a. The Opponents Fail to Rebut the Statutory Presumption Favoring Exports

Although they carry the burden to show that Jordan Cove’s exports are inconsistent with the public interest, no Opponent of the Jordan Cove Application has supported its position by conducting and submitting a study to rebut or in any way contradict the Navigant Study. As it did in the *Sabine Order*,⁶⁰ DOE should find that this omission means that the Opponents have failed to support their position that Jordan Cove exports are not consistent with the public interest.

⁵⁸ APGA quotes Jordan Cove out of context. Far from suggesting that Navigant’s production levels were inflated, the Application emphasized that they were conservative: “And even the High Shale EUR case is problematic as its forecast, while higher than the AEO 2011 Reference Case forecast, was appreciably lower than the conservative forecast in the Navigant Study.” Application at 17.

⁵⁹ Navigant Whitepaper at 4.

⁶⁰ *Sabine Order* at 29-31.

In lieu of providing their own evidence, the Opponents appear to rely solely on the EIA Study, each claiming that exports will increase the domestic price of natural gas (A 3, C 1, S 56). Even EIA acknowledges that “[t]he projections in this report are not statements of what will happen but of what might happen.”⁶¹ The Opponents’ reliance at worst disregards, and at best is an inadequate response to, the Navigant Whitepaper’s rebuttal to the EIA Study. Navigant’s rebuttal shows that EIA’s supply forecasts are too low, some of its scenario combinations are unrealistic, some of its single year effects are not representative and its focus solely on Gulf Coast exports is not pertinent to Jordan Cove.⁶² APGA and CALNG simply ignore the Whitepaper. The Sierra Club responds to Navigant’s accurate criticism that EIA historically and consistently underestimates production⁶³ by focusing instead on the EIA’s reserve adjustment (S 59), which Jordan Cove has shown does not have a meaningful effect on supply or price data (*see* 20-21 *supra*). And, effectively conceding that the EIA Study should not have focused solely on Gulf Coast exports, the Sierra Club suggests that it might have included “additional exports from East or West Coast facilities” (S 59 *emphasis in original*). Adding LNG exports to those already modeled by the EIA Study would mean that the assumed volume of total exports would be beyond a realistic range and the resulting projections would, for that reason, not be useful (*see* 17 *supra*).

Geographic diversity does make a difference. The Sierra Club is not correct in attributing to Jordan Cove the argument that the EIA Study should have included the Dominion Cove Point

⁶¹ EIA Study at ii (*emphasis in original*). *See also id.* at 3 (“EIA recognizes that projections of energy markets over a 25-year period are highly uncertain and subject to many events that cannot be foreseen, such as supply disruptions, policy changes, and technological breakthroughs.”).

⁶² Navigant Whitepaper at 2-8.

⁶³ Recent reports show EIA’s estimates to be rapidly lagging even further behind actual production: Pennsylvania Marcellus Shale gas production for the first half of 2012 was 82 percent higher than for the same period in 2011. *LNG Daily*, Aug. 22, 2012 at 8.

project (S 59); however, Navigant did point out that, had the EIA Study included an East Coast facility, it would have yielded lower price impacts due to the size of the most likely supply source – the Marcellus basin.⁶⁴ Likewise, the absence of a West Coast facility from the EIA Study and the concentration exclusively on the Gulf Coast, limit the EIA Study’s relevance for the Jordan Cove Application. The salient fact is that the supplies to be exported from the Jordan Cove terminal will be sourced initially primarily from Canada and otherwise from the U.S. Rockies and, had that fact pattern been reflected in the EIA Study, it would have had a dampening impact on the price projections. The bottom line is that the Navigant Study represents Navigant’s best professional judgment about likely exports – both the terminal locations and the total volumes – and it is the only study pertinent to Jordan Cove’s proposal to export supplies from Canada and the U.S. Rockies from a terminal in Oregon. The EIA Study is not,⁶⁵ and the Opponents did not proffer, a relevant contrary study.

b. The Most Likely Natural Gas Price Impacts Are Moderate

In an effort to focus DOE/FE on the highest of the potential price increases in the Navigant and EIA Studies, the Opponents direct attention to Navigant’s GHG Demand Case and EIA’s Low Shale EUR Case. The Sierra Club claims “a strong case” for using the Low Shale EUR Case (S 60) and APGA describes it as the “more accurate,” with the High/Rapid export scenario as the “most realistic” (A 11). However, their reasons for doing so -- “the volume of proposed exports,” “the total export capacity requested” and “the reduction in” or “lower”

⁶⁴ Navigant Whitepaper at 8.

⁶⁵ See *Sabine Pass Liquefaction, LLC*, 140 FERC ¶ 61,076 (2012) at P14 (“Sierra Club’s reliance on the EIA Report is misplaced. EIA prepared its report in response to a request from DOE/FE as one input to DOE/FE’s assessment of the potential impact of current and possible applications to export domestically produced natural gas. The EIA Report is a general economic forecast over twenty-five years with four export demand scenarios, none of which is specific to the [Sabine Pass] Liquefaction Project.”)

estimates of reserves (A 11, S 60) -- do not withstand scrutiny as established above (*see* 16-21 *supra*). It is important to re-emphasize in this connection that the EIA's Low Shale production forecast is extremely low and unlikely; it starts out at less than half of current actual production levels (about 10 Bcf/d versus more than 20 Bcf/d) and even by 2035 it still lags behind the current production levels.⁶⁶ APGA's additional contention that the fact that "[t]he projected switch from coal-fired electric generation to natural gas is already occurring" means that Navigant's GHG Demand Case is "the most realistic" (A 9) is without merit. In fact, the current economically-driven coal-to-gas switching is already reflected in all scenarios in the Navigant Study.⁶⁷ Only the GHG Demand Case reflects additional GHG reduction regulation.⁶⁸ Such legislation has recently been losing favor in the country's current policy environment, making passage less likely and the GHG Demand Case less appropriate as a scenario. Furthermore, the modeling of the GHG Demand Case was meant to produce a "stretch" or "high scenario" case; for example, it did not model a supply response to the higher demand after such legislation in the form of a general infrastructure build-out, but took the conservative approach of addressing only predictable bottlenecks.⁶⁹

DOE/FE should focus on price levels forecast in the more likely scenarios. Even though the EIA's High Shale EUR case has defects which tend to overstate price increases,⁷⁰ it is the most reasonable EIA case. The price levels reflected in it, even for the High/Rapid export

⁶⁶ *See* Navigant Whitepaper at 4 (Figure Four).

⁶⁷ Navigant Study at 31.

⁶⁸ Navigant Study at 31 and 48.

⁶⁹ Navigant Study at 48.

⁷⁰ To name just one, the High Shale EUR Case is based on insufficient assumed gas production. Navigant Whitepaper at Figure 4 at 4 (*see* also 2-8).

scenario, are in line with the \$4 to \$6 price level identified in the Navigant Study⁷¹ as needed to support the general development of shale gas: the Henry Hub average forecast price during 2015-2035 is \$4.41 in the High Shale baseline case, but still only \$5.27 in the High Shale High/Rapid export scenario; the price levels during 2015-2025 average \$3.92 and \$4.87; and, the price levels during 2025-2035 average \$4.90 and \$5.69.⁷² All these price levels are within the \$4 to \$6 range for “long-run equilibrium price” recently estimated as “likely for many years to come” by Dr. Kenneth B. Medlock III.⁷³ His analysis also finds that, due to the elasticity of domestic natural gas supply, “the export of LNG in any reasonable volume from the U.S. should not have a significant impact on price at the margin.”⁷⁴

The effect of Jordan Cove’s proposed exports is best measured by Navigant’s Jordan Cove Export Case. While it estimates price impacts of 3.9% at Sumas and 7.2% at Malin in 2045,⁷⁵ the final year of the forecast period,⁷⁶ it estimates average price impacts over the 29-year forecast term (2017-2045) that are much smaller.⁷⁷ The impacts over the first half of the forecast

⁷¹ Navigant Study at 16.

⁷² EIA Study at Tables B1, B3 and B5.

⁷³ Medlock, Kenneth, August 2012, “US LNG Exports: Truth and Consequence,” Houston, TX: James A. Baker III Institute for Public Policy at 33, *available at* http://bakerinstitute.org/publications/US%20LNG%20Exports%20-%20Truth%20and%20Consequence%20Final_Aug12-1.pdf. Dr. Medlock explained: “[T]he correct point of reference when considering the impact of LNG exports from the US on domestic prices is the long-run equilibrium, since that is where prices will settle even without exports.” *Id.* at 22.

⁷⁴ *Id.* at 33.

⁷⁵ Navigant Study at 43.

⁷⁶ The Sierra Club not only focuses solely on the year 2045, but also attributes to the EIA editorial commentary not made by the EIA (i.e. “detrimental”), when suggesting that the Jordan Cove Export Case forecasts prices contrary to the public interest (S 59 n.177).

⁷⁷ Navigant calculated the price levels and percentages set forth in this and the following two paragraphs based on the data in the Navigant Study.

term average 0.0% at Sumas and 3.2% at Malin, and only rise on average to 0.8% and 3.7% over the second half of the forecast term. Impacts at Henry Hub, like those at Sumas, average less than 1.0% throughout the forecast. Further, the per MMBtu price levels in the Jordan Cove Export Case average \$5.18 at Sumas, \$5.22 at Malin, and \$5.46 at Henry Hub over the first half of the forecast term (well within the equilibrium price range), and \$7.24 at Sumas, \$7.28 at Malin and \$7.60 at Henry Hub over the second half of the forecast term.

The estimated price impacts in the Aggregate Export Case, which assumes LNG export volumes of 6.6 Bcf/d (in line with the consensus view of a likely maximum level of about 6.0 Bcf/d (*see 17 supra*)), are larger than for the Jordan Cove Export Case, but still relatively minor. Specifically, impacts at Sumas are estimated at 5.0% over the full forecast term (5.6% in the first half, followed by 4.6% in the second half); impacts at Malin are estimated at 8.2% (8.7%, followed by 7.7%); and impacts at Henry Hub are estimated at 6.0% (7.9%, followed by 4.6%). The price levels in the Aggregate Export Case average \$5.47 at Sumas, \$5.50 at Malin, and \$5.84 at Henry Hub over the first half of the forecast term (again, well within the equilibrium price range), and \$7.51 at Sumas, \$7.56 at Malin, and \$7.92 at Henry Hub over the second half of the forecast term. In the Aggregate Export Case, estimated annual prices do not reach the \$6.00 per MMBtu level until 2029 at Sumas and Malin, or 2026 at Henry Hub.

For both the Jordan Cove Export Case and the Aggregate Export Case, it is important to put the figures for the second half of the forecast term in perspective, starting with the fact that that latter half does not begin until almost 20 years from now. The effects of Navigant's conservative assumptions (to name a few, no new gas supply basins unless actually now producing and no unannounced pipeline and storage projects other than expansions necessary to

avoid bottlenecks in modeling)⁷⁸ are exacerbated with the passage of time, resulting in prices that are more likely to be overstated in each subsequent year of the forward forecast. Regardless, latter half price levels are not out of line when compared to those in the Navigant’s Reference Case at each of the market points: for the Jordan Cove Export Case, they are just \$0.06, \$0.26, and \$.03 above it and, for the Aggregate Export Case, they are only \$0.33, \$0.54 and \$0.35 above. Finally, as explained immediately below, these prices have the advantage of representing a market that should be less volatile with respect to both supply levels and prices.

