Draft Environmental Impact Statement Guidelines

Site C Clean Energy Project

BC Hydro

March 1, 2012

Presentation to the Advisory Working Group

SITE C CLEAN ENERGY PROJECT

Agenda

Agenda Topic	Presenter
Introduction and Purpose	Danielle Melchior
Part I	
Project Location	Danielle Melchior
Project Components Overview	John Nunn
Part II	
Environmental Impact Statement Guidelines Overview	Danielle Melchior, Trevor Proverbs, Bettina Sander, Paul Higgins, Siobhan Jackson
Next Steps	Danielle Melchior

BC hydro REGENERATION

Introduction and Purpose

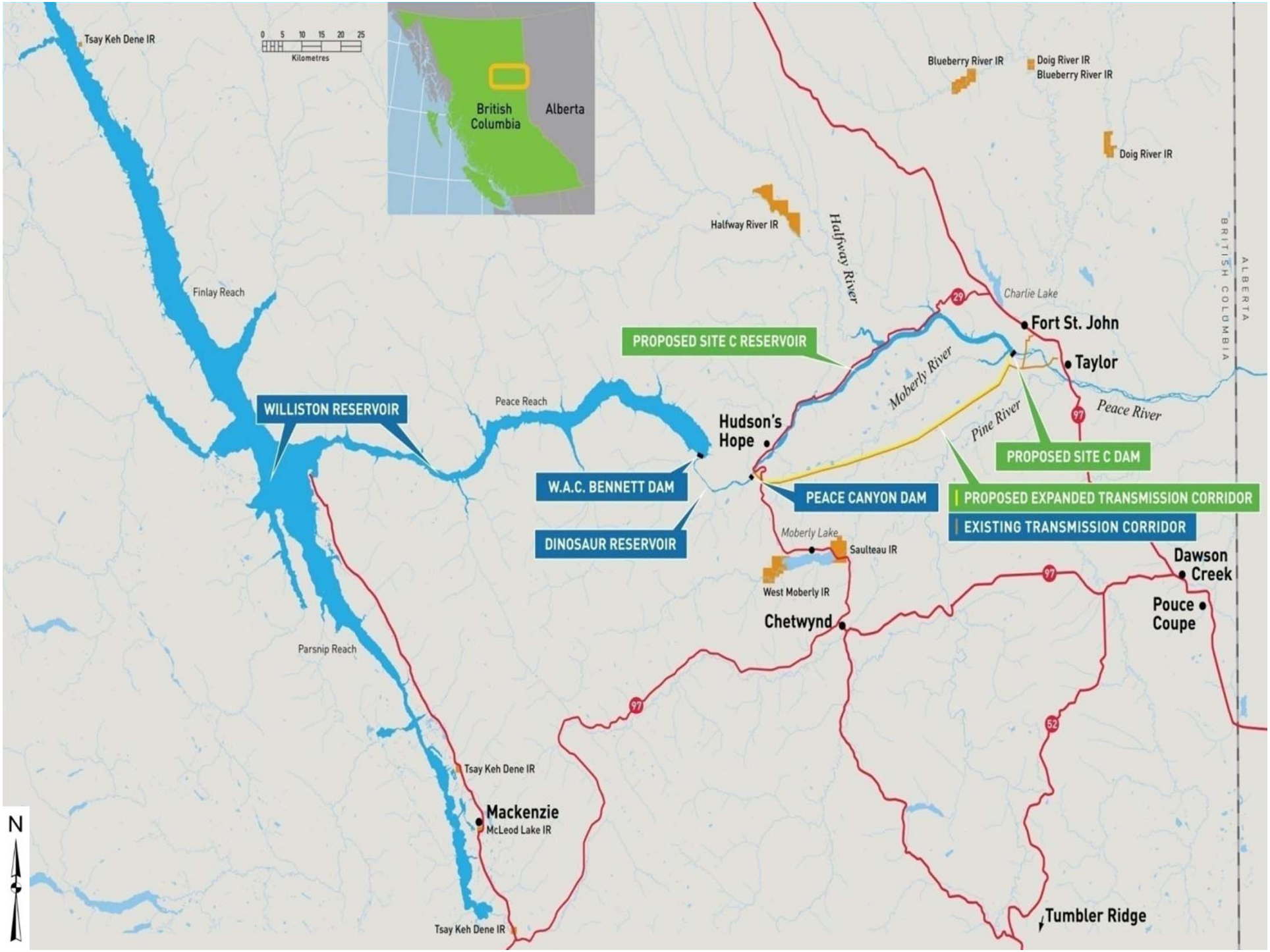
EIS-G Section 1 (pg 1)

Project Location

EIS-G Section 3 (pg 4)


Beaufort Sea
N
Nunavut
USA
Great
Bear
Lake
Mackenzie
River
NWT
Yukon
Great
Slave
Lake
Manitoba
Lake
Athabasca
Peace River
British Columbia
USA
Finlay River
Fort
St. John
Pacific
Ocean
Williston
Reservoir
Saskatchewan
Alberta
Parsnip River
Location of
Proposed Site C Dam
1016-C14-B5773


Beaufort Sea
N
Nunavut
USA
Great Bear Lake
Mackenzie River
NWT
Yukon
Great Slave Lake
Manitoba
Lake Athabasca
Peace River
British Columbia
USA
Finlay River
Fort St. John
Williston Reservoir
Pacific Ocean
Saskatchewan
Alberta
Parsnip River
Location of Proposed Site C Dam
1016-C14-B5774


Tsay Keh Dene IR
0 5 10 15 20 25
Kilometres
British Columbia
Alberta
Blueberry River IR
Doig River IR
Blueberry River IR
Doig River IR
Halfway River IR
Halfway River
Finlay Reach
Charlie Lake
Fort St. John
PROPOSED SITE C RESERVOIR
Taylor
Moberly River
WILLISTON RESERVOIR
Peace Reach
Hudson's Hope
Pine River
Peace River
PROPOSED SITE C DAM
W.A.C. BENNETT DAM
PEACE CANYON DAM
PROPOSED EXPANDED TRANSMISSION CORRIDOR
EXISTING TRANSMISSION CORRIDOR
DINOSAUR RESERVOIR
Moberly Lake
Saulteau IR
Dawson Creek
West Moberly IR
Pouce Coupe
Chetwynd
Parsnip Reach
Tsay Keh Dene IR
Mackenzie
McLeod Lake IR
Tsay Keh Dene IR
Tumbler Ridge
BRITISH COLUMBIA
ALBERTA
N

