



# LNG in British Columbia

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# Quick Overview of B.C.

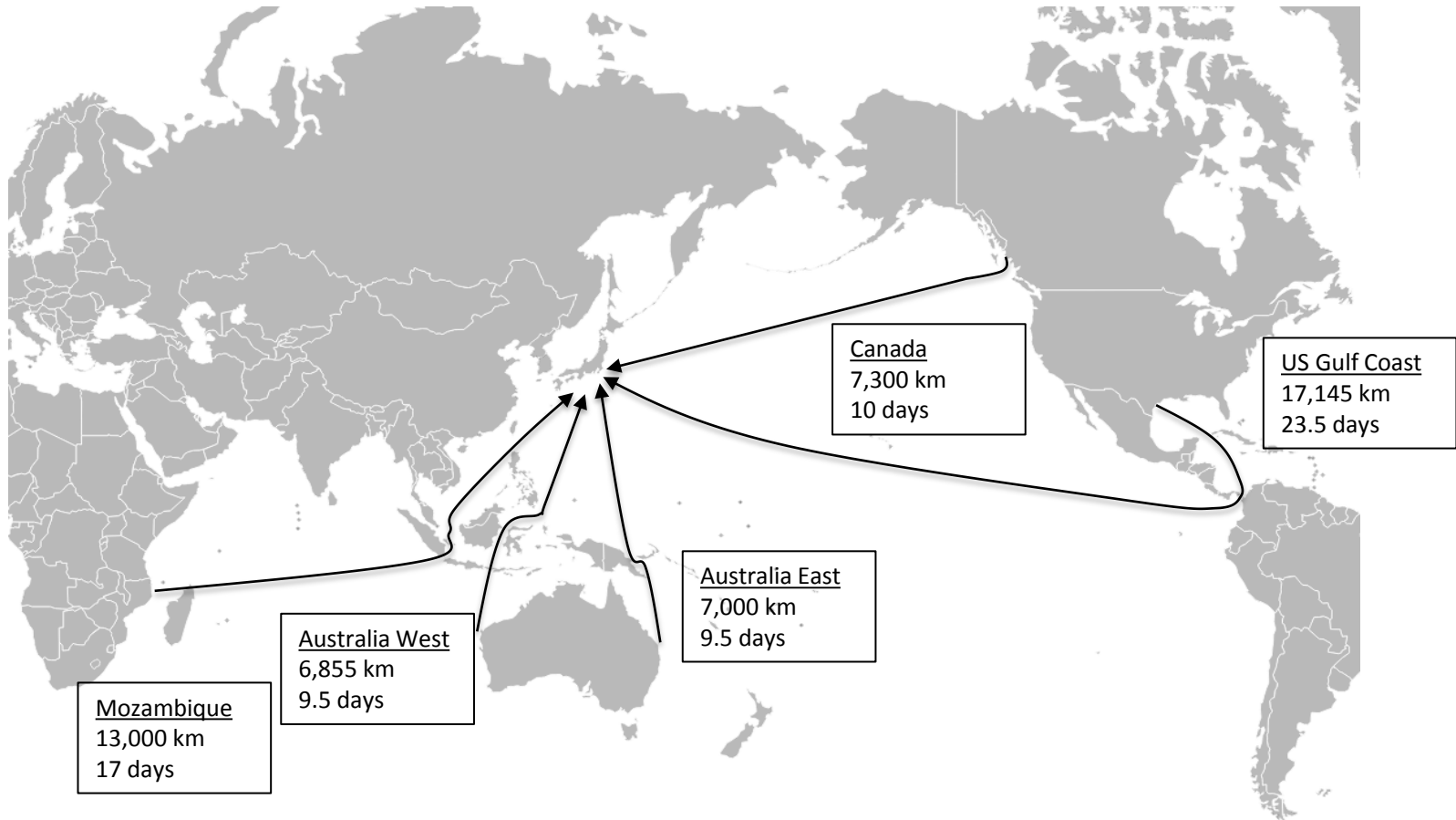
- An area of 944,735 sq. kilometers
- 2012 real GDP is \$209 Billion:
  - GDP growth forecasted at 1.4% in 2013 and 2.2% in 2014.
- Multi-cultural population of 4.6 Million (Oct 2013)
- Skilled labour force of 2.5 Million
- North America's Pacific Gateway
- Largest Business, Finance, Technological and Cultural Center of Western Canada