3. Jordan Cove’s LNG Exports Will Benefit the Natural Gas Market and U.S. Consumers and Industry

a. LNG Exports Will Foster Supply and Price Stability

LNG exports will not “limit natural gas supply,” as APGA alleges (A 5), but rather “provide a new market in the currently oversupplied natural gas market in the U.S.” and “spur exploration and development of shale gas assets in North America,” contributing to “long term sustainability of the gas market.”⁷⁹ And, far from the “increased price volatility” asserted but not supported, much less proved by APGA (A 14), gas price volatility will decrease as exports increase shale production. Navigant has explained: “The dependability of shale gas production as a result of its abundance as well as its reduced exploration risk has the potential to improve the phase alignment between supply and demand, which will in turn tend to lower price volatility.”⁸⁰ As noted above, a moderate equilibrium price is likely to be sustained.

⁷⁸ Navigant Study at 30, 32, 33.

⁷⁹ Navigant Study at 20; Navigant Whitepaper at 10; Navigant Study at 19.

⁸⁰ Navigant Whitepaper at 9.

b. Stability Will Facilitate Economic Growth

Jobs will not be “destroyed” (A 14) or “lost” (C 3) as a result of LNG exports as the Opponents predict.⁸¹ To the contrary, jobs will be secured as U.S. energy consumers and U.S. industry reap the benefits of stable natural gas supplies and prices. A case in point: “LNG exports will benefit the petrochemical industry” because “LNG exports will help ensure a healthy, smooth and sustained growth profile for the natural gas sector, and will assure an abundant and competitively priced NGL feedstock for the U.S. petrochemical industry.”⁸²

As support for its claim, CALNG quotes a letter from Industrial Energy Consumers of America (IECA) to the Brookings Institution (C 3-4 & n.4), which does not say that manufacturing jobs would be lost as a result of exports, but cautions that decisions about exports should include an analysis of the potential impact on the domestic economy and job creation (and also acknowledges IECA’s support for free trade). In response to reports that the American Chemistry Council (ACC) opposed exports, the ACC promptly issued a press release on the

⁸¹ Nor will LNG exports “decrease the viability of natural gas as a bridge-fuel” (A 12-13). APGA relies on its own characterizations of prices as “high” and “inflated” to assert that electric generators’ coal-to-gas and transportation fleets’ gasoline-to-natural gas switching will slow. Rather than submitting economic modeling that this will be the case, APGA refers only to the general observation in the EIA Study (at 17) that higher gas prices lead generators to burn more coal. Navigant stated that “[s]tudies by Navigant show the volume of coal-to-gas switching in the U.S. will increase from the 2.0 Bcfd that has already switched to more than 4.0 Bcfd by 2017.” Navigant Study at 22. In short, the ramp up of coal-to-gas switching will mostly have already occurred before the price impacts of Jordan Cove’s exports even begin. Even so, multiple other factors will continue to favor such switching, including supply abundance, environmental regulations and unrelated reasons for generators’ abandoning inefficient older power plants fired by coal.

⁸² Pickering, Gordon, April 2012, “The Resurgence of the U.S. Petrochemical Industry and the Natural Gas Industry – ‘Strange Bed Fellows’ or a ‘Match Made in Heaven’?,” NGMarket notes at 3 and 5 (*emphasis in original*), available at http://www.navigant.com/insights/library/energy/2012/natural_gas/ng_notes_april.

“inaccurate reporting of our position on this issue,” stating that the ACC “put[s] our confidence in the free market to determine natural gas supply and demand” and “would oppose legislation that attempts to restrict exports of natural gas.”⁸³ Simply put, industry prefers the stable supplies and prices that market forces, if permitted to operate, will bring.

C. DOE/FE Should Approve Jordan Cove’s Exports and Allow the Natural Gas Market to Operate Freely

Acknowledging the longstanding principles reflected in the DOE Policy Guidelines and a pertinent DOE Delegation Order, DOE/FE observed in the *Sabine Order* that, in reviewing export applications, it “has continued to focus on the domestic need for the natural gas proposed to be exported [and] whether the proposed exports pose a threat to security of domestic natural gas supplies.”⁸⁴ This country’s abundant natural gas supply picture reflects a well-documented revolution in accessible domestic gas resources, with the result that natural gas prices have been driven to such low levels that some producers have cut back on gas resource development.⁸⁵ For this reason, as noted in the Application (at 19), Navigant concludes that “LNG exports, including those from the Jordan Cove LNG export project, therefore should be seen as instrumental in providing the increased demand to spur exploration and development of gas shale assets in North America for the long-term benefit of the country and others.”⁸⁶ DOE/FE should be persuaded by Navigant’s conclusion just as it was similarly persuaded in the Sabine Pass proceeding:

⁸³ <http://www.americanchemistry.com/Media/PressReleasesTranscripts/ACC-Wall-Street-Journal-Story-Misreports-Position-on-Natural-Gas-Exports.html>.

⁸⁴ *Sabine Order* at 29.

⁸⁵ Encana Corp., for example, will decrease its capital allocation for natural gas from 65% (over \$2.5 billion) in 2011 to about 23% (about \$1 billion) in 2013. Encana Corp., Corporate Presentation, August 2012 at 3, available at <http://www.encana.com/pdf/investors/presentations-events/corporate-presentation.pdf>.

⁸⁶ Navigant Whitepaper at 10.

“directionally, natural gas production associated with exports in this application will result in increased production that could be used for domestic requirements if market conditions warrant such use. Overall, this will tend to enhance U.S. domestic energy security.”⁸⁷

The supply pictures in many other nations contrast sharply with our picture of domestic abundance. There is significant international demand, particularly in Asia, for LNG exports from North America. This presents an unprecedented opportunity to reduce the trade deficit (as well as to realize the other economic benefits discussed above and in the Application). As ECONorthwest concluded, “Jordan Cove’s LNG exports, as well as the increase in domestic [natural gas liquids], will result in a net improvement in the balance of trade for the United States – even after deducting higher gas imports from Canada.”⁸⁸ Canada has embraced export opportunities.⁸⁹ The U.S. should do so as well, and promptly, or it will find it has ceded the opportunities to its northern neighbor.

DOE/FE should not impose artificial constraints on LNG exports.⁹⁰ Doing so would run counter to “[t]he goal[] of the DOE Policy Guidelines [] to minimize federal control and

⁸⁷ *Sabine Order* at 35.

⁸⁸ Balance of Trade Study at 7.

⁸⁹ British Columbia’s goal of facilitating LNG exports, as well as its strategies and action to do so, are set forth in a provincial publication: British Columbia Ministry of Energy and Mines, *Liquefied Natural Gas, A Strategy for B.C.’s Newest Industry*; available at http://www.gov.bc.ca/ener/popt/down/liquefied_natural_gas_strategy.pdf. Similarly, Canada’s National Energy Board recently streamlined its export application process and requirements in an Interim Memorandum of Guidance, available at <http://www.neb-one.gc.ca/clf-nsi/rpbletn/etsndrgltn/rrggnmgpnb/xprtsndmprt/ntrmmmrndm-eng.pdf>.

⁹⁰ Imposing an overall cap on LNG exports would create a regulatory allocation nightmare. And, proportioning any cap across proposed export projects would likely have the effect of rendering each and every project uneconomic. For itself, Jordan Cove requires DOE/FE approval of the full requested volumes. The simple fact is that the economics of Jordan Cove’s project are dependent on obtaining capacity commitments at that level (and, without the underpinning of a concomitant DOE/FE approval, it will not be able to secure such commitments).

involvement in energy markets.”⁹¹ And, contrary to the guidance therein, such constraints would create “regulatory impediments to a freely operating market,”⁹² not minimize them. Moreover, they would hurt U.S. trade interests:

A decision to constrain natural-gas exports could have dangerous reverberations for American trade.

For example, the United States has filed with the World Trade Organization a challenge to Chinese restrictions on exports of so-called rare earth minerals, which are crucial for new technologies like wind turbines, missiles and smartphones. If Washington hypocritically limits gas exports, it might as well write the Chinese brief.⁹³

Instead DOE/FE should allow the natural gas market to operate freely. If allowed to work, the market will. It will determine what facilities will be financed and constructed and ultimately, and over time, the level of exports from those facilities. The Jordan Cove liquefaction and export facility will be built only if it proves itself competitive by attracting capacity commitments from some or all of North American producers that seek to export LNG, foreigner consumers that seek to import LNG, and/or marketers that seek to connect those parties, in all cases under long term contracts.⁹⁴ A critical element precedent to obtaining those

⁹¹ *Sabine Order* at 28.

⁹² DOE Policy Guidelines, 49 Fed. Reg. 6684.

⁹³ Levi, Michael, *The Case for Natural Gas Exports*, New York Times, August 15, 2012, available at <http://www.nytimes.com/2012/08/16/opinion/the-case-for-natural-gas-exports.html>. Mr. Levi continues: “To truly keep America’s natural gas within our borders would require restrictions on exports to our big trade partners Canada and Mexico, and that would put the North American Free Trade Agreement at risk. Forswearing exports would also eliminate a valuable tool for American trade negotiators: countries like Japan want privileged access to United States gas, and American negotiators can seek concessions in return.” *Id.*

⁹⁴ APGA’s contention that the proposed exports will not prove economical (A14-17) and CALNG’s contention that Asian demand projections may be incorrect (C 7) are not relevant. That is Jordan Cove’s market risk. While delay in DOE/FE approval will increase the risk to Jordan Cove (and prompt approval will reduce it), such business risk plays no substantive role in DOE/FE’s public interest analysis, which is to focus on domestic need for and security of supply

commitments is approval of LNG exports to non-FTA nations, which DOE/FE should grant based on Jordan Cove's demonstration, in the Application and in this Answer, that its proposed exports are in the public interest.

The unique advantages of Jordan Cove are added reason for DOE/FE to grant the authorization requested by the Application. Its U.S. West Coast location positions Jordan Cove to: source its natural gas from Canadian and U.S. Rockies supply basins; serve Asian demand without the longer routes and Panama Canal transits necessary from the Gulf Coast; supply gas markets in the country's two non-contiguous states of Alaska and Hawaii; and facilitate bringing additional supplies on the incremental PCGP capacity to otherwise underserved markets in Oregon, particularly those west of the Cascades. Indeed, the geographic diversity offered by the Jordan Cove proposal will facilitate the operation of a competitive natural gas marketplace.

“while minimizing regulatory impediments to a freely operating market.” DOE Policy Guidelines, 49 Fed. Reg. 6684. In any event, the market will adjust if evidence surfaces that the contentions of APGA and CALNG are in fact the case. On a separate note, CALNG is incorrect in stating that Jordan Cove “would be contractually bound to continue LNG exports to Asia regardless of” future conditions (C 6). Jordan Cove will not have contractual commitments to export gas; it will provide a terminalling service to LNG export marketers whose contractual commitments to their customers will be determined by the market.

For the reasons stated, Jordan Cove respectfully submits that the Opponents fail to meet their burden of proof and, accordingly, DOE/FE should reject their Protests and grant Jordan Cove authorization to export from its proposed terminal an annual volume of LNG equivalent to 292 Bcf of natural gas over a 25-year term to non-FTA nations.

Dated: August 29, 2012

Respectfully submitted,


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VERIFICATION


DISTRICT OF COLUMBIA

I, Beth L. Webb, being duly sworn on oath, hereby affirm that: I am a duly authorized representative of Jordan Cove Energy Project, L.P.; I am familiar with the contents of the Answer of Jordan Cove Energy Project, L.P. to Protests; and, the matters set forth in the Answer are true and correct to the best of my knowledge, information and belief.



