



2019 Update: Mapping BC's LNG Proposals

Crowded field clears to fewer than 10 active LNG proposals in BC; down from 20 in 2017

December 2019 | By Tarika Powell

British Columbia sang a siren song to liquefied natural gas¹ (LNG) investors, luring them to the province's shores with promises of fossil fuel-friendly policies and a bounty of cheap fracked gas from northeastern basins. Oil and gas companies the world over answered the call, proposing nearly two dozen LNG export facilities to ship the fracked fuel to Asian ports. The proposals would have collectively produced four times as much LNG as Qatar, the world's largest LNG exporter.² They also would have doubled the province's carbon emissions.³

The provincial government hoped to have three new LNG plants in operation by 2020,⁴ dangling incentives such as subsidized electricity rates for the planned facilities.⁵ Canada even amended its National Energy Board Act to extend the maximum term for natural gas export licenses from 25 years to 40 years.⁶ But shortly after British Columbia's LNG "gold rush" began, global LNG prices collapsed, dashing hopes for profitable LNG exports from the province.⁷ Most of the proposals required new pipelines to move gas from the distant Western Canadian Sedimentary Basin⁸ but low international LNG prices put this costly infrastructure out of financial reach.⁹ The projects and their pipelines also ran into public opposition related to the interests of BC First Nations, increases in emissions and tanker traffic, and harm to critical salmon habitat.¹⁰

When Sightline published its first inventory of BC LNG export schemes in March 2017,¹¹ we profiled 20 projects. In our 2018 update, 16 projects remained but many were stagnant. Below, we take a look at the status of those 16 projects, finding that only 7 can still be considered active proposals.





LNG on the Salish Sea (Projects 1 & 2)

1. Tilbury LNG expansion and Wespac jetty¹²

FortisBC undertook two projects at its 47-year-old Tilbury LNG plant at Delta, BC, just south of Vancouver: building a new marine jetty and expanding production capacity.¹³ Since our first report, FortisBC has completed Phase 1A of the \$425 million production capacity expansion.¹⁴ The company added liquefaction equipment and a second LNG storage tank. Existing Fortis BC pipelines will continue to feed gas to the facility.¹⁵

FortisBC's 2017 Long Term Gas Resource Plan argues a need to further expand the Tilbury facility and possibly the Coastal Transmission System pipeline in "Phase 1B."¹⁶ The company's argument for expansion is predicated on anticipated demand for LNG as a maritime fuel.¹⁷ The BC Government pre-approved up to \$400 million in Phase 1B expenditures.¹⁸

A subsidiary of US-based WesPac Midstream partnered with FortisBC on the jetty project, which will load bulk LNG shipments and fuel marine vessels such as BC Ferries.¹⁹ The project

backers aim to move 3.5 million metric tons of LNG per year through the jetty.²⁰ The partners initially claimed that the jetty would supply “regional and offshore markets,”²¹ but they now intend to supply “customers across the Pacific and around the world.”²² Target ports are likely all in Asia.

FortisBC hopes the jetty project will create a hub for LNG marine fuel in British Columbia, much like the controversial Tacoma LNG project in Washington, 160 miles to the south. Plans for the jetty include a temporary floating berth to fuel vessels with LNG starting in 2020, with a permanent berth to begin operations in 2022.²³ Project proponents have set marine traffic expectations at 69 ship-to-ship bunkering barges and 68 LNG carriers annually,²⁴ a decrease from the marine estimates cited in the project’s 2015 Canadian Environment Assessment Act summary. WesPac previously predicted up to 90 barge calls and 122 LNG carrier calls.²⁵

Permitting for the jetty has been bumpy owing to errors on FortisBC and Wespac’s behalf. The Environmental Assessment Office notified the company in October 2018 that its application was missing key information.²⁶ The company filed a revised Environmental Assessment in March 2019.²⁷ But in early August, the Office suspended review of the project’s application in order to expand the geographic extent of the project’s review to include potential project-related effects in the jetty’s expanded marine shipping area.²⁸

FortisBC is already fueling BC Ferries and two Seaspan ferries through a truck-to-ship LNG bunkering system while the jetty project proceeds through permitting.²⁹ Additionally, Tilbury LNG shipped its first LNG export to China in November 2017 as part of a pilot project to test the feasibility of small-scale LNG exports to global markets.³⁰ In 2018, it shipped approximately 2,000 metric tons of LNG to two industrial buyers in China via small containers on container ships.³¹ Fortis may more than double the amount of small-container shipments to China in 2019 before the jetty project even gets off the ground.³²

2. Woodfibre LNG³³

Woodfibre LNG is proposed for the shores of Howe Sound, southwest of Squamish, BC.³⁴ The National Energy Board (NEB) granted Woodfibre a 40-year export license for 2 million metric tons per year.³⁵ The LNG plant would obtain its gas supplies from the Eagle Mountain-Woodfibre Gas Pipeline (EGP) Project,³⁶ a proposed expansion of a 47-kilometer portion of existing FortisBC pipeline.³⁷ In November 2015, Woodfibre LNG’s parent company, Pacific Oil & Gas Limited (which is part of the Singapore-based RGE Group), authorized funds to allow the project to proceed.³⁸

The BC Oil and Gas Commission approved a facilities permit for Woodfibre LNG on July 2, 2019, which would allow Woodfibre to construct and operate the facility if a number of conditions are

met.³⁹ Woodfibre also reached a benefits agreements with the Squamish Nation in December 2018, also subject to environmental conditions.⁴⁰ The facility still has other permits to acquire. Project backers have also announced significant financial developments. In 2016, Guangzhou Gas Group agreed to buy 1 million metric tons of the plant's annual capacity for 25 years, starting in 2020.⁴¹ Woodfibre announced a sales and purchase agreement with BP Gas Marketing Limited, an LNG distributor, in late June 2019.⁴² BP agreed to purchase 750,000 metric tons of LNG per year over 15 years, with a first delivery expected in 2023.⁴³ And in May 2019, Pacific Oil and Gas announced a cash purchase of Canbriam Energy, a company that extracts gas from the Montney Basin,⁴⁴ the likely source of Woodfibre's gas supply.

Inactive or canceled Salish Sea projects

Two projects have been canceled or gone inactive since January 2018.

Kwispaa LNG

Vancouver-based Steelhead LNG planned for two projects on Vancouver Island: Malahat LNG, located on territory owned by the Malahat Nation north of Victoria, and Kwispaa LNG (formerly Sarita LNG), on Huu-ay-aht First Nations lands near Port Alberni.⁴⁵ Both projects have now been canceled.

Canada's National Energy Board (NEB) granted Steelhead export licenses for 6 million metric tons per year from Malahat LNG and 24 million metric tons per year from Kwispaa LNG.⁴⁶ The Malahat facility would have relied on natural gas delivered by the Island Gas Connector, an 81-mile pipeline proposed by Williams Pipeline Northwest.⁴⁷ The Island Gas Connector would have begun in Washington and run along the floor of the Salish Sea for nearly 50 miles before connecting to the proposed Malahat LNG facility.

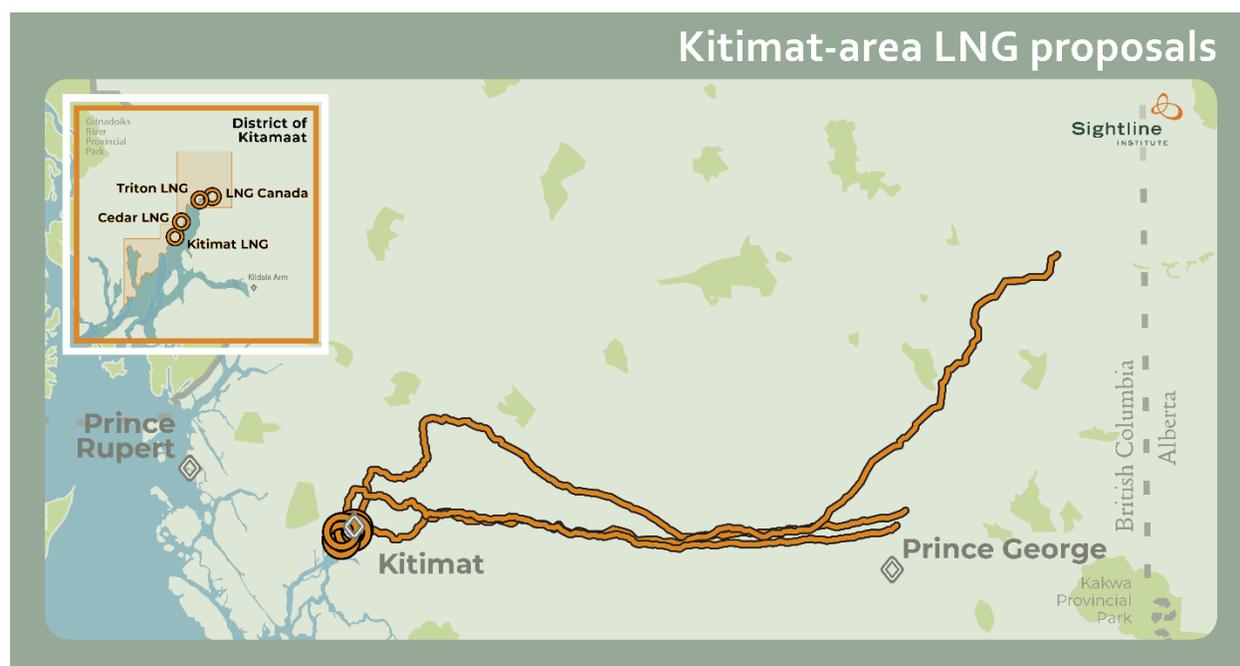
In late 2017, Steelhead announced that it was canceling the Malahat project.⁴⁸ Until late 2018, things still looked promising for Kwispaa LNG. Steelhead filed a project description with the BC Environmental Assessment Office in October 2018⁴⁹ and the company announced a proposed pipeline route that would deliver natural gas from northern British Columbia.⁵⁰ Steelhead also signed a \$500 million contract with Hyundai Heavy Industries for facility engineering and design of two floating LNG storage tanks, expecting design work to begin in early 2019.⁵¹

