



Project Idea

- BC is high gas price environment
- Demand centres at end of long pipelines with capacity constraints
- Limited options for BC energy planners to deliver natural gas and electricity to high growth demand centres
- Changing terms of trade in LNG industry makes it economic to consider importing LNG into North America
- LNG provides an option to satisfy local energy demand

What is LNG?

- LNG is natural gas , primarily methane, cooled to -260 F, at which temperature it becomes a liquid
- As a liquid LNG is 1/600 volume of natural gas
- Volume reduction allows LNG to be stored or transported economically
- LNG (the liquid itself) is not flammable or explosive
- LNG vapour is lighter than air and will disperse in the event of a discharge
- LNG vapour is not explosive in an unconfined environment
- LNG vapour is flammable under limited conditions

What is LNG?

- 40 year exemplary safety record
- LNG supplied to highly urbanized sites in Japan since 1969
- 113 LNG facilities currently operate in the USA
- LNG peak shaving plant has operated without incident at Tilbury Island in Delta, BC since 1971
- 3 LNG projects approved in Canada in last year, including Terasen's Ladysmith project on Vancouver Island

Project Overview

- Import LNG from Pacific Rim and Middle East supply basins to Ridley Island
- After extracting the NGL, transship North American specification LNG to markets along the West Coast of North America
 - ▶ Several potential delivery points along the West Coast
 - ▶ No significant pipeline infrastructure required
- MOU with Prince Rupert Port Authority for an exclusive 30-year lease, with three consecutive rights to extend the term for periods of 10 years each

WestPac's Value Proposition

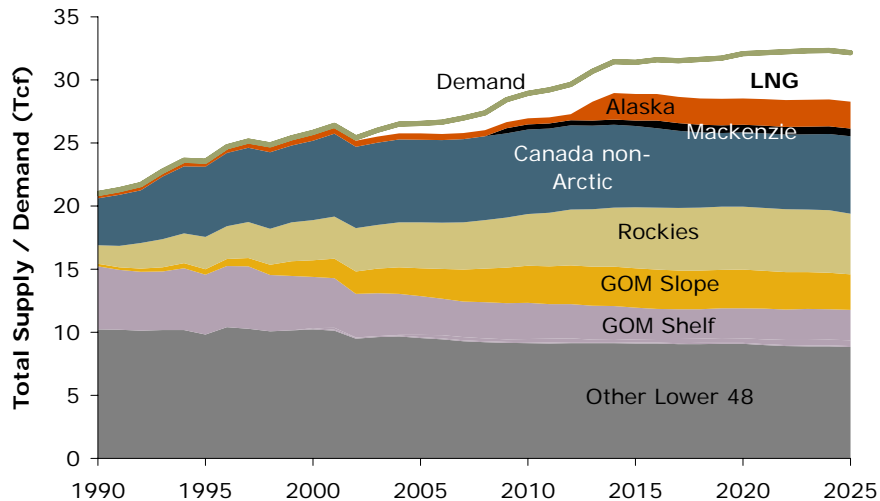
- A world-class, ice-free, deep-water port able to handle the largest of existing LNG tankers and “next generation” larger tankers
- Close proximity to LNG supply sources
- Located in an existing industrial park
 - ▶ Minimizes NIMBY issues
- Strong local support and positive feedback from local First Nations groups
- Benefit by utilizing existing pipeline, road and rail infrastructure
- Economies of scale resulting from both the port and the facility
- Significant market flexibility

