Spectra Energy

Energy for B.C.

# Westcoast Connector Gas Transmission™

*Connecting Natural Gas and What's Important to You*


*Ken Berry, Manager, Lands and Environment*

*BC Expropriation Association*
*2013 Fall Conference*

*November 1, 2013*

# Spectra Energy's Diverse Portfolio
## *North American Reach, Deep B.C. Roots*

2012 WORLD'S MOST ETHICAL COMPANIES
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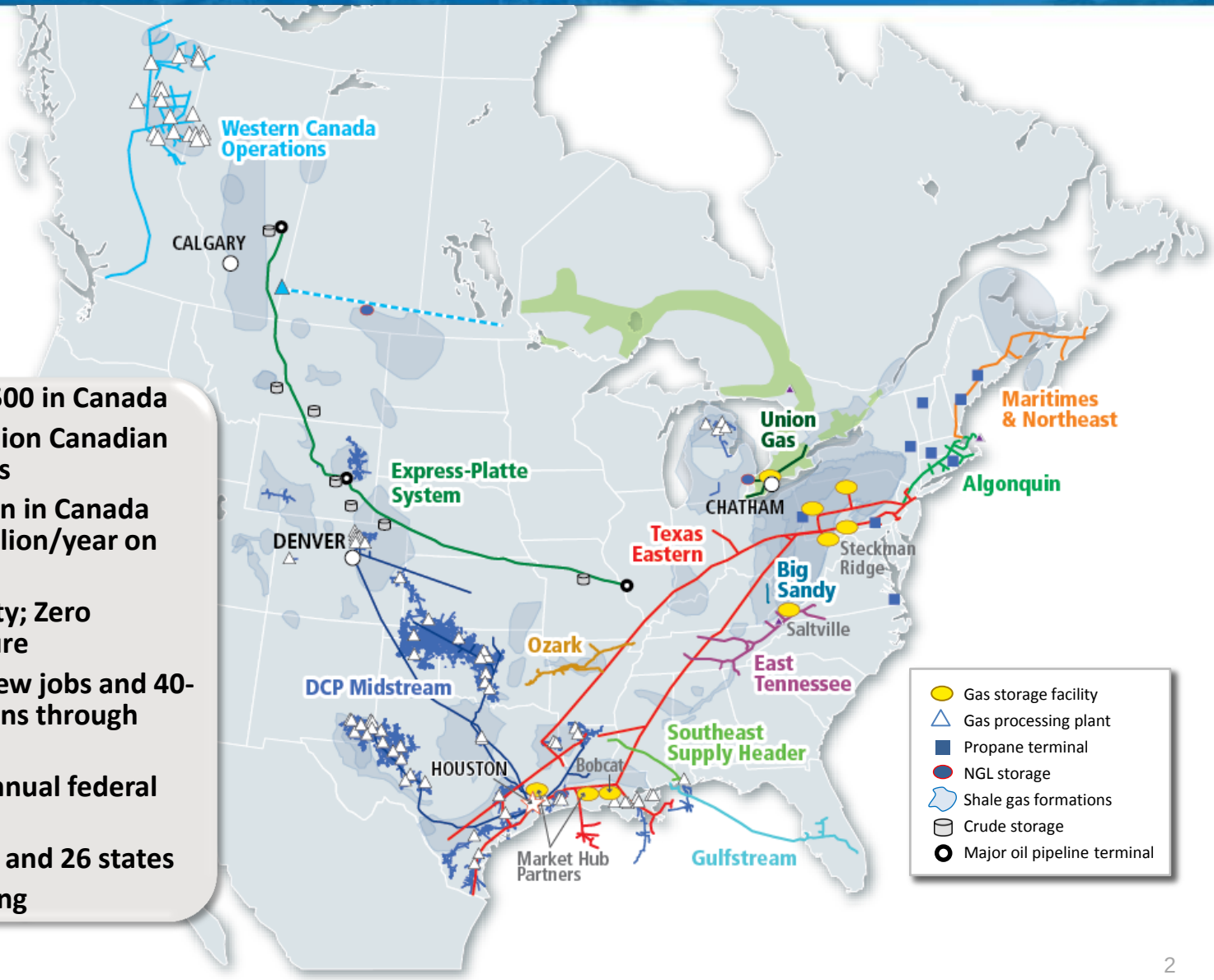
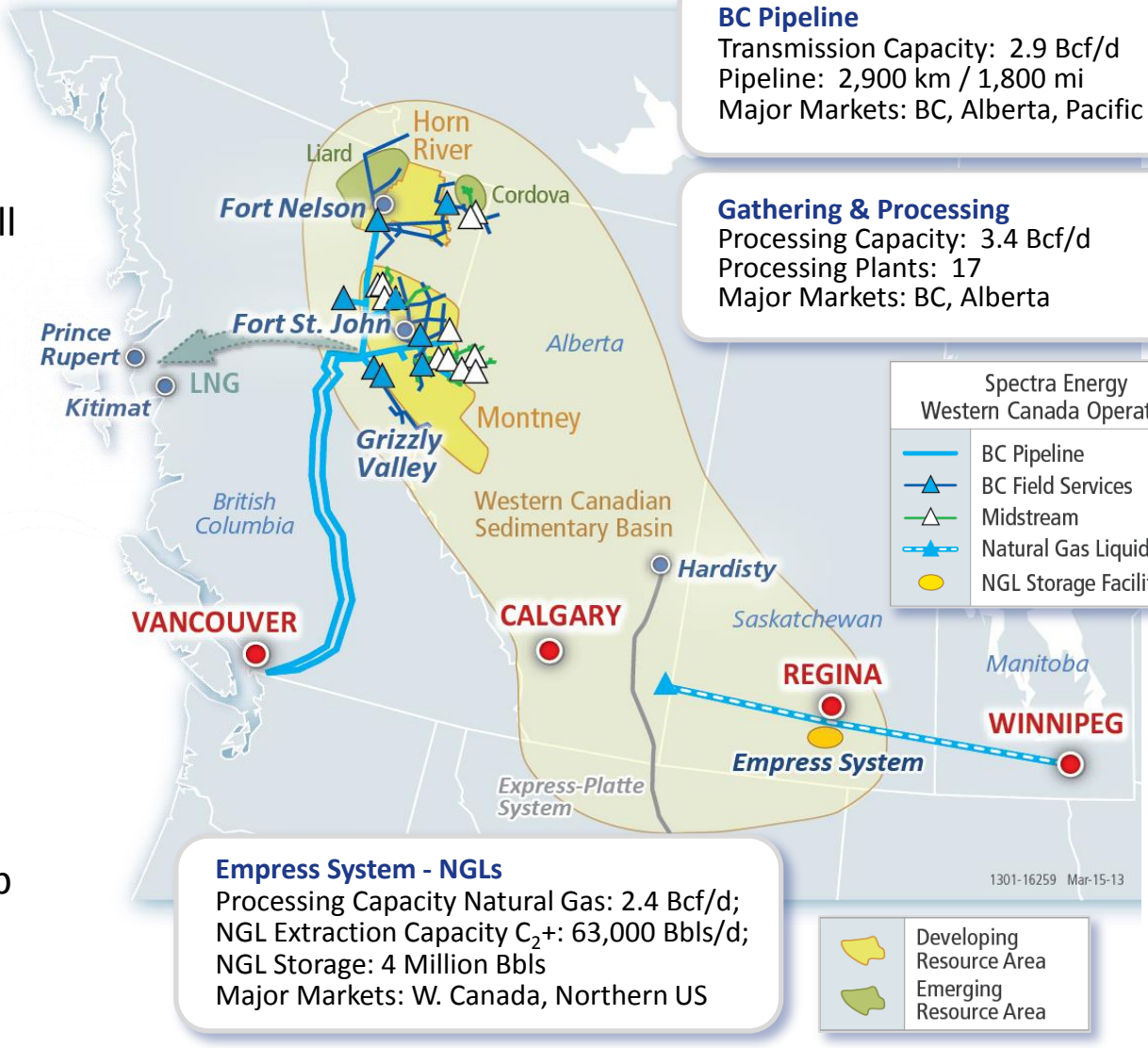
- 5,400 employees - 3,500 in Canada
- Directly serve 1.4 million Canadian homes and businesses
- Have spent $3.8 billion in Canada since 2007; ~$400 million/year on system integrity
- 99%+ system reliability; Zero Incidents Safety Culture
- B.C. projects: 4,000 new jobs and 40-60 permanent positions through 2020
- Pay $270 million in annual federal taxes in Canada
- Span seven provinces and 26 states
- Our business is growing