Beth L. Webb

Sworn to and subscribed before me,
a Notary Public in and for the
District of Columbia on
this 29th day of August, 2012



Notary Public

MARINA M. LAUZIÈRE
NOTARY PUBLIC DISTRICT OF COLUMBIA
MY COMMISSION EXPIRES APRIL 30, 2013

APPENDIX 1

The Impact of the Jordan Cove Energy Project on Coos County Housing and Schools

Prepared for the Jordan Cove
Energy Project, L.P.

Introduction & Findings

This report describes an analysis of the housing and school enrollment impacts on Coos County, Oregon arising from the development of an energy project composed of the following two elements (together, the “Project”):

1. The Jordan Cove Energy Project (JCEP), a liquefied natural gas production, storage, and terminal facility in Coos County, Oregon.
2. The Pacific Connector Gas Pipeline (PCGP), a 234-mile natural gas pipeline in southwest Oregon connecting the JCEP to the Malin natural gas hub in Klamath County, Oregon.

JCEP construction begins in 2014 and ends in 2017. Pipeline construction spans two years, from 2016 to 2017. During construction there will be a large influx of workers requiring housing. However, since construction work is transitory, few workers will move their families to Coos County. Thus, the impact of construction on school enrollments would be small.

Starting in 2018, the Project will operate at its sustainable full-scale level and continue doing so for many years into the future. As a provider of stable permanent jobs directly and indirectly, having the Project as part of the local economy would result in more households moving or forming in Coos County. The result would be higher public school enrollment.

This report is divided into five sections, beginning with this introduction and an accompanying executive summary. It is followed by:

- Background information on the Project;
- Jobs and household forecasts, including forecasts of school enrollment changes;
- An analysis of housing availability during construction;
- Impact of Project construction and operations on Coos County public schools including an analysis of commutation behavior and its effect on residency by school district.

Executive Summary

ECONorthwest used economic forecasts of employment for the construction and operations of the Project in combination with Census, U.S. Department of Labor, and GIS models in determining the Project's impacts on Coos County housing and school. The major findings of this research are:

- In the peak month of construction 3,449 people will be working on constructing the pipeline and terminal. About a third will commute to their jobsites. An estimated 2,302 living accommodations will be needed at the peak in Coos County. There are 2,313 vacant housing units available in Coos County and, within a 75-minute drive of North Bend, 2,427 hotel and motel rooms, 177 rooms in small lodging establishments, and 5,093 recreational vehicle sites. The availability of living space is ample.
- Some Project construction staff will be in Coos County for two or more years and will move their households to the county temporarily. At its peak, there would be 244 net new households relocated in Coos County and, from those homes, 125 additional public school students.
- Once operating in 2018, the Project will create steady, long-term employment. This will provide jobs for existing residents, but also allow for the formation of new households in Coos County along with relocations. A net increase of 230 new households is forecast and this would result in 118 more public school students.
- The increase in school enrollment because of the Project's operations in 2018 would be, for most districts in Coos County, between one and two percent higher than enrollments are currently.

Project Description

In 2009 the JCEP and PCGP received Federal Energy Regulatory Commission (FERC) certification to construct and operate their proposed facilities for imports of LNG. In the import mode, LNG would be unloaded at the JCEP terminal and re-gasified back into natural gas that would be stored at the terminal and then transported by PCGP to markets in the western United States for domestic consumption.

The Project developers are now seeking FERC authorization for the terminal and pipeline to be constructed and operated for exports, with the expectation that, during the foreseeable future, the Project will be exclusively an LNG export facility. Natural gas to be exported is anticipated to originate in the extensive shale gas resources of western Canada and the Rocky Mountain states. In the export mode, PCGP will transport and deliver natural gas to the terminal, where JCEP will liquefy the gas into LNG, store it, and then load it onto ships for export.

In 2006, ECONorthwest conducted a study of the Project as an import facility. This current study measures the impacts of the Project solely as an export facility.

LNG Terminal

The LNG terminal and an associated power plant would occupy a total of approximately 360 acres located on the lower section of Coos Bay on the North Spit of Coos County, Oregon.

If run at a 90 percent capacity factor for a full year, the terminal would export nearly 5.4 MMtpy of LNG, which requires as many as 90 LNG carrier vessels to call upon the terminal.

The JCEP terminal would have two LNG storage tanks, each with a capacity of 160,000 cubic meters. On-site LNG storage capacity is equivalent to approximately eight days of design production.

Additionally, the terminal would generate its own power through the use of multiple natural gas fired combustion turbines operating in combined cycle. Initial estimates have sized the power plant at 350 megawatts (MW) with sufficient redundancy in generation equipment to allow the JCEP facility to be self-sufficient with reserve generation to ensure that the 90% or greater plant availability is maintained. Approximately 10 - 20 MW of excess power is proposed to be available from the facility in order to stabilize the regional power grid.

Pipeline

The PCGP is a 234 mile, 36” diameter pipeline that will connect the JCEP terminal in Coos County to the natural gas market hub at Malin, Oregon. No significant changes in the design of the PCGP are anticipated to provide for the capability to deliver gas to Coos Bay from Malin in addition to the previously approved design for the delivery of gas from Coos Bay to Malin.

Natural gas will come from sources in Canada and the U.S. Rockies. Canadian gas would be delivered to Malin *via* the existing Gas Transmission Northwest (GTN) pipeline. Natural gas from the Rockies would be delivered to Malin through the newly operational Ruby Pipeline. A single natural gas compressor station at Malin will allow the PCGP to transport 1.1 Bcfd to JCEP terminus in Coos County.

The JCEP would use about 84 percent of the pipeline’s throughput when operating at 90 percent of nameplate capacity.

Given the Project’s size and complexity, it would draw in resources from throughout Oregon and Washington. This is especially true for labor. In response to previous research inquiries, trade unions notified ECONorthwest that they had sufficient numbers of members skilled in the types of construction needed for the Project and that most would come from Oregon and some from Washington.

Natural gas pipeline construction labor and JCEP project management are more specialized. About half of these workers would come from outside the two-state region.

Employment forecasts drive the housing and school enrollment analyses. Two previous studies by ECONorthwest are the sources of the employment forecasts. Project construction employment was reported in a study dated March 6, 2012.¹ The Project operations employment impacts are from a March 23, 2012 report.²

Employment, Housing, and Households

An increase in jobs often is accompanied by increases in the number of occupied housing units (*i.e.*, households) and, consequently, school-aged children. This is especially so when the jobs are permanent and the economic activity associated with them stimulates additional employment growth elsewhere in the county, as is the case with the Project's operations.

On the other hand, the impacts on housing and schools from Project construction are short-lived.

Construction brings a large influx of workers to Coos County. Because of the short duration of the work and the large labor pool within commuting distance, relatively few workers will move their households. Fewer still would bring their school-aged children. While construction's impact on school enrollment may be small, demand for living quarters, both housing units and transitory arrangements (*e.g.* motels and shared apartments), will be considerable.

Construction Employment

The analysis bases its construction forecast on direct employment data from the JCEP, the PGCP, and Black & Veatch, which will build the terminal. The analysis included construction contingencies in its job estimates. Data from the U.S. Census and the U.S. Bureau of Labor Statistics ("BLS") were also used for this report.

Taking a conservative approach, the analysis proportionately applied the contingencies to the employment level forecasts. Therefore, if the construction of the Project does not fully use its contingencies, the impacts on housing and schools would be less than shown in this report.

A second, conservative assumption places all pipeline construction workers in Coos County. The location and timing of work will vary depending on schedules, weather conditions, and input availability. Physically, approximately 20 percent of the PGCP will be in Coos County.

¹ ECONorthwest. "An economic impact analysis of the construction of an LNG terminal and natural gas pipeline in Oregon." Prepared for the Jordan Cove Energy Project, L.P. March 6, 2012.

² ECONorthwest. "An economic impact analysis of Jordan Cove LNG terminal and Pacific Connector Gas Pipeline operations." Prepared for the Jordan Cove Energy Project, L.P. March 23, 2012.

Construction on the terminal begins July 2014 and lasts 37 months to its completion in July 2017. Pipeline work commences in July 2014 and ends December 2017. However, early pipeline work involves timber clearing and other preparations that would use contractors. Direct PGCP employment on-site occurs mostly in years 2016 and 2017.

Jobs in Project construction are held either by commuters or itinerant workers. Commuters live close enough to the construction sites that they can drive daily from their permanent residences. Itinerant workers live too far away to commute daily, but fall into one of two subcategories.

The largest subcategory consists of those that would return once every weekend or every other weekend to their permanent residences. Given the large pool of highly skilled workers in Oregon and Washington, most itinerant workers would come from places too far for daily, but close enough for weekend commutation. An ironworker, whose family lives in Portland for instance, would likely go home on weekends and stay near the jobsite at transient lodging during the scheduled workweek.

The other subcategory is composed of workers from other states and who find it impractical to move their families to the project site. Within this category are highly specialized workers, such as pipeline welders and project managers.

The analysis distinguishes between itinerant workers whose permanent homes are in Oregon or Washington from those that reside in other states. That distinction was made for the economic impact analysis of the Project construction, which defined the economic area as Oregon and Washington.³

Peak Construction Housing Forecast

The question arises whether there would be enough housing and other living accommodations suitable for the influx of workers relocating to Coos County during the construction phase? Thus, the analysis must first determine the maximum number of such workers that would need accommodation. The housing analysis compares the availability of vacant housing units and transient living accommodations to the peak month of Project construction employment in Coos County. Presumably, if availability were sufficient in that month, it would be adequate over the entire construction phase.

Project employment will be greatest in 2016 and 2017, when construction at the pipeline and terminal are both very active. Based on workforce schedule estimates, the month with the highest overall number of workers would be February 2016 when 3,449 would be employed.

³ ECONorthwest (March 6, 2012). *Op. cit.*, page 5.

The analysis estimates there were 10,321 skilled construction workers employed within commuting distance of North Bend before the recession (2007). This is based upon Oregon Employment Department data, which counts the number of construction workers by occupation.⁴ In 2011, only 6,611 people held similar positions, indicating significant underemployment of 3,710 trained construction workers.

Not all available workers in the local area are experienced in heavy construction. To estimate the proportion that are, the analysis used data from McGraw Hill Construction that show between 2007 and 2011 about 29.0 percent of construction work done in Oregon was heavy, non-residential construction (utilities, power plants, manufacturing, and other non-residential).

Multiplying the number of underemployed construction workers by the proportion of heavy, non-residential construction work yields an estimate of 1,076 skilled, available construction trade workers living within commuting range of North Bend. The remaining 2,373 (3,449 minus 1,076) would be itinerant workers.

Table 1: Peak Month Project Construction Employment and Accommodation Need, February 2016

Number of workers	3,449
Commute to job from home	1,076
Itinerant workers:	2,373
From Oregon and Washington	1,669
From other states	705
<u>Living accommodations needed*</u>	<u>2,302</u>

* Assumes 6 percent of workers share an accommodation.

Source: ECONorthwest analysis of data provided by JCEP and Black & Veatch. Employment includes allowance for use of construction contingencies.

In February 2016, pipeline construction workers will number 837 and about half (419 workers) are expected to come from outside of the states of Oregon and Washington, where natural gas pipeline work is more common and the supply of pipeline qualified welders is greater. The project will also employ 82 project managers and 490 construction managers, half of whom (286 managers) Kiewit Construction estimates would come from outside the region. Thus, a total of 705 workers would come from other states.

