

EXHIBIT 5

Foreign or Domestic?

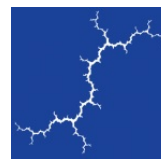
The source of the natural gas that will be processed at the proposed Jordan Cove LNG facility

Prepared for Niskanen Center

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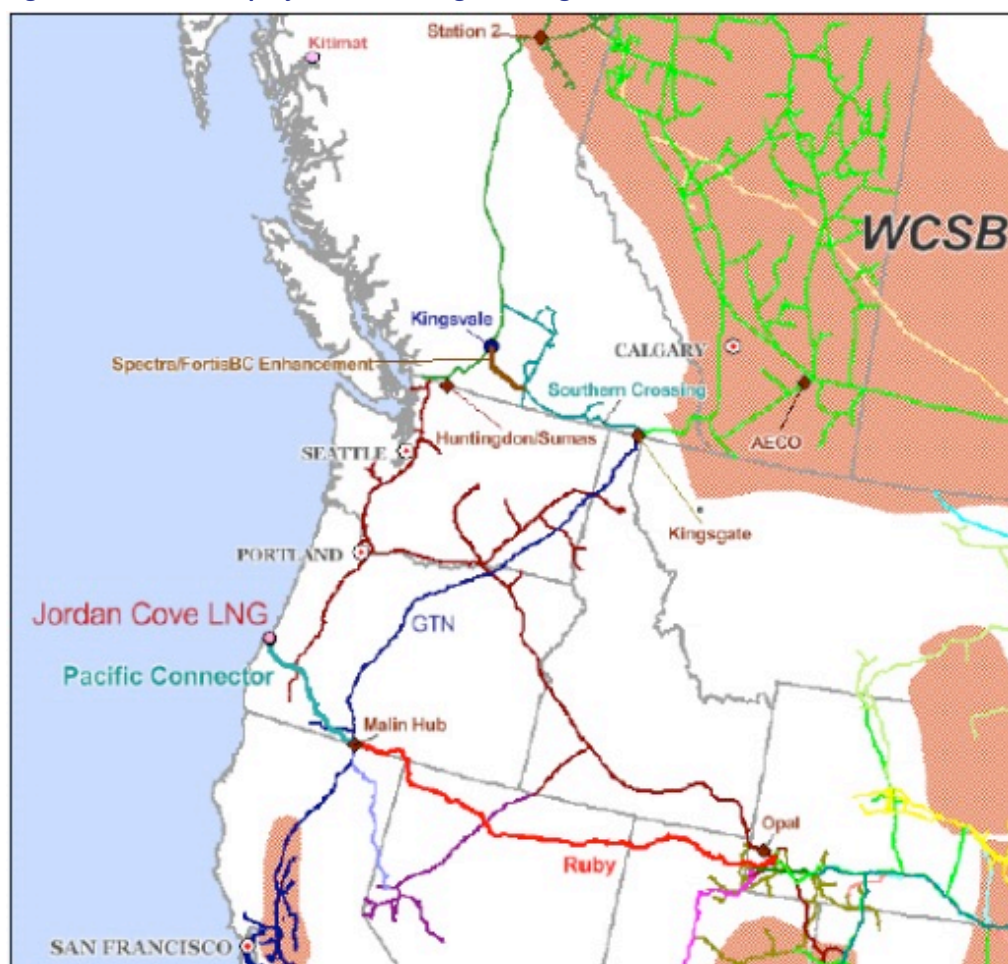
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Introduction

Synapse Energy Economics, Inc. was engaged by the Niskanen Center to compare the economics of the potential sources of natural gas that would fuel the proposed Jordan Cove project, which consists of two primary components. The first is a liquefied natural gas (LNG) terminal located in the Port of Coos Bay in Coos County, Oregon, with a liquification design capacity of approximately 1 billion cubic feet per day. The second is the 36-inch diameter “Pacific Connector” gas pipeline, intended to transport natural gas from the Malin Hub to the new LNG terminal.¹ The proposed Jordan Cove project infrastructure is shown in Figure 1, along with other existing natural gas pipeline infrastructure and trading hubs in the Northwest.