# Spectra Energy's Western Canada Operations
## *Safe and Reliable Operations*

- Our facilities are the foundation of British Columbia's natural gas industry
- We handle about 60% of all of the natural gas that moves in British Columbia
- We are proud of our 56-year history in British Columbia
- We are always trying to improve our track record when it comes to the environment, health, and the safety of the places where we work and live
- Commitment to environmental stewardship




**BC Pipeline**
Transmission Capacity: 2.9 Bcf/d
Pipeline: 2,900 km / 1,800 mi
Major Markets: BC, Alberta, Pacific NW

**Gathering & Processing**
Processing Capacity: 3.4 Bcf/d
Processing Plants: 17
Major Markets: BC, Alberta

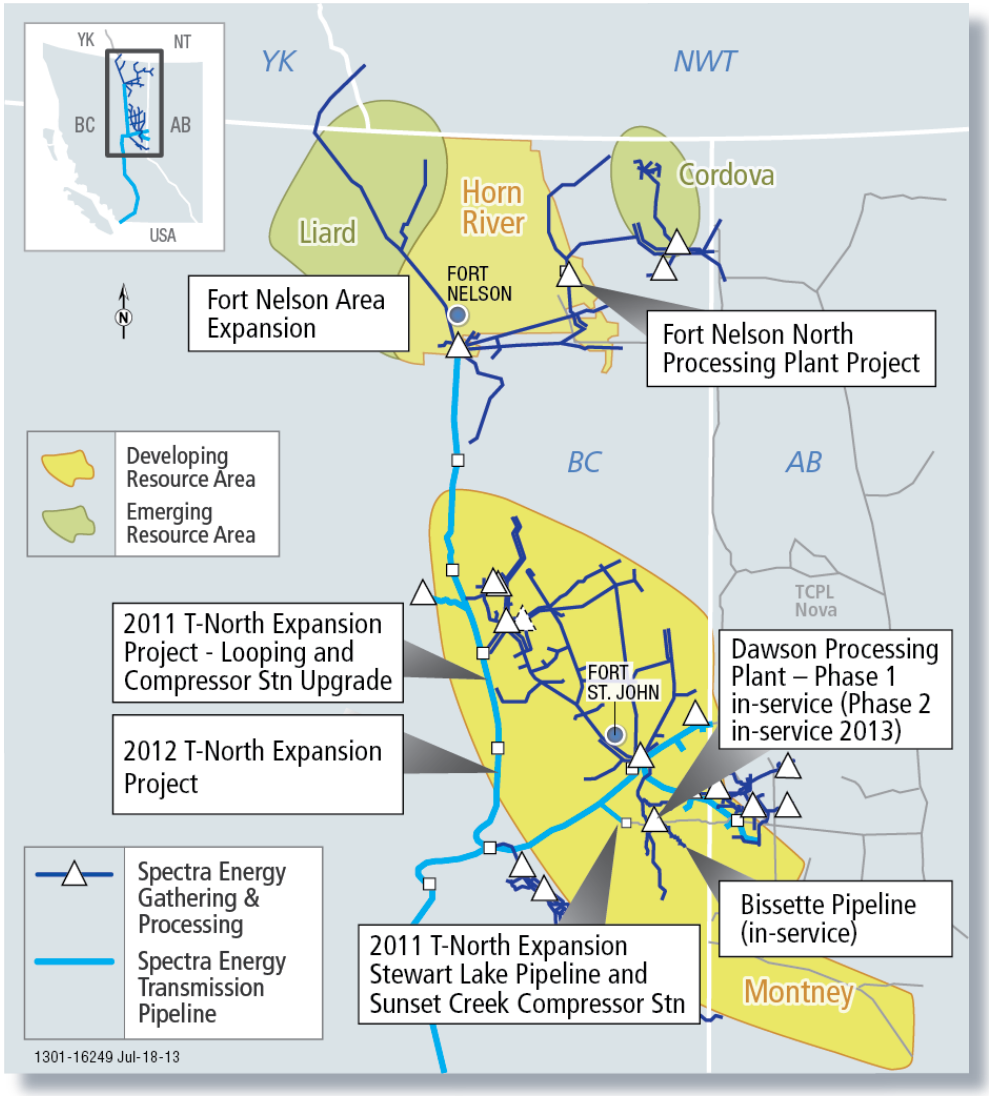
**Empress System - NGLs**
Processing Capacity Natural Gas: 2.4 Bcf/d;
NGL Extraction Capacity $C_2$+: 63,000 Bbls/d;
NGL Storage: 4 Million Bbls
Major Markets: W. Canada, Northern US

# Spectra Energy's Recent Expansion Program

***Spectra Energy's ~$2 billion expansion program is now complete***

## What we've built…

- New plants to process growing natural gas supplies in the Horn River Basin and Montney region
- Pipeline expansions to move this natural gas to homes and businesses inside *and* outside BC
- $120 million in contracting opportunities for Aboriginal and local businesses that we can build-upon in the future



# What are the Opportunities and Risks

## New Supply

- Abundant British Columbia natural gas supplies mean room for domestic growth AND export
- **Similar natural gas supply growth in the U.S. means declining traditional markets and LNG competition**

## Jobs

- Spectra Energy project = 4,000 construction jobs, and demand for services from local and Aboriginal businesses
- **Without market diversity, B.C. could see downturn in existing natural gas sector jobs and indirect employment, and risk step-change growth in new jobs**

## Ability to Execute

- Spectra Energy has 56-year legacy of operations in B.C., record of delivering benefits to local and Aboriginal communities, and has chosen optimal route
- **Canada is operating in a competitive global marketplace – timing matters**