In the peak month, 1,669 workers would likely require weekday, temporary accommodations in Coos County, as they would be able to drive home periodically to their families. These potential weekend commuters constitute about 70 percent of the itinerant labor supply at its peak.

⁴ Data from “Oregon Wage Information,” accessed from the Oregon Employment Department website on May 1, 2012 at <http://www.qualityinfo.org/olmisj/PubReader?itemid=00000053>

Whether for transitory units or for traditional housing, in the peak month of the construction cycle, itinerant employees would need 2,302 living accommodations. The analysis will compare this with estimates of market supply in Coos County. For school impacts, the relevant factor is the number of construction Project workers that would relocate their households to Coos County.

Construction Employment and School Enrollment

Project construction would lead to the relocation of some workers from outside the Pacific Northwest that would have to stay in Coos County for a prolonged period. This would be a relatively small number. Work schedule data from Black & Veatch, for example, shows the average craft worker position at JCEP lasting just under eleven months.

Relevant to housing and schools, however, is not the length of a job, but rather the average length any one employee would hold a job. To determine this, one applies the industry average quit and other separation rate (20.0 percent per year).⁵ Doing so shows that the average individual craft worker would stay on the job and be in Coos County just 9.16 months.

The JCEP advised ECONorthwest that it anticipates half of all pipeline construction workers and half of all construction and project managers would locate in Coos County from states outside of Oregon and Washington. The analysis assumes that half of those that would be on the job at least two years would relocate their households.

Relevant to school enrollment is the number of worker households that would be living in Coos Bay during each school year when the Project is being built. In Coos County school years run from September to June the next year. Table 2 shows the average number of workers from states other than Oregon and Washington, the number of relocating households that would result, and the change in kindergarten to 12th grade (“K-12”) public school enrollment that would occur. Note that, on average, six percent of workers will share accommodations.

Table 2: Number of Construction Project Households with Children Temporarily Locate in Coos County, School-Years 2014-15, 2015-16, and 2016-17

School Year Impacts	2014-15 SY	2015-16 SY	2016-17 SY
Workers from other states	90	520	1,033
Net household relocations	42	244	244
K-12 public school children	22	125	125

Sources: ECONorthwest analysis, U.S. Census Current Population Survey, 2005-11 average, and the U.S. Census 2008-2010 American Community Survey 3-Year Estimates of school enrollment.

⁵ U.S. Bureau of Labor Statistics Job Openings and Labor Turnover Survey (JOLTS) News Release- January 2012. Available at the BLS website at <http://www.bls.gov/jlt/>

The analysis assumes that only half the workers whose jobs last at least two years in Coos Bay are apt to temporarily relocate their entire households. And although in the 2016-17 school year there would be 1,033 workers from other states, construction schedules indicate that only 520 would reside two or more years in Coos County. Therefore, based on the 520 workers living in 488 households, the number of household relocations is 244.

The number of K-12 children residing in households that would temporarily locate in Coos County during the construction phase is based on recent Census data. It shows that the households of full-time workers have more school-age children than non-working households. The average non-working household has 0.236 public school K-12 children. However, as shown on Table 3, the average household of full-time workers in Oregon has 0.513.

Table 3: Composition of Non-Working and Full Time Employee Households in Oregon, 2005 – 2011 Average

Composition of Household	Non Working	Full-Time Worker
Persons:		
Head of household	1.000	1.000
Other adults	0.649	0.741
Related children under 18	0.311	0.694
Unrelated children under 18	0.017	0.018
Total household size	1.977	2.452
Public K-12 students	0.236	0.513

Source: U.S. Census Current Population Survey, 2005-11 average.

In Coos County, according to the 2008 – 2010 American Community Survey (U.S. Census), 72.0 percent of children living in households go to K-12 public schools. The remainder attend private schools, are home schooled, not of school age, or otherwise not in school.

Project Operations and School Enrollment

Unlike construction, Project operations are long-lasting; providing 737 permanent jobs in Coos County. The analysis used the 2018 Project job impacts. However, operating rates are anticipated to remain fairly constant in future years and employment would be nearly constant.

The project will indirectly cause similarly long lasting employment in marine, public safety, and, through direct support from the JCEP, public education. Through all other secondary impacts (those that occur in the county economy because of the spending and employment stimulated by the terminal and pipeline operations), other lasting jobs will result in Coos County.

With the establishment of permanent jobs in the county, new households will relocate or form. Relocations bring households, some with K-12 children, to Coos County from other parts of the state or country. However, over time, new households will also form within the county.

Household formations happen when a resident, usually a young adult that grew up in the county, is able to find a good job locally rather than leave. The Project supports jobs that would otherwise not exist inside the county. This allows such young adults to remain in Coos County, form their own households, and ultimately start a family.

In a typical operating year (2018) the Project would directly employ 99 workers and 737 in total in Coos County as a result of secondary impacts. Based on Census commutation data, approximately 711 of all workers would also reside in Coos County.

Table 4: Average Annual Employment due to Project Operations and the Residency of Employees, 2018

Industry sector	Total Jobs	Residency	
		Coos County	Elsewhere
<i>Direct job impacts:</i>			
Employment at terminal & pipeline	99	96	3
<i>Secondary job impacts:</i>			
Public education, ports, & other government	293	283	10
Construction & related	131	126	5
Healthcare & other professional services	104	100	4
Retail & wholesale trade	54	52	2
Transportation & warehousing	38	37	1
All other sectors	18	17	1
Total	737	711	26

Source: ECONorthwest IMPLAN analysis.

Of the 711 residents of Coos County that ultimately would be employed locally because of the terminal and pipeline operations, most would come from existing households. However, about a third would either relocate or form a new household in the County.

The analysis estimates the number of new households by assuming two-thirds of the workers, by industry, that are compensated with above average salaries would either relocate or form new households. The analysis calculated the percentage of workers by industry sector that earn above average salaries using the May 2011 Occupational Employment and Wage survey from the BLS.⁶ The survey reveals that the average wage in Oregon was \$44,290 a year. The percent of employees, by industry, that earn above the average ranges from 21.6 for retail & wholesale trade to 76.2 percent for the Project itself.

Table 5 lists the number of workers, by industry, that would reside in Coos County and the percent of employees in each sector that earn above Oregon average salaries. The assumption is that the number of employees that would either form a new household or move into Coos County is two-thirds of the above average wage earners. The analysis also considers that six percent of employees live in the same household.

Table 5: Net New Household Formations & Relocations to Coos County Due to Project Operations and the Impact on School Enrollment

Industry sector	Employee Resides in County	% Above Avg. Paying Jobs	% New Household formations & relocations	Net New Households*	Change in K-12 Public School Students
<i>Direct job impacts:</i>					
Employment at terminal & pipeline	96	76.2%	50.8%	47	24
<i>Secondary job impacts:</i>					
Public education, ports, & other govt.	283	51.3%	34.2%	94	48
Construction & related	126	45.2%	30.1%	37	19
Healthcare & professional services	100	47.4%	31.6%	31	16
Retail & wholesale trade	52	21.6%	14.4%	7	4
Transportation & warehousing	37	42.6%	28.4%	10	5
All other sectors	17	33.4%	22.3%	4	2
Total	711	50.0%	33.3%	230	118

* Assumes six percent of employees would cohabitate.

Source: ECONorthwest analysis of IMPLAN employment impact forecast and the BLS Occupational Wage Survey May 2011.

Applying the ratio of K-12 public school students per working household (Table 3) produces a forecast of the impact of Project operations on public schools in Coos County of 118 students.

Of the 711 employees that would reside in Coos County, 230 would either move into the Coos County from elsewhere or stay in the county (rather than leave) and form a new household. The difference of 481 (711 minus 230) is the number of Coos County locals that would find work because of the Project and are not currently employed.

⁶ Accessed May 5, 2012 at <http://www.bls.gov/oes/home.htm>

Housing Analysis

Construction projects of the scale and specialization of the proposed LNG terminal draw workers from a wide area and, in doing so, place demand for dwelling units. Construction projects of this type are episodic and continuing work of similar pay in the area is speculative. The average individual worker will work about nine months. Therefore, few workers coming to build the LNG terminal would relocate to Coos County.

Since it is impractical to buy housing that one would live in for less than a year, the average non-local worker is apt to rent existing housing units, stay in transient lodging, or use an RV or mobile home as a dwelling.

Around Coos County there are many temporary lodging choices. Using a commute drive time range of 75 minutes shows a large supply of lodging along the main highway (US-101) on the Coast with North Bend in the middle, Port Orford to the south, and Florence in the North.

The coastal cities are likely bases for pipeline employees, but only when construction is occurring on the western portion of the route. When work is on the eastern portion, the cities of Klamath Falls, Grants Pass, and Medford are convenient. They provide ample numbers of housing units and transient lodging facilities. Klamath Falls and Grants Pass are similar in population, and in the case of Medford three times larger, than the combined cities of Coos Bay and North Bend.

On the coast, as a direct consequence of the highly seasonal demand for places to stay, there is an abundance of RV sites, campgrounds, and hotels and motels. Coos County is at the center of this. It is a summertime outdoor recreation destination and has a large stock of rental housing.

Furthermore, because of a severe contraction in manufacturing and timber industry employment that Coos County sustained in the past 30 years, there is an overhang of excess housing in the market. The County's population is less today than what it was 30 years ago. This unusual phenomenon of declining population has led to persistently high vacancy rates in housing, which means the area around the JCEP has ample housing capacity for most craft workers, construction managers, and staff.

Housing Supply Forecast

The employment forecast on Table 1 showed, that at its peak, construction activity would create demand for 2,302 housing units and transient living places. This peak occurs in February 2016, although demand is anticipated to remain strong throughout 2016 and to mid-2017 because building on the pipeline will occur at the same time as work is being done on the terminal.

Housing Unit Supply

The analysis reviewed the housing data for Coos County. The housing stock of the county is concentrated in the communities in close proximity to the JCEP project. Almost two-thirds of all the housing units in the county, according to the 2010 Census, were in the cities of Coos Bay and North Bend.

Housing forecasts were made using projections from Nielsen Research Company, which is a nationally recognized leader in demographic forecasts, in combination with Coos County assessor, and F.W. Dodge construction data. The Nielsen and Dodge forecasts were made for the years 2012 and 2017. ECONorthwest used straight-line interpolation to estimate housing supply and availability for 2016.

The 2016 data in Table 6 is described as a “baseline forecast” because it describes what housing conditions would be like given expected economic events excluding Project construction.

Table 6: Coos County Housing, 2016

Housing Characteristics	2016
Housing Units by Occupancy	
Occupied*	27,799
Vacant:	
Seasonal use	1,261
Rented or sold, unoccupied	196
For Sale/rent/other	2,117
Vacant Total	3,574
Total Housing Units	31,373
Units By Type	
Single family built	21,981
2 to 4 unit buildings	1,653
Multifamily, 5 units or more	2,220
Mobile homes	5,305
Other	213
Total Units	31,372
Vacancy Rates	
Single family built	10.0%
2 to 4 unit buildings	9.6%
Multifamily, 5 units or more	11.5%
Mobile homes	11.8%
Other	21.4%
Total Units	11.4%

* Forecast excludes the impact of Project construction employees on 2016 housing availability.

Sources: Nielsen Research Data for Coos County, ECONorthwest analysis of U.S. Census Data for Coos County

Between 2000 and 2010, the population of Coos County remained relatively unchanged, increasing by 0.4%. Many second and retirement homebuyers are building units more suitable to their needs and interests, leaving older, family housing empty, thus, causing the persistently high vacancy rates in the County.