Overview of Project Components and Activities

EIS-G Section 3 (pg 3)

SITE C CLEAN ENERGY PROJECT

Dam, Generating Station and Reservoir

SITE C CLEAN ENERGY PROJECT

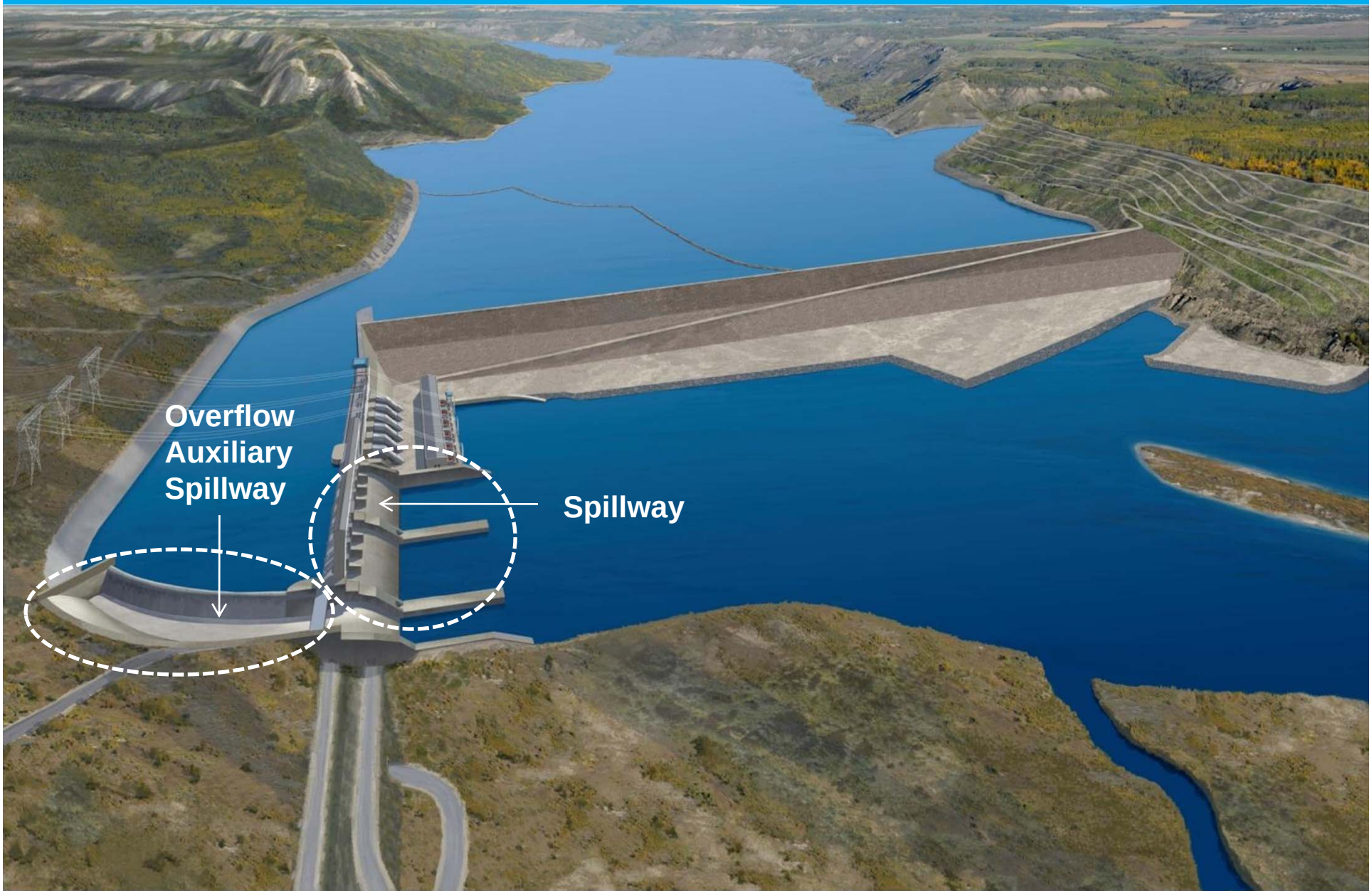
Dam, Generating Station and Reservoir

SITE C CLEAN ENERGY PROJECT

Dam, Generating Station and Reservoir

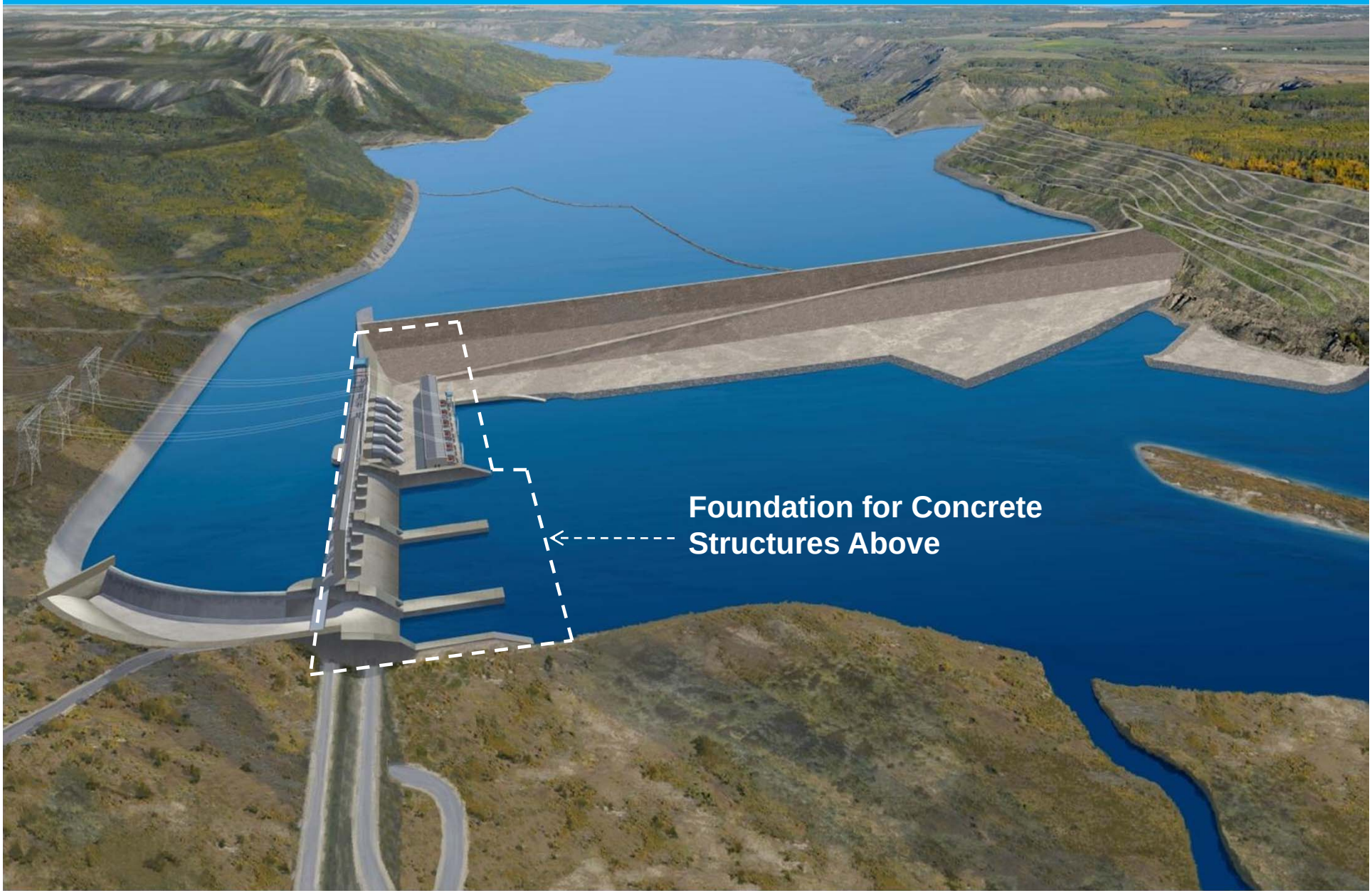
SITE C CLEAN ENERGY PROJECT

Dam, Generating Station and Reservoir



SITE C CLEAN ENERGY PROJECT

Dam, Generating Station and Reservoir



SITE C CLEAN ENERGY PROJECT

Dam, Generating Station and Reservoir

SITE C CLEAN ENERGY PROJECT

Dam, Generating Station and Reservoir

SITE C CLEAN ENERGY PROJECT

Dam, Generating Station and Reservoir

SITE C CLEAN ENERGY PROJECT

Proposed Reservoir

Total reservoir surface area:	9,330 hectares
Total flooded land area*:	5,557 hectares
Maximum normal reservoir fluctuation:	1.8 m
Length:	83 km
Width:	2-3 times the current river (on average)

Extent of tributary inundation:

• Lynx Creek	0.8 km
• Farrell Creek	2.5 km
• Halfway River	14.0 km
• Cache Creek	8.0 km
• Moberly River	10.0 km