# And Who Are The Current LNG Players

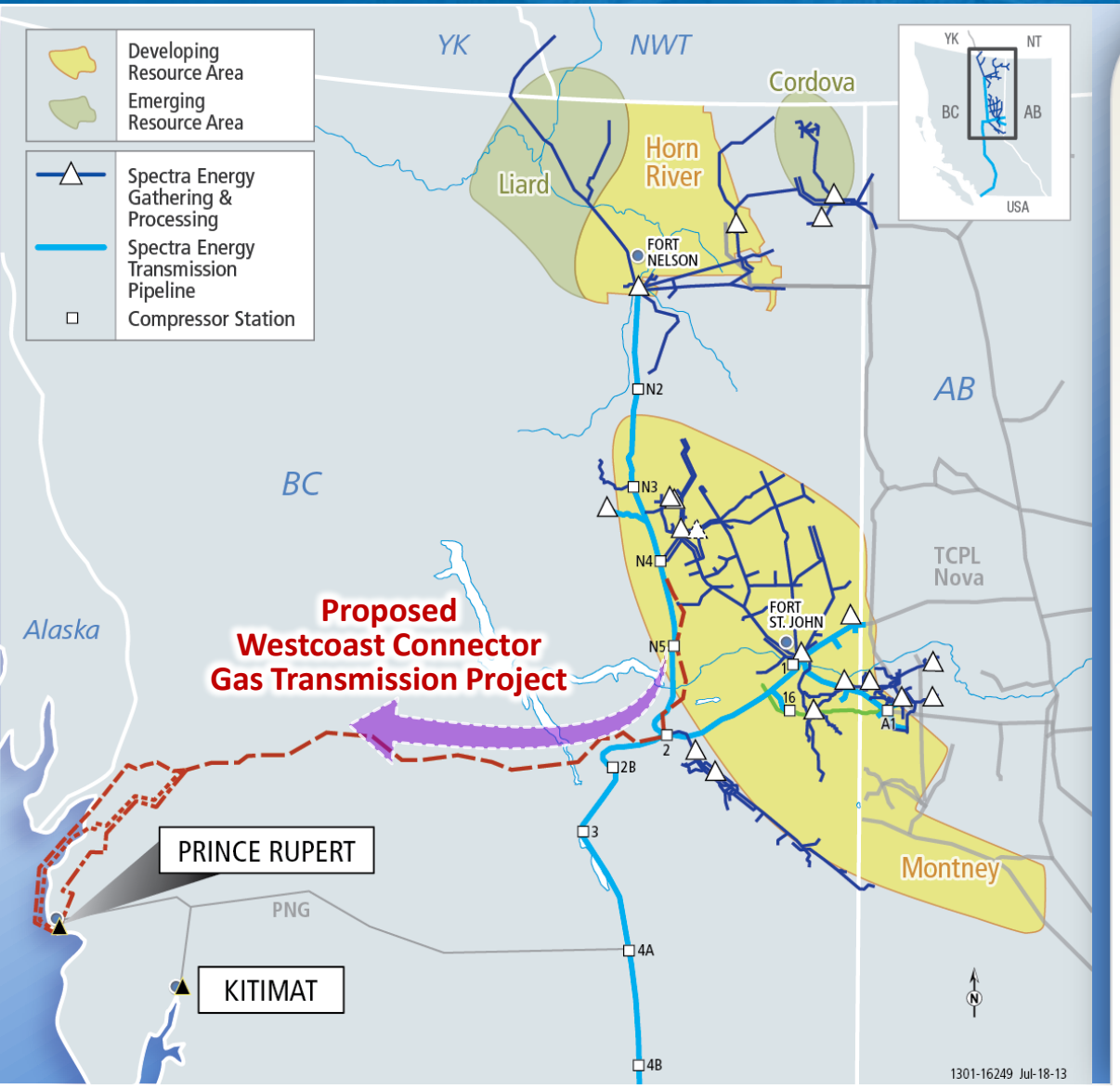
**Secured or Looking for an LNG Site in Kitimat Region**

1. Chevron/Apache/Pacific Trails Pipeline – Kitimat LNG
2. Shell/Trans Canada – LNG Canada

**Secured or Looking for an LNG Site in Prince Rupert/Grassy Point Region**

1. BG Group/Spectra Energy
2. Petronas/Progress/Trans Canada
3. Imperial Oil/Exxon – TBD
4. Nexen/CNOC/INPEX – TBD
5. Woodside – TBD
6. S. Korea SK E&S - TBD