# B.C.'s Competitive Advantages

- Short transport times to Asian markets
- Lower Operating Costs for Liquefaction (low ambient temperature)
- Vast Resources
- Stable Jurisdiction
- Labour Supply to Support LNG
- Strong Regulatory Regime
- First Nations participation
- Competitive Fiscal Regime

# Short transport times to Asian markets



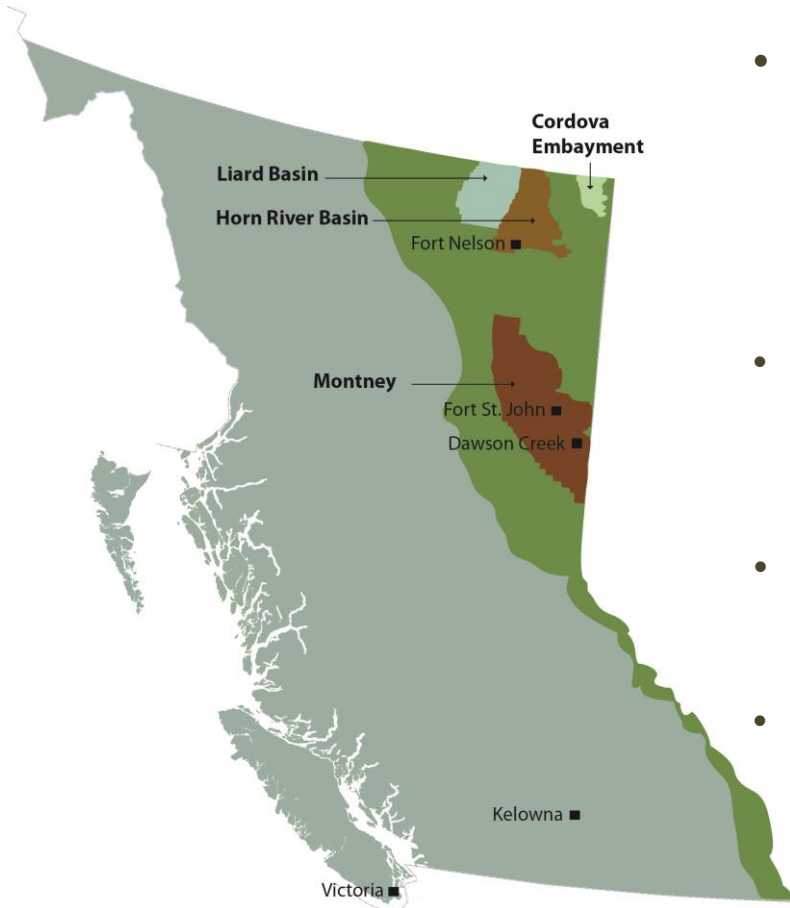
Source: IHS CERA

# Lower Operating Costs for Liquefaction

- B.C. Gas has a cooler ambient temperature than most competitors
- As ambient temperature decreases by 1 degree centigrade; energy efficiency for power consumption increases by 1.7%
- Located in northern B.C., Prince Rupert and Kitimat average temperature is 7 degrees Celsius which provides a competitive advantage over other jurisdictions:
  - Australia: 27c = approx 34% BC energy efficiency advantage
  - Qatar: 26c\* = approx 32.3% BC advantage
  - Mozambique: 23c\* = approx 27.2% BC advantage
  - Louisiana: 22c\* = approx 25.5% BC advantage

\*degrees from National Oceanic and Atmospheric Administration (NOAA)

# Vast Resources & Upstream Development



- Over **2,900 trillion cubic feet (tcf)** of natural gas from tight and shale
  - Montney has 1,965 tcf of gas
  - Horn River has 448 tcf of gas
- B.C.'s November 2014 natural gas and petroleum rights sale totalled \$209 million and thus far in 2014 land sales have almost reached \$350 million.
- Year to date (Jan-Oct) there have been 563 new wells drilled in B.C. – a 22% increase over last year.
- The most active companies over the past two years have included Progress Energy, Shell and Nexen.

# Stable Jurisdiction

- Direct line of sight from senior elected officials to all regulatory agencies.
- Strategies and plans in place to ensure B.C. is a competitive and reliable exporter of LNG.
- B.C. has clear government commitments to maximize the LNG development opportunity.
- B.C. is open for business, establishing a one stop Task Force focusing on the LNG sector.