Clearing > 1Mm^3 of merchantable timber

Hudson's Hope berm

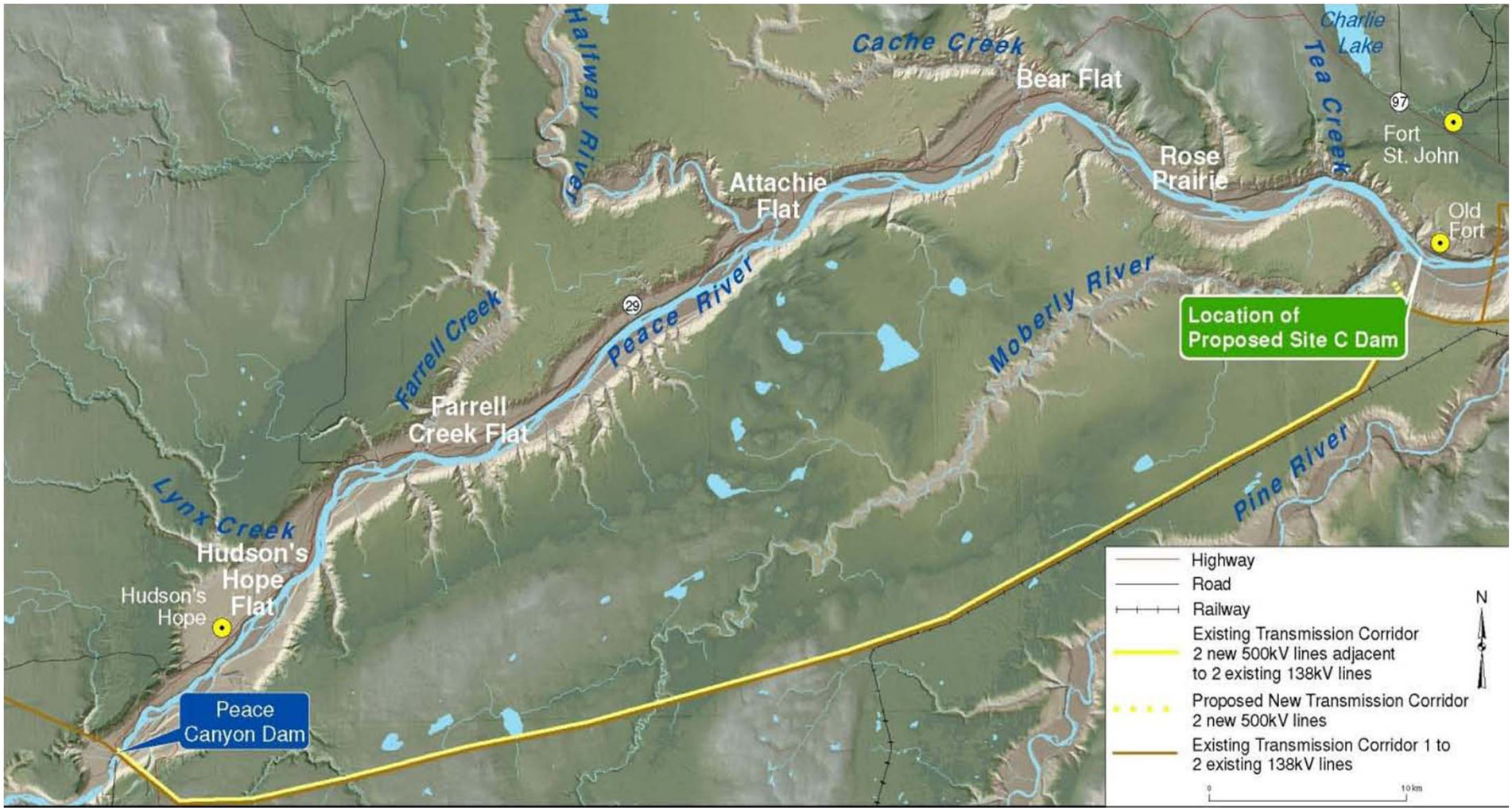
Filling ~ 8 weeks

* Based on proposed maximum reservoir elevation of 461.8m

BC hydro REGENERATION

SITE C CLEAN ENERGY PROJECT

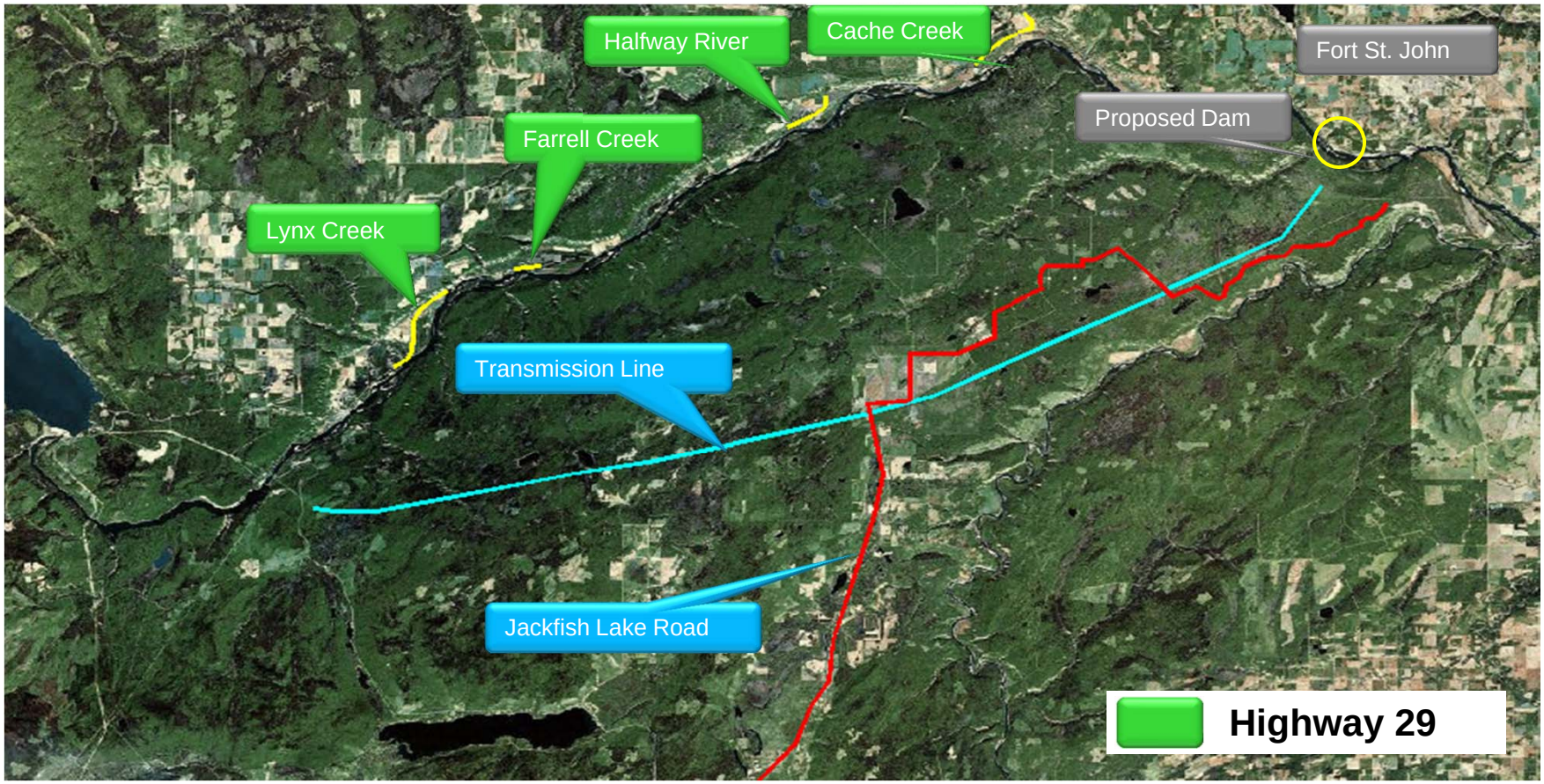
Transmission Line



BC hydro REGENERATION

SITE C CLEAN ENERGY PROJECT

Highway 29 Realignment



BC hydro REGENERATION

Temporary Project Components

- Dam site preparation:
  - Offices, storage, aggregate processing areas, laydown areas, workshops etc.
- Site slope stability excavations:
  - North bank of dam site (8 Mm^3 of rock, 26 Mm^3 overburden)
- Construction materials for approach channel lining, cofferdams, earthfill dam and tailrace
  - 3.3 Mm^3 of impervious material, 0.8 Mm^3 of riprap

Worker Accommodations

- Dam site construction camps
  - North bank
  - South bank
- Regional camps
  - Highway 29 Realignment
  - Jackfish Lake Road
- Local in-community housing

Draft Environmental Impact Statement (EIS) Guidelines

Purpose of EIS Guidelines

- "Terms of reference" for the environmental assessment
- Meet the provincial and federal environmental assessment requirements