# Proposed Westcoast Connector System



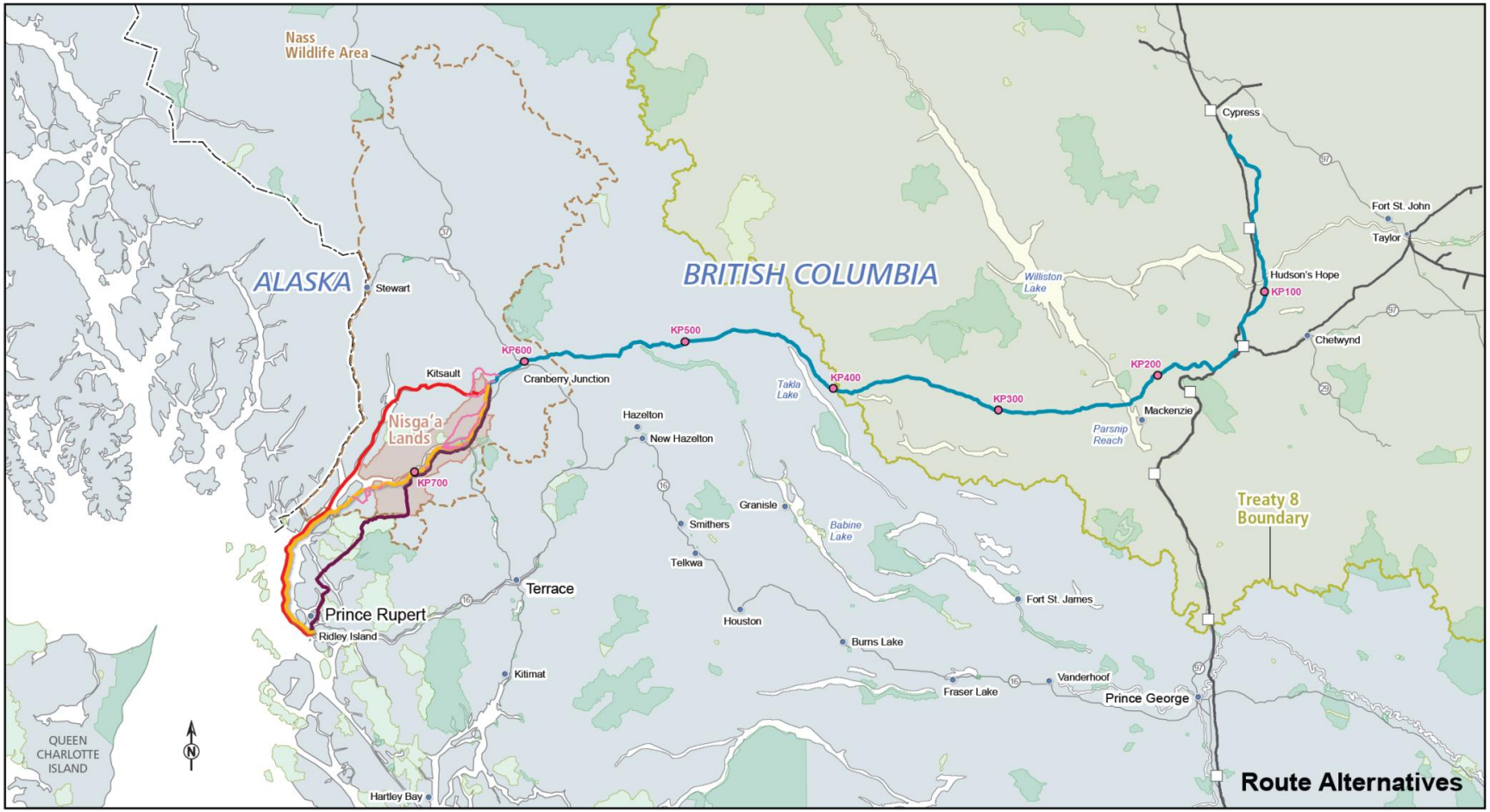

## Spectra Energy-BG Group Project

- 850 kilometres
- Up to 4.2 billion cubic feet per day (Bcf/d) of natural gas to serve BG Group's proposed LNG Plant on Ridley Island
- Construction mid-decade, operations end of decade
- Conceptual route developed based on **preliminary** assessments of environmental, historical, cultural and constructability factors
- More than one year of stakeholder input collected/reflected in planning to date, ongoing consultation a priority
- Environmental review process has begun
- Well positioned to serve west coast LNG exports

# Answering Pipeline Basics

- **Vapourized Gas**: Transporting natural gas in gaseous form
- **Buried Pipeline**: With the exception only of aerial crossings of certain watercourses, aboveground facilities and the bottom lay within any marine segments
- **Restored & Maintained Rights-of-Way**: Mitigating our impact by fully restoring and maintaining the ROW
- **Use of the Right-of-Way:** Landowners and the public will have the ability to fully use and enjoy the right-of-way, balancing safety, pipeline integrity requirements and environmental considerations
- **Liquefaction at BG Group LNG Facility**: At the end of the system our partner, BG Group, will construct a facility – a liquefied natural gas (LNG) plant – that chills the natural gas to about-160˚C at which point it becomes a liquid, easier to store and transport over great distances on LNG carriers . It is a clear, odorless, non-toxic and non-corrosive liquid.

# Proposed System Route Alternatives: Overview Map



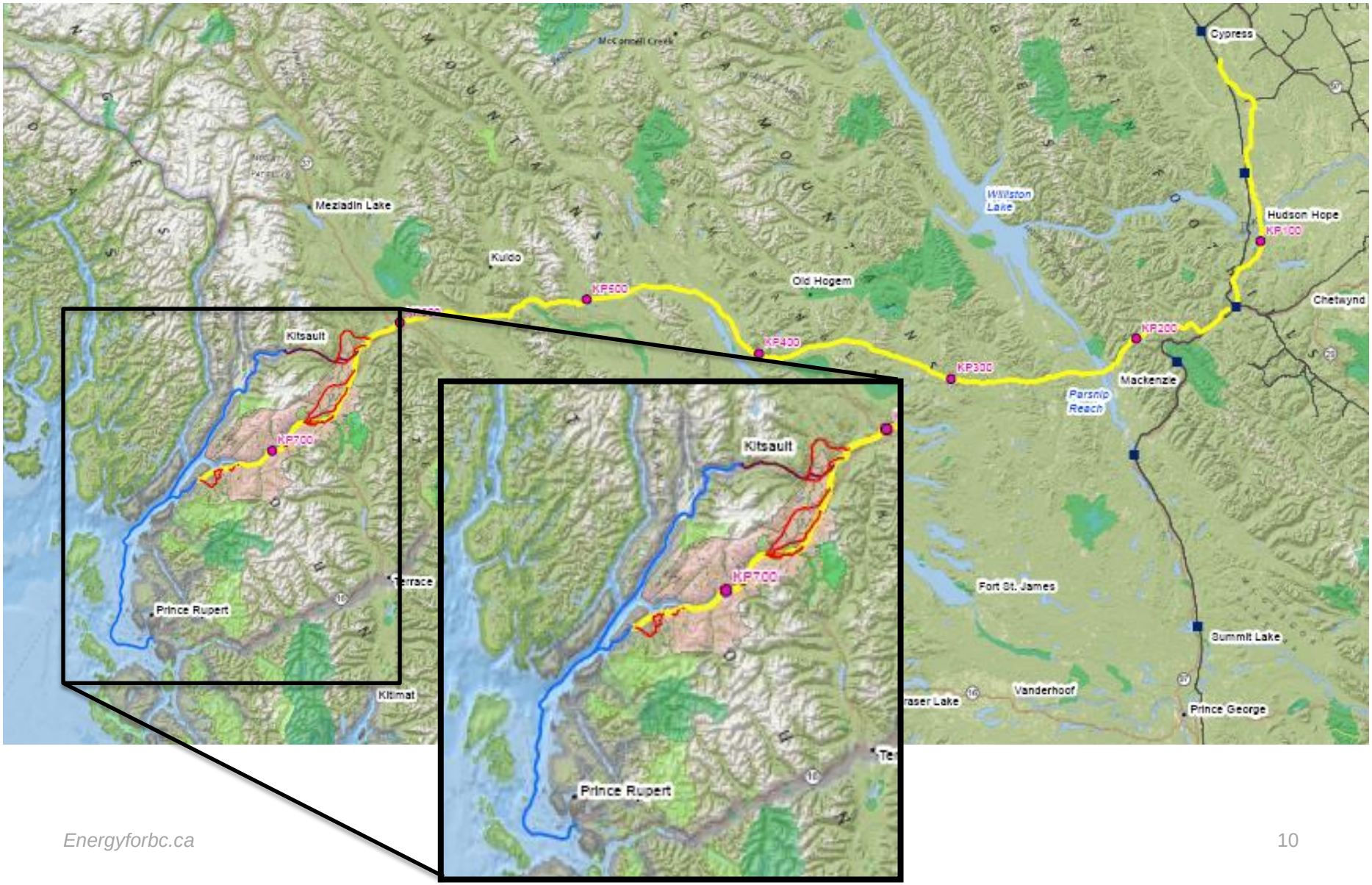

**Legend**

- Existing Spectra Energy Pipelines
- Spectra Energy Compressor Station
- KM Post
- Provincial Parks
- Protected Areas
- Primary Route
- Kitsault Route Alternative
- Nasoga Route Alternative
- Land Route Alternative
- Route Options

**Proposed Westcoast Connector Gas Transmission™ Project Overview Map**

| | |
|---|---|
| Date: June 14, 2013 | Projection: BC Albers |
| Scale: 1: 2,000,000 | Datum: NAD 1983 |
| Prepared By: Spectra Energy | |

# Overall Route



# Project Timeline

Aboriginal, Community and Public Engagement (began and continues throughout the project)