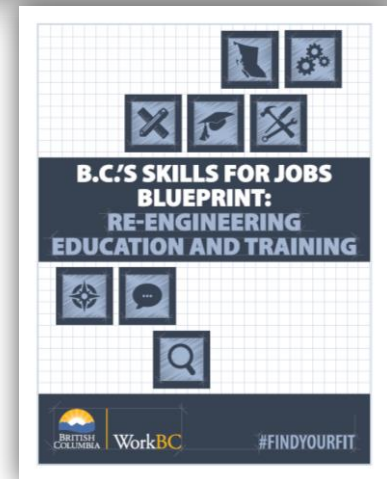
# Labour Supply to Support LNG

## B.C.'s Highly Skilled Workforce

- 2.5 million workers – largest workforce in western Canada
- Canada has the highest rate of post-secondary education in the world
- World-class education and training system

## Plan to Support LNG Workforce

- Launched the B.C.'s Skills for Jobs Blueprint to help meet LNG workforce challenges and ensure that apprenticeships, education and training are more in line with labour market demands
- BC is investing \$6.8-million to add more training seats in public post-secondary institutions in critical trade seats
- Premier's LNG Working Group established to facilitate collaboration between industry, labour and government





# Strong Regulatory Regime

- Modernized *Oil and Gas Activities Act*
- Effective single window regulator: B.C. Oil and Gas Commission
- Commitment to streamlined and efficient processes (i.e. Environmental Assessment Process and permitting) with defined timelines
- Canada and B.C. regulatory alignment and common priority in the development of the LNG sector

# First Nations

Growing engagement and support among First Nations:

## Upstream

- Economic benefit agreements and gas consultation agreements signed
- New G2G agreements and benefit negotiations advancing

## Midstream

- First Nations Limited Partnership –Pacific Trails
- New pipeline benefit agreements being negotiated

## Downstream

- First Nations partnering in multiple projects.
- Provincial benefit negotiations occurring with multiple First Nations on the coast.
- LNG “Environmental Stewardship Initiative” commenced with First Nations.



**Industry Negotiations** – impact benefit agreements being negotiated along entire value chain

**Consultation and Accommodation** – occurring with First Nations on projects throughout provincial regulatory processes

# Competitive Fiscal Regime

- B.C. is committed to providing certainty on tax
- Designed to keep B.C. competitive with other jurisdiction
- Ensure proponents get capital out early
- Based on four core principles for fair and balanced approach:

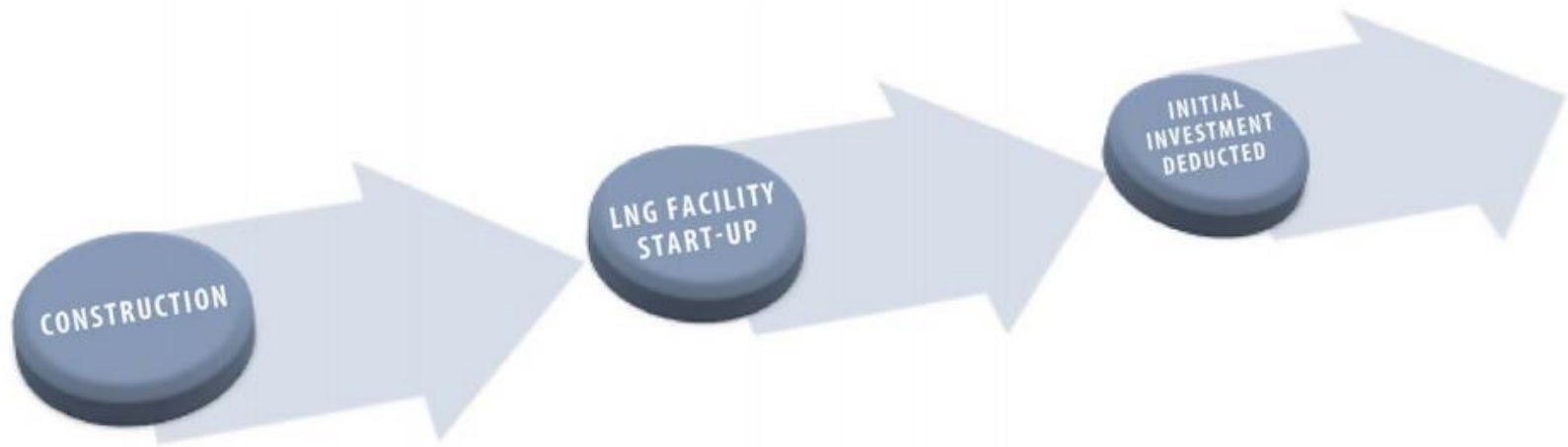
## *LNG TAXATION FRAMEWORK DESIGN PRINCIPLES*

- ⇒ **1** Fair Return for British Columbians
- ⇒ **2** Competitive Jurisdiction
- ⇒ **3** Predictability for Proponents
- ⇒ **4** Consistent Treatment of Proponents

# Fiscal Policies

- To date the Province has signed three letters of intent regarding LNG in which commitments were made to develop Project Development Agreements (PDAs).
- Significant work has taken place with LNG proponents over the summer on the PDAs and that work has continued into the fall.
- The Province continues to develop and implement all the elements of a competitive tax and policy environment with a goal of addressing certainty of those costs in our control for the companies planning to invest in British Columbia.
- In October 2014 the Province announced the details of its competitive tax and environmental policies for the LNG industry.