In February 2019, however, the executive council of the Huu-ay-aht First Nations announced in an open letter to Huu-ay-aht citizens that Steelhead LNG had ceased working on the Kwispaa LNG project.⁵² (Steelhead and the Huu-ay-aht co-managed the development.⁵³) Steelhead blamed investor uncertainty, with the company's CEO pointing to lack of investor confidence in LNG and pipeline investments.⁵⁴ Steelhead also prefers to call the move "a refocusing or a timeout," claiming that it has not completely pulled out of the deal.⁵⁵

Discovery LNG⁵⁶

There have been no project advancements on Discovery LNG for several years aside from demolishing buildings at the old pulp mill site purchased for the project.⁵⁷ Sightline no longer considers Discovery LNG an active project.

Discovery LNG was proposed by an Alberta subsidiary of Texas-based Quicksilver Resources, which went bankrupt in early 2015.⁵⁸ Now calling themselves Rockyview Resources, the project backers proposed to build a 20-million-metric-ton-per-year LNG facility on the north side of the Campbell River.⁵⁹ In May 2016, the National Energy Board issued a 25-year export license for the project.⁶⁰ Rockyview was still seeking joint venture partners and had lowered its expectations on how quickly the project would move, pushing out the goal for an operational facility to 2030.⁶¹ Rockyview did not identify a pipeline route to the facility.⁶²



Kitimat Projects (3-6)

3. Kitimat LNG⁶³

Kitimat LNG was a joint venture between oil giant Chevron and Australian oil and gas corporation Woodside Energy until December 2019, when Chevron announced plans to “exit its entire 50 percent working interest in the Kitimat LNG project.”⁶⁴ The project plans to export 18 million metric tons of LNG per year. Kitimat LNG would be located next door to another proposed LNG project at Bish Cove on the Douglas Channel, on land leased from the Haisla

Nation.⁶⁵ Chevron's proposed 480-kilometer Pacific Trail Pipeline would deliver gas to the facility from the Liard and Horn river basins.⁶⁶

In mid-2017 Chevron reduced the pace of the project due to falling energy prices.⁶⁷ The company also re-evaluated its original project design in order to drive down costs.⁶⁸ Then in spring 2019, Chevron and Woodside applied to the National Energy Board to double the production capacity of the facility from 10 to 18 million metric tons.⁶⁹ Around the same time, Chevron announced plans to use hydroelectric power for the plant, though the plan would require building additional regional electricity supply.⁷⁰

Media reports indicate that Woodside has also been in talks to sell its stake in the plant.⁷¹ The company has not made a final investment decision.⁷² Indeed, the ownership structure of Kitimat LNG has changed several times since the project began in 2004. The partnership was originally led by the Canadian arm of Texas-based Apache Corporation.⁷³

Kitimat LNG's initial 20-year license from the NEB is set to expire later this year.⁷⁴ A new application asks for a 40-year export license.⁷⁵

4. Cedar LNG

Backed by the Haisla Nation, the Cedar LNG project would operate at Bish Cove on the northern Douglas Channel, close to Kitimaat Village.⁷⁶ The long-speculative project finally made a tangible move toward development when it began its environmental assessment process in August 2019.⁷⁷ The Haisla Nation proposes to build a floating LNG facility with export capacity of 3 to 4 million metric tons per year.⁷⁸ Proponents hope to connect the project to the Coastal GasLink Pipeline, which is affiliated with the Canada LNG project.⁷⁹ Project construction is anticipated to start in 2022, with operations beginning in 2025.⁸⁰ The NEB granted a 25-year export license in 2016.⁸¹

If the project does not pan out, the Haisla will still have some stake in LNG development through their benefits agreement with the backers of Kitimat LNG.⁸² Development of Cedar LNG is most likely dependent on an "anchor tenant" – a more well-financed project that will foot the cost for gas transportation infrastructure that smaller projects can tap into.

5. Triton LNG

Altagas originally planned two LNG facilities for Kitimat: Triton LNG and Douglas Channel LNG. In early 2016, Altagas halted all development on Douglas Channel LNG. Altagas put Triton on hold, and its joint venture partner, Japanese oil company Idemitsu Kosan, "suspended all efforts" on Triton in mid-2016.⁸³ Altagas is currently more focused on a propane export terminal on Ridley Island, but contends that the Triton project may become a "small modular LNG or methanol project."⁸⁴

If built, Triton would link up to the proposed expansion of Altagas's Pacific Northern Gas (PNG) pipeline.⁸⁵ In 2018, a dispute arose between Triton LNG and another project over gas capacity on the PNG pipeline, indicating that there is still some life in the project.⁸⁶

6. LNG Canada⁸⁷

LNG Canada is the largest of the proposed projects to actually move forward. The big names attached to LNG Canada include Shell; Petronas; PetroChina, China's biggest oil producer; South Korea's KOGAS, one of the world's largest LNG importers; and Mitsubishi, which invests in LNG production in "host countries" and acts as an import agent for Japanese customers.⁸⁸ The companies approved the final investment decision for the 24-million-metric-ton-per-year project in September 2018.⁸⁹ They hope to build the plant to maximum capacity in two phases, and the 2018 investment approval is only for the first phase.⁹⁰ LNG Canada would connect to the proposed 670-kilometer Coastal GasLink pipeline leading from Dawson Creek in northeastern BC.⁹¹ The National Energy Board has granted a 40-year export license.⁹²

The government of Canada announced a \$275 million investment in the \$40 billion dollar project in June 2019.⁹³ Of the investment, \$220 million from the federal Strategic Innovation Fund will go toward more energy-efficient gas turbines to reduce LNG Canada's greenhouse gas emissions and fuel consumption.⁹⁴ The stated goal of the Canadian government's Strategic Innovation Fund is "to spur innovation for a better Canada by providing funding for larger projects (over \$10 million in requested contribution.)"⁹⁵



Northernmost projects (#7)

7. Nisga'a LNG

The Nisga'a Nation has offered Nation-owned land for potential LNG project development sites, and it is also considering developing its own LNG project.⁹⁶ The still-speculative Nisga'a LNG would be located on the Portland Inlet waterway, near the Nass River.⁹⁷ Though the Nation began seeking investors in 2014, it so far has not attracted any.⁹⁸

However, there has been some activity indicating that a project is still in development. The Nisga'a Lisims government said in March 2019 that it is "actively engaged" in preliminary site assessment.⁹⁹ The Nisga'a have also been engaged throughout 2019 in a land dispute over the transfer of Nasoga Gulf Lands from the BC government to the Nation, a move opposed by other First Nations.¹⁰⁰ The lands transfer is central to the Nisga'a aim of attracting LNG development proponents.¹⁰¹

Inactive or cancelled projects

Three of the Northernmost projects have been canceled or gone completely inactive since January 2018.

Grassy Point LNG

Project backer Woodside Energy,¹⁰² an Australian oil and gas company, hoped to produce 20 million metric tons of LNG per year at the proposed Grassy Point LNG facility.¹⁰³ Woodside ended the Grassy Point project in January 2018.¹⁰⁴ The company says it is now focusing on the Kitimat LNG project (No. 3, above), for which it acquired a joint partnership in 2015.¹⁰⁵

The Grassy Point proposal was sited 30 kilometers north of Prince Rupert, across the bay from the Lax Kw'alaams First Nation's reserve land.¹⁰⁶ The pipeline route was never determined, but the feed gas was expected to be transported from the Western Canadian Sedimentary Basin by third-party pipeline.

Kitsault Energy¹⁰⁷

Due to years of inactivity on the Kitsault LNG project, together with legal troubles related to Kitsault Energy,¹⁰⁸ Sightline considers the project as shelved or inactive.

Kitsault Energy was proposed for Kitsault, a ghost town 85 miles north of Prince Rupert.¹⁰⁹ Kitsault is at the head of Alice Arm, the eastern arm of Observatory Inlet.¹¹⁰ The National Energy Board granted Kitsault Energy a 20-year export license in 2016.¹¹¹ However the 20-million-metric-ton-per-year export project was largely speculative,¹¹² and did not have an associated pipeline. The project was backed by self-made millionaire and philanthropist Krishnan Suthanthiran, who purchased the former mining town for about \$6 million in 2005.¹¹³

Stewart Energy LNG

Due to years of inactivity on the Stewart Energy LNG project, Sightline considers this project as shelved.