Industry Overview

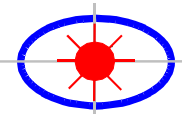
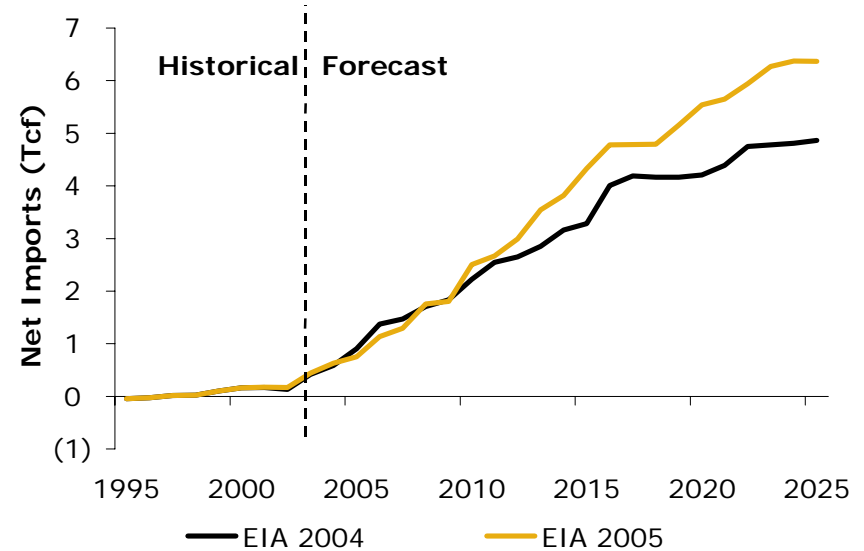
North American Market

- Strong natural gas demand growth is expected to create a significant supply/demand gap
 - ▶ U.S. imports of LNG are expected to