The forecast calls for 31,373 housing units in 2016 and 11.4 percent vacancies. There would be 3,574 vacant units in the established housing stock for construction workers. Of these homes, 2,313 would be non-seasonal vacancies available to workers any time of the year.

It would appear that the existing housing stock alone in 2016 would be more than ample for the anticipated peak need of 2,302. The workers would also have a large selection of motels, RV parks, and other forms of temporary lodging from which to choose.

Transient Living Space Supply

Coos County is a summer tourist destination. In 2011, over 1.4 million people visited Coos County and over half stayed overnight between the months of May and September.⁷ There is a large supply of accommodations for construction workers in and near the county.

Hotel and Motel Capacity

Being a summer vacation destination, the area from Florence to Port Orford on the Oregon coast — for which the Project is about at the midpoint — has an abundance of hotels and motels. Within 53 miles of the JCEP (roughly a 75-minute driving radius) there are at least 45 commercial lodging properties.

For the PGCP construction, which will occur between North Bend and inland near Klamath Falls, workers would avail themselves to the lodging near the terminal when building activity is high on the western section. Otherwise, workers would stay in the many available housing units and accommodations along the southern I-5 corridor (near Medford and Grants Pass) to the city of Klamath Falls.

⁷ ECONorthwest. "Potential Economic Effects of the Jordan Cove Energy Project on Tourism and Recreational Activities in Coos Bay and Coos County." Prepared for the Jordan Cove Energy Project, L.P. April 2012

As shown on Table 7, in 2017 the commercial hotels and motels near North Bend could supply 2,427 rooms a day.

Table 7: Hotel and Motel Supply Within 75-Minutes of North Bend, Oregon 2012

Name of Establishment	Location	Rooms	Name of Establishment	Location	Rooms
Anchor Bay Inn	Reedsport	21	Motel 6 Coos Bay	Coos Bay	94
Bandon Beach Motel	Bandon	25	Myrtle Lane Motel	Coquille	27
Bandon Dunes Golf Resort	Bandon	144	Myrtle Trees Motel	Myrtle Point	29
Best Budget Inn	Reedsport	23	Old Town Inn	Florence	40
Best Western Holiday Motel	Coos Bay	83	Pacific Empire Motel	Charleston	50
Best Western Inn @ Face Rock	Bandon	73	Park Motel	Florence	15
Best Western Plus Hartford Lodge	Sutherlin	60	Parkside Motel	North Bend	16
Best Western Plus Pier Point Inn	Florence	55	Quality Inn & Suites @ Coos Bay	North Bend	96
Best Western Salbasgeon Inn & Suites	Reedsport	57	Red Lion Hotel Coos Bay	Coos Bay	145
Captain Johns Motel	Charleston	44	Relax Inn	Sutherlin	18
Comfort Inn Florence	Florence	52	River House Motel	Florence	40
Driftwood Motel	Bandon	22	Shooting Star Motel	Bandon	15
Driftwood Shores Resort	Florence	125	Silver Sands Motel	Florence	50
Economy Inn	Reedsport	41	Sunset Motel	Bandon	71
Economy Inn	Florence	29	Super 8 Coos Bay North Bend	Coos Bay	54
Edgewater Inn	Coos Bay	82	Table Rock Motel	Bandon	24
Fir Grove Motel	Reedsport	19	The Big K Guest Ranch	Elkton	20
Harbor View Motel	Bandon	57	The Inn @ Bandon Dunes	Bandon	39
La Chateau Motel	Florence	49	Three Rivers Casino Hotel	Florence	93
Lakeshore Lodge	Lakeside	20	Villa West	Florence	22
Lighthouse Inn	Florence	27	Winchester Bay Inn	Winchester B:	50
Microtel Inn Sutherlin	Sutherlin	79	Windermere By The Sea	Bandon	25
Mill Casino Hotel	North Bend	207			
Total lodging establishments					2,427

Sources: ECONorthwest and Smith Travel Research

In addition to standard motels and hotels, there are many smaller properties available. Currently there are 177 rooms available in small motels, inns, and bed & breakfast places, noted in Table 8.

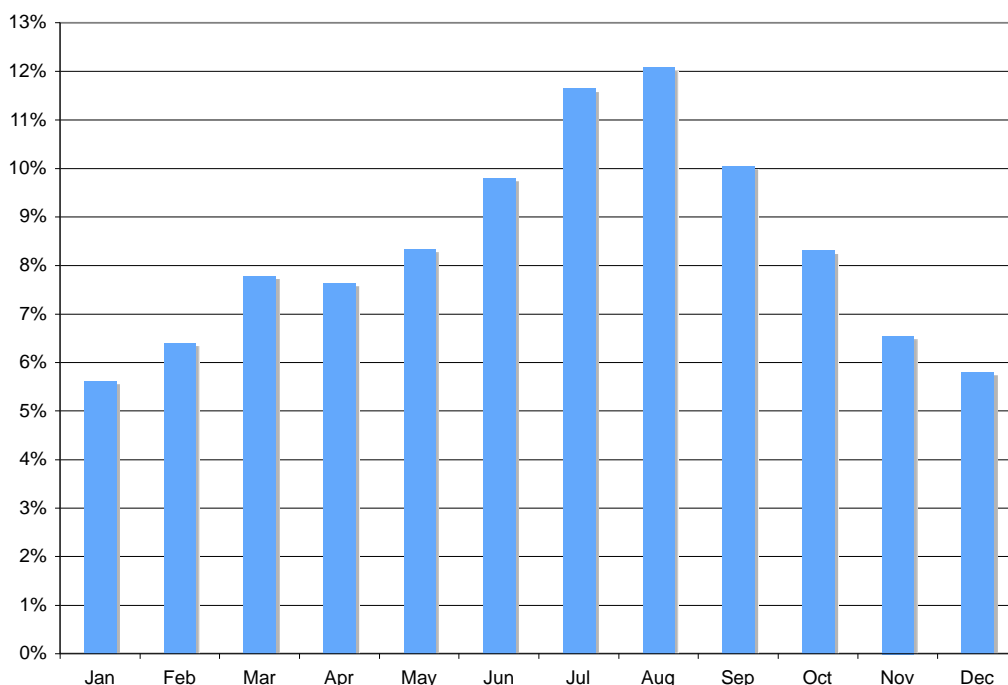
Table 8: Lodging Establishments of 15 Rooms or Less within 75-Minutes of North Bend, Oregon 2012

Lodging Type/Name	Location	Rooms
<i>Bed & breakfast:</i>		
Coos Bay Manor	Coos Bay	5
The Old Towner House	Coos Bay	3
Blackberry Inn	Coos Bay	3
This Olde House	Coos Bay	4
Lighthouse B&B	Bandon	5
Dunshee House	Bandon	1
Floras Lake House	Langlois	4
Bailey's Cedar House	Bandon	2
Bandon Ocean	Bandon	6
Wild Spring	Port Orford	5
Blue Heron	Florence	5
Compass Rose	Port Orford	4
Edwin K	Florence	6
Gardiner Guest House	Reedsport	2
Salmon Harbor Landing	Winchester Bay	8
<i>Small motels, cabins & inns:</i>		
Bandon Wayside Motel	Bandon	10
La Kris Motel	Bandon	12
Sea Star Guesthouse	Bandon	4
Charleston Harbor Inn	Coos Bay	3
Plainview Motel & RV park	Coos Bay	9
Sea Psalm Motel	Coos Bay	8
Southside Motel	Coos Bay	11
Landmark Inn	Florence	12
Mercer Lake RV Resort	Florence	10
Bay Bridge Motel	North Bend	16
Itty Bitty Inn	North Bend	5
Oregon Dunes RV	North Bend	14
Total		177

The total supply of commercial, in-door lodging establishments within a 75-minute drive of North Bend is currently 2,604 rooms a day.

Since 2000, the average occupancy rate of commercial lodging in the market has averaged 53.8 percent, which indicates high vacancies available to workers on the Project. However, the pattern is very seasonal. Because of the cool dry summers and wet climate throughout much of the rest of the year, lodging demand on the Oregon coast is high in the summer, but suffers from protracted weakness in the shoulder and off-seasons. This is illustrated in Figure 1.

Figure 1: Seasonal Tourism Pattern in the Coos County Market Area, Percent of Annual Hotel Room Sales by Month 2000 –2011



Source: Smith Travel Research and ECONorthwest.

The summer accounts for about a third of the hotel and motel rooms sold in the Coos County market area (2000 – 2011). Fewer than six percent of annual room sales occur in either December or January. There is a slight shoulder season in March, which coincides with the Spring Breaks of K-12 schools and colleges. Otherwise, the seasonal pattern is quite pronounced. As a result, the lodging industry has evolved to manage this by building affordable capacity (mostly budget to mid-scale lodging) and offering plenty of campground and recreational vehicle (RV) sites oriented to outdoor recreation.

This is reflected in the market’s natural occupancy rate (the annual rate of hotel occupancy where pricing pressure stabilizes). Over time, the supply and demand for hotel rooms will gravitate to this natural occupancy rate. In large cities, with less seasonality and large commercial business, the natural occupancy rate will average between 70 and 80 percent. Analysis of historical Coos County market area data reveals a natural rate of only 54 percent. Overall, there is a large supply of commercial lodging within a 75-minute radius of the construction jobsite.

Thus, Project workers commuting to and from home on weekends would be able to secure accommodations even at such times. For those seeking continuous residence extending over the summer months, other accommodations would be more practical. For them, there is a supply of 2,313 housing units in Coos County that are not used seasonally, and many campgrounds and RV sites.

RV Park Capacity

Currently, Coos County and the surrounding areas have at least 5,093 RV spaces amounting to an estimated 1.8 Million days of supply.⁸ The locations and capacities of various RV parks in the study area are listed on Table 9.