Construction

Collection of baseline information and field surveys for Environmental Assessment began mid 2012

Environmental field studies began January 2013

Construction launch planned with actual dates depending on regulatory and project approvals

Operation – In time to meet in-service requirements of BG Group's proposed LNG facility

**2011** **2012** **2013** **2014** **Mid decade** **By end of decade**

Project Description was filed with the B.C. Environmental Assessment Office in October 2012

Environmental Assessment Application to be filed with the BC EAO in early 2014

# Regulatory Overview

- The Westcoast Connector Project will be located entirely within the Province of British Columbia
- As such, the Project is provincially regulated
- Key agencies
  - BC Environmental Assessment Office: we will need an environmental assessment certificate in order to proceed with the project
  - BC Oil & Gas Commission: key required permits are a Pipeline, Facility and Ancillary Permits

# Westcoast Connector – Route Rationale

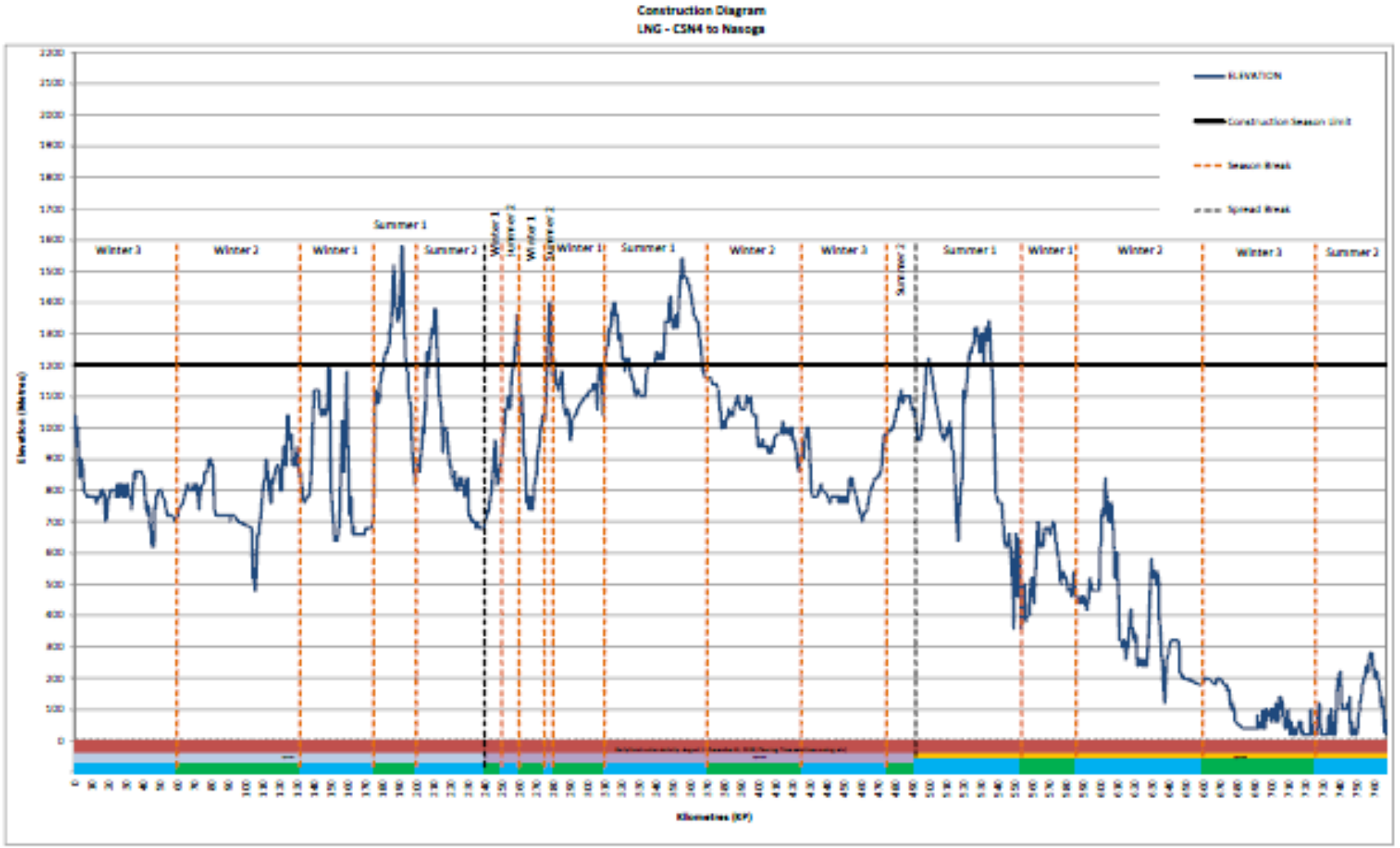
## *Superior Constructability, Established Export Location*

- Spectra Energy has examined all potential routes to B.C.'s northwest coast based on the following key criteria:
  - Constructability
  - Project schedule
  - Geotechnical risks
  - Environmental, socio-economic, heritage and health criteria
  - Stakeholder input
- By all measures, Spectra Energy's route to the Prince Rupert area is very compelling
- Project description includes potential for two pipelines within single right-of-way
    - Allows for:
      - Aggregation of natural gas supplies destined for Prince Rupert-based liquefaction plants
      - Flexibility to locate separate pipelines to Prince Rupert within one right-of-way and minimize overall environmental footprint

# Construction Challenges

- Weather
- 1100 Watercourse Crossings
- Steep Slopes
- Tunnels
- Williston Lake Crossing
- Muskeg
- Glacial Marine Clay
- Logistics and Access
- Sea Bottom Preparation
- Pipe Lay Vessel Navigation