Canada Stewart Energy Group, a partnership between a construction executive and an oil entrepreneur,¹¹⁴ aimed to build the Stewart Energy LNG facility near Stewart, BC. Stewart is a small district of fewer than 500 people near the Alaska border, at the end of the Portland Canal.¹¹⁵ The project backers hoped to export 30 million metric tons of LNG per year, starting out with a floating facility and then building a land-based plant to expand production. The NEB granted the project a 25-year export license in early 2016.¹¹⁶ The export license application indicated that Stewart Energy intended to build a new pipeline to the remote location and operate it as a joint venture with a third-party pipeline company, but no pipeline agreement was announced.¹¹⁷ The application also claimed that Stewart Energy had entered into preliminary supply agreements with "five major energy groups" in China, and it named Beijing-based Great United Petroleum Holding Company as one of its strategic partners.

LNG Projects at Prince Rupert

All projects in the Prince Rupert area have been canceled or have gone completely inactive since January 2018. We have removed the projects and their associated pipelines from the maps in this report.

Watson Island LNG

The Watson Island LNG Corporation formed in 2014 to pursue three natural gas-based projects in Northern BC: a polypropylene (plastics) manufacturing facility, an LNG export facility, and a propane export facility.¹¹⁸ The proposed LNG facility would have produced 1 million metric tons of LNG per year.¹¹⁹ The City of Prince Rupert entered an exclusivity agreement with the project backer in 2014 to site the facility on Watson Island near Port Edward,¹²⁰ but was sued over the title to the lands before completing the sale.¹²¹ The City also needed to remediate industrial chemicals at the site, a \$50 million undertaking.¹²²

There has been no significant news on the project since 2014. The project's website is no longer online. Natural Resources Canada, a government agency that promotes the natural resources sector, no longer lists any details for Watson Island LNG on its Canadian LNG landing page as of the date of this report.¹²³

Orca LNG

Precious little was known about the project backers of Orca LNG, who are based in Cypress, Texas, or about the proposal itself.¹²⁴ When the project's now-defunct website was online, it consisted of a single placeholder page with no information other than a contact email.¹²⁵ The NEB granted the project an export license for 24 million metric tons per year.¹²⁶ According to the export license, project proponents planned to operate six floating facilities—converted barges—in the vicinity of Prince Rupert, and each would have been able to produce four to five million metric tons of LNG per year.¹²⁷ Orca LNG was allegedly in discussion with “several pipeline companies” about using either existing infrastructure or constructing a dedicated pipeline to transport gas from the Western Canadian Sedimentary Basin,¹²⁸ but never announced a pipeline partnership.

NewTimes Energy LNG

Project backer NewTimes Energy proposed to produce 12 million metric tons of LNG per year at this plant.¹²⁹ Based on contact information on the proponent's website, NewTimes Energy is based in Mclean, Virginia. The LNG facility would have been located “in the vicinity of Prince Rupert,” though an exact location was not announced. The company did not propose a pipeline and does not appear to have reached a supply agreement with any third-party pipeline. There has been no news on the project since the NEB approved its export license in 2016.¹³⁰

WCC LNG Project

WCC LNG was backed by Exxon Mobil and Imperial Oil, an Alberta-based petroleum company partially owned by Exxon.¹³¹ The facility would have produced 30 million metric tons of LNG per year. Project backers planned to site the facility at Tuck Inlet, less than ten kilometers north of Prince Rupert. The NEB granted WCC LNG a 25-year export license, and then an application to extend its export license to 40 years.

The project backers announced in December 2017 that the project would be “moving at a slower pace” throughout 2018 due to market conditions and economic uncertainties, and closed the project’s Prince Rupert office.¹³² A year later in December 2018, Exxon officially shelved the project and withdrew it from environmental review.¹³³ Neither the British Columbia’s government nor project backers have produced any environmental review documents since 2016.¹³⁴

In related news, Imperial took a \$289 million write-down in 2018 on a Horn River fracked gas development in northern BC, saying the asset devaluation came after an assessment of the gas resource’s “relative competitiveness.”¹³⁵ Imperial co-owned the fracking asset with Exxon.¹³⁶ According to reports, Imperial and Exxon had hoped the resource would become a major supply source for BC’s LNG export industry.¹³⁷

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¹ US Energy Information Administration, “Natural Gas Explained: Liquefied Natural Gas,” http://www.eia.gov/energyexplained/index.cfm?page=natural_gas_lng, accessed November 27, 2019.

² Tarika Powell, “BC Wants to Produce Four Times as Much LNG as World’s Largest Exporter,” Sightline Institute, March 15, 2017, <http://www.sightline.org/2017/03/15/bc-wants-to-produce-four-times-as-much-lng-as-worlds-largest-exporter/>.

³ Tarika Powell. “BC’s carbon pollution could double with LNG plants,” Sightline Institute, June 7, 2017, <https://www.sightline.org/2017/06/07/bcs-carbon-pollution-could-double-with-lng-plants/>.

⁴ British Columbia Ministry of Energy and Mines, "Liquefied Natural Gas: A Strategy for BC's Newest Industry," February 3, 2012, http://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-gas-oil/strategy_lng.pdf, accessed November 27, 2019.

⁵ BC Government, "Terms finalized for LNG customers using BC Hydro system," November 4, 2014, https://archive.news.gov.bc.ca/releases/news_releases_2013-2017/2014MEM0028-001668.htm, accessed November 27, 2019. BC Hydro, "New eDrive electricity rate for LNG facilities," https://www.bchydro.com/news/press_centre/news_releases/2016/new-edrive-electricity-rate-for-lng-facilities.html, accessed November 27, 2019. Matt Kieltyka, "LNG industry means higher hydro bills," *Vancouver Metro*, March 27, 2017.

⁶ Canadian National Energy Board Act: Regulations Amending the National Energy Board Act Part VI (Oil and Gas) Regulations, Canada Gazette Part II: Vol. 149, August 12, 2015, <http://www.canadagazette.gc.ca/rp-pr/p2/2015/2015-08-12/html/sor-dors212-eng.html>, accessed November 27, 2019. Karen A. Salmon, et. al., "2016 Year in Review: Top 10 Regulatory Decisions and Trends of Import to the Canadian Energy Industry," BLG Energy Law Blog, January 17, 2017, <http://blog.blg.com/energy/Pages/Post.aspx?PID=275>, accessed November 27, 2019.

⁷ Clark Williams-Derry, "Why has BC's LNG industry stalled?," Sightline Institute, June 28, 2017, <https://www.sightline.org/2017/06/28/why-has-bcs-lng-industry-stalled/>. Tarika Powell, "Giant LNG project fails in BC," Sightline Institute, August 9, 2017, <https://www.sightline.org/2017/08/09/giant-lng-project-fails-in-bc/>.

⁸ Natural Resources Canada, "Alberta's Shale and Tight Resources," <http://www.nrcan.gc.ca/energy/sources/shale-tight-resources/17679>, accessed November 27, 2019.

⁹ Clark Williams-Derry, "Why has BC's LNG industry stalled?," Sightline Institute, June 28, 2017, <https://www.sightline.org/2017/06/28/why-has-bcs-lng-industry-stalled/>. The Oxford Institute for Energy Studies, "LNG Plant Cost Escalation," February 2014, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2014/02/NG-83.pdf>, accessed December 13, 2019.

¹⁰ Tarika Powell, "BC's Carbon Pollution Could double with LNG Plants," Sightline Institute, June 7, 2017, <http://www.sightline.org/2017/06/07/bcs-carbon-pollution-could-double-with-lng-plants/>. Tarika Powell, "LNG 'Giants of the Sea' Headed for BC Waters," Sightline Institute, May 23, 2017, <http://www.sightline.org/2017/05/23/lng-giants-of-the-sea-headed-for-bc-waters/>. Brett Jang, "BC's LNG project poses threat to salmon habitat: study," *The Globe and Mail*, August 6, 2018, <https://www.theglobeandmail.com/news/british-columbia/proposed-lng-terminal-in-bc-poses-risk-to-salmon-report/article25861399/>, accessed November 27, 2019.

¹¹ Tarika Powell, "Mapping BC's LNG Proposals," Sightline Institute, March 8, 2017.

¹² Tilbury Pacific, "Tilbury Pacific LNG Jetty," <https://tilburypacific.ca/>, accessed November 27, 2019.

¹³ Doug Stout, "Tilbury LNG facility is looking at further expansion," *Delta Optimist*, June 26, 2015, <https://www.delta-optimist.com/opinion/tilbury-lng-facility-is-looking-at-further-expansion-1.1980935>, accessed November 27, 2019. Tilbury Pacific, "About Tilbury Pacific," <https://tilburypacific.ca/about-tilbury-pacific/>, accessed November 27, 2019.

¹⁴ FortisBC Inc., "Tilbury LNG expansion project," <https://talkingenergy.ca/project/tilbury-LNG-expansion-project>, accessed November 27, 2019. Fortis BC, 2017 Long Term Gas Resource Plan, December 14, 2017, page 47, <https://www.fortisbc.com/about-us/regulatory-affairs/our-gas-utility/gas-bcuc-submissions/fortisbc-energy-inc.-gas-submissions/resource-plans/2017-resource-plan-for-natural-gas>, accessed November 27, 2019. In March 2017 the BC Government increased the capital expenditure limit of Phase 1A from \$400 million to \$425 million.

¹⁵ FortisBC Inc., "Service Areas," <https://www.fortisbc.com/About/ServiceAreas/Pages/default.aspx>, accessed November 27, 2019.

¹⁶ Fortis BC, 2017 Long Term Gas Resource Plan, December 14, 2017, pages 46, 47, 53, 165, 169, <https://www.fortisbc.com/about-us/regulatory-affairs/our-gas-utility/gas-bcuc-submissions/fortisbc-energy-inc.-gas-submissions/resource-plans/2017-resource-plan-for-natural-gas>, accessed November 27, 2019.