Table 9: Recreational Vehicle Site Supply Within 75-Minutes of North Bend, Oregon, 2012

Name	Closest Town	Sites	Name	Closest Town	Sites
Alder Acres	Charleston	100	Mercer Lake Resort	Florence	28
Alder Acres RV Park	Coos Bay	88	Midway RV Park	Coos Bay	59
Arbe's RV Park	Coos Bay	100	North Lake Resort (8 Mo. Season)	Lakeside	100
Arizona Beach RV Park & Motel	Port Orford	160	Ocean Pines RV	North Bend	88
B & E Wayside Motel & RV Park	Florence	25	Oceanside RV Park	Charleston	71
Bandon by the Sea	Bandon	72	Oregon Dunes KOA	North Bend	62
Bandon RV Park	Bandon	41	Osprey Point RV Resort	Lakeside	132
Bastendorff Beach County Park	Coquille	89	Pacific Pines	Florence	64
Beach Loop RV Village	Bandon	25	Port of Siuslaw RV & Marina	Florence	105
Bluebill (7 Mo. Season)	Reedsport	18	Port Orford RV Village	Port Orford	30
Bullards Beach State Park	Bandon	198	Robbin's Nest RV Park	Bandon	20
Cape Blanco State Park	Port Orford	82	Salmon Harbor	Winchester Bay	166
Carl G. Washburne	Florence	58	Sixes River	North Bend	19
Carter Lake (6 Mo. Season)	Reedsport	45	Snug Harbor	Charleston	10
Charleston Marina RV Park	Charleston	108	South Jetty NACO	Florence	200
Darlings Resort	Florence	41	Spinreel	Reedsport	37
Discovery Pointe RV Park	Winchester Bay	138	Sunset Bay Sate Park	Coos Bay	63
Driftwood II	Reedsport	67	Surf Wood Campground & RV Park	Reedsport	170
Edison Creek BLM	Port Orford	27	Sutton CG	Florence	79
Eel Creek RV	Lakeside	50	Tahkenitch	Reedsport	26
Elk River Campground	Port Orford	50	Tahkenitch Landing (15 week season)	Reedsport	29
Evergreen RV	Port Orford	15	Tenmile Lake	Lakeside	46
Florence Elk Judd Huntington	Florence	40	The Firs RV Park	North Bend	88
Harbor Vista County Park	Florence	72	The Marina RV Resort	Winchester Bay	118
Heceta Beach RV Park	Florence	52	The Mill Casino	North Bend	102
Horsfall	Reedsport	36	Three Rivers Casino	Florence	100
Humbug Mountain State Park	Port Orford	94	Tyee Recreation Site	Reedsport	16
Jessie M. Honeyman State Park	Florence	357	Umpqua Lighthouse State Park	Winchester Bay	50
Kelley's RV Park	Coos Bay	38	Waxmyrtle (5 Mo. Season)	Reedsport	55
KOA Bandon-Port Orford	Langlois	70	Wild mare Horse Camp	Reedsport	12
Lagoon Campground	Reedsport	39	William M. Tugman State Park	Coos Bay	115
Lakeshore RV Park	Florence	20	Winchester Bay	Winchester Bay	138
Loon Lake Lodge	Reedsport	100	Windy Cove County Park	Winchester Bay	24
Lucky Loggers	Coos Bay	78	Woahink Lake RV Resort	Florence	78
Total RV park sites					5,093

Source: ECONorthwest

As with hotels, RV space demand is highly seasonal and greatest on the weekends. Therefore, non-local construction personnel commuting in for weekday stays generally would find space available. Currently, the annual average occupancy rate for RV parks in the County is about 47 percent. During the inclement winter months, occupancy rates fall below 20 percent. RVs can also be parked in places other than formal full-hook-up RV parks, of which there are many in the area.

⁸ This estimate accounts for some of the seasonality of the various parks.

Manufactured Home Parks

Oregon law prohibits communities from zoning out manufactured (mobile) housing. They can be found in any community, although they are more prevalent in rural areas, such as Coos County, because in such places it is often uneconomic to construct stick-built, moderately priced housing.

About 70 percent of manufactured homes in the Coos County are located in general communities or as standalone properties. The other 30 percent are in managed manufactured home parks that are set up for permanent and also temporary residents who move in mobile homes, and sometimes RVs, onto established sites.

The State of Oregon maintains a directory of manufactured housing parks by county. Although it is unclear how many spaces are currently unoccupied, data from the tax assessor shows a slight decline in property tax accounts for improved manufactured housing structures in the County in the past two years. The implication is that homes have been moved and that there is ample site capacity available for construction workers seeking a temporary residence near the Project jobsites. For workers on the pipeline, manufactured housing can be easily relocated as construction moves. There are 1,753 manufactured mobile dwelling units near North Bend.

Table 10: Manufactured Dwelling Parks Within 75-Minutes of North Bend, Oregon, 2012

Name	County	Location	Spaces	Name	County	Location	Spaces
Alder Acres	Coos	Coos Bay	50	Myrtle Grove	Coos	Powers	30
Bayside	Douglas	Winchester Bay	8	Mystic Woods	Coos	Coos Bay	16
Bandon Pines	Coos	Bandon	12	North Baysides	Coos	North Bend	60
Beach Loop Junction	Coos	Bandon	14	Ocean Pines	Coos	North Bend	4
Beaver Loop	Coos	North Bend	5	Pacific	Coos	Coos Bay	98
Brite Forest	Coos	Myrtle Point	48	Pine Cove	Coos	Coos Bay	9
Chard's Mobile Home Court	Coos	Coos Bay	6	Pine Mobile Court	Coos	Coos Bay	7
Coos Bay Heights	Coos	Coos Bay	39	Puerto Vista	Coos	Coos Bay	135
Discovery Point	Douglas	Winchester Bay	9	Reedsport	Douglas	Reedsport	27
Dunes Ranch	Coos	North Bend	66	River Bend	Douglas	Reedsport	126
East Bay Drive	Coos	North Bend	4	Saint's Mobile Home Park	Coos	Coos Bay	31
Fisherman's	Douglas	Reedsport	10	Sand-N-Wood	Coos	North Bend	30
Gateway	Coos	Coos Bay	18	Shady Lane	Coos	North Bend	5
Green Valley	Coos	Myrtle Point	46	Shorepines	Coos	Coos Bay	239
Huckleberry Hill	Coos	Coos Bay	28	Shore Pines	Curry	Port Orford	7
Harbor View	Douglas	Winchester Bay	27	Silver Springs	Curry	Port Orford	18
Highland	Douglas	Reedsport	76	Sleepy Hollow	Coos	Myrtle Point	7
Holly Knolls	Douglas	Reedsport	63	Smith River	Douglas	Reedsport	10
Lakeside Community	Coos	Lakeside	22	Springtide	Coos	Coos Bay	38
Libby Meadows	Coos	Coos Bay	6	Valley View Mobile Court I	Coos	Coquille	43
Lil Acres	Coos	Myrtle Point	7	Valley View Mobile Court II	Coos	Coquille	15
Little Valley	Coos	Coquille	26	Vista Verde Estates	Coos	Coquille	6
Lyons	Coos	Myrtle Point	7	Wildwood Estates	Coos	North Bend	42
M'Ocean	Coos	Coos Bay	33	Umpqua	Douglas	Reedsport	65
Meyer Park	Coos	Bandon	17	Umpqua River Haven	Douglas	Elkton	9
Mount Terrace	Coos	Coos Bay	29	Total			1,753

Source: Oregon Housing and Community Services website, <http://o.hcs.state.or.us/MDPCRParcs/ParkDirQuery.jsp>

Conclusion of Housing Analysis

An analysis of the stock of housing, hotel and motel rooms, RV park sites, and manufacture dwelling parks indicates that the market could comfortably accommodate the anticipated influx of non-local Project construction personnel.

At its peak, in February 2016, the Project would stimulate demand for a combination of 2,306 housing units and transient accommodations. As shown in Table 2, there will be a need of 244 homes that would be occupied by construction personnel households needing to relocate, as their work extends over two years or more and their current residences are outside of Oregon or Washington. The difference (2,062) is the demand for temporary housing and accommodations.

The forecast shows 2,313 non-seasonal housing vacancies in 2016. Currently there are 2,427 motel and hotel rooms within 75 minutes of North Bend. There are 177 smaller commercial lodging properties, 5,093 RV park sites, and 1,753 mobile homes in the area.

Although the supply of RV sites and lodging units would be tighter on peak-season weekends, the labor analysis indicates that over 70 percent of workers needing places to stay near North Bend live in Oregon or Washington (Table 1) and many would travel home on weekends. By doing so they would free-up places for the Friday and Saturday overnight stays by tourists.

In conclusion, the supply of available housing and other good accommodations for construction workers and managers is ample around the Project's jobsites.

School Impacts

There are six school districts based in Coos County. One district based in Curry County, the Port Orford-Langlois School District, includes a small portion of Coos County and was considered in this analysis.

The JCEP terminal would lie entirely within the boundaries of North Bend School District. The PGCP will primarily be in the Coos Bay, Coquille, and Myrtle Point school districts.

School districts throughout Coos County will experience some enrollment increases and, through the state funding formula, increased revenues (fiscal impacts). The schools experience these effects both during construction of the Project and subsequent operations. This section details these effects.

Enrollment Analysis

Project construction will span three full school years. Although most construction workers would arrive alone and not move their households, it is expected that some would, at least temporarily, relocate their families to Coos County. Shown earlier in Table 2, in the first school year (2014 – 2015) the analysis shows 42 households being relocated inside Coos County and they will enroll 22 students in the K-12 public school system. In the subsequent two school years, 244 households will live in the county leading to an enrollment of 125 public school students.

When operating in an average year, as shown in Table 5, the Project will result in a net increase of 230 working households in Coos County from which 118 students will attend local public schools.

Which school districts the students would attend would depend on where employees reside in the county. For those that would work in North Bend (most of the construction workers and all of the Project operations workers), the majority will live in either the Coos Bay or North Bend districts. The actual distribution was determined in this analysis using commutation data and GIS software. For the workers affected secondarily by the Project's operations, their places of work are going to be more dispersed, so their children will be more likely to attend other districts in the county.

Residency and Commutation Behavior

To measure the impact of these family households on the school districts of Coos County, it is necessary to first estimate where in the County they would take-up residency. This was accomplished by weighing the following two factors:

- (1) The distribution of where workers in Coos County live.
- (2) What their commuting behaviors are like.

Data for this analysis came from the 2010 Census, which is the most recent source available on a geographic level fine enough to allow for school district estimates. The analysis is restricted to workers employed outside of the home, as this would be the characteristic of those working at the JCEP.

The Census data used appear on Table 11. They show that 48.6 percent of workers traveled less than 15 minutes to their jobs and 68.5 percent lived in either the Coos Bay or North Bend ZIP codes. Because of the proximity and size of the cities, JCEP construction employees would be far more likely to live in North Bend and Coos Bay than in other parts of Coos County.

Table 11 also shows what school districts Project households residing inside Coos County would be living in. This distribution applies to such households during both the construction and operations phases of the Project. It was determined using a GIS analysis.

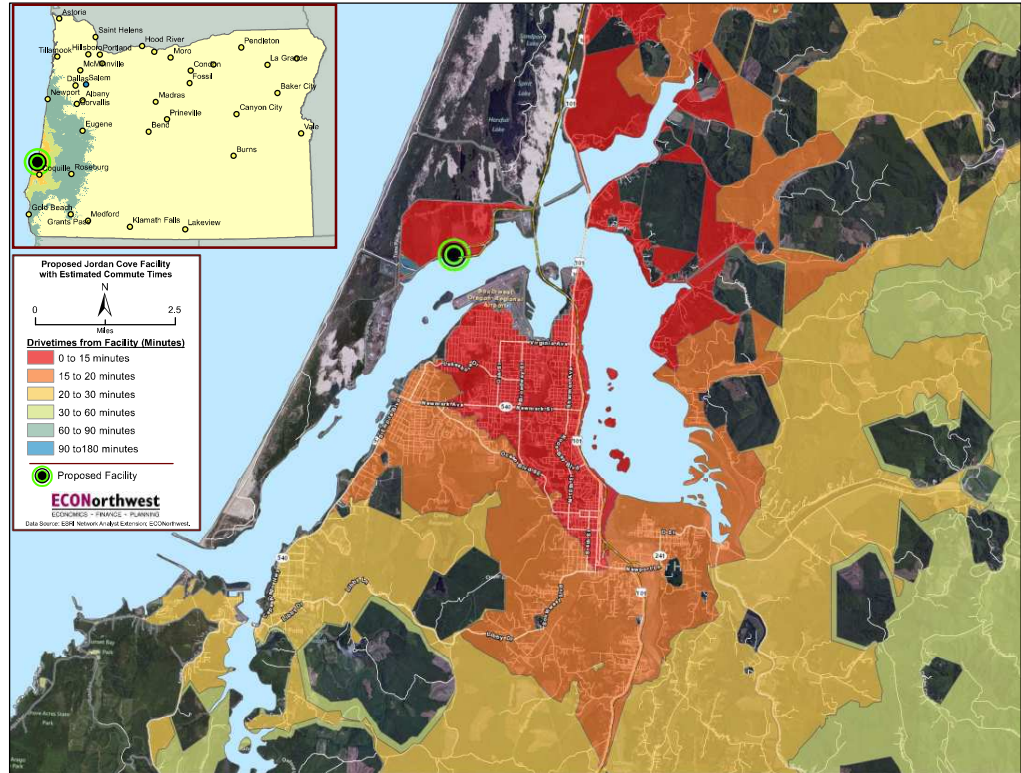
Table 11: Coos County Residents Employed Outside of Their Homes, Commutation Times and Home ZIP Codes, and Forecast Distribution by School District of Where Project Households Would Live