# LNG Facility Lifecycle and LNG Income Tax



## Construction

- Operating losses and capital investment costs are accumulated during construction of the LNG Facility

## LNG Facility Start-up

- 1.5% tax takes effect
- Operating losses and capital investment costs are drawn down

## After Investment Deducted

- 3.5% tax takes effect
- Operating losses and capital investment costs have been fully deducted
- Credit for 1.5% tax

# LNG Income Tax & Corporate Income Tax Natural Gas Credit

## LNG Income Tax Highlights

Feature	Description
Effective Dates	Effective for taxation years starting on or after January 1, 2017: 3.5% initial rate, 5% rate effective January 2037.
1.5% Minimum Tax	1.5% of Net Operating Income (revenue less expenses). Minimum tax is payable while operating losses and capital investment costs are being recovered.
Net Operating Loss and Capital Investment Accounts	Costs incurred before start-up and cost of construction of the LNG Facility.
Higher Tax Rate	Applies to Net Income (after net operating losses and capital investment accounts have been recovered).
Credit for 1.5% Minimum Tax	Credit for 1.5% tax pool is deductible from the 3.5% tax.

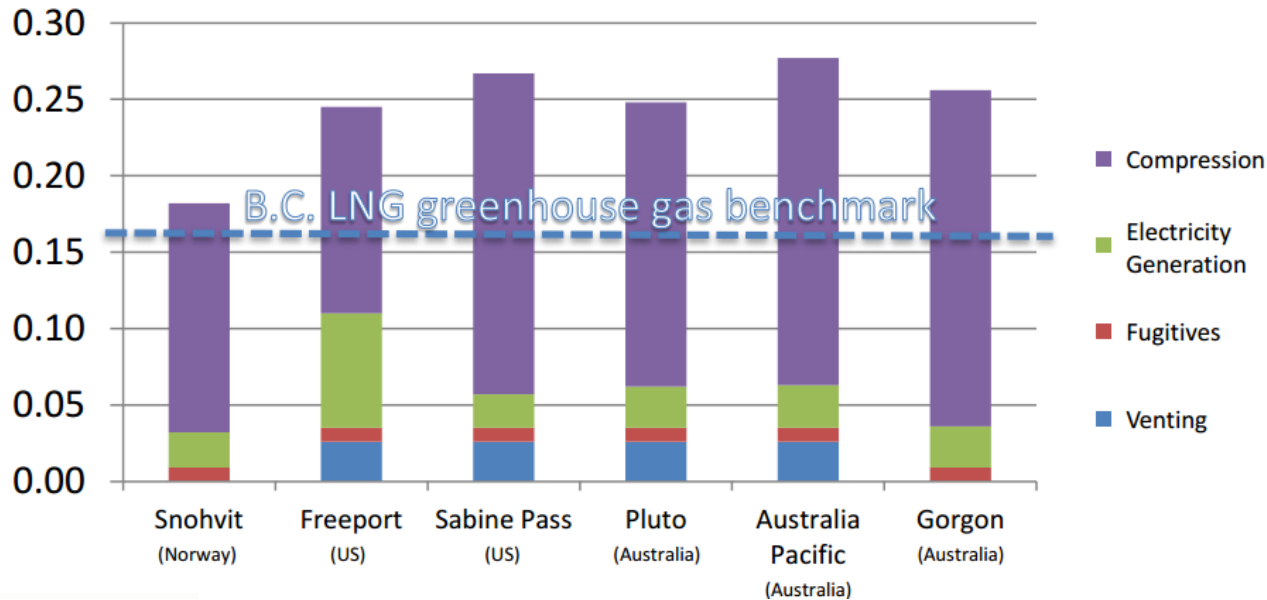
## New B.C. Corporate Income Tax Natural Gas Credit

Feature	Description
Natural Gas Credit for Corporate Income Tax	Available to LNG taxpayers that have a permanent establishment in British Columbia.
Tax Credit Amount	Tax credit is equal to 0.5% of the cost of natural gas owned by the LNG taxpayer at the LNG facility inlet.
Maximum Tax Credit	Tax credit may reduce the effective BC Corporate Income Tax rate to a minimum 8% (from current 11% rate).
Tax Credit Carry Forward	Unused tax credits may be carried forward into future years.