¹⁷ Fortis BC, 2017 Long Term Gas Resource Plan, December 14, 2017, page 86, <https://www.fortisbc.com/about-us/regulatory-affairs/our-gas-utility/gas-bcuc-submissions/fortisbc-energy-inc.-gas-submissions/resource-plans/2017-resource-plan-for-natural-gas>, accessed November 27, 2019.

¹⁸ Fortis BC, 2017 Long Term Gas Resource Plan, December 14, 2017, page 46, <https://www.fortisbc.com/about-us/regulatory-affairs/our-gas-utility/gas-bcuc-submissions/fortisbc-energy-inc.-gas-submissions/resource-plans/2017-resource-plan-for-natural-gas>, accessed November 27, 2019.

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- ¹⁹ Northwest Gas Association, "FortisBC finalizes LNG supply agreement with BC Ferries to fuel new vessels," February 4, 2015, <https://www.nwga.org/fortisbc-finalizes-lng-supply-agreement-with-bc-ferries-to-fuel-new-vessels/>, accessed November 27, 2019.
- ²⁰ Wespac Midstream, "National Energy Board of Canada approves WesPac Midstream LNG export license," May 12, 2015, <http://wespac.com/irvine-ca-u-s-a-on-may-7-2015-wespac-midstream-vancouver-llc-wespac-received-notification-from-canadas-national-energy-board/>, accessed November 27, 2019.
- ²¹ WesPac Midstream, "Tilbury Marine Jetty (Delta, BC)," <http://wespac.com/development/representative-projects/tilbury-marine-jetty/>, accessed February 21, 2017.
- ²² Tilbury Pacific, Tilbury Pacific LNG Jetty, <https://tilburypacific.ca/>, accessed November 27, 2019.
- ²³ Tilbury Pacific, "Environmental assessment filed for proposed Tilbury Pacific LNG marine jetty," March 21, 2019, <https://tilburypacific.ca/news-release-environmental-assessment-filed/>, accessed November 27, 2019. Press release.
- ²⁴ City of Delta, "Council Report: WesPac Tilbury Marine Jetty Environmental Assessment," April 12, 2019, <https://delta.civicweb.net/document/187723>, accessed November 5, 2019.
- ²⁵ WesPac Midstream, WesPac Tilbury Marine Jetty Project [at] Tilbury Island, Delta, BC: Project Description CEEA Summary, May 2015, page 13, <https://www.ceaa-acee.gc.ca/050/evaluations/proj/80105>, accessed November 27, 2019.
- ²⁶ Sandor Gyarmati, "More info needed on Tilbury LNG marine terminal," *Delta Optimist*, December 11, 2018, <https://www.delta-optimist.com/news/more-info-needed-on-tilbury-lng-marine-terminal-1.23529122>, accessed October 7, 2019. British Columbia Environmental Assessment Office, Letter to Wespac Midstream – Vancouver LLC Reference: 334731, November 15, 2018, <https://www.projects.eao.gov.bc.ca/p/58851208aaecd9001b829b58>, accessed October 7, 2019.
- ²⁷ Tilbury Pacific, Tilbury Pacific LNG Jetty, <https://tilburypacific.ca/about-tilbury-pacific/>, accessed August 22, 2019.
- ²⁸ British Columbia Environmental Assessment Office, Letter to Peter Gallenberger of Wespac Midstream – Vancouver LLC Reference: 347206, August 6, 2019, <https://www.projects.eao.gov.bc.ca/p/58851208aaecd9001b829b58>, accessed August 22, 2019. British Columbia Environmental Assessment Office, Marine Shipping Supplemental Assessment – Information Request, November 15, 2019, https://www.projects.eao.gov.bc.ca/api/document/5dcef77a8b5f4700209c4185/fetch/WesPac_MSA-IR_Final_20191115.pdf, accessed November 27, 2019.
- ²⁹ FortisBC, "Vancouver poised to become LNG bunkering hub," May 21, 2019, <https://talkingenergy.ca/topic/vancouver-poised-become-lng-bunkering-hub>, accessed October 7, 2019. Fortis BC, "Using B.C.'s LNG as ship fuel can reduce global emissions," *Vancouver Courier*, April 9, 2019, <https://www.vancourier.com/living/using-b-c-s-lng-as-ship-fuel-can-reduce-global-emissions-1.23785095>, accessed October 7, 2019.
- ³⁰ Nelson Bennett, "First LNG export from BC headed for China," *Business In Vancouver*, November 22, 2017, <https://www.biv.com/article/2017/11/first-lng-export-bc-headed-china/>, accessed December 13, 2019. Julie Gordon, "Canada's first LNG export to China on its way by container," *Reuters*, November 22, 2017, <https://www.reuters.com/article/canada-lng-china/canadas-first-lng-export-to-china-on-its-way-by-container-idUSL1N1NS2A0>, accessed December 13, 2019.
- ³¹ Nelson Bennett, "Small LNG export business getting bigger," *Richmond News*, May 23, 2019, <https://www.richmond-news.com/business/small-lng-export-business-getting-bigger-1.23831339>, accessed December 13, 2019.
- ³² Nelson Bennett, "Small LNG export business getting bigger," *Richmond News*, May 23, 2019, <https://www.richmond-news.com/business/small-lng-export-business-getting-bigger-1.23831339>, accessed December 13, 2019. Western Energy Institute, "Canadian LNG Enters the World Stage by ISO Container," Nov. 20, 2018, <https://www.westernenergy.org/news-resources/canadian-lng-enters-world-stage-iso-container/>, accessed December 13, 2019.
- ³³ Woodfibre LNG, <http://www.woodfibrelng.ca/>.
- ³⁴ Woodfibre LNG, "Woodfibre LNG Project: Site Activities," <http://www.woodfibrelng.ca/wp-content/uploads/2016/08/SiteActivites.png>, accessed December 11, 2019.

- ³⁵ National Energy Board, "A80312 Woodfibre LNG Export Pte. Ltd. – Application for a license to authorize exportation of natural gas," October 27, 2016, <https://apps.neb-one.gc.ca/REGDOCS/Item/View/3080702>, accessed December 11, 2019. National Energy Board, "A84304 National Energy Board – Letter and License GL-340 – Woodfibre – LNG Exportation Application, June 19, 2017, <https://apps.neb-one.gc.ca/REGDOCS/Item/View/3080702>, accessed December 11, 2019.
- ³⁶ FortisBC, "Eagle Mountain – Woodfibre Gas Pipeline project," <https://talkingenergy.ca/project/eagle-mountain-woodfibre-gas-pipeline-project>, accessed December 11, 2019.
- ³⁷ FortisBC, "Eagle Mountain – Woodfibre Gas Pipeline Project," <https://www.fortisbc.com/About/ProjectsPlanning/GasUtility/NewOngoingProjects/EagleMountainWoodfibreGasPipelineProject/Pages/default.aspx>, accessed December 11, 2019.
- ³⁸ Woodfibre LNG, "Parent company authorizes Woodfibre LNG to proceed with project," November 4, 2016, <http://www.woodfibrelng.ca/parent-company-authorizes-woodfibre-lng-to-proceed-with-project/>, accessed December 11, 2019.
- ³⁹ BC Oil and Gas Commission, "Application Determination Number 100105360," July 9, 2019, <https://www.bcogc.ca/node/15527/download>, accessed December 13, 2019.
- ⁴⁰ Ainslie Cruickshank, "Squamish Nation approves Woodfibre LNG project, signs 40-year benefit agreements," *The Star*, December 2, 2018, <https://www.thestar.com/vancouver/2018/12/02/squamish-nation-approves-woodfibre-lng-project-signs-40-year-benefit-agreements.html>, accessed October 7, 2019; Province of British Columbia, "Squamish Liquefied Natural Gas (LNG) Benefits Agreement," March 7, 2019, https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/consulting-with-first-nations/agreements/squamish-lng_benefits_agreement_feb_2019.pdf, accessed October 7, 2019.
- ⁴¹ Reuters, "China's Guangzhou Gas plans LNG import terminal, eyes partnership with Woodfibre," *Reuters*, May 17, 2017, <https://af.reuters.com/article/nigeriaNews/idAFL4N1K1S9>, accessed November 13, 2019. Woodfibre LNG, Project Newsletter, Volume 3, Issue 1, http://www.woodfibrelng.ca/wp-content/uploads/2016/05/WF16_16-Newsletter_WEB.pdf, accessed December 11, 2019.
- ⁴² Jennifer Thuncher, "UPDATED: Woodfibre LNG has a new customer," *The Squamish Chief*, June 26, 2019, <https://www.squamishchief.com/news/local-news/updated-woodfibre-lng-has-a-new-customer-1.23868640>, accessed October 7, 2019. Woodfibre LNG, "Woodfibre LNG signs foundation customer," *Business Insider*, June 26, 2019, <https://markets.businessinsider.com/news/stocks/woodfibre-lng-signs-foundation-customer-1028311592>, accessed October 7, 2019.
- ⁴³ Jennifer Thuncher, "UPDATED: Woodfibre LNG has a new customer," *The Squamish Chief*, June 26, 2019, <https://www.squamishchief.com/news/local-news/updated-woodfibre-lng-has-a-new-customer-1.23868640>.
- ⁴⁴ The Canadian Press, "Developer of B.C. Woodfibre LNG project buys Calgary-based natural gas producer," *CBC/Radio-Canada*, May 13, 2019, <https://www.cbc.ca/news/canada/calgary/woodfibre-lng-canbriam-energy-calgary-1.5134624>, accessed October 7, 2019.
- ⁴⁵ Steelhead LNG (Salish) Ltd., "Sarita Bay Project FAQ," <http://www.steelheadlng.com/sarita-bay-project-faq/>, accessed December 11, 2019. Steelhead LNG, "Malahat LNG Project Update," December 1, 2017, <http://malahatlng.com/wp-content/uploads/2017/11/Malahat-LNG-project-update-Dec-1-FINAL.pdf>, accessed December 4, 2017.
- ⁴⁶ Steelhead LNG (Salish) Ltd., "Steelhead LNG export licenses for Malahat LNG and proposed project at Sarita Bay approved by National Energy Board," October 2, 2015, <http://www.steelheadlng.com/steelhead-lng-export-licences-for-malahat-lng-and-proposed-project-at-sarita-bay-approved-by-national-energy-board/>, accessed December 11, 2019.
- ⁴⁷ IslandGas, "Island Gas Connector: Maps and Facilities," <http://islandgasconnector.com/maps-facilities/>, accessed February 21, 2017; Eric de Place and Deric Gruen, "Fracked Gas at Cherry Point and Vancouver Island: An Introduction," Sightline Institute, June 8, 2016, <https://www.sightline.org/2016/06/08/fracked-gas-at-cherry-point-and-vancouver-island-an-introduction/>.
- ⁴⁸ Hugo Wong, "Steelhead LNG terminal no longer planned for Saanich Inlet," *Victoria News*, December 1, 2017, <https://www.vicnews.com/news/steelhead-lng-terminal-no-longer-planned-for-saanich-inlet-said-central-saanich-mayor/>, accessed December 11, 2019. Michael D. Reid, "Malahat LNG Project Scrapped," *Times Colonist*, December 2, 2017, <http://www.timescolonist.com/news/local/malahat-lng-project-scrapped-1.23111355>, accessed December 11, 2019. Steelhead LNG, "Malahat LNG Project Update," December 1, 2017,