# On-Shore Elevation Profile

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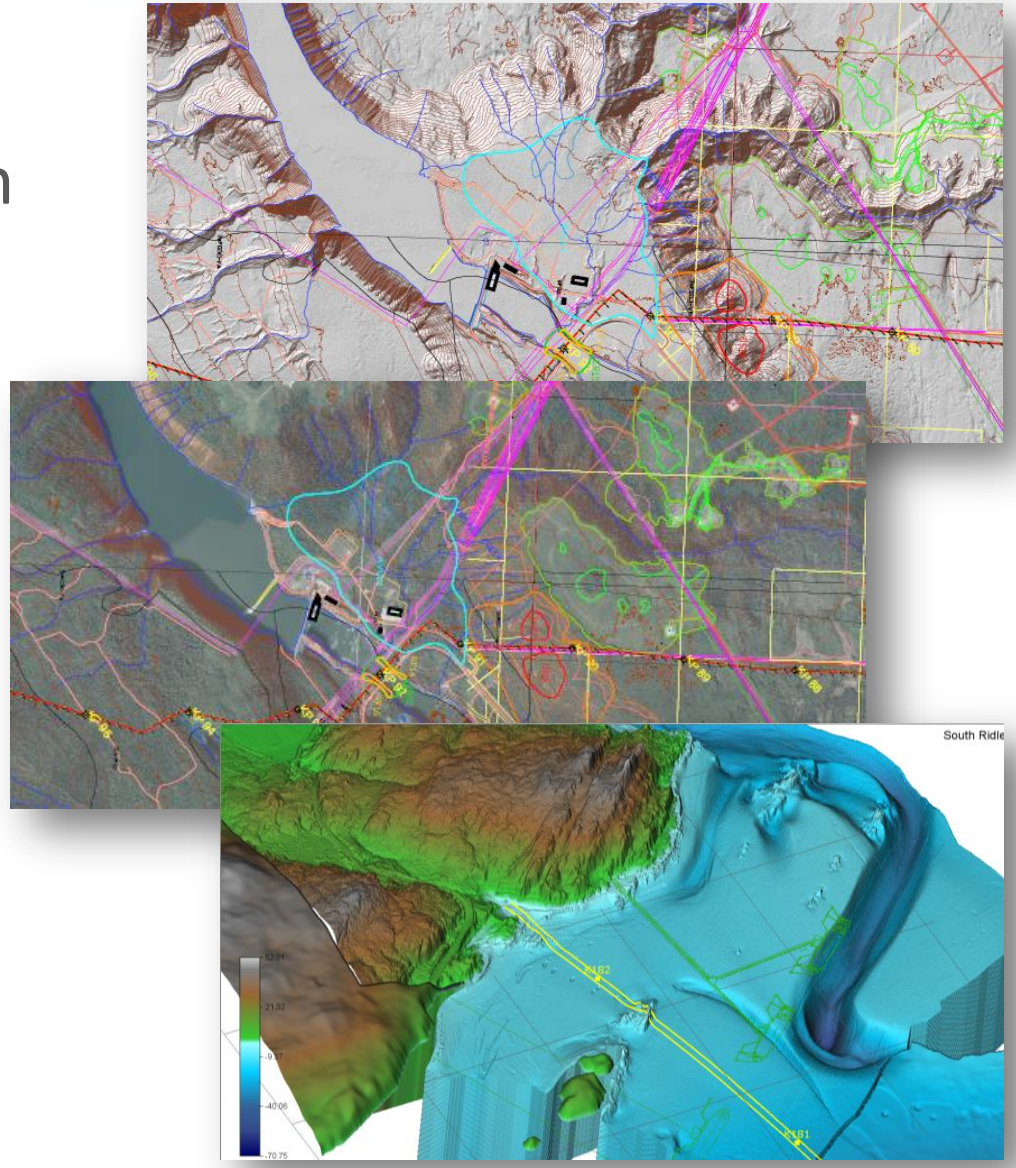
# Completed to Date – Engineering and Survey

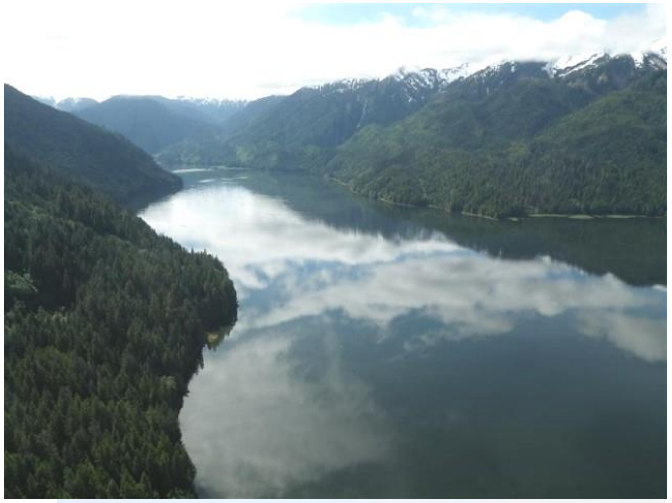
- Pre-Feed Engineering
- Survey Data Collection
  - Onshore
    - LiDAR
    - Orthophotography
    - Ground Truthing
    - Geophysics
  - Offshore
    - Bathymetry
    - Sidescan
    - Subbottom



# Environmental Assessment Overview
# Progress Achieved to Date

**Timeline for Environmental Assessment is on track:**

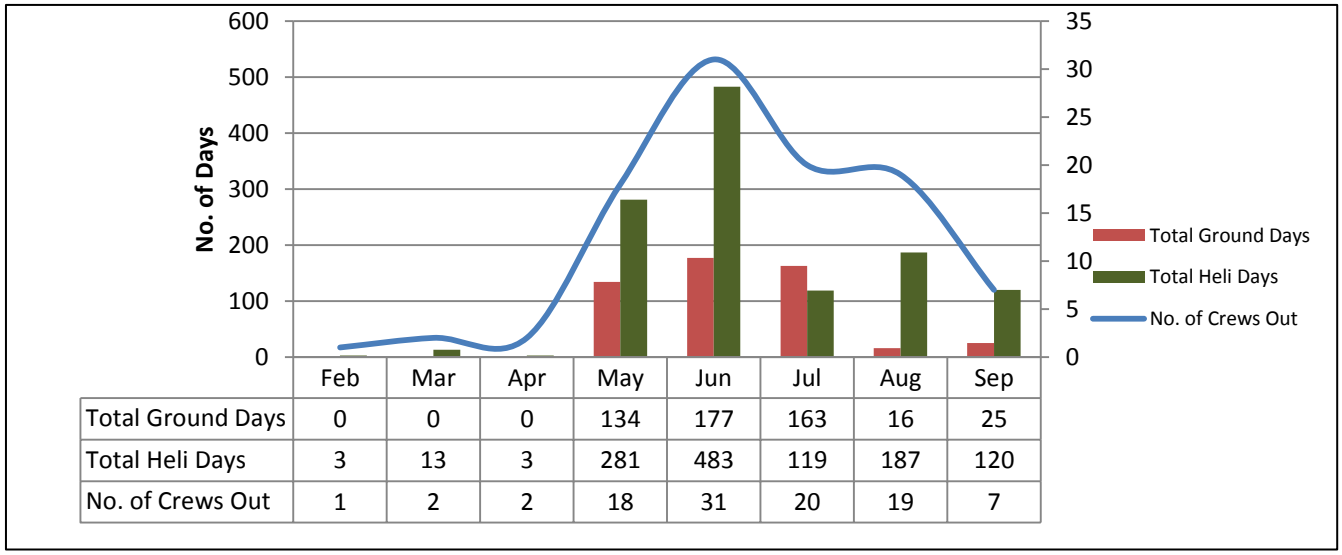
- ☑ Project description filed with BC Environmental Assessment Office (BC EAO)
- ☑ BC EAO published a Section 10 Order – Identified that the project is reviewable under provincial regulation
- ☑ BC EAO issued a Section 11 Order, specifying scope, procedures and methods of the assessment review
- ☑ Completed 13 Public Open houses and BC EAO Working Group meetings in Prince George, Ft. St. John, Prince Rupert and Terrace
- ☑ Final Application Information Requirements (AIR) agreed and published by BC EAO and Working Groups