increase nine-fold, or 5.7 Tcf by 2025

United States Natural Gas Supply and Demand¹



Total Annual LNG Imports into the United States²



North America LNG Requirements

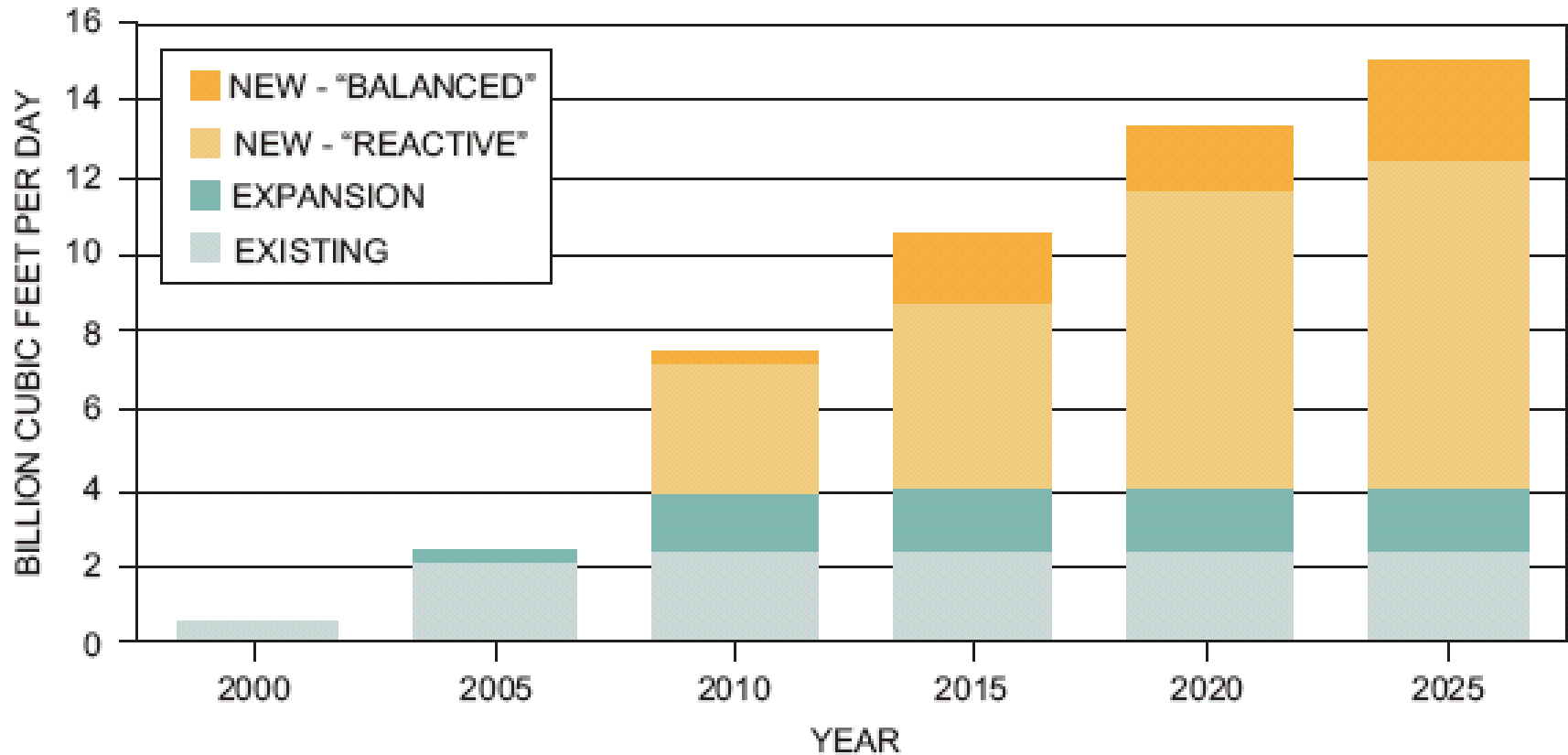
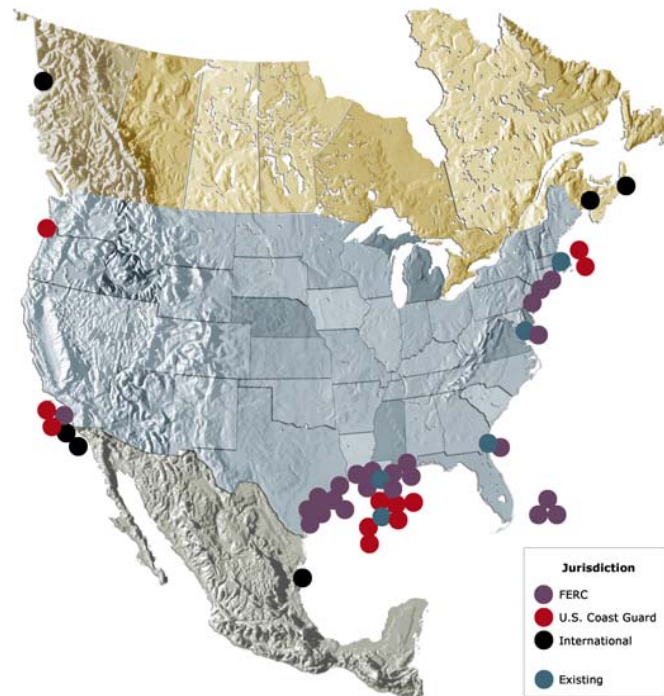