<http://malahatlng.com/wp-content/uploads/2017/11/Malahat-LNG-project-update-Dec-1-FINAL.pdf>, accessed December 4, 2017.

⁴⁹ British Columbia Environmental Assessment Office, “Kwispaa LNG,”

<https://www.projects.eao.gov.bc.ca/p/5bd33fd8e3a27a0024581f03/project-details>, accessed Aug. 22, 2019.

⁵⁰ James Wood, “LNG pipeline proposed from Powell River to Comox Valley,” *My Campbell River Now*, October 30, 2018, <https://www.mycampbellrivernow.com/28576/lng-pipeline-proposed-from-powell-river-to-comox-valley/>, accessed December 11, 2019. James Wood, “Steelhead LNG CEO says Kwispaa LNG project is on “time out,”” *My Campbell River Now*, February 18, 2019, <https://www.mycampbellrivernow.com/32832/steelhead-lng-ceo-says-kwispaa-lng-project-is-on-time-out/>, accessed December 11, 2019.

⁵¹ Steelhead LNG, “Canada’s Kwispaa LNG and Hyundai Heavy Industries close deal for Front-End Engineering and Design of At-Shore LNG™ hulls for the Kwispaa LNG Project,” Sept. 19, 2018, <https://www.newswire.ca/news-releases/canadas-kwispaa-lng-and-hyundai-heavy-industries-close-deal-for-front-end-engineering-and-design-of-at-shore-lng-hulls-for-the-kwispaa-lng-project-693708431.html>. Press release, accessed December 11, 2019.

Callum O’Reilly, “Kwispaa LNG inks deal with HHI,” *Hydrocarbon Engineering*, Sept. 20, 2018,

<https://www.hydrocarbonengineering.com/gas-processing/20092018/kwispaa-lng-inks-deal-with-hhi/>, accessed December 13, 2019. Times Colonist/The Canadian Press, “Port Alberni LNG project takes major step forward,” *Times Colonist*, Sept. 19, 2018, <https://www.timescolonist.com/business/port-alberni-lng-project-takes-major-step-forward-1.23436675>, accessed December 11, 2019.

⁵² Huu-ay-aht First Nations Executive Council, “Open Letter to all Citizens from Executive Council,” February 17, 2019, <https://huuayaht.org/2019/02/17/open-letter-to-all-citizens-from-executive-council/>. Letter.

⁵³ Andrew Nikiforuk, “Sarita Bay LNG Vote Came with Promise of Multimillion-Dollar Education Fund,” *The Tyee*, April 6, 2017, <https://thetyee.ca/News/2017/04/06/Sarita-Bay-LNG-Vote/>, accessed December 4, 2017. Rafferty Baker, “Steelhead LNG project gets early OK from Huu-ay-aht Nation,” *CBC News*, March 27, 2017, <http://www.cbc.ca/news/canada/british-columbia/steelhead-lng-sarita-project-huu-ay-aht-vote-1.4043292>, accessed December 5, 2017.

⁵⁴ James Wood, “Steelhead LNG CEO says Kwispaa LNG project is on “time out,”” *My Campbell River Now*, February 18, 2019, <https://www.mycampbellrivernow.com/32832/steelhead-lng-ceo-says-kwispaa-lng-project-is-on-time-out/>, accessed October 7, 2019. Susie Quinn, “Steelhead LNG stops work on Kwispaa LNG project near Bamfield,” *Victoria News*, February 18, 2019, <https://www.vicnews.com/news/steelhead-lng-stops-work-on-kwispaa-lng-project-near-bamfield/>, accessed October 7, 2019.

⁵⁵ CBC News, “First Nation ‘deeply disappointed’ after Steelhead LNG pulls out of Vancouver Island project,” Feb. 19, 2019, <https://www.cbc.ca/news/canada/british-columbia/steelhead-lng-pulls-out-of-vancouver-island-project-1.5024343>, accessed October 7, 2019. Susie Quinn, “Steelhead LNG stops work on Kwispaa LNG project near Bamfield,” *Victoria News*, February 18, 2019, <https://www.vicnews.com/news/steelhead-lng-stops-work-on-kwispaa-lng-project-near-bamfield/>, accessed October 7, 2019.

⁵⁶ Rockyview Resources Inc., “Discovery LNG: Project Details,” <http://www.discoverylng.com/project-details/>, accessed February 21, 2017.

⁵⁷ David Gordon Koch, “Demolition company ‘exposed worker to serious injury or death’ at former Island mill – WorkSafeBC,” *Lake Cowichan Gazette*, Feb. 1, 2019, <https://www.cowichanvalleycitizen.com/news/demolition-company-exposed-worker-to-serious-injury-or-death-at-former-island-mill-worksafebc/>, accessed December 11, 2019. David Gordon Koch, “No injuries after collapsed floor traps worker at former mill in Campbell River – fire chief,” *Campbell River Mirror*, Jan. 21, 2019, <https://www.campbellrivermirror.com/news/no-injuries-after-collapsed-floor-traps-worker-at-former-mill-in-campbell-river-fire-chief/>, accessed December 11, 2019.

⁵⁸ Max B. Baker, “Quicksilver Resources sold for \$245 million on auction block,” *Star-Telegram*, January 23, 2016, <http://www.star-telegram.com/news/business/article56242580.html>, accessed December 11, 2019.

⁵⁹ BC Government, “B.C. LNG Projects: Discovery LNG,” <http://lnginbc.gov.bc.ca/tile/discovery-lng/>, accessed February 21, 2017.

⁶⁰ National Energy Board, “A77173 National Energy Board – Letter and License GL-311 – Quicksilver Resources Canada Inc.,” May 26, 2016, <https://apps.neb-one.gc.ca/REGDOCS/Item/View/2982374>, accessed December 4, 2017.