- Drafted by the proponent, reviewed by the Working Group, regulators, and the public; then revised as appropriate and finalized and issued by the regulators.

EIS Guidelines – Section Overview

Section Topics	EIS Guidelines Section
Introduction, Project Planning, and Description	1 - 7
Aboriginal Interests and Information	20
Environmental Assessment Methodology	8
Additional Requirements	21, 23
Lunch Break	
Environmental Background and Effects Assessment	9 - 13
Economic, and Land and Resource Use Effects Assessment	14-16
Social, Heritage, and Health Effects Assessment	17 - 19

EIS Guidelines – Sections 1 - 3

Introduction, Project Planning and Description

Purpose of the Environmental Impact Statement:	Section 1
Proponent Description:	Section 2
Project Overview (Project Components and Activities):	Section 3

Need for, Alternatives to, Purpose of, and Alternative Means of Carrying out the Project

EIS-G Section 4 (pg 11)

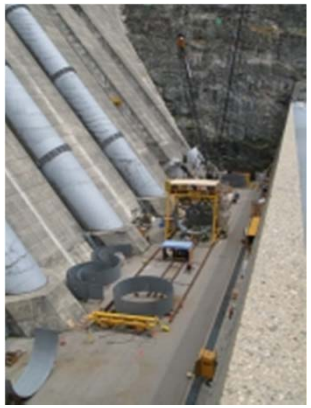
Need for the Project

- The provincial policy context
- Load-resource balance
- Forecasted electricity demand
- Mandate of BC Hydro