# World's Cleanest LNG Facilities

- Government committed to having the cleanest LNG facilities in the world.

## Comparing LNG Facilities



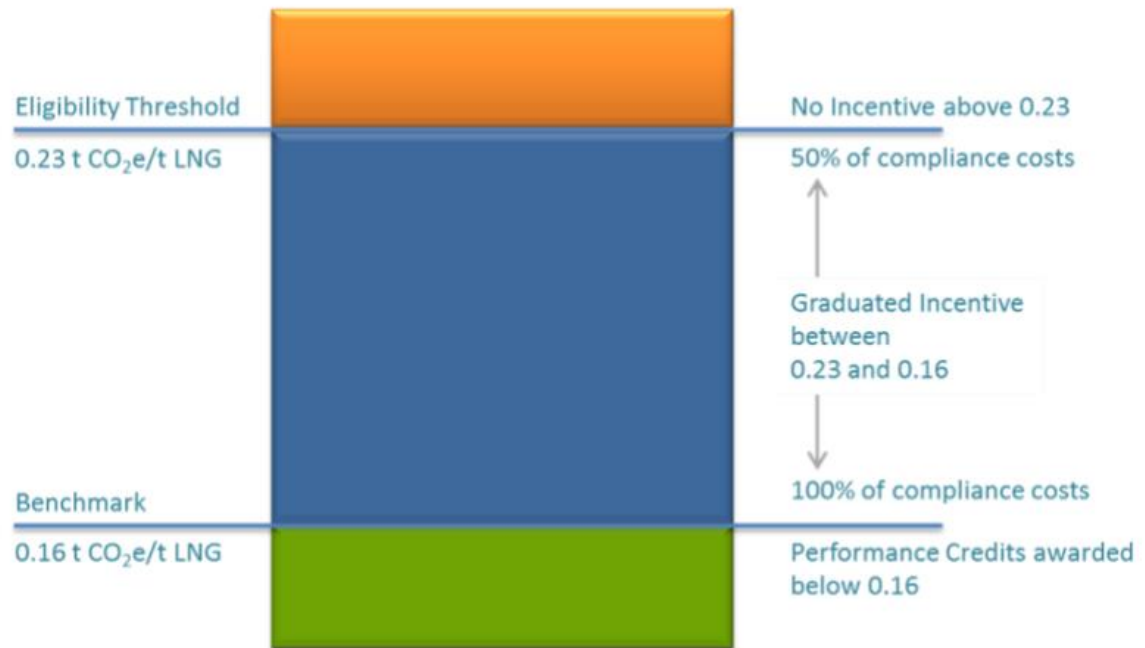
- On October 20, 2014 the Greenhouse Gas Industrial Reporting and Control Act put in place the GHG benchmark for facilities.
- Benchmark will be a part of what establishes B.C. facilities as the cleanest in the world.



# Achieving the Benchmark

- Facilities above the benchmark can use offsets and a technology fund to reach the benchmark.
- Facilities below the benchmark will receive a credit can be sold or banked.
- An LNG Environmental Incentive Program introduced to provide a pro-rated incentive to facilities for achieving the benchmark.

## Environmental Incentive Program



# BC's Competitive Advantage Summary

- LNG is the highest priority of B.C. government
- B.C. has a competitive and secure fiscal regime
- We have a vast energy resource which will bring great benefits to global markets
- B.C. can offer lower operating costs for transportation and liquefaction
- B.C. has access to a large, skilled labour force

# Northwest Community Readiness

## Three main project streams:

1. Local Government Capacity Building
  2. Community Impacts and Outreach
  3. Coordinated Provincial Responses
- In May 2014 it was announced that \$1 Million Provided for Community Planning Grants. Two grant programs will assist communities to develop plans for:
    - Partnership with Northern Development Initiative Trust to deliver both planning interns as well as community-industry liaisons.
    - Delivering “on the ground” outreach to local governments and community leaders to identify provincial service needs

# Regional LNG Energy Seminars

- Misinformation about hydraulic fracturing (fracking), water usage, and greenhouse gas (GHG) emissions related to LNG production is widespread.
- BC is taking action through a series of Regional LNG Energy Seminars that will:
  1. Increase understanding about Natural Gas and the entire LNG life cycle.
  2. Build confidence in government's commitment to responsible energy development
  3. Demonstrate how LNG aligns with public interests (economic, social, environmental).
- Social media, information resource kits and a new natural gas video series will dispel myths and increase understanding
- BC is collaborating with trusted validators including Science World, industry and post-secondary institutions to increase social license for LNG development.