	Number	Percent of Total
Commute Time		
Less than 10 minutes	5,778	24.7%
10 to 14 minutes	5,571	23.9%
15 to 19 minutes	3,283	14.1%
20 to 24 minutes	2,488	10.7%
25 to 29 minutes	770	3.3%
30 to 34 minutes	2,773	11.9%
35 to 39 minutes	328	1.4%
40 to 44 minutes	337	1.4%
45 to 59 minutes	827	3.5%
60 to 89 minutes	714	3.1%
90 or more minutes	482	2.1%
Worker Home ZIP Code		
97411 Bandon	2,773	10.7%
97414 Broadbent	68	0.3%
97420 Coos Bay	10,893	42.1%
97423 Coquille	3,012	11.6%
97449 Lakeside	610	2.4%
97458 Myrtle Point	1,815	7.0%
97459 North Bend	6,326	24.4%
97466 Powers	387	1.5%
Districts where Project workers housed in county would live		
Bandon SD 54		5.0%
Coos Bay SD 9		45.2%
Coquille SD 8		5.6%
Myrtle Point SD 41		3.3%
North Bend SD 13		40.5%
Powers SD 31		0.1%
Port Orford-Langlois SD 2CJ		0.3%

Sources: Nielson Research, U.S. Census, and GIS data.

Figure 2 displays drive times originating from the proposed facility. Drive times were calculated using a street network dataset created by Environmental Systems Research Institute (ESRI), and geospatial analysis techniques employing ArcGIS, a popular geographic information systems software package. The analysis assumes that drivers follow speed limits and traffic signals; it also assumes the driver is in a free flow traffic scenario, which is likely during most times of the day in North Bend and Coos Bay. Commuters are excluded from driving on unpaved and access roads, and alleyways.

Figure 2: Worker Drive Time From Proposed Facility



Source: ECONorthwest, using ESRI network dataset and ArcGIS software.

According to this analysis—and confirmed by Google Maps—commuters must drive at least 10 minutes to reach North Bend, via the Oregon Coast Highway 101 and the Conde B. McCullough Memorial Bridge. In less than three hours, a driver can reach the California border or Grants Pass to the south, and Corvallis or Newport to the north.

According to Table 11 above, roughly 49 percent of Project commuters would commute less than 15 minutes each way. This area is shown in red in the Figure 2 map, and covers the highest populated areas of North Bend and Coos Bay. Workers could reach areas north of the facility on 101 in fewer than 15 minutes. Further, according to the US Census application OnTheMap, 60 percent of workers in Coos Bay ZIP Code 97420 commuted less than 10 miles in 2010.⁹

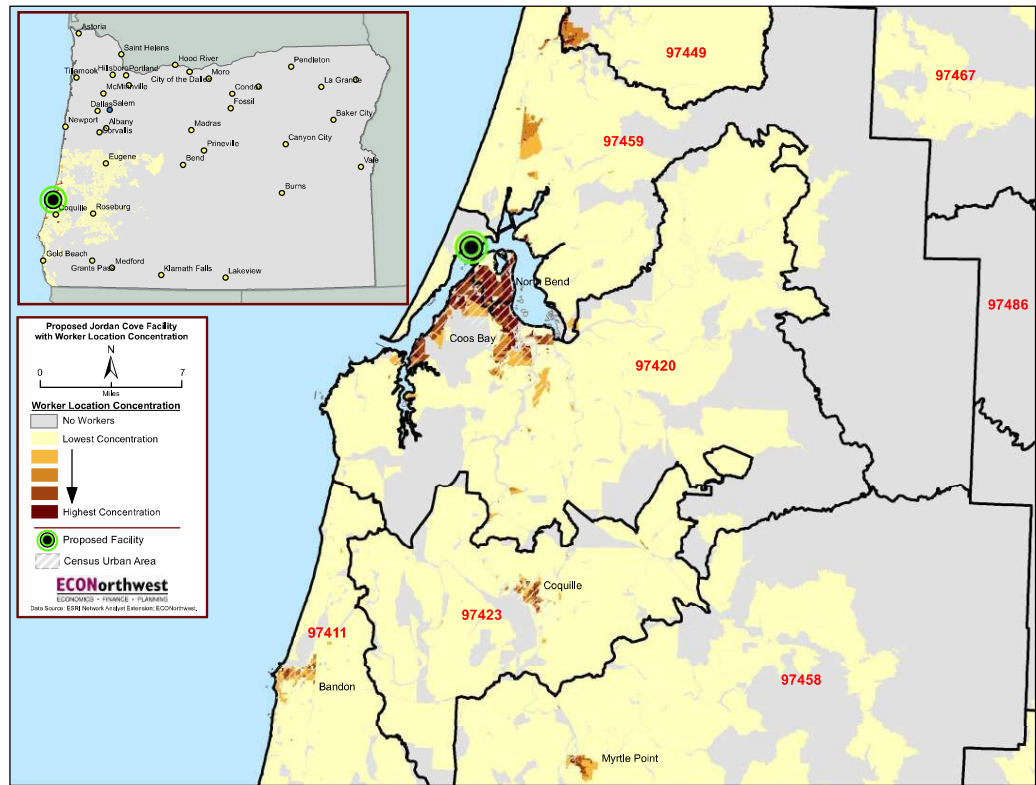
Of those workers that commuted between 10 and 50 miles, 34 percent travelled north or northeast and 44 percent travelled south or southeast. A majority (61 percent) of commuters that commuted more than 50 miles travelled north or northeast towards Newport and Eugene.

Data including drive times from the facility, commuting behavior, and population density were used to develop a predictive model, which determines where Project workers would live during construction.

Figure 3 displays where the concentrations of Project workers would be greatest. Using the drive times calculated above, the total 2010 population was tabulated by length of drive time using Census block areas. This tabulation became the basis for allocating construction and operations workers based on (1) density of population (population in housing units per square mile) reported for each block and (2) the length of time workers in Coos County commute to work. The results of this worker allocation model are shown below.

⁹ See <http://www.onthemap.ces.census.gov>

Figure 3: Worker Location Concentration, by Census Block Group



Source: ECONorthwest, using ESRI network dataset and ArcGIS software.

Figure 3 indicates that workers will be heavily located in the North Bend and Coos Bay urban areas, and a few miles north of the facility along Highway 101. Small concentrations will be found in Bandon, Coquille, and Myrtle Point to the south and southeast.

Enrollment Trend of County School Districts

Physical enrollment at all six school districts based in Coos County fell over the last ten years. Peak enrollment occurred in 2002 in five districts and 2003 for one. Operating below their historical peak is an indicator that schools have the physical capacity to add more students.

Since 2002, four districts closed six schools. North Bend closed its Bangor Elementary School. Coos Bay closed Bunker Hill, Charleston, and Eastside elementary schools.

In the 2008 – 2009 school year, the North Bend district started an on-line charter school called the Oregon Virtual Academy with 250 students. Its students come from all over the state. The enrollment comes with state dollars attached, but has no impact on the physical capacity of the district’s schools. The on-line school now has 1,333 students.

Table 12 shows the physical student enrollment of the six districts from 2002 to 2012. All are operating below their historical peak enrollment levels, ranging from 87.7 percent to 97.3 percent.

Table 12: Percentage of Peak Enrollment for Coos County School Districts, 2002-2012

Year Ending	Bandon	Coos Bay	Coquille	Myrtle Point	North Bend*	Powers
Peak Enrollment	826	3,879	1,055	844	2,384	152
SY Ending	Year Enrollment as a Percentage of the Peak					
2002	100.0%	100.0%	98.3%	100.0%	100.0%	100.0%
2003	96.1%	97.7%	100.0%	96.0%	96.9%	93.4%
2004	98.8%	96.2%	96.9%	92.3%	94.7%	94.1%
2005	97.7%	94.9%	97.3%	87.7%	97.3%	96.7%
2006	93.0%	92.9%	98.5%	87.1%	93.5%	98.7%
2007	93.3%	92.1%	93.3%	86.3%	92.4%	88.8%
2008	91.3%	90.8%	87.4%	83.4%	93.0%	78.3%
2009	94.4%	90.4%	84.5%	85.3%	92.0%	69.1%
2010	90.3%	88.1%	81.8%	81.6%	94.3%	67.1%
2011	89.8%	87.0%	82.2%	77.5%	89.6%	77.0%
2012	89.7%	94.9%	97.3%	87.7%	97.2%	96.7%

* This excludes an on-line charter school operated out of the North Bend SD called the Oregon Virtual Academy, which started in SY 2009 with 250 students and grew to 1,333 in SY 2012. Enrollees come from throughout Oregon.

Sources: Oregon Department of Education and ECONorthwest.

Enrollment Impact from Project Construction

The analysis, as shown previously in Table 2, forecast there would be a net increase of 22 students from new households moving into Coos County in the 2014-15 school year and 125 in the subsequent school years due to the construction of the Project. Using the GIS worker allocation model, the analysis determined that most of the students would go to public schools in either the Coos Bay or North Bend districts. The remainder would attend schools in the Bandon, Coquille, and Myrtle Point districts, as shown on Table 13.

Table 13: Enrollment of Students from Project Construction Households by School Year

District	2011-2012			
	Enrollment	2014-15 SY	2015-16 SY	2016-17 SY
Bandon 54	741	1	6	6
Coos Bay 9	3,681	10	57	57
Coquille 8	1,026	1	7	7
Myrtle Point 41	740	1	4	4
North Bend 13	2,317	9	51	51
Powers 31	147	-	-	-
Port Orford-Langlois 2CJ	250	-	-	-
Total	8,902	22	125	125

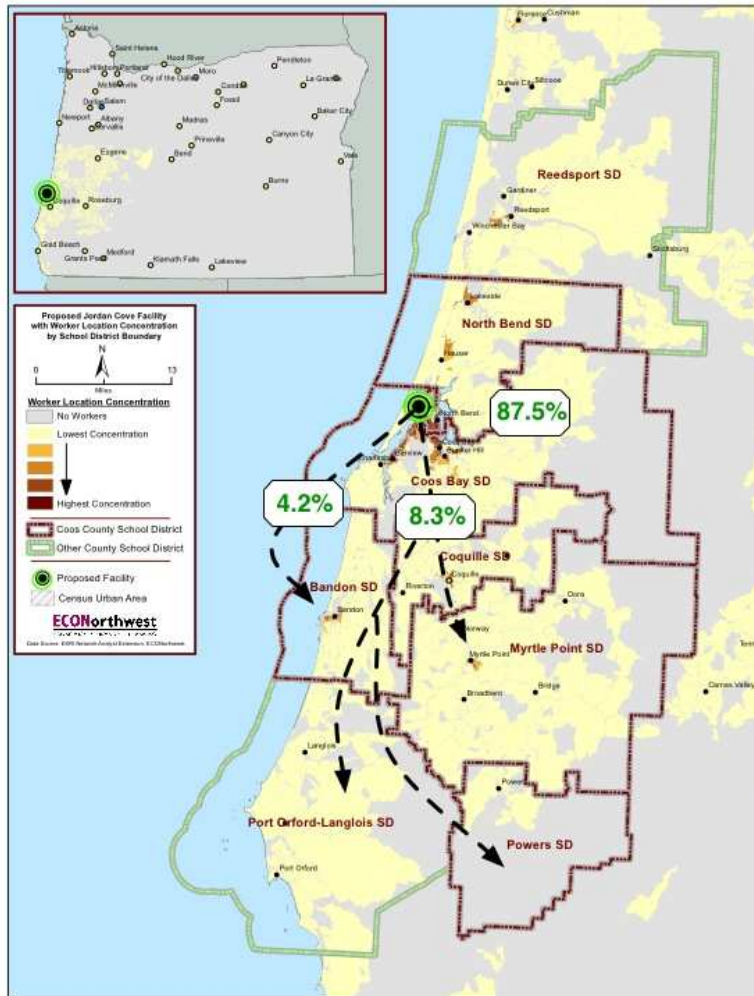
Sources: Oregon Department of Education and ECONorthwest.