# Environmental Assessment Overview
# Progress Achieved to Date

**Timeline for Environmental Assessment is on track:**

- ☑ Finalized assessment methodology, spatial and temporal boundaries for the Environmental Assessment
- ☑ Initiated 2013 Environmental Field Season – Up to 180 fish, wildlife and vegetations biologists, archaeologists, and First Nations support along the entire length of the pipeline route




| | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|---|---|---|
| Total Ground Days | 0 | 0 | 0 | 134 | 177 | 163 | 16 | 25 |
| Total Heli Days | 3 | 13 | 3 | 281 | 483 | 119 | 187 | 120 |
| No. of Crews Out | 1 | 2 | 2 | 18 | 31 | 20 | 19 | 7 |

# 2013 Environmental Field Studies

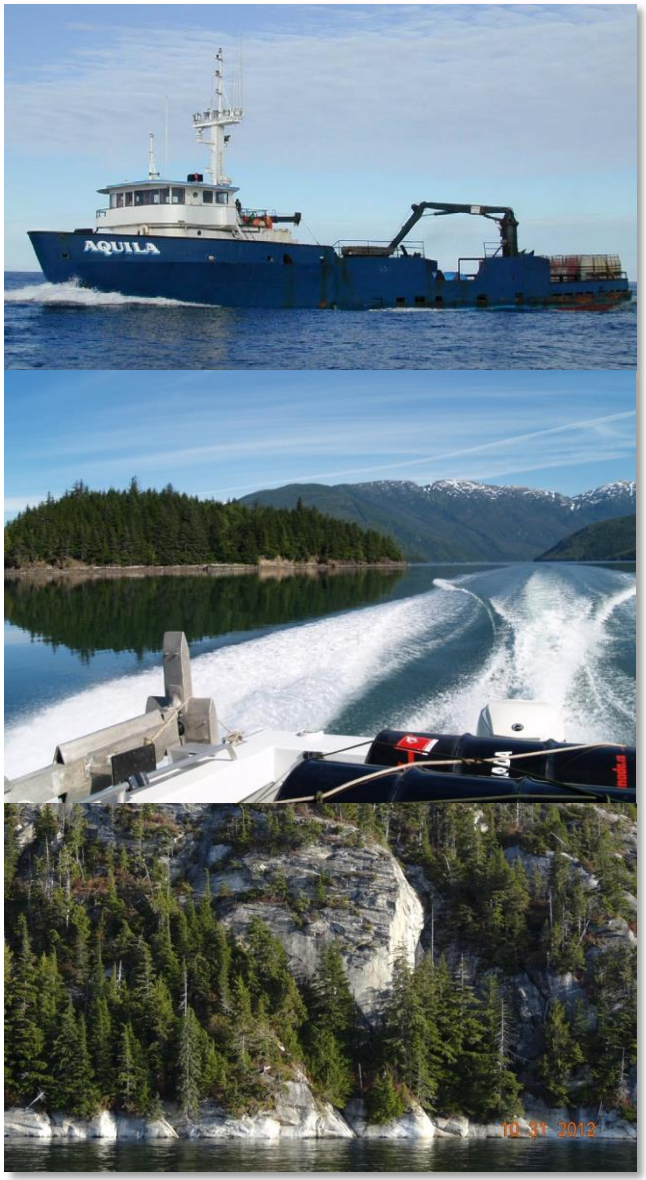
*Most draft technical reports to be completed by November 2013*

**Timing of field programs is based on seasonal factors (such as ground conditions, water levels, migration patterns and nesting period) and community requirements**

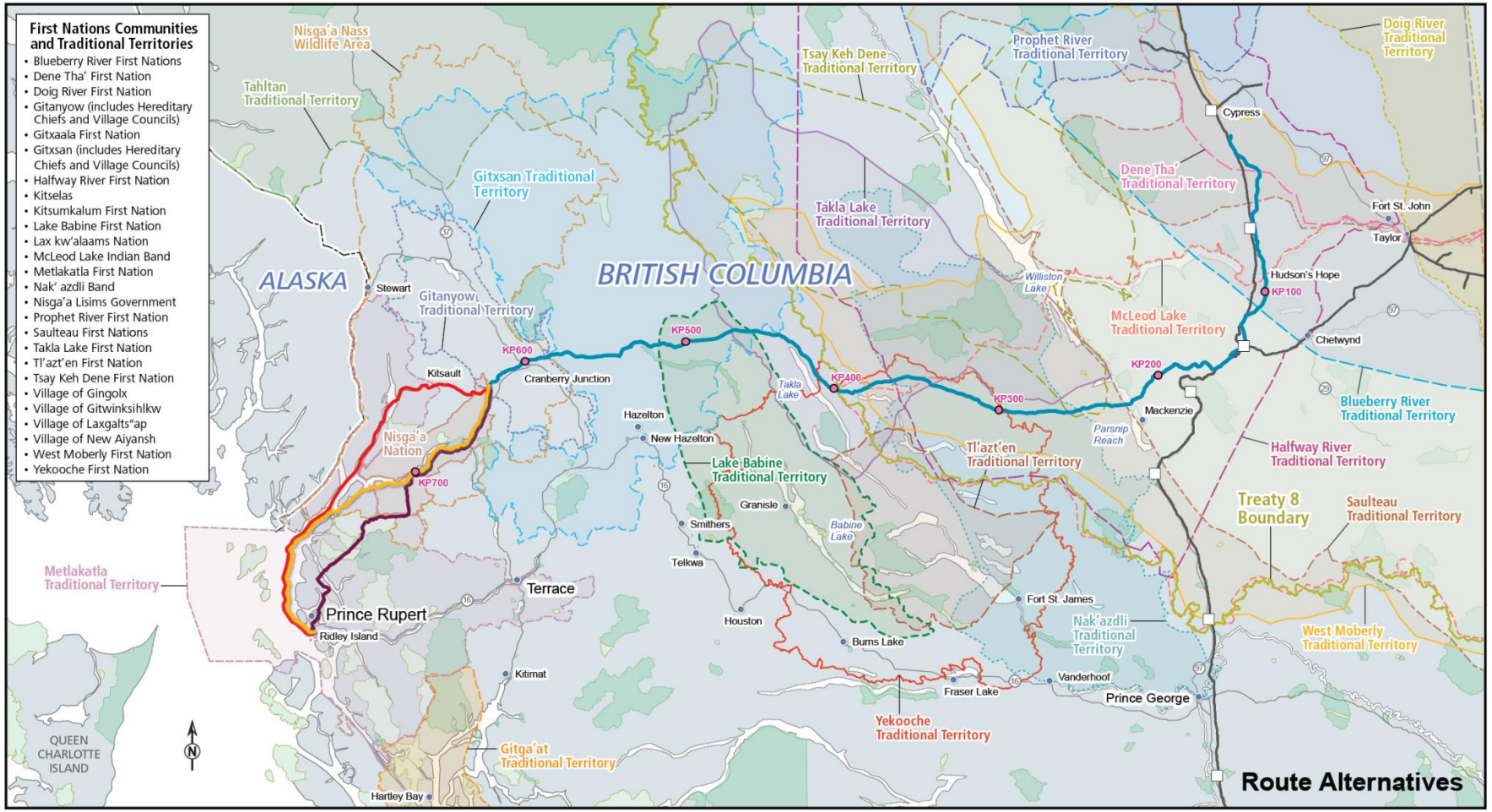
- Winter Wildlife – January to March 2013
- Spring – April to June 2013
  - Spring Birds, Early Fish, Early Vegetation, TEM, Archeology
- Summer – June to August 2013
  - Wildlife, Fish, Early and Late Vegetation, Wetlands, Marine, Archeology
- Fall – September and October 2013
  - Winter Birds, Fall Fish