# Regional LNG Energy Seminars

- Building on the success of the 2<sup>nd</sup> annual International LNG in BC Conference, LNG engagement and outreach will expand into communities across the Province.
- Regional LNG Energy Seminars will be held in various locations through the fall and winter:

<b>Prince George</b>	Oct 28 -29
<b>Fort St. John</b>	Nov 4 -5
<b>Terrace</b>	Nov 9 -10
<b>Prince Rupert</b>	Nov 18-19
<b>Squamish</b>	December 16 -17
<b>Nanaimo</b>	January 13 - 14
<b>Kamloops</b>	February 3 - 4

## Highlights will include:

- Community Dialogue
- Science based LNG demonstrations
- WorkBC's *Find Your Fit* Career Experience
- LNG-Buy BC

- Visit <http://engage.gov.bc.ca/lnginbc/> for more information.

# B.C.'s LNG Proposals

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Proposed LNG Export  
Facilities

9

NEB Export Licences

32

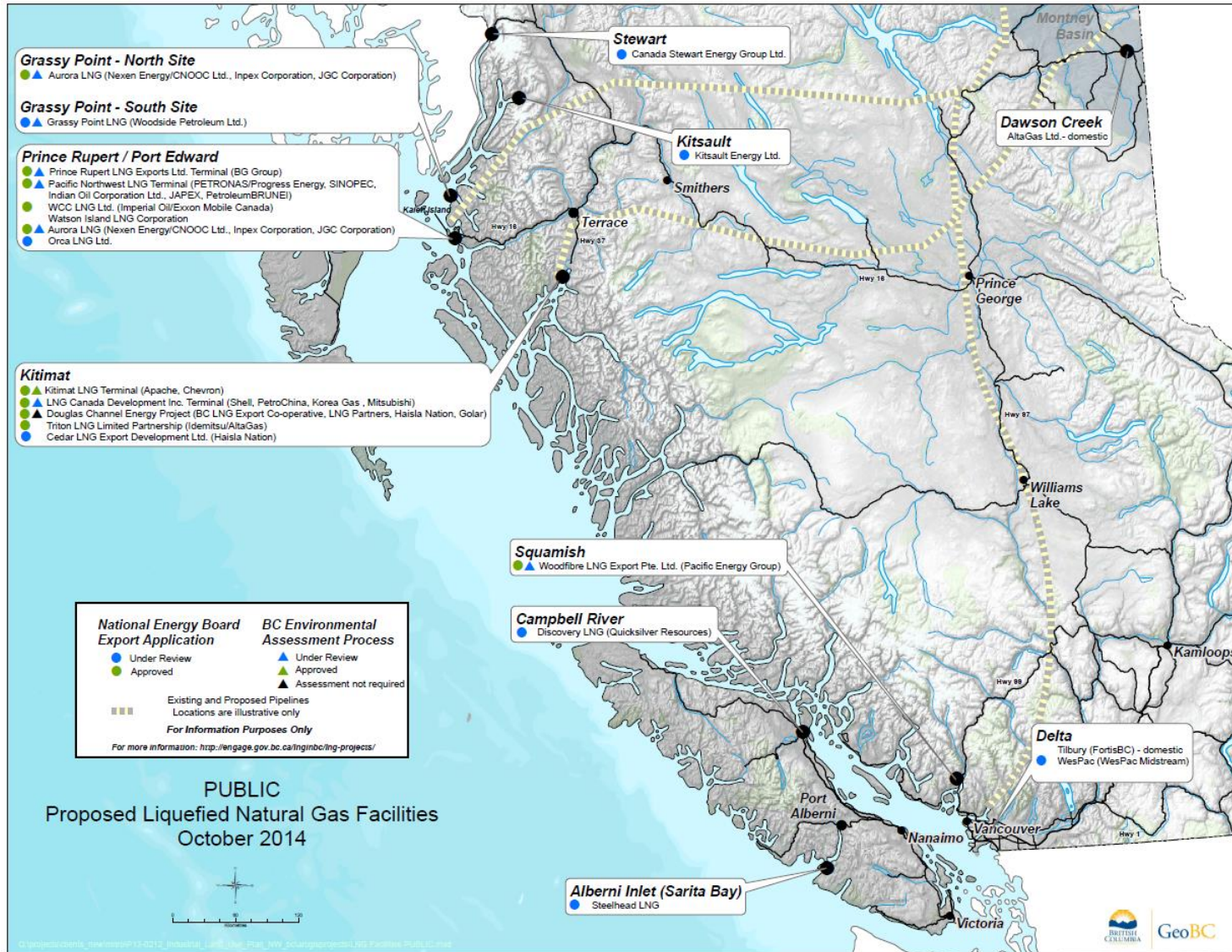
Project Partners

LNG proposals in B.C. as of October 30, 2014



# Proposed LNG Export Facilities

1. Pacific NorthWest
2. Woodfibre LNG
3. Prince Rupert LNG
4. Kitimat LNG
5. LNG Canada
6. Douglas Channel
7. WCC LNG
8. Triton LNG
9. Aurora LNG
10. Grassy Point LNG
11. Discovery LNG
12. Canada Stewart Energy
13. Kitsault Energy
14. Steelhead LNG
15. WesPac
16. Cedar LNG Export
17. Orca LNG
18. Watson Island LNG





# B.C. Development Opportunities

## Kitimat

### **Kitimat LNG (Kitimat)**

- *Chevron Canada/ Apache Canada Ltd*
- *Provincial EA approved – Received a NEB export license in 2011*
- *Pacific Trail Pipelines (Pacific Trail Pipelines Limited Partnership)*

### **LNG Canada (Kitimat)**

- *Shell / Mitsubishi / Petro China / KOGAS*
- *Provincial and Federal EA under consideration – A NEB export license granted in February 2013*
- *Coastal Gaslink Pipeline (TransCanada) – Provincial EA approved*
- *Anticipated Final Investment Decision: 2016*

### **Triton LNG (Kitimat/Prince Rupert)**

- *AltaGas Ltd/Idemitsu Canada Corp*
- *Approved for a NEB export license in April 2014*
- *Anticipated In-Service date 2017*

### **Douglas Channel Energy Project (Kitimat)**

- *Douglas Channel Gas Services/ Haisla Nation /Golar LNG /LNG Partners LLC*