Figure 1. Jordan Cove project and existing natural gas infrastructure



Source: Navigant Consulting. September 2013. Supply and Demand Market Assessment and Surplus Evaluation Report. Prepared for Jordan Cove LNG L.P.

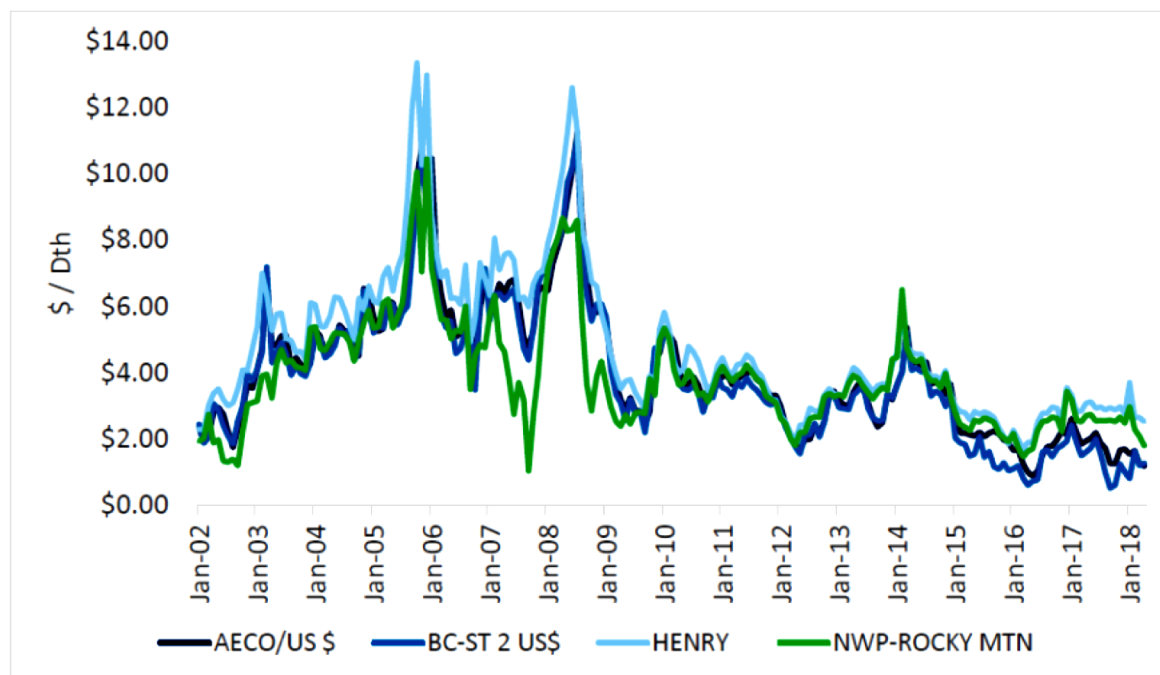
¹ Jordan Cove Project. Accessed June 24, 2019 and available at: <https://www.jordancovelng.com/projectcmgh>.

Natural gas from Canada would travel from the Kingsgate Hub via the Gas Transmission Northwest (GTN) pipeline while natural gas from the Rocky Mountain region would travel from the Opal Hub via the Ruby pipeline. It is highly likely that the Jordan Cove project would source most, if not all, of its natural gas designated for export from Canadian sources rather than from the Rocky Mountain region. Canadian gas supplies will continue to grow, and prices will be cheaper than natural gas sourced from the Rockies. In addition, documents supporting the applications for permission from the Canadian and U.S. governments to obtain natural gas supplies from Canada show that Jordan Cove developers intend to purchase primarily Canadian gas to supply the proposed project.

Prices for Canadian natural gas are lower than for gas from the Rocky Mountain region

Natural gas customers in the Pacific Northwest have access to gas supplies from both Canada and the Rocky Mountain region and thus can source gas from the least costly area (subject to constraints on long-haul pipelines). As shown in Figure 2, natural gas from the Rocky Mountains (NWP-ROCKY MTN) was less expensive than Canadian gas (AECO and BC-ST 2, which are shown in Figure 1) in many historical years, particularly between 2006 and 2010. That trend reversed in 2015, however, and for the past several years Canadian gas has been much less expensive for consumers in the Pacific Northwest.