Alternatives to the Project

- Technically and economically feasible alternatives to the Project
  - Management of electricity demand
  - Alternative generation sources
  - More dependable capacity at existing generation facilities

- Integrated resource planning



Integrated Resources Planning

1. How much electricity will BC need over the next 20 years?

2. What is the gap between existing supply and forecast electricity demand?

3. How can BC Hydro close the gap?

SITE C CLEAN ENERGY PROJECT

Integrated Resources Planning Consultation

- Three streams:
  - First Nations
  - Public and Stakeholder
  - Technical Advisory Committee

- March/April 2011: *Input into* the draft plan
  - 9 First Nations workshops in regions across the province
  - 14 stakeholder meetings, 12 public open houses
  - 4 multi-day Technical Advisory Committee meetings

- Spring 2012 (planned): *Feedback on* the draft plan

SITE C CLEAN ENERGY PROJECT

Purpose of the Project

- The “purpose of” the Project is defined as what is to be achieved by carrying out the Project

Alternative Means

- Alternative means of developing the hydroelectric potential of the Peace River downstream of the Peace Canyon Dam
- Characteristics of each alternative means:
  - Engineering parameters
  - Physical footprint
  - Capital costs
  - Generation of dependable capacity
- Relative potential environmental effects

Project Benefits

EIS-G Section 5 (pg 14)

Project Benefits

- Financial benefits
- Economic development benefits for Aboriginal groups and non-Aboriginal groups
- Social benefits
- Sustainable development

Assessment Process

EIS-G Section 6 (pg 16)

SITE C | CLEAN ENERGY PROJECT

Assessment Process

- Provincial agencies, departments and organizations
- Federal responsible authorities and federal authorities
- Cooperative Review Process
- Permitting

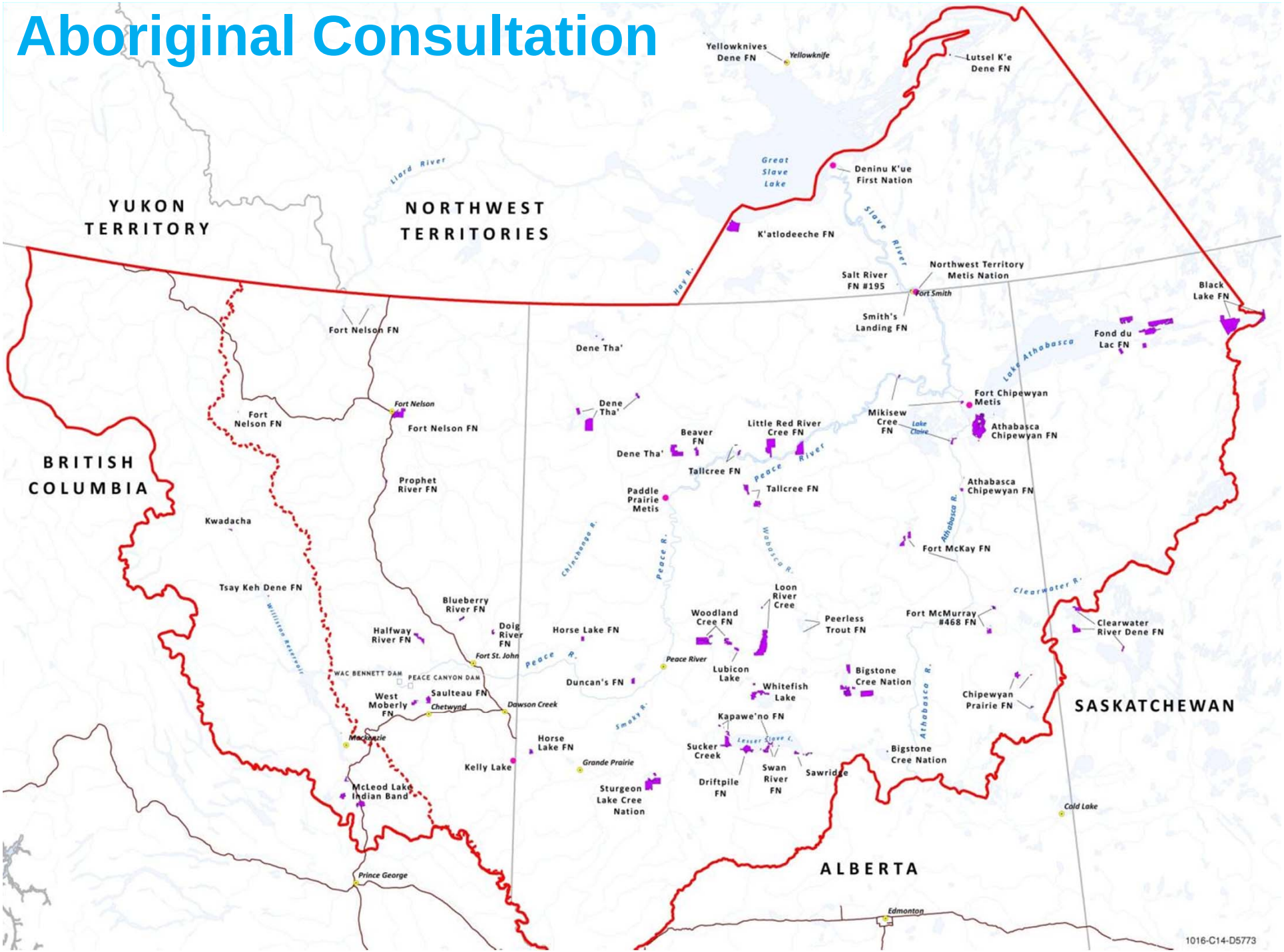
Information Distribution and Consultation

EIS-G Section 7 (pg 16)

Information Distribution and Consultation

- Aboriginal Communities
- Public
- Governments

Aboriginal Consultation



SITE C CLEAN ENERGY PROJECT

Aboriginal Interests and Information Requirements

- Identify interested Aboriginal groups, with the guidance of the governments of British Columbia and Canada, and provide background information
- BC Hydro's understanding Aboriginal and treaty rights
- Provide BC Hydro's understanding of the overlap of the Project on current use of lands and resources for traditional purposes