- *Received a NEB export license in February 2012*

### **Cedar LNG Export (Kitimat)**

- *Haisla Nation /Golar LNG*
- *Applied for an export license in August 2014*

# B.C. Development Opportunities

## Prince Rupert

### **Pacific NorthWest LNG (Port Edward)**

- *PETRONAS/ Japan Petroleum Exploration Company/ Petroleum BRUNEI/ Indian Oil Corporation/ Sinopec*
- *Agreement with Prince Rupert Port Authority (Lelu Island)*
- *Approved for a NEB export license in December 2013*
- *Filed an application for an Environmental Assessment Certificate in March 2014*
- *Prince Rupert Gas Transmission Line (TransCanada)*
- *Anticipated Final Investment Date late 2014*
- *Anticipated In-Service Date 2018*

### **Prince Rupert LNG (Port Edward)**

- *BG Group/CNOOC Gas and Power Group*
- *Agreement with Prince Rupert Port Authority (Ridley Island)*
- *Approved for a NEB export license in December 2013*
- *Provincial and Federal EA in progress*
- *Westcoast Connector Gas Transmission (Spectra Energy)*
- *Anticipated In-Service Date 2019*

# B.C. Development Opportunities Prince Rupert (2)

## **WCC LNG Ltd**

- *Exxon Mobil /Imperil Oil*
- *Approved for a NEB export license in December 2013*
- *Agreement with city of Prince Rupert*
- *Anticipated In-Service Date 2021*

## **Orca LNG**

- *Orca LNG Ltd.*
- *An application for a NEB export license currently under review*

## **Watson Island LNG (Port Edward)**

- *Entered into an exclusivity agreement with the city of Prince Rupert to repurpose a former pulp mill site*

# B.C. Development Opportunities

## Grassy Point

### Aurora LNG

- *Nexen (subsidiary of CNOOC)/ Inpex /JGC*
- *Approved for a NEB export license in May 2014*
- *Filed a Project Description June 2014 – starting EA process*
- *Also considering a site on Digby Island*
- *Anticipated In-Service Date 2021*

### Grassy Point LNG

- *Woodside Energy Ltd.*
- *An application for a NEB export license currently under review*
- *Filed a Project Description August 2014 – starting EA process*
- *Anticipated In-Service Date 2021*