Figure 2. Historical natural gas prices at select trading hubs

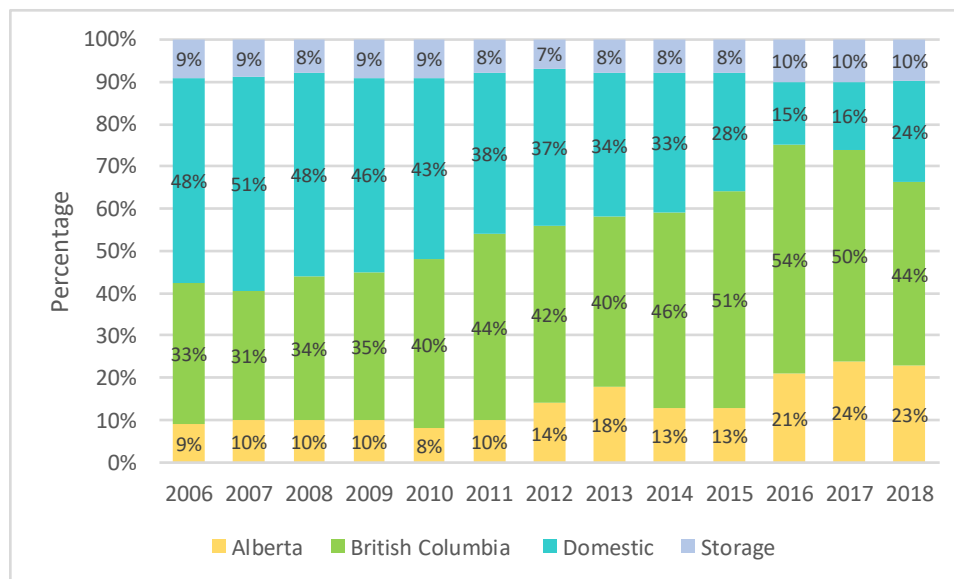


Source: Avista Corporation. 2018. *Natural Gas Integrated Resource Plan*. Page 96.²

² AECO refers to the AECO-C-Nova Inventory Transfer market center located in Alberta. BC-ST 2 is the Station 2 Hub located at the center of the Enbridge Westcoast Pipeline system connecting to northern British Columbia. Henry refers to Henry Hub. NWP-Rocky Mountain is the pricing point on the southern end of the NWP system in the Rocky Mountain region.

During the period in which natural gas from the Rockies was cheaper than gas from Canada, consumption of gas from that region in the Pacific Northwest peaked at 51 percent of the total in 2007. Over the last several years, however, natural gas production in British Columbia has grown. Increased supply has led to the declining prices for Canadian gas seen in Figure 2 and the increase in natural gas use from Canada seen in Figure 3. More than two-thirds of the natural gas consumed in the Pacific Northwest region came from Canada in 2018. Figure 3 shows the portions of natural gas consumed in the Pacific Northwest that came from the Rocky Mountain region and from Canada between 2006 and 2018.

Figure 3. Percentage of natural gas supply to the Pacific Northwest from Canada and the Rocky Mountain region