SITE C CLEAN ENERGY PROJECT

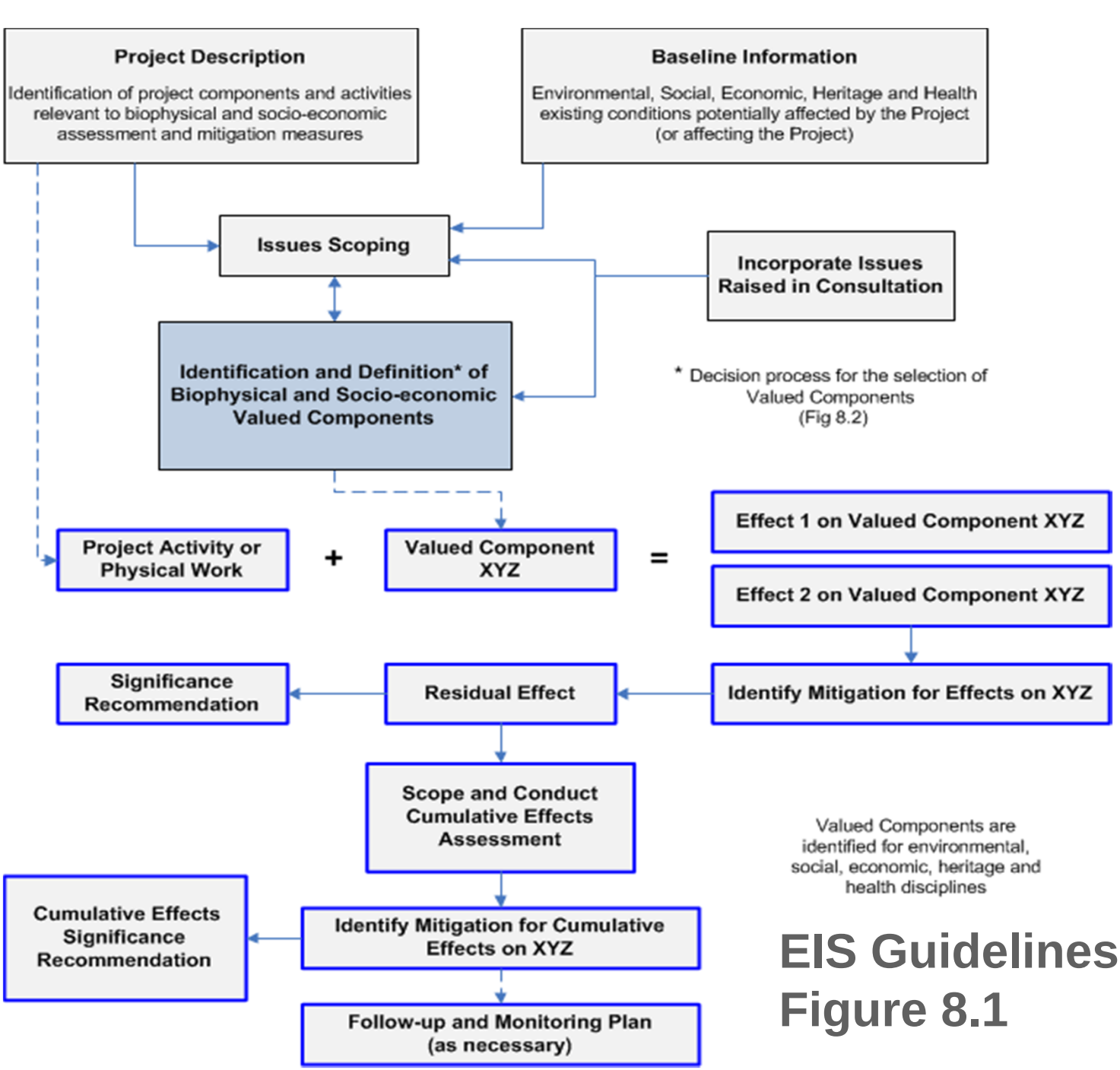
Public Consultation

- Regulatory Consultations
  - Public comment periods
  - Panel Hearings
- BC Hydro-led Consultations
  - Project Definition Consultation
    - Public open houses
    - Stakeholder meetings
  - Local Government Liaison
  - Property Owner Consultation and Liaison
  - Business Liaison
- Community Consultation Offices – Fort St. John, Hudson's Hope
- Community relations and presentations

BC hydro REGENERATION

Environmental Assessment Methodology

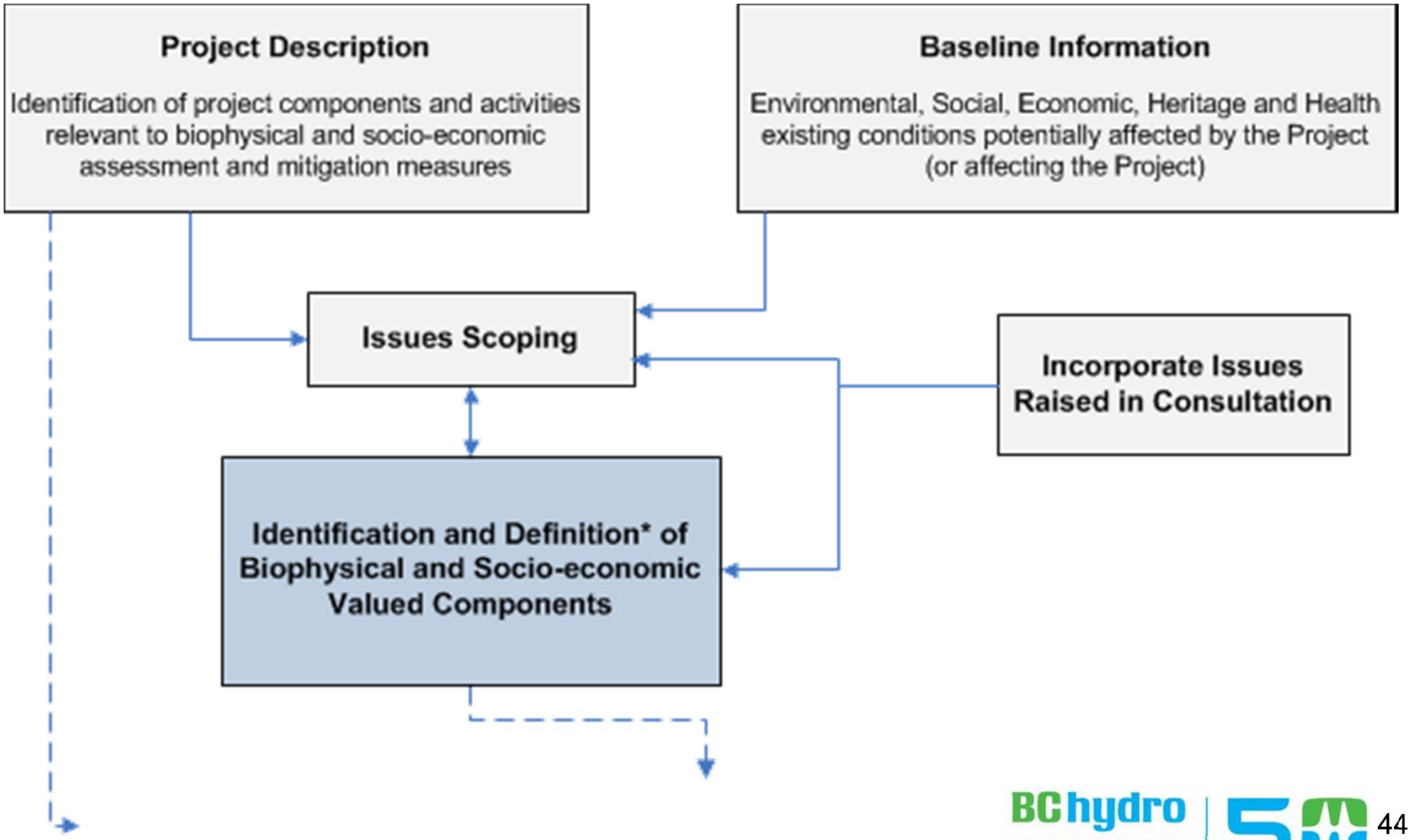
EIS-G Section 8 (pg 20)