FIGURE 37
NORTH AMERICAN LNG IMPORTS

North American LNG Terminals

- Substantial number of terminals are proposed for North America but many, particularly those on the West Coast, are facing serious opposition due to NIMBY issues

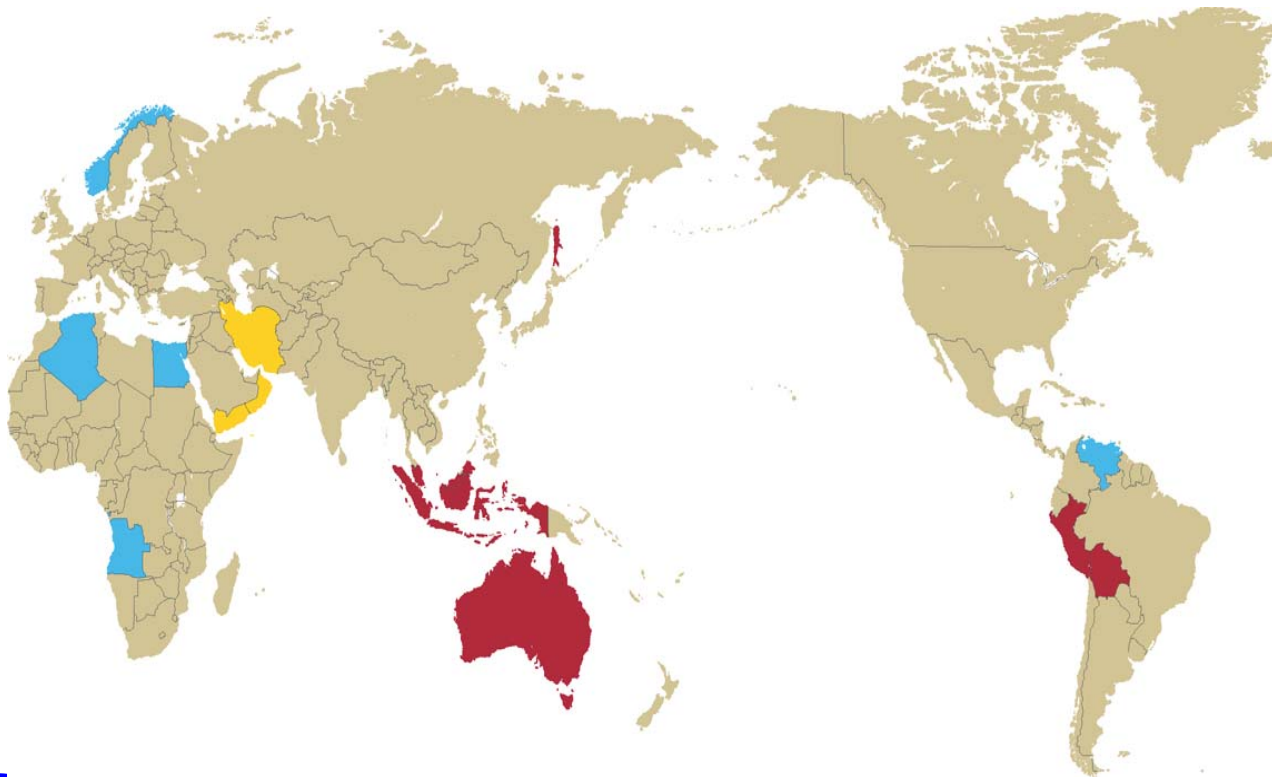
Existing and Proposed LNG Terminals



LNG Supply Regions

- WestPac is well positioned to compete for Pacific Basin and Middle East LNG supply

LNG Supply by Basin



Pacific:	
	Tcf
Australia	36
Bolivia	13
Indonesia	32
Malaysia	7
Peru	11
Russia	13
Subtotal	112
Middle East:	
Qatar	15
Iran	10
Oman	10
Yemen	19
Subtotal	54
Atlantic:	
Angola	10
Nigeria	30
Norway	7
Eq. Guinea	4
Trinidad	23
Algeria	5
Egypt	10
Venezuela	11
Subtotal	100
Total Resources	266

Initial Concept: Northern Option

- Focus on Kitimat area
- Methanex base load
- Use PNG – reverse flow
- 150 MMcfd capacity
- Project economics work at small scale
- No new pipeline required
- Excellent relations with local community

Guiding Principles

- Didn't want to build pipelines
- Satisfy tidewater gas demand by direct LNG delivery
- Empty east-to-west flow in existing pipelines
- Reverse flow in existing pipelines to connect to North American grid
- Pipeline utilities "kept whole"
- Net increase in gas supply with no additional pipeline infrastructure

Revised Concept: Southern Option

- Transshipment terminal at Prince Rupert
- Receive, store, remove NGLs
- Transship by barge to receipt points along west coast
- Permits transport by truck and rail also
- 300 MMcfd to Vancouver Island and lower mainland
- 400 to 500 MMcfd to Cherry Point, Washington market
- Can provide intermittent supply to Methanex by barge, if required
- No new pipelines required

Project Overview

The Project

- LNG receiving terminal located on Ridley Island, B.C. (11 km south of Prince Rupert)
- MOU with the Prince Rupert Port Authority for a 30-year lease on 250 acres, with three optional 10-year renewals
- Deepest ice-free harbor in North America and second deepest in the world
- Terminal will have ability to import high-Btu LNG and extract NGLs and transship pipeline spec LNG