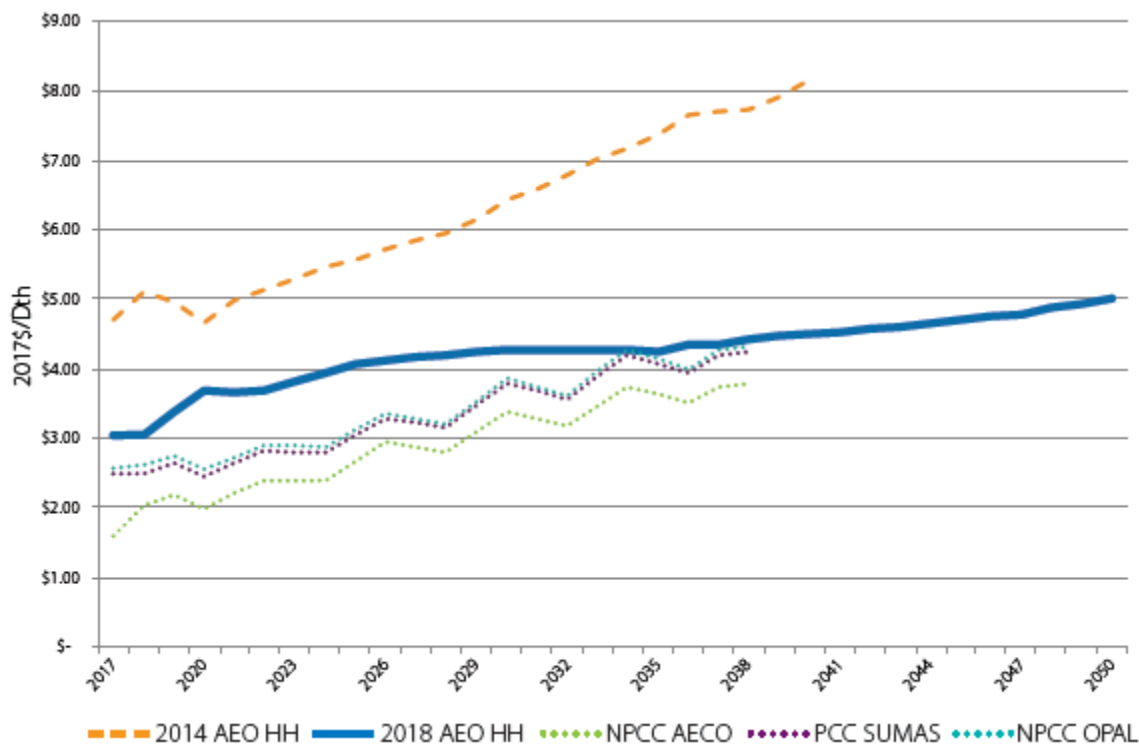
Sources: Northwest Gas Association. 2016. *Pacific Northwest Gas Market Outlook*. Page 6.

Northwest Gas Association. 2018. *Pacific Northwest Gas Market Outlook*. Page 6.

We can expect these price and supply trends to continue, as production from the Rocky Mountain region is expected to remain flat over the next decade while production from the Western Canadian Sedimentary Basin (WCSB) is expected to grow by approximately 2 billion cubic feet per day in the same time period.³ Figure 4 shows prices at the AECO Hub in Canada trending below the Rocky Mountain Opal Hub by approximately \$0.50/Dth through 2038.

³ Northwest Gas Association. 2018. *Pacific Northwest Gas Market Outlook*. Pages 5-6.

Figure 4. Forecasted natural gas prices at select hubs



Source: Northwest Gas Association. 2018. *Pacific Northwest Gas Market Outlook*. Page 8.⁴

Natural gas flowing to the proposed Jordan Cove project must also include a transportation cost to ship the gas from either the Kingsgate Hub in Canada along the GTN pipeline or from the Opal Hub in the Rockies along the Ruby pipeline. Table 1 and Table 2 show the transportation charges associated with the GTN and Ruby pipelines, respectively, calculated from the rate schedules shown in the tariffs filed by the pipeline companies with the Federal Energy Regulatory Commission (FERC). Table 3 compares the price of natural gas at the Kingsgate Hub and transportation along the GTN pipeline (gas obtained from Canada) with the price of natural gas at the Opal Hub and transportation along the Ruby pipeline (gas obtained from the Rocky Mountain region).

⁴ The sources of the “2014 AEO HH” and “2018 AEO HH” are the US Energy Information Administration (US EIA) 2014/2018 Annual Energy Outlook (AEO) for Henry Hub. The NPCC forecasts are from the Northwest Power and Conservation Council (NPCC) 7th Power Plan Midterm Assessment from 2017 for the AECO, Sumas, and Opal natural gas trading hubs.

Table 1. Tariff – Kingsgate to Malin along the GTN Pipeline

	Rate	Unit
Daily Mileage Rate	\$0.000391	Dth-Mile
Daily Non-Mileage Rate	\$0.030954	Dth
Delivery Charge	\$0.000016	Dth-Mile
Fuel Charge (June 2019)	\$0.015	Dth
Mileage	612.6	Miles
Total per dth per day	\$0.30	

Source: Gas Transmission Northwest LLC. FERC Gas Tariff. Statement of Rates version 18.0.0. Effective January 1, 2019.