The impact of employees constructing the terminal and pipeline on Coos County public school enrollments is small. It ranges from no increase to 2.2 percent for North Bend (adding 51 students to an enrollment of 2,317).

Enrollment Impact from Project Operations

Shown earlier on Table 5, the net increase in public school enrollment due to the operations of the pipeline and terminal total 118 for the districts that draw students residing in Coos County. The GIS model allocated these students based upon where the worker allocation model suggested their parents and guardians would work, shown in Figure 4 below. For terminal and pipeline employees the analysis assumes all would work in North Bend. Commutation data were used to allocate these households. For secondary employment, job locations are throughout the county, albeit most are in Coos Bay and North Bend.

Figure 4: Public School Enrollment Location for Children of Direct Operations Workers, by Coos County School District



Source: ECONorthwest, using ESRI network dataset and ArcGIS software, and 2010 Census Unified School District boundaries.

Note: A small portion of Port Orford SD 2CJ falls within Coos County.

Table 14 shows the allocation of employee students by district. The net increase in all districts is less than two percent. It is for the first full operating year of 2018.

Table 14: Enrollment of Students due to the Increase in Coos County Households Because of Project Operations, 2018

District	2011-2012 Enrollment	Addition from Direct Jobs	Addition from Secondary Job Impacts	Total Enrollment Increase	Percent Increase
Bandon 54	741	1	9	10	1.3%
Coos Bay 9	3,681	11	41	52	1.4%
Coquille 8	1,026	1	10	11	1.1%
Myrtle Point 41	740	1	8	9	1.2%
North Bend 13	2,317	10	24	34	1.5%
Powers 31	147	-	1	1	0.7%
Port Orford-Langlois 2CJ	250	-	1	1	0.4%
Total	8,902	24	94	118	1.3%

Sources: Oregon Department of Education and ECONorthwest. Total public school enrollment is higher by one student than Relocating Households due to rounding of estimated enrollment

Apart from the immediate impact of relocating households with school-aged children, the continued operation of the terminal and pipeline will eventually lead to a longer-term demographic shift in household composition in Coos County. A non-trivial portion of these indirect and induced jobs created from operations will spur household formation for many local residents. That is, due to the increase in incomes of many of the local residents who fill these jobs, non-single, working households will form. It is highly likely that, five to ten years beyond 2018, these newly formed households will start to demand public school services from the various school districts. This leads to increased enrollments for the various schools. However, even with this additional demand that cannot be forecast, the tax base these new households form will properly capitalize the schools in the area, via increased property taxes collected, or other local financing options.

Direct Fiscal Impact

In an effort to treat all students in Oregon fairly, property taxes for schools are aggregated by the State and distributed to all of the districts in Oregon based on an equalization formula tied primarily to enrollments. Therefore, the direct fiscal benefit to the North Bend School District from property taxes paid by the JCEP would be diluted by equalization.

State law strictly defines enrollment as the average daily membership (“ADMr”) and uses adjustment to arrive at a weighted measure (“ADMw”) that accounts for special education, students in poverty, and other student categories that require extra resources. The ADMw determines how much money to give each school district.¹⁰

The fiscal impacts of the Project on public school districts, and the North Bend School District specifically, are:

¹⁰ ORS 327.006 (3) — definition is available at <http://www.leg.state.or.us/ors/327.html>

Initially, the urban renewal district will capture increased property value effects. The amount of excess money that reaches the North Bend School District due to increased property taxes will be quite small. The North Bend City Code provides no dispensation for school funding within the Urban Renewal district when the assessed value of a development is higher than the “frozen value”; the schools would receive no benefits from an increased property tax base due to the Project development.¹¹

Since the Project development will be built in an area that has long had an Urban Renewal designation, it will not have a harmful effect on school funding. The net effect of the terminal on funding could be positive in the future when the Urban Renewal designation is lifted. Property taxes paid by the pipeline are largely not subject to urban renewal designations.

Homeowner property tax rates will fall. The addition of the terminal to the tax base is going to reduce the tax rates of homeowners in North Bend for their school bond levy. Reductions would occur in the other districts where the PGCP would be. The North Bend School District Superintendent believes that reduced tax rates would raise the likelihood that voters would pass needed future bond measures and local option property taxes for the schools.¹²

All districts in Coos County would get more state school fund money. The analysis estimates that the Project, once in operation, will cause an increase in school enrollments, which will result in increased financial payments from the State Department of Education to the area school districts. For example, for every student in North Bend in the 2011 school year, the district was given \$6,548 from the State (see Appendix A).¹³

While these new students would necessitate higher operational spending, they would have a minimal impact of capital budgets because the schools are presently running well below capacity. Thus, nearly all of the incremental State dollars would go ongoing operations (*e.g.*, instruction, student support, staff support, transportation).

¹¹ North Bend Municipal Code, Chapter 2.52.

¹² Phone interview with B.J. Hollensteiner, North Bend School District #13 Superintendent, October 31, 2006.

¹³ This is the amount of the state school fund grant that the North Bend SD received in the 2010-2011 school-year per ADMr.

The North Bend School District would receive direct financial support from the JCEP. In addition to the increased funding from the ADMw payments, the JCEP terminal intends to make annual contributions through Coos County's Bay Area Enterprise Zone in lieu of property taxes. These contributions will consist of \$20 million a year in funding that is proposed for education, and \$10 million for urban renewal. The Project expects to make these contributions for the duration of the tax holiday provided by the Enterprise Zone, although the funds may eventually be repurposed. Because these amounts are directly targeted for specific government purposes, the impact analysis does account for their downstream impacts. For example, the \$20 million for K-12 schools indirectly increases K-12 spending and employment.

The PGCP will pay property taxes in the Coos Bay, Coquille, Myrtle Point, and North Bend School Districts. The pipeline is expected to pay about \$2,408,000 in property taxes in 2018 and likely higher amounts thereafter to Coos County. Of this, about \$864,000 would go to the four school districts where the pipeline would be built.

Other beneficial long-term impacts are likely. The operations forecast only measures the effects of the operations on the county's economy as it now appears. Over time, with the increased availability of energy and improvements in infrastructure, the economy probably will expand further. The dynamic impacts will improve the economic wellbeing of the community in ways that cannot be readily forecast, but are nonetheless probable. Increases in jobs, wages, and property values would ultimately benefit the fiscal standing of public schools.

Appendix A

State of Oregon calculation of state school fund grant to the North Bend School District in 2010-2011 showing a total grant of \$13,416,308 for an ADMr of 2,634.7 enrolled students, which equals \$6,548 per student.

STATE SCHOOL FUND GRANT			
2010-2011			
AS OF 5/9/2012			
Coos County, North Bend SD 13		District ID: 1966	
2010-2011 ADMw Components		2010-2011 Local Revenue	
ADMr: 2,634.7 X 1.00 =	2,634.7	Property Taxes and in-lieu of property taxes from local sources =	\$4,475,916.00
Students in ESL programs: 27.10 X 0.50 =	13.6	Federal Forest Fees =	\$35,869.00
276.0 IEP Students capped at 11% of ADMr: 276.0 X 1.00 =	276.0	Common School Fund =	\$218,509.00
Students on IEP Above 11% of ADMr: 0.0 X 1.00 =	0.0	County School Fund =	\$44,388.00
Students in Pregnant and Parenting Programs: 0.0 X 1.00 =	0.0	State Managed Timber =	\$30.00
Students in Poverty: 483.9 X 0.25 =	121.0	ESD Equalization =	\$0.00
Students in Foster Care and Neglected/Delinquent: 15.00 X 0.25 =	3.8	In-Lieu of Property Taxes(non-local sources) =	\$0.00
Remote Elementary School Correction: 0.0 X 1.00 =	0.0	Revenue Adjustments =	
Small High School Correction: 0.0 X 1.00 =	0.0	Local Revenue =	\$4,774,712.00
Final ADMw: =	3,048.9	2010-2011 Transportation Grant	
2010-2011 Extended ADMw		Salaries =	\$0.00
2010-2011 Final ADMw =	3,048.95	Payroll =	\$0.00
2009-2010 Final ADMw =	2,972.40	Purchased Services =	\$1,402,222.00
Extended ADMw - Greater of		Supplies =	\$0.00
Or 2010-2011 Final ADMw =	3,048.95	Other =	\$0.00
2009-2010 Final ADMw		Garage Depreciation =	\$0.00
2010-2011 Experience Adjustment		Bus Depreciation =	\$0.00
District Average Teacher Experience =	11.92	Fees Collected =	\$0.00
State Average Teacher Experience =	12.78	Non-Reimbursable =	(\$61,471.00)
Experience Adjustment (Difference in District and State Teacher Experience) =	-0.86	Net Eligible Trans. Expend. =	\$1,340,751.00
		Trans per ADMr Rank. 43%	Transportation Reimburs. Rate 70.00%
		Grant (Rate* Net Eligible Expend) =	\$938,525.70

2010-2011 General Purpose Grant
 (Extended ADMw x [\$4500 + (\$25 x Experience Adjustment)]) x Funding Ratio
 (3,048.95 x [\$4500 + (\$25 x -0.86)]) X 1.26348293 = **\$17,252,495**

2010-2011 Total Formula Revenue
 General Purpose Grant + Transportation Grant
 = **\$17,252,495 + \$938,526 = \$18,191,020**

2010-2011 State School Fund Grant
 Total Formula Revenue - Local Revenue
 = \$18,191,020 - \$4,774,712 = **\$13,416,308**

General Purpose Grant per Extended ADMw = \$5,659
 Total Formula Revenue per Extended ADMw = \$5,966
 Charter Schools Rate (ORS 338.155) = \$5,659

Total Paid To date				Estimated Remaining Balance Due			
SSF	Small HS Grant	Facility Grant	High Cost Disability	SSF	Small HS Grant	Facility Grant	High Cost Disability
\$12,917,746	\$0	\$0	\$51,588	\$498,562	\$0		\$108,839

CERTIFICATE OF SERVICE

I hereby certify that, in accordance with 10 C.F.R. § 590.107(c), I have this 29th day of August 2012 caused a copy of the foregoing Answer of Jordan Cove Energy Project, L.P. to Protests to be served by mail upon the following:

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/s/ Joan M. Darby

Joan M. Darby