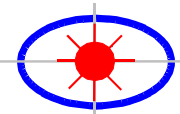
TERMINAL SITING



Ridley Island Terminal

WestPac LNG site

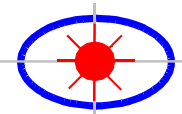
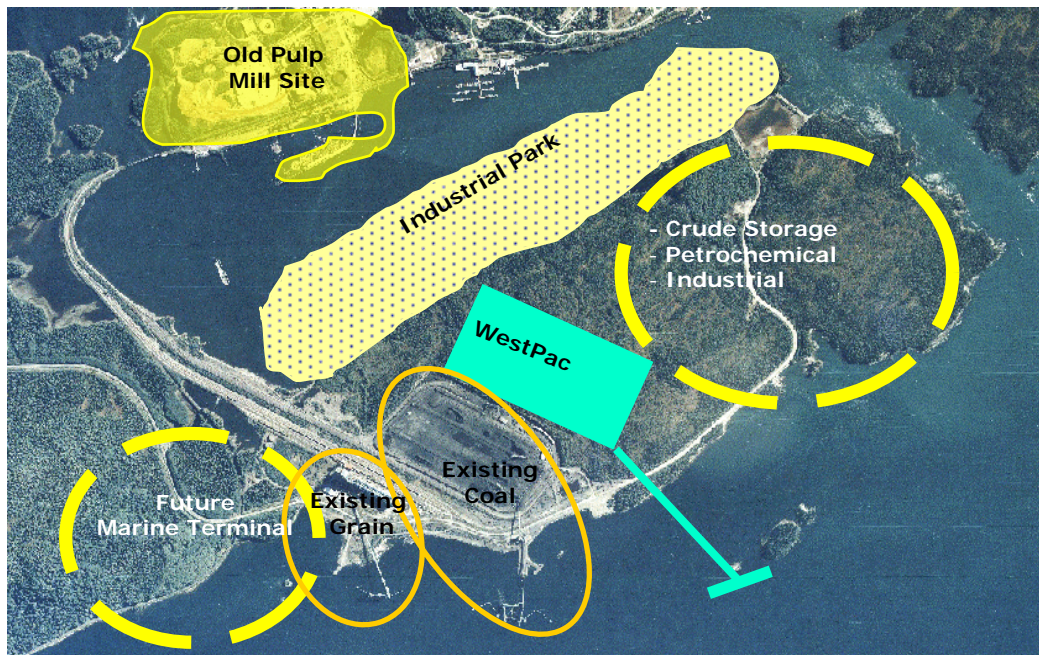
Existing RTI site



Location Provides Strong Competitive Advantage

- Located in a remote, heavily industrialized area where local governments are very supportive of economic development

Proposed Site Layout – Ridley Island



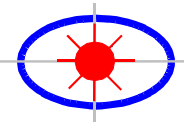
Site Advantages

- NIMBY issues minimized
- Previously disturbed site
- Adjacent to world-scale coal export terminal
- Existing jetties have operated for many years with no adverse effects on fish habitat or populations
- Long-term plan for industrial park approved and includes LNG
- High probability of timely project approval

Transshipment Opportunity

- Transshipping allows WestPac to satisfy a broad array of markets, and leverage existing pipeline infrastructure
- By transshipping, ability to complement, rather than compete with, other LNG terminals along the West Coast
- Several potential delivery points along the West Coast provide the opportunity to increase the scale of the project without significant capital costs

The LNG barge: Massachusetts



Energy Planning Options

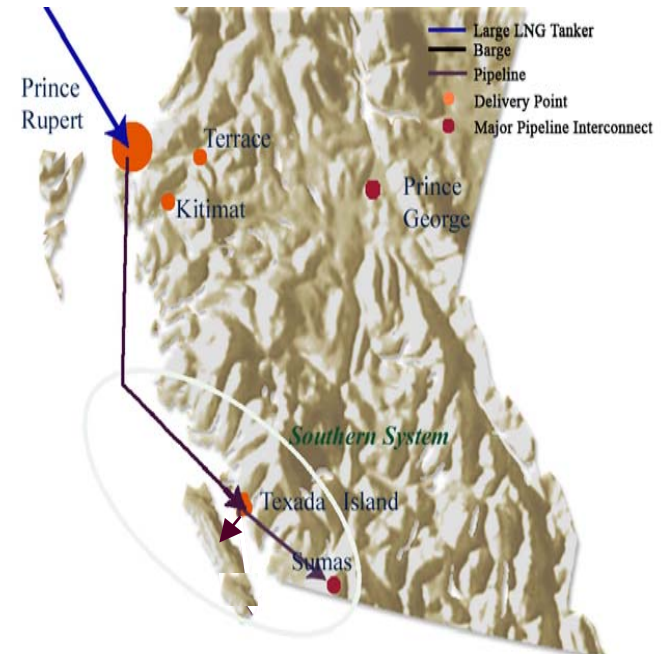
- Supply natural gas to Vancouver Island, Lower Mainland and Northwest USA
- Transship low-BTU LNG to offshore terminals in California
- Supply natural gas – as clean-burning option to diesel – by barge to coastal communities in BC or Alaska
- Supply LNG by truck as fuel to power generation plants at remote mining projects in Northwest BC
- Short-term electricity generation options during interval before Site C becomes operational