EIS Guidelines Figure 8.1

SITE CLEAN ENERGY PROJECT

Scoping Process



BC hydro REGENERATION

Terminology in the EIS Guidelines:

Valued Component:

- EIS Guidelines, Section 8.3.1
  - BC Hydro will seek to identify those components that are valued:
    - For environmental, economic, social, heritage or human health reasons
    - As land or resources currently used by Aboriginal persons for traditional purposes

Scoping of Spatial Boundaries

EIS Guidelines, Table 8.2 (p25)

- **Technical study area:** Extent of the data collection program, or the extent for the modelling program
- **Project activity zone:** Area within which the project components and activities will be found
- **Local assessment area:** Area within which the potential adverse effects of the Project will be assessed
- **Regional assessment area:** Area within which other projects and activities residual effects may combine with the residual effects of this Project

SITE C | CLEAN ENERGY PROJECT

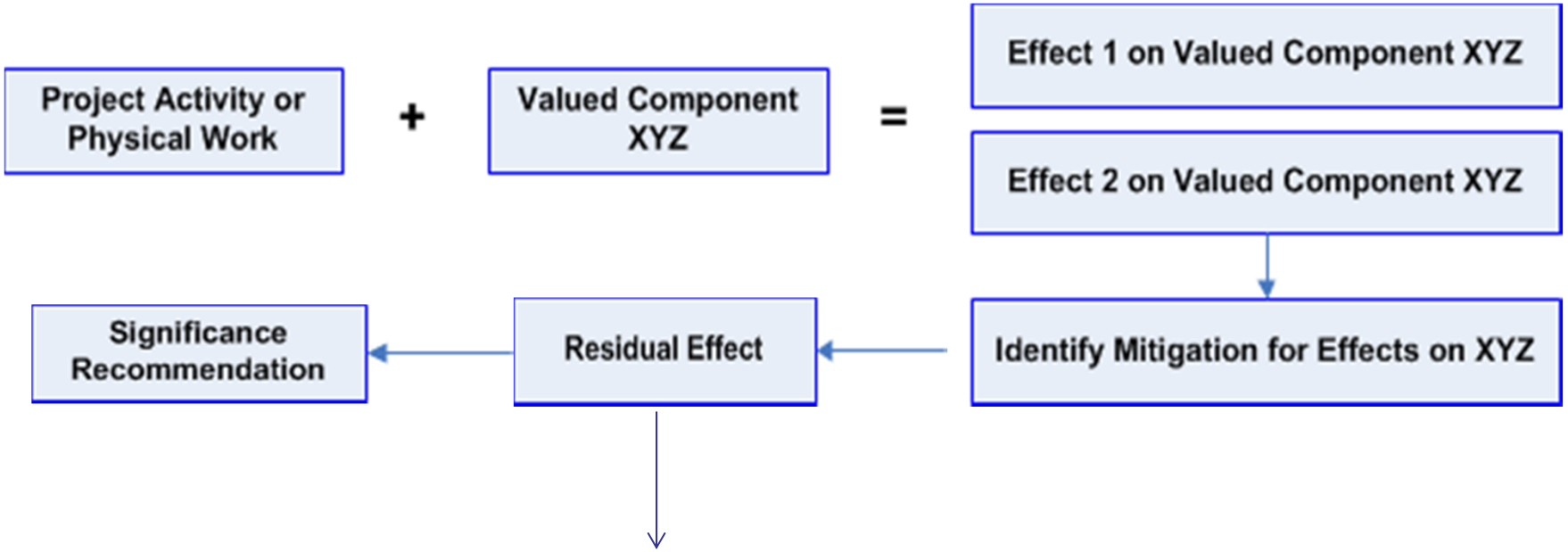
Scoping of Temporal Boundaries

Temporal Boundaries:

- Construction
- Operations
- Decommissioning

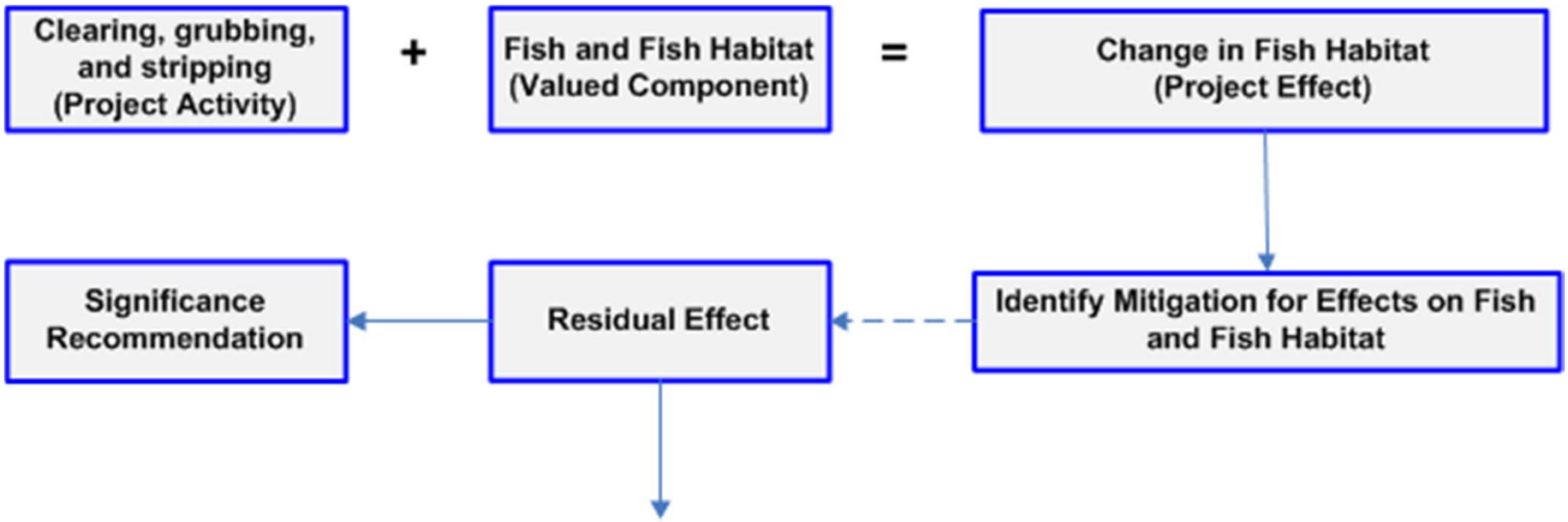
BC hydro REGENERATION

Effects Assessment



Effects Assessment

Example: Valued Component – Fish and Fish Habitat



SITE C CLEAN ENERGY PROJECT

Effects Assessment

Select Project Components, Sub-Components and Associated Activities	Fish and Fish Habitat	Vegetation and Plant Communities	Wildlife Resources	Local Government Revenue	Labour Market	Current Use of Lands and Resources for Traditional Purposes	Agriculture	Forestry	Harvest of Fish and Wildlife Resources	Housing	Transportation	Community Infrastructure and Services	Human Health	Heritage Resources
Construction														
Earthfill Dam and Generating Facility														
Site preparation														
- clearing, grubbing and stripping														
Fuel storage and refuelling sites														
- filling of fuel tanks														
- filling of fuel trucks														
Operations														
Transmission Line to Peace Canyon														
Right-of-Way vegetation maintenance														

Table 8.1 in the EIS Guidelines

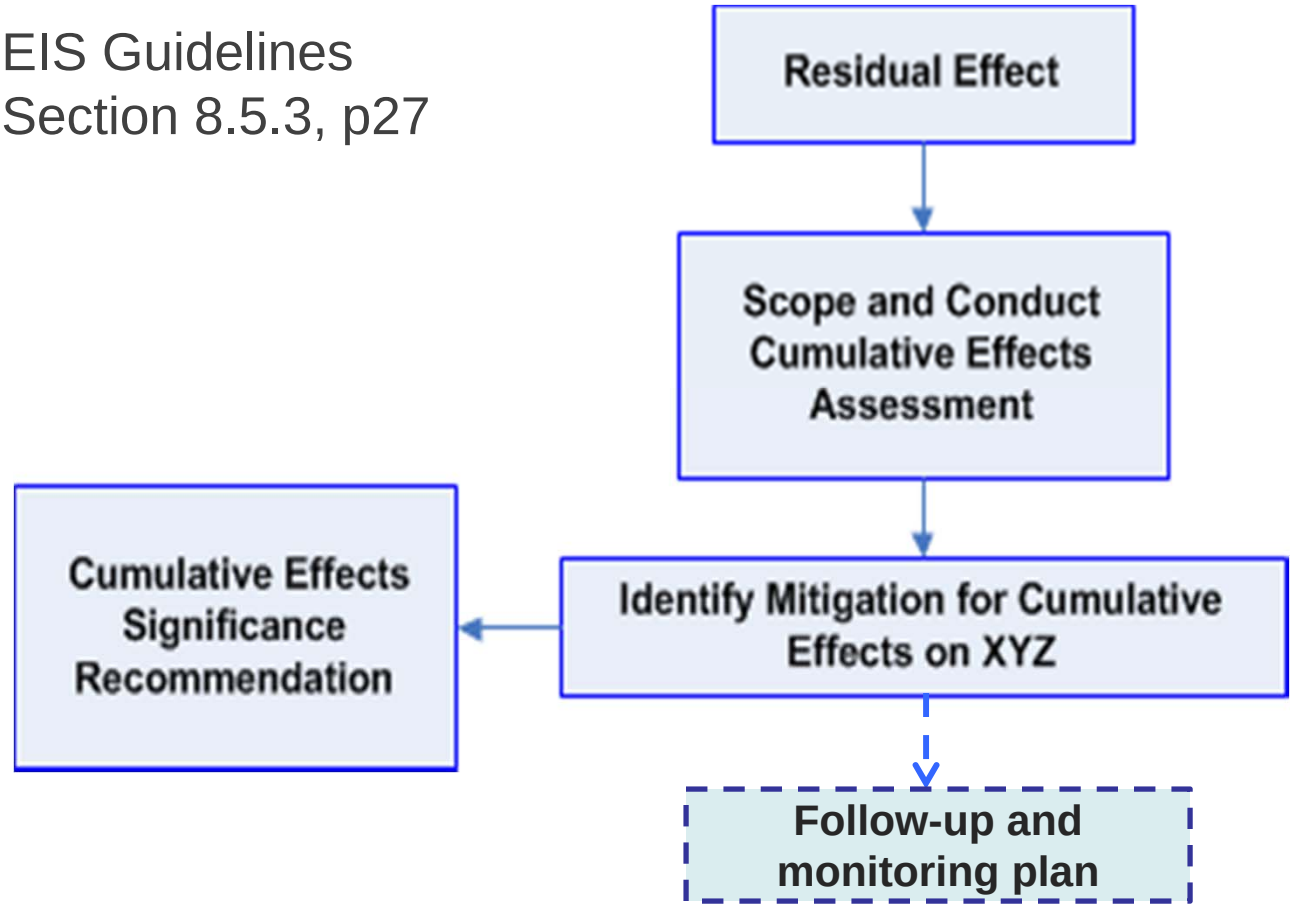
Effects Assessment