-
- ⁶¹ J. R. Rardon, "Quicksilver bankruptcy deals blow to LNG terminal," *Campbell River Mirror*, March 19, 2015, <http://www.campbellrivermirror.com/news/296916741.html>, accessed December 11, 2019. Ryan Stuart, "Prosperity creator or pipe dream?", *Douglas Magazine*, December/January 2014, pages 36-39.
- ⁶² Rockyview Resources Inc., "Discovery LNG: FAQ," <http://www.discoverylng.com/project-details/faq/>, accessed February 21, 2017. Ryan Stuart, "Prosperity creator or pipe dream?", *Douglas Magazine*, December/January 2014, pages 36-39.
- ⁶³ Chevron Corporation, "Kitimat LNG Project," <https://www.chevron.ca/our-businesses/kitimat-lng-project>, accessed December 11, 2019.
- ⁶⁴ Woodside Energy Ltd., "Our Business: Canada," <https://www.woodside.com.au/our-business/canada/>, accessed December 11, 2019. Chevron Canada, "Chevron Canada Update re Kitimat LNG Project," December 10, 2019, <https://canada.chevron.com/our-businesses/kitimat-lng-project>, accessed December 11, 2019.
- ⁶⁵ Robin Rowland, "Haisla, BC government sign agreement for third LNG facility at Kitimat," *Northwest Coast Energy News*, September 14, 2012, <http://nwcoastenergynews.com/2012/09/14/3712/haisla-bc-government-sign-agreement-lng-facility-kitimat/>, accessed December 11, 2019. Haisla Nation, "Economic Development: Projects," <http://haisla.ca/economic-development/projects/>, accessed February 21, 2017.
- ⁶⁶ Chevron Corporation, "Pacific Trail Pipeline," <https://www.chevron.ca/our-businesses/kitimat-lng-project/pacific-trail-pipeline>, accessed February 21, 2017.
- ⁶⁷ John Crawford, "Site Preparation Continues on Kitimat LNG Project, But No Final Investment Decision Yet," August 3, 2017, <https://www.iheartradio.ca/ez-rock/ez-rock-terrace/news/site-preparation-continues-on-kitimat-lng-project-but-no-final-investment-decision-yet-1.3004263>, accessed December 11, 2019. Gerry Leibel, "Adverts not an indication of progress on pipeline, LNG," *Northern Sentinel*, June 18, 2017, <http://www.northernsentinel.com/local-news/adverts-not-an-indication-of-progress-on-pipeline-lng/>, accessed December 11, 2019.
- ⁶⁸ Gordon Hoekstra, "Pacific NorthWest LNG mega-project is dead, but B.C.'s LNG dream lives on," *Vancouver Sun*, June 28, 2017, <http://vancouver.sun.com/business/energy/lng-possibility-lives-on-even-after-death-of-mega-project-pacific-northwest-lng>, accessed December 11, 2019. Kitimat Council, "Video: December 5, 2016 Regular Council Meeting," District of Kitimat, December 6, 2016, <http://www.kitimat.ca/EN/meta/news/archives/2016/video-december-5-2016-regular-council-meeting.html>, accessed December 6, 2017. Chris Newton, "Kitimat LNG might not be built for ten years," *Energetic City*, December 7, 2016, <https://energeticcity.ca/2016/12/kitimat-lng-might-not-built-ten-years/>, accessed December 11, 2019.
- ⁶⁹ The Canadian Press, "Chevron applies for license to double production at proposed Kitimat LNG plant," *Global News*, April 4, 2019, <https://globalnews.ca/news/5131745/chevron-kitimat-lng/>, accessed December 11, 2019.
- ⁷⁰ Natalie Obiko Pearson, "Chevron aims for lowest-emission LNG plant in the world with new electric plan," *Financial Post*, July 15, 2019, <https://business.financialpost.com/commodities/energy/chevron-aims-for-lowest-emission-lng-plant-in-world-with-new-electric-plan>, accessed December 11, 2019. Rod Link, "We don't have enough power for Kitimat LNG – BC Hydro," *Northern Sentinel*, April 19, 2019, <https://www.northernsentinel.com/news/we-dont-have-enough-power-for-kitimat-lng-bc-hydro/>, accessed December 11, 2019.
- ⁷¹ John Tilak, Ernest Scheyder and David French, "Chevron in talks to sell stake in Canada LNG project: Report," *Reuters*, March 5, 2018, <https://www.bnnbloomberg.ca/chevron-in-talks-to-sell-stake-in-canada-lng-project-report-1.1018223>, accessed December 11, 2019. Geoffrey Morgan, "'Really exciting': Canadian gas sector cheers Woodside's decision to sell partial Kitimat LNG stake," *Financial Post*, Sept. 10, 2019, <https://business.financialpost.com/commodities/really-exciting-canadian-gas-sector-cheers-woodsides-decision-to-sell-partial-kitimat-lng-stake>, accessed December 11, 2019.
- ⁷² Chevron Global, "Kitimat LNG project overview," <https://canada.chevron.com/our-businesses/kitimat-lng-project/project-overview>, accessed Oct. 9, 2019.
- ⁷³ Apache Corporation, "Apache Canada, Chevron Canada announce joint venture for Kitimat LNG project," December 24, 2012, <http://investor.apachecorp.com/releasedetail.cfm?ReleaseID=728700>, accessed December 11, 2019. BC Ministry of Natural Gas Development, "Major LNG contract awarded," January 13, 2014, https://archive.news.gov.bc.ca/releases/news_releases_2013-2017/2014MNGD0001-000029.htm, accessed December 11, 2019.

-
- ⁷⁴ The Canadian Press, "Chevron applies for license to double production at proposed Kitimat LNG plant," *Global News*, April 4, 2019, <https://globalnews.ca/news/5131745/chevron-kitimat-lng/>, accessed August 22, 2019.
- ⁷⁵ Nelson Bennett, "The 'Tesla of LNG': Kitimat LNG commits to electrification," *JWN Energy*, April 5, 2019, <https://www.jwnenergy.com/article/2019/4/tesla-lng-kitimat-lng-commits-electrification/>, accessed August 22, 2019.
- ⁷⁶ Robin Rowland, "Haisla, BC government sign agreement for third LNG facility at Kitimat," *Northwest Coast Energy News*, September 14, 2012, <http://nwcoastenergynews.com/2012/09/14/3712/haisla-bc-government-sign-agreement-lng-facility-kitimat/>, accessed December 11, 2019.
- ⁷⁷ British Columbia Environmental Assessment Office, "Cedar LNG," <https://www.projects.eao.gov.bc.ca/p/5d64644c2f3e4f00223e81c0>, accessed October 7, 2019.
- ⁷⁸ British Columbia Environmental Assessment Office, "Cedar LNG," <https://www.projects.eao.gov.bc.ca/p/5d64644c2f3e4f00223e81c0>, accessed October 7, 2019.
- ⁷⁹ Cedar LNG, "Initial Project Description: Cedar LNG Project Liquefaction and Export Terminal," August 22, 2019, <https://projects.eao.gov.bc.ca/>, accessed December 11, 2019.
- ⁸⁰ Deborah Jaremko, "Proposed Haisla Nation floating LNG project starts environmental review," *JW Energy*, Sept. 24, 2019, <https://www.jwnenergy.com/article/2019/9/haisla-nation-floating-lng-project-plan-starts-environmental-review/>, accessed October 7, 2019.
- ⁸¹ BC Government, "BC LNG Projects: Cedar LNG," <http://lnginbc.gov.bc.ca/tile/cedar-lng/>, accessed February 21, 2017. National Energy Board, "Export and Import License Applications," <https://www.neb-one.gc.ca/pplctnflng/mjrpp/lngxprt/cnc/index-eng.html>, accessed October 9, 2019.
- ⁸² Gordon Hoekstra, "Haisla Nation in tough waiting game as LNG delayed," *Vancouver Sun*, May 27, 2016, <http://vancouver.sun.com/business/energy/haisla-nation-in-tough-waiting-game-as-lng-delayed>, accessed December 11, 2019. Brent Jang, "The consensus builder," *The Globe and Mail*, May 20, 2016, <http://www.theglobeandmail.com/report-on-business/careers/careers-leadership/the-lunch-ellis-ross/article30106168/>, accessed December 11, 2019. British Columbia Ministry of Environment, "Kitimat LNG receives approval from province," June 6, 2016, https://archive.news.gov.bc.ca/releases/news_releases_2005-2009/2006ENV0048-000746.htm, accessed December 11, 2019.
- ⁸³ Douglas Channel LNG Project, "Consortium halts development on Douglas Channel LNG project," <http://douglaschannelng.com/>, accessed February 21, 2017. BC Ministry of Natural Gas Development, "Triton LNG joins list of BC proposals," October 31, 2013, https://archive.news.gov.bc.ca/releases/news_releases_2013-2017/2013MNGD0027-001646.htm, accessed December 11, 2017. "Japanese oil company backs out of B.C. liquefied natural gas project," *CTV News*, May 10, 2016, <http://www.ctvnews.ca/business/japanese-oil-company-backs-out-of-b-c-liquefied-natural-gas-project-1.2896527>, accessed December 11, 2019. Brent Jang, "AltaGas halts plan to export LNG from British Columbia's north coast," *The Globe and Mail*, February 25, 2016, <http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/altagas-halts-plan-to-export-lng-from-british-columbias-north-coast/article28922586/>, accessed December 11, 2019. Johnny Wakefield, "After bowing out of LNG game, AltaGas announces progress on propane export project," *The Mirror*, May 24, 2016, <http://www.dawsoncreekmirror.ca/regional-news/lng/after-bowing-out-of-lng-game-altagas-announces-progress-on-propane-export-project-1.2262270>, accessed December 11, 2019.
- ⁸⁴ Jaremko Gordon, "Wilson, Western to Develop Floating LNG Vessel in BC," *Natural Gas Intel*, July 30, 2018, <https://www.naturalgasintel.com/articles/115240-wilson-western-to-develop-floating-lng-vessel-in-bc>, accessed December 11, 2019. Mike Laanela, "Altagas planning to build B.C.'s first propane export terminal," *CBC News*, January 4, 2017, <http://www.cbc.ca/beta/news/canada/british-columbia/altagas-prince-rupert-propane-export-1.3920632>, accessed December 11, 2019.
- ⁸⁵ BC Oil and Gas Commission, "Pacific Northern Gas Looping Project," http://www.bcogc.ca/sites/default/files/Pacific%20Northern%20Gas%20Looping%20Project%20external_Feb%201%202016.pdf, accessed December 11, 2019.
- ⁸⁶ Jaremko Gordon, "Wilson, Western to Develop Floating LNG Vessel in BC," *Natural Gas Intel*, July 30, 2018, <https://www.naturalgasintel.com/articles/115240-wilson-western-to-develop-floating-lng-vessel-in-bc>, accessed December 11, 2019. British Columbia Utilities Commission, "Order Number G-220-18 In the matter of the Utilities and Commission Act, RSBC 1996, Chapter 472 and Pacific Northern Gas Ltd., Application for Approval of Letter Agreement between Pacific Northern Gas Ltd. And Triton LNG Limited Partnership," November 19, 2018,

<https://www.bcuc.com/proceedings-orders-decisions/>, accessed December 11, 2019. Lawson Lundell LLP, "Letter Re: Project No. 1598957, Pacific Northern Gas Ltd (PNG) and Triton LNG Limited Partnership (Triton) Letter Agreement (the Letter Agreement) Application (Application) Letter of Comment of Western LNG LLC," June 8, 2018, <https://www.bcuc.com/proceedings-orders-decisions/>, accessed December 11, 2019.