Possible Delivery Scenario

Texada Island Scenario

- LNG from large tankers ($> 138,000\text{m}^3$) off-loaded into storage tanks
 - ▶ Terminal capacity: 350 MMcfd
- After NGL extraction, North American specification Btu LNG loaded onto small vessels ($\sim 15,000\text{ m}^3$) for transshipment to Texada Island, BC
- NGLs shipped to Ferndale, WA
- LNG vapourized on Texada Island and enters into TGVI system (100 MMcfd to Vancouver Island and 170 MMcfd to Lower Mainland)

Ridley Island to Texada Island

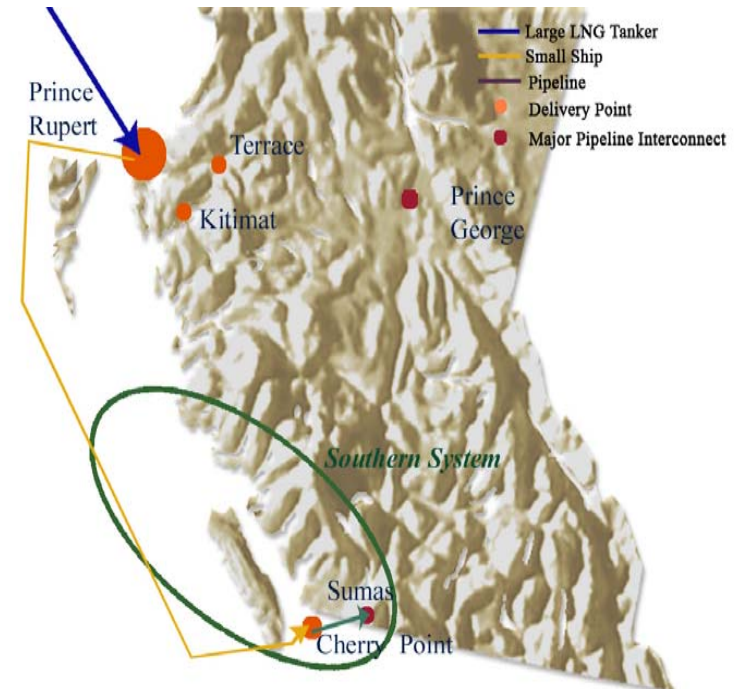


Possible Delivery Scenario

Cherry Point Scenario

- LNG from large tankers ($>138,000 \text{ m}^3$) off-loaded into storage tanks
 - ▶ Terminal capacity: 540 MMcfd
- NGLs extracted
 - ▶ Sold to local markets
 - ▶ Shipped to Cherry Point, WA
- North American specification LNG and NGLs loaded onto small vessels ($\sim 45,000 \text{ m}^3$) for transshipment to Cherry Point, WA
- LNG vaporized and shipped to Sumas via existing or new pipeline