# B.C. Development Opportunities Greater Vancouver Area

## Woodfibre LNG Project (Squamish)

- *Pacific Energy Corporation*
- *Eagle Mountain – Woodfibre Gas Pipeline*
- *Approved for a NEB export license in December 2013*
- *Provincial and Federal EA in progress*
- *Anticipated Final Investment Decision in 2014*

## WesPac Midstream (Delta)

- *Working with FortisBC at its Tilbury Facility*
- *An application for a NEB export license currently under review*
- *Anticipated In-Service Date 2016*

# B.C. Development Opportunities Other Locations

## Discovery LNG (Campbell River BC)

- *Quicksilver Resources*
- *An application for a NEB export license currently under review*
- *Anticipated In-Service Date 2019*

## Kitsault Energy Project

- *Kitsault Energy Ltd.*
- *An application for a NEB export license currently under review*

## Canada Stewart Energy LNG

- *Canada Stewart Energy Group Ltd.*
- *An application for a NEB export license currently under review*

## Steelhead LNG

- *Steelhead LNG and Huu-ay-aht First Nations*
- *Sarita Bay, near Port Alberni*
- *An application for a NEB export license currently under review*

**\* Several other LNG proponents assessing site options**

# Summary of Export Projects

Project	NEB Export Approval	Environmental Assessment	Notes
<u>Kitimat LNG</u> (Apache/Chevron)	✓	✓	First to sign an EPC contract
<u>Pacific NorthWest LNG</u> (PETRONAS)	✓	Under Review	Potential FID December 2014
<u>LNG Canada</u> (Shell)	✓	Under Review	Coastal <u>GasLink</u> granted EA Certificate
<u>Woodfibre LNG</u> (Pacific Oil & Gas)	✓	Pre-Application	Potential soft-FID Fall 2014
<u>Prince Rupert LNG</u> (BG)	✓	Pre-Application	<u>WestCoast Connector</u> submitted EA application
<u>Aurora LNG</u> (CNOOC)	✓	Pre-Application	Project description submitted June 2014
<u>WCC LNG</u> (Imperial Oil/ExxonMobil)	✓	Not Submitted	Commitment to land in Prince Rupert
<u>Douglas Channel Energy Project</u>	✓	n/a	Finalizing restructuring
<u>Triton LNG</u> (Idemitsu/AltaGas)	✓	Not Submitted	Export licence issued April 2014
<u>Grassy Point LNG</u> (Woodside)	Under Consideration	Pre-Application	Project description submitted August 2014
<u>Canada Stewart Energy Group</u>	Under Consideration	Not Submitted	Seeking partners
<u>Kitsault Energy Ltd</u>	Under Consideration	Not Submitted	Seeking partners
<u>Discovery LNG</u> (Quicksilver)	Under Consideration	Not Submitted	Export application submitted July 28, 2014
<u>WesPac</u> (WesPac LLC)	Under Consideration	Not Submitted	Export application submitted June 20, 2014
<u>Steelhead LNG</u> (Kern Partners)	Under Consideration	Not Submitted	Export applications submitted July 8, 2014
<u>Cedar LNG Export</u> (Haisla)	Under Consideration	Not Submitted	Export applications submitted August 28, 2014
<u>Orca LNG</u> (Orca LNG Ltd.)	Under Consideration	Not Submitted	Export application submitted September 4, 2014
<u>Watson Island LNG</u> (WILNG)	Not Submitted	Not Submitted	Project announced July 16, 2014



# B.C. Development Opportunities

## Domestic LNG

Anticipated use for domestic LNG from valued-added natural gas opportunities such as the use of natural gas as a transportation fuel (rail, mining and BC Ferries)

### Tilbury LNG – Domestic/Export Expansion Project

- *FortisBC*
- *Vancouver BC*
- *Anticipated In-Service Date 2016*

### AltaGas

- *AltaGas*
- *Dawson Creek*
- *Anticipated In-Service Date late 2014/early 2015*

*Save the date:*

**2015 INTERNATIONAL  
LNG IN BC CONFERENCE**

OCTOBER 14-16 2015

VANCOUVER CONVENTION CENTER



**Thank You!**

**Contact:**

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Website: <http://engage.gov.bc.ca/Inginbc>

# LNG Links

## LNG in BC

<http://engage.gov.bc.ca/Inginbc>

## LNG Tax

<http://www2.gov.bc.ca/gov/topic.page?id=75BD4BF2B6B5493FB8A36DB05EBA764D>

## LNG Environmental Policies

<http://engage.gov.bc.ca/Inginbc/files/2014/03/Cleanest-LNG-Facilities.pdf>