# Assessing the Marine Environment
## *2013 Survey Program*

- Geophysical
  - Bathymetry/Side Scan Sonar/Sub-Bottom Profile
- Geotechnical
  - Sampling
  - Testing and Classification
- Environmental
  - Shallow sub-tidal and shore-side biological surveys
- Visual Documentation
  - Remotely Operated Vehicle (ROV)



# Aboriginal and Local Engagement
# Aboriginal Communities Along Route

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# Aboriginal and Local Engagement
# List of Aboriginal Communities

- Treaty 8 First Nations
  - Fort Nelson First Nation, Prophet River First Nation, Blueberry River First Nations, Doig River First Nation, Halfway River First Nation, West Moberly First Nations, Saulteau First Nations, McLeod Lake Indian Band, Dene Tha First Nation (Alberta)
- Nisga'a Lisims Government
- First Nations (non-treaty)
  - Nak'azdli Band, Tsay Keh Dene First Nation, Takla Lake First Nation, Tlazten First Nation, Yekoochie First Nation, Lake Babine First Nation, Gitxsan Nation and Hereditary Chiefs (Wilps), Gitanyow Nation (Hereditary Chiefs Office), Kitsumkalum First Nation, Kitselas First Nation, Lax kw'alaams Nation, Metlakatla First Nation, Gitxaala First Nation
- Métis Nation of BC

# Aboriginal and Stakeholder Engagement

*Identify, Inform, Understand, Create Opportunities, Continue*

**We recognize and respect the unique cultural and historical characteristics of Aboriginal people and their connections to the land – and this understanding helps guide our actions**

## Relationship Building

- Focused on building trust in all corporate activities

## Communication & Information Sharing

- Open and ongoing communication
- Receive FN and Nisga'a-specific information for consideration
- Understand and address, where appropriate , concerns or issues raised

## Capacity Building

- Opportunities to build capacity and enhance participation in various business opportunities

## Economic Development

- Engagement of FN and Nisga'a businesses throughout the Company's value chain in respect of the Project

## Benefits Agreements

- Longer-term benefits for communities throughout construction and operation

# Aboriginal and Local Engagement
# Aboriginal and Local Input

- Aboriginal communities have requested route adjustments:
  - Gitxsan and Halfway River First Nations requested that we move the right of way to avoid sensitive areas – these changes were reflected in latest route design
- Aboriginal communities have requested specific engagement processes, i.e. have asked that we engage the Hereditary Chiefs, as well as Chief and Council:
  - We have amended our engagement plans to ensure we deliver on this commitment
- Aboriginal communities have asked to contribute to our right of way management plan:
  - Evaluating whether Saulteau and West Moberly First Nations' native plant greenhouse can provide native species for planting on the right of way to protect wildlife habitat through visual screens
- Communities have asked us to work together in sensitive environmental areas:
  - Working with birders at Mugaha Marsh Bird Sanctuary on methods to cross sensitive areas
- Communities have asked us to ensure local contracting opportunities:
  - We have responded by using local accommodations for field work, opened a Terrace office with local staff, and have used local fishing boats for marine field work
  - Aboriginal and community coordinator input from local communities will form part of local and Aboriginal contracting strategies

# Next Steps

- Environmental Assessment Application
- OGC Applications
- Technical Field Program
  - Geophysics
  - Geotechnical Samples
  - Ground Truthing
- FEED Engineering
- Constructability Analysis
- Logistics and Access Planning
- Offshore Pipeline Repair R&D

# Construction Methods

## Bucket Dredge

## Blasting Vessel

## HDD Support Jack-up Vessel

## Open-Cut Shore Approach

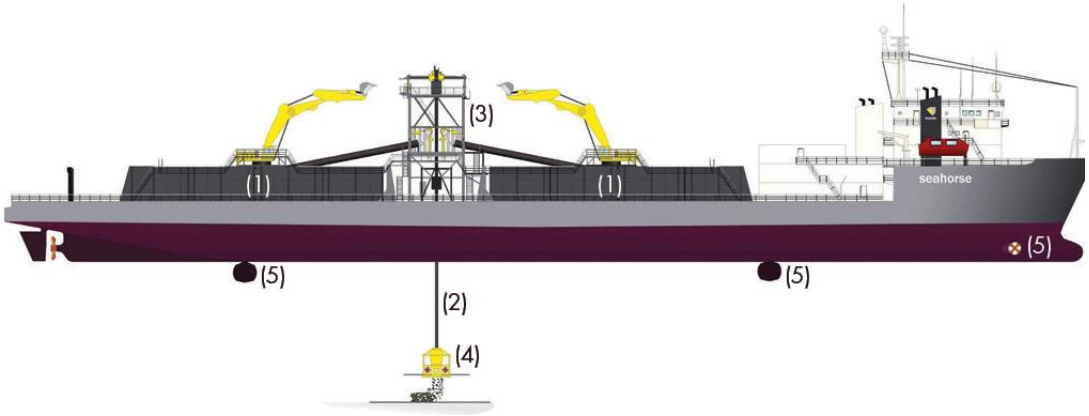
During Construction

After Construction

# Construction Vessels

Lay Vessel

Rock Placement Vessel




Rock Placement Process

# Conclusions

**Capturing the LNG opportunity and its benefits demands:**

- Commitment to one Environmental Assessment and Approval process, in this case under British Columbia's provincial regulatory framework
- A consistent and efficient regulatory regime. Meeting review and approval milestones, and minimizing delay.
- A commitment of coordination between Federal and British Columbia governments on elements of environmental assessment, having a regard to Chapter 10 of the Nisga'a Treaty, and Aboriginal consultation




# Q&A

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Member 2012/13

CARBON DISCLOSURE PROJECT

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CR's 100 Best Corporate Citizens 2012

Canada's Top 100 Employers 2012

COMMUNITY OF RESPECT
A NO PLACE FOR HATE® PROGRAM OF THE ADL

TOP WORK PLACES

Spectra Energy®

*Energy for B.C.*

Connect with Us

# Dramatic Change, New Opportunity

*Accessing New Global Markets While Doing It Right for B.C.*

- British Columbia has an abundant supply of natural gas – enough to meet our energy needs for well over 100 years
- However, within 15 years, it is expected that the U.S.– our largest customer – will need fewer and fewer Canadian supplies
- With our tremendous natural gas resources we must:
  - Ensure that B.C.'s suppliers find new, growing markets and help countries like Japan, Korea and China meet their growing clean energy demands
  - Find more ways to utilize our abundant supplies here at home while we share this environmentally and economically important fuel with areas of the world that need it
  - Recognize B.C.'s homegrown energy advantage as an important climate change solution and economic engine - fueling new industries, driving new investments, protecting and creating sustainable jobs, and delivering significant revenue to help fund important social programs upon which we all rely