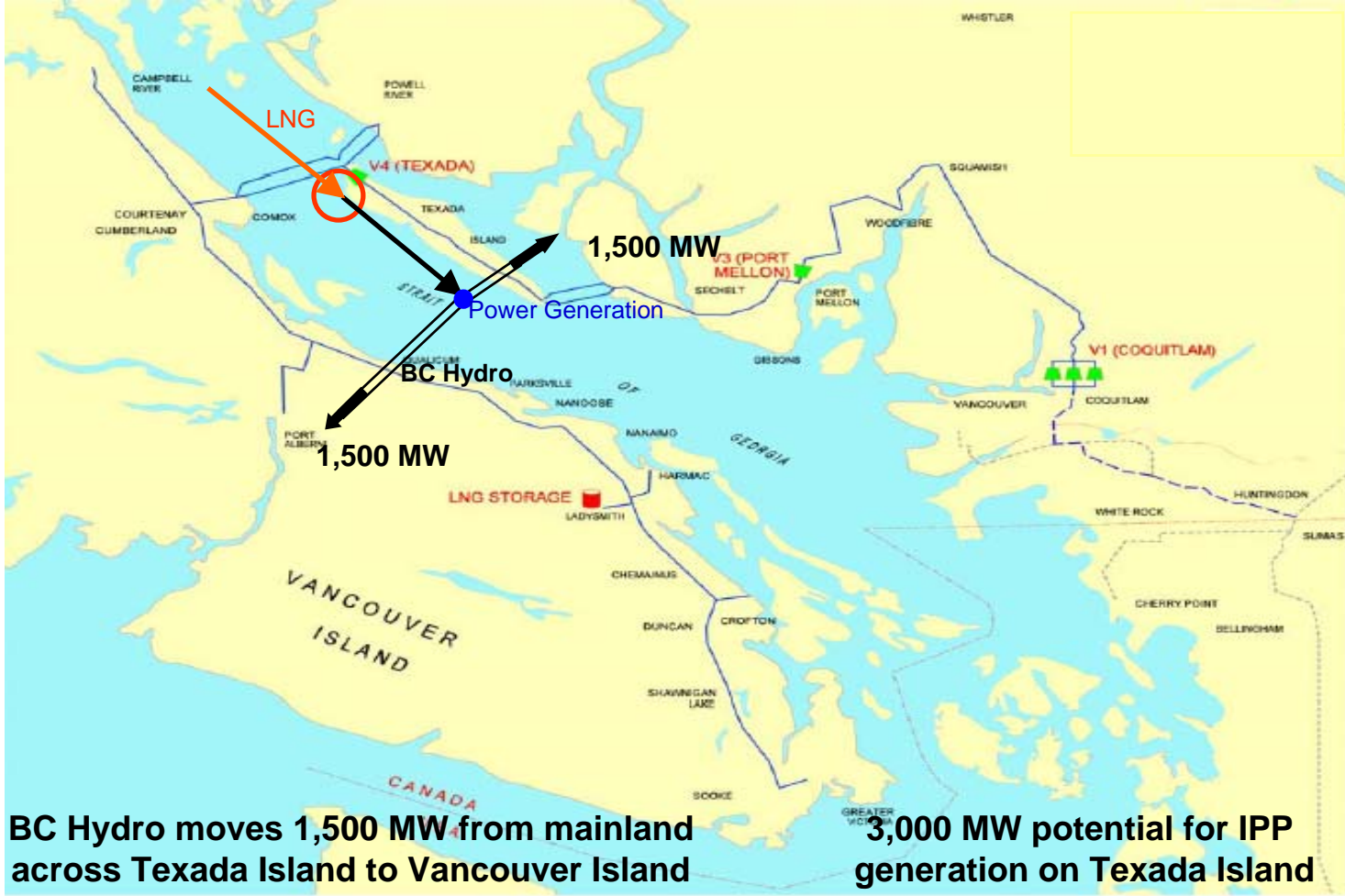
Ridley Island to Cherry Point



Electricity Planning Options for BC Government

- Deliver LNG/gas directly to power generation site
- Reduce gas pipeline toll cost
- Produce power adjacent to demand centres
- Reduce line losses
- No new transmission lines required
- Enables distributed power generation that is accretive to current energy plan
- Long-term energy planning options if Site C not approved

Southern BC Power Generation Options



Summary

- Highest value, most flexible use for LNG when in liquid form
- Flexible WestPac project design allows for multi-modal transport of LNG to multiple receipt points
- Sound economics
- Complements other West Coast LNG import projects
- Enables numerous energy planning options for BC government