Table 2. Tariff – Opal to Malin along the Ruby Pipeline

	Rates per Dth
Monthly Reservation Rate	\$34.5826
Commodity Rate	\$0.0100
Electric Power Cost	\$0.0450
Total per dth per day	\$1.19

Source: Ruby Pipeline, LLC. FERC Gas Tariff. Service Rates Version 31.0.0, Effective March 31, 2019.

The cost to transport gas along the GTN pipeline from Canada is approximately one-quarter of the cost to transport gas along the Ruby pipeline. Table 3 compares the price of natural gas at the Kingsgate Hub and transportation along the GTN pipeline (gas obtained from Canada) with the price of natural gas at the Opal Hub and transportation along the Ruby pipeline (gas obtained from the Rocky Mountain region).

Table 3. Hub prices plus transportation costs

	2021 Hub Price \$/dth	Transport Price \$/dth/day
Kingsgate	\$1.92	\$0.30
Opal	\$2.01	\$1.19

Source: Hub prices are from: Bonneville Power Administration. 2019. BP-20 Rate Proceeding. Initial Proposal: Power Market Price Study and Documentation. BP-20-E-BPA-04.

When the natural gas hub price and transportation price are taken together, it becomes clear that it is much cheaper for Jordan Cove LNG to obtain natural gas from Canadian suppliers for export overseas.

Jordan Cove has stated its intent to source most, if not all, of its natural gas from Canada

The Jordan Cove LNG project applied for a license to source Canadian natural gas from the WCSB into the United States for export at the proposed LNG terminal. Developers also stated in the licensing application that the project may be supplied with natural gas from the Rocky Mountain region of the United States but noted in responses to an information request from the National Energy Board (NEB) of Canada that “the mention of the U.S. Rocky Mountain region...simply relates to a potential option for obtaining gas resources for the LNG facility. Like other Canadian LNG export applications, Jordan Cove LNG seeks to preserve the flexibility to source all of its project requirements from Canada...”⁵

In February 2014, the NEB granted Jordan Cove LNG the requested license to export Canadian natural gas. The license has a duration of 25 years and allows for annual export volumes of 1.55 billion cubic feet per day for pipeline fuel and fuel use at the terminal.⁶ The U.S. Department of Energy gave its approval for the corresponding import of natural gas from Canada to the Jordan Cove LNG facility in March 2014.⁷

In the NEB’s assessment of the Jordan Cove license application, it had to determine whether the natural gas proposed for export at Jordan Cove exceeded the expected surplus after considering projected Canadian demand for natural gas. Jordan Cove submitted a study by Navigant Consulting that concluded that natural gas supplies in the United States and Canada are abundant and can support both domestic market requirements and LNG export demands. In its analysis, Navigant noted that Jordan Cove applied for Canadian export authority to cover the entirety of potential LNG shipments from the project and “anticipates sourcing much, if not all, of its exports from Canadian natural gas supplies.”⁸

This report has demonstrated that both Jordan Cove’s stated intentions and the economics of western Canadian and domestic Rocky Mountain natural gas supplies support the conclusion that Jordan Cove intends to supply its proposed LNG export facility with Canadian gas.

⁵ Jordan Cove LNG L.P. (Jordan Cove LNG). Jordan Cove LNG Response to NEB Information Request No. 1. Application for a License to Export Natural Gas pursuant to Section 117 of the National Energy Board Act. Filed 9 September 2013 (Application). File OF-EI-Gas-GL-J705-20132-01 01 1.1.

⁶ National Energy Board, Canada. February 20, 2014. *Letter Decision*. File OF-EI-Gas_GL-J705-2013-01 01.

⁷ U.S. Department of Energy, Office of Fossil Energy. March 18, 2014. *DOE/FE Order No. 3412 Granting Long-Term Multi-Contract Authorization to Import Natural Gas from Canada to the Proposed Jordan Cove LNG Terminal in the Port of Coos Bay, Oregon*. FE Docket No. 13-141-NG.

⁸ Navigant Consulting. September 2013. *Supply and Demand Market Assessment and Surplus Evaluation Report*. Prepared for Jordan Cove LNG L.P.