⁸⁷ LNG Canada, <https://www.lngcanada.ca/>, accessed December 11, 2019.

⁸⁸ LNG Canada, "Joint Venture Participants," <https://www.lngcanada.ca/about-lng-canada/joint-venture-participants/>, accessed December 11, 2019. Mitsubishi Corporation, "Business Model: LNG," <http://www.mitsubishicorp.com/jp/en/ir/individual/business/lng/>, accessed December 11, 2019.

⁸⁹ Matt Robinson, "Huge LNG plant in Kitimat, B.C., get the green light, reports say," *Vancouver Sun*, Sept. 30, 2018, <https://vancouversun.com/news/local-news/huge-lng-plant-in-kitimat-b-c-gets-the-green-light-reports-say>, accessed October 7, 2019.

⁹⁰ Matt Robinson, "Huge LNG plant in Kitimat, B.C., get the green light, reports say," *Vancouver Sun*, Sept. 30, 2018, <https://vancouversun.com/news/local-news/huge-lng-plant-in-kitimat-b-c-gets-the-green-light-reports-say>, accessed October 7, 2019.

⁹¹ BC Government, "BC Liquefied Natural Gas Projects," <https://www2.gov.bc.ca/gov/content/industry/natural-gas-oil/lng/lng-projects>, accessed December 11, 2019. TransCanada, "Coastal GasLink Pipeline Project: Pipeline Route," <http://www.coastalgaslink.com/about/route-maps/>, accessed December 11, 2019.

⁹² National Energy Board, "A77188 National Energy Board – Letter and License GL-330 – LNG Canada Development Inc.," May 27, 2016, <https://apps.neb-one.gc.ca/REGDOCS/Item/View/2982380>, accessed December 11, 2019.

⁹³ Leibel, Jerry, "Feds Announce Funds to Replace Kitimat's Haisla Bridge," *BC Local News*, June 30, 2019, <https://www.bclocalnews.com/news/full-story-feds-announce-funds-to-replace-kitimats-haisla-bridge/>, accessed October 7, 2019.

⁹⁴ Leibel, Jerry, "Feds Announce Funds to Replace Kitimat's Haisla Bridge," *BC Local News*, June 30, 2019, <https://www.bclocalnews.com/news/full-story-feds-announce-funds-to-replace-kitimats-haisla-bridge/>, accessed October 7, 2019.

⁹⁵ Government of Canada, "Strategic Innovation Fund," <https://www.ic.gc.ca/eic/site/125.nsf/eng/home>, accessed October 11, 2019.

⁹⁶ Nisga'a Lisims Government, "Opportunities: LNG," <http://www.nisgaanation.ca/opportunities/LNG>, accessed December 11, 2019. Jeff Lewis, "B.C.'s Nisga'a reach out for LNG development, offer land in exchange for jobs," *Financial Post*, February 11, 2014, <http://business.financialpost.com/news/energy/b-c-s-nisgaa-reach-out-for-lng-development-offers-land-in-exchange-for-jobs>, accessed December 11, 2019.

⁹⁷ Nisga'a Lisims Government, "LNG – A Presentation on Available LNG Sites," February 2014, <http://www.nisgaanation.ca/lng-presentation-available-lng-sites>, accessed December 11, 2019.

⁹⁸ Nisga'a Lisims Government, "Nisga'a Nation and Prince Rupert Gas Transmission Ltd. Celebrate agreement; Nisga'a Nation seeks investors to pursue LNG liquefaction project," November 6, 2014, <https://www.nisgaanation.ca/news/nisga'-nation-and-prince-rupert-gas-transmission-ltd-celebrate-agreement-nisga'-nation-seeks>, accessed December 11, 2019. "Massive land deal sought for B.C.'s north coast," *Terrace Standard*, May 24, 2016, <http://www.terracestandard.com/news/380650241.html>, accessed December 11, 2019.

⁹⁹ Nisga'a Lisims Government, "Communique to Nisga'a Citizens (on) Liquefied Natural Gas Development," March 29, 2019, <http://www.nisgaanation.ca/news/communique-nisgaa-citizens-lng-development>, accessed December 11, 2019.

¹⁰⁰ Nisga'a Lisims Government, "Nisga'a Nation Purchase of Lands in the Vicinity of Nasoga Gulf," June 7, 2019, <https://www.nisgaanation.ca/news/immediate-release-nisga%CC%B1aanation-purchase-lands-vicinity-nasoga-gulf>, accessed December 11, 2019. Derrick Penner, "Proposed land sale to Nisga'a First Nation prompts protest by Coast Tsimshian group," *Vancouver Sun*, June 10, 2019, <https://vancouversun.com/news/local-news/proposed-land-sale-to-nisgaa-first-nation-prompts-protest-by-coast-tsimshian-group>, accessed December 11, 2019.

¹⁰¹ Shannon Lough, "Coast Tsimshian to hold information blockade on land transfer to Nisga'a," *The Northern View*, June 6, 2019, <https://www.thenorthernview.com/news/coast-tsimshian-to-hold-information-blockade-on-vigorously-defending-land-transfer-to-nisgaa/>, accessed December 11, 2019. Jenna Cocullo, "Coast Tsimshian release demands and shared solutions on land dispute with Nisga'a," *Haida Gwaii Observer*, June 7, 2019, <https://www.haidagwaiiobserver.com/news/coast-tsimshian-release-demands-and-shared-solutions-on-land-dispute-with-nisgaa/>, accessed December 11, 2019.

-
- ¹⁰² Woodside Energy Ltd., “Grassy Point LNG,” <http://www.woodside.com.au/Our-Business/Developing/Canada/Pages/Grassy-Point.aspx#.WK4IX28rJEZ>, and “About Us,” <http://www.woodside.com.au/About-Us/Pages/about-us.aspx>, both accessed February 21, 2017.
- ¹⁰³ BC Government, “BC LNG Projects: Grassy Point LNG,” <http://Inginbc.gov.bc.ca/tile/grassy-point/>, accessed February 21, 2017.
- ¹⁰⁴ Shannon Lough, “Australian company ends Grassy Point LNG project,” *The Northern View*, March 6, 2018, <https://www.thenorthernview.com/news/australian-company-ends-grassy-point-lng-project/>, accessed December 11, 2019.
- ¹⁰⁵ Ari Charney, “Australian energy giant makes bid for Canadian LNG,” *Investing Daily*, January 2, 2015, <https://www.investingdaily.com/21850/australian-energy-giant-makes-bid-for-canadian-lng-2/>, accessed December 11, 2019. Sonali Paul, “Australia’s Woodside drops Grassy Point LNG plan in Canada to focus on Kitimat instead,” *Reuters*, March 6, 2018, <https://www.reuters.com/article/us-woodside-canada-lng/australias-woodside-drops-grassy-point-lng-plan-in-canada-idUSKCN1GJ00Y>, accessed December 11, 2019.
- ¹⁰⁶ BC Oil and Gas Commission, “Grassy Point LNG,” <https://www.bcogc.ca/node/11394/download>, accessed December 11, 2019. Brent Jang, “Australian firm asks B.C. First Nation to support LNG project,” *The Globe and Mail*, June 8, 2016, <http://www.theglobeandmail.com/news/british-columbia/australian-firm-asks-bc-first-nation-to-support-lng-project/article30363408/>, accessed December 11, 2019. Province of British Columbia, “Second Agreement reached for Grassy Point: Grassy Point Map,” January 16, 2014, https://news.gov.bc.ca/files/Newsroom/downloads/grassy_point_map_january_16_14.pdf.
- ¹⁰⁷ Kitsault Energy, <http://www.kitsaultenergy.com/>, accessed December 11, 2019.
- ¹⁰⁸ Adrian Humphreys, “Millionaire who bought B.C. ghost town – complete with 302 empty homes – under investigation for money laundering in Belgium,” *National Post*, Aug. 20, 2018, <https://nationalpost.com/news/canada/quixotic-owner-of-b-c-ghost-town-in-legal-battle-over-belgian-investigation-into-allegations-of-corporate-fraud>, accessed December 11, 2019.
- ¹⁰⁹ Nick England, “Two B.C. ghost towns have sat empty for decades, but owners have a plan to bring them back to life,” *National Post*, September 28, 2015, <http://news.nationalpost.com/news/canada/two-b-c-ghost-towns-have-lain-empty-for-decades-but-owners-hope-hydro-projects-will-bring-them-back-to-life>, accessed December 11, 2019. Justin McElroy, “Ghost Town Mysteries: The 30-year slumber of Kitsault, B.C.,” *Global News*, July 30, 2014, <http://globalnews.ca/news/1483593/ghost-town-mysteries-the-30-year-slumber-of-kitsault-b-c/>, accessed December 11, 2019.
- ¹¹⁰ Kitsault Resorts Ltd., “About Kitsault,” http://www.kitsault.com/about_loc.html, accessed December 11, 2019.
- ¹¹¹ National Energy Board, “A77196 National Energy Board – Letter and License GL0334 – Kitsault Energy Ltd.,” May 27, 2016, <https://apps.cer-rec.gc.ca/REGDOCS/Item/View/2981744>, accessed December 11, 2019.
- ¹¹² BC Government, “BC LNG Projects: Kitsault Energy Project,” <http://Inginbc.gov.bc.ca/tile/kitsault/>, accessed February 21, 2017.
- ¹¹³ Kitsault Energy, “About the President,” <http://www.kitsaultenergy.com/president.html>, accessed December 11, 2019. Doug Struck, “Virginia millionaire buys himself a ghost town,” *Washington Post*, July 30, 2005, <http://www.washingtonpost.com/wp-dyn/content/article/2005/07/29/AR2005072902170.html>, accessed December 11, 2019.
- ¹¹⁴ Brent Jang, “LNG firm seeks to use small B.C. port,” *The Globe and Mail*, March 16, 2014, <http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/lng-firm-seeks-to-use-small-bc-port/article17512219/>, accessed December 11, 2019. Derrick Penner, “Stewart port terminal owner takes \$70-million gamble that business will follow,” *Vancouver Sun*, September 18, 2015, <http://www.vancouversun.com/stewart+port+terminal+owner+takes+million+gamble+that+business+will+follow/11372104/story.html>, accessed December 11, 2019. Chen Aizhu, “Interview – Former China oil tycoon plots return with Canadian gas venture,” *Reuters*, March 18, 2014, <http://uk.reuters.com/article/china-tycoon-gas-idUKL3N0LV30N20140318>, accessed December 11, 2019.
- ¹¹⁵ Canada Stewart Energy Group, “Introduction,” <http://www.stewartenergy.ca/en/project/introduction/>; “About Stewart,” <http://www.stewartenergy.ca/en/project/aboutstewart/>; “Transportation and Route,” <http://www.stewartenergy.ca/en/project/transportationandroute/>; “Project Plan & Timeline,” <http://www.stewartenergy.ca/en/project/projectplan/>, all accessed February 21, 2017.

-
- ¹¹⁶ Gordon Jaremko, "Canada's NEB licenses another would-be LNG exporter," *Natural Gas Intel*, January 12, 2016, <http://www.naturalgasintel.com/articles/104969-canadas-neb-licenses-another-would-be-lng-exporter>, accessed December 11, 2019.
- ¹¹⁷ National Energy Board, "Canada Stewart Energy Group Ltd. Application to Export LNG for a period of 25 years," <https://apps.neb-one.gc.ca/REGDOCS/Item/View/2676265>, accessed December 11, 2019.
- ¹¹⁸ WILNG Corporation, "Who We Are," <http://www.wilng.ca/who-we-are>, accessed February 21, 2017.
- ¹¹⁹ BC Government, "BC LNG Projects: Watson Island LNG," <http://Inginbc.gov.bc.ca/tile/watson-island-lng/>, accessed February 21, 2017.
- ¹²⁰ City of Prince Rupert, "Watson Island LNG Corporation Exclusivity Agreement," July 16, 2014, <http://www.princerupert.ca/cityhall/news/july-16-2014-watson-island-lng-corporation-exclusivity-agreement>, accessed February 21, 2017. City news online archives now date January 2018 to present, and are available at http://www.princerupert.ca/city_hall/news_archive. WILNG Corporation, "BC LNG/LPG Export Project," <http://www.wilng.ca/watson-island-lng>, accessed February 21, 2017.
- ¹²¹ "WILNG to build small LNG export terminal," *LNG Industry*, July 17, 2014, <https://www.lngindustry.com/liquid-natural-gas/17072014/wilng-to-build-small-lng-export-terminal-on-watson-island-1005/>, accessed December 11, 2019.
- ¹²² Shaun Thomas, "City of Prince Rupert offers Watson Island LNG exclusive rights to former pulp mill site," *Northern View*, July 16, 2014, <http://www.thenorthernview.com/news/267379231.html>, accessed December 11, 2019.
- ¹²³ Natural Resources Canada, "Canadian LNG Projects," <https://www.nrcan.gc.ca/energy/energy-sources-distribution/natural-gas/canadian-lng-projects/5683>, accessed December 11, 2019.
- ¹²⁴ Shaun Thomas, "Orca LNG given LNG export license," July 28, 2015, <https://www.thenorthernview.com/news/orca-lng-given-lng-export-licence/>, accessed December 11, 2019.
- ¹²⁵ Orca LNG, <http://orcalng.com/>, accessed February 21, 2017. Site no longer online.
- ¹²⁶ BC Government, "BC LNG Projects: Orca LNG," <http://Inginbc.gov.bc.ca/tile/orca-lng/>, accessed February 21, 2017.
- ¹²⁷ "NEB grants Orca LNG export license," *LNG World News*, July 28, 2015, <http://www.lngworldnews.com/neb-grants-orca-lng-export-licence/>, accessed December 11, 2019.
- ¹²⁸ Shaun Thomas, "Orca LNG given LNG export license," July 28, 2015, <https://www.thenorthernview.com/news/orca-lng-given-lng-export-licence/>, accessed December 11, 2019.
- ¹²⁹ NewTimes Energy, "About Us," http://www.newtimesenergy.com/?page_id=446, and "LNG Pipeline Preview," http://www.newtimesenergy.com/?page_id=90, both accessed December 11, 2019. Katie Woodward, "NewTimes Energy joins LNG race," *LNG Industry*, February 12, 2015, <https://www.lngindustry.com/floating-lng/12022015/another-lng-company-joins-the-export-race-239/>, accessed December 11, 2019.
- ¹³⁰ Brent Jang, "Vancouver-based NewTimes Energy latest entrant into crowded LNG field," *The Globe and Mail*, February 11, 2015, <http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/vancouver-based-newtimes-energy-latest-entrant-into-crowded-lng-field/article22932594/>, accessed December 11, 2019. Canada's National Energy Board, "Export and Import License Applications," <https://www.neb-one.gc.ca/pplctnflng/mjrpp/lngxprtlcn/index-eng.html>, accessed December 11, 2019.
- ¹³¹ Exxon Mobil Corporation, "LNG Operations: WCC LNG," <http://corporate.exxonmobil.com/en/technology/liquefied-natural-gas/operations/western-canada-lng-project>, accessed February 21, 2017. Site no longer online.
- ¹³² Corey Callaghan, "WCC LNG to Close Prince Rupert Office This Week," CFTK TV, December 4, 2017, <https://www.iheartradio.ca/ez-rock/ez-rock-terrace/wcc-lng-to-close-prince-rupert-office-this-week-1.3483163>, accessed December 11, 2019. Shannon Lough, "WCC LNG office to close in Rupert," *The Northern View*, December 3, 2017, <https://www.thenorthernview.com/news/wcc-lng-office-to-close-in-rupert/>, accessed December 11, 2019.
- ¹³³ Ekaterina Kravtsova, "ExxonMobil shelves Canada LNG export project," *Reuters*, December 20, 2018, <https://www.reuters.com/article/us-lng-exxonmobil-canada/exxonmobil-shelves-canada-lng-export-project-idUSKCN1OJ1ZO>, accessed December 11, 2019. British Columbia Environmental Assessment Office, "WCC LNG Project withdrawn," Dec. 19, 2018, <https://www.projects.eao.gov.bc.ca/projects-list>, accessed December 11, 2019.

¹³⁴ British Columbia Environmental Assessment Office, "WCC LNG Project withdrawn," Dec. 19, 2018, <https://www.projects.eao.gov.bc.ca/projects-list>, accessed December 11, 2019.

¹³⁵ The Canadian Press, "ExxonMobil withdraws application for its \$25-billion LNG project in BC," *CBC*, Dec. 20, 2018, <https://www.cbc.ca/news/canada/calgary/exxon-lng-imperial-tuck-inlet-prince-rupert-bc-calgary-1.4954810>, accessed December 11, 2019. The Canadian Press, "Imperial Oil reports \$137M loss tied to Horn River, Mackenzie gas projects," *CBC*, Feb. 2, 2018. <https://www.cbc.ca/news/canada/calgary/imperial-oil-calgary-profit-losses-horn-river-gas-1.4516605>, accessed December 11, 2019. The Canadian Press, "Imperial Oil reports fourth-quarter loss on northern gas project writedowns," *Financial Post*, Feb. 2, 2018, <https://business.financialpost.com/pmnl/business-pmnl/imperial-oil-reports-fourth-quarter-loss-revenue-down-from-year-ago>, accessed December 11, 2019.

¹³⁶ The Canadian Press, "Imperial Oil reports \$137M loss tied to Horn River, Mackenzie gas projects," *CBC*, Feb. 2, 2018, <https://www.cbc.ca/news/canada/calgary/imperial-oil-calgary-profit-losses-horn-river-gas-1.4516605>, accessed December 11, 2019.

¹³⁷ The Canadian Press, "ExxonMobil withdraws application for its \$25-billion LNG project in BC," *CBC*, Dec. 20, 2018. <https://www.cbc.ca/news/canada/calgary/exxon-lng-imperial-tuck-inlet-prince-rupert-bc-calgary-1.4954810>, accessed December 11, 2019. Jeff Lewis, "Imperial Oil, Exxon to sell natural-gas property in B.C.," *The Globe and Mail*, April 3, 2018, <https://www.theglobeandmail.com/business/industry-news/energy-and-resources/article-imperial-oil-exxon-to-sell-natural-gas-property-in-bc/>, accessed December 11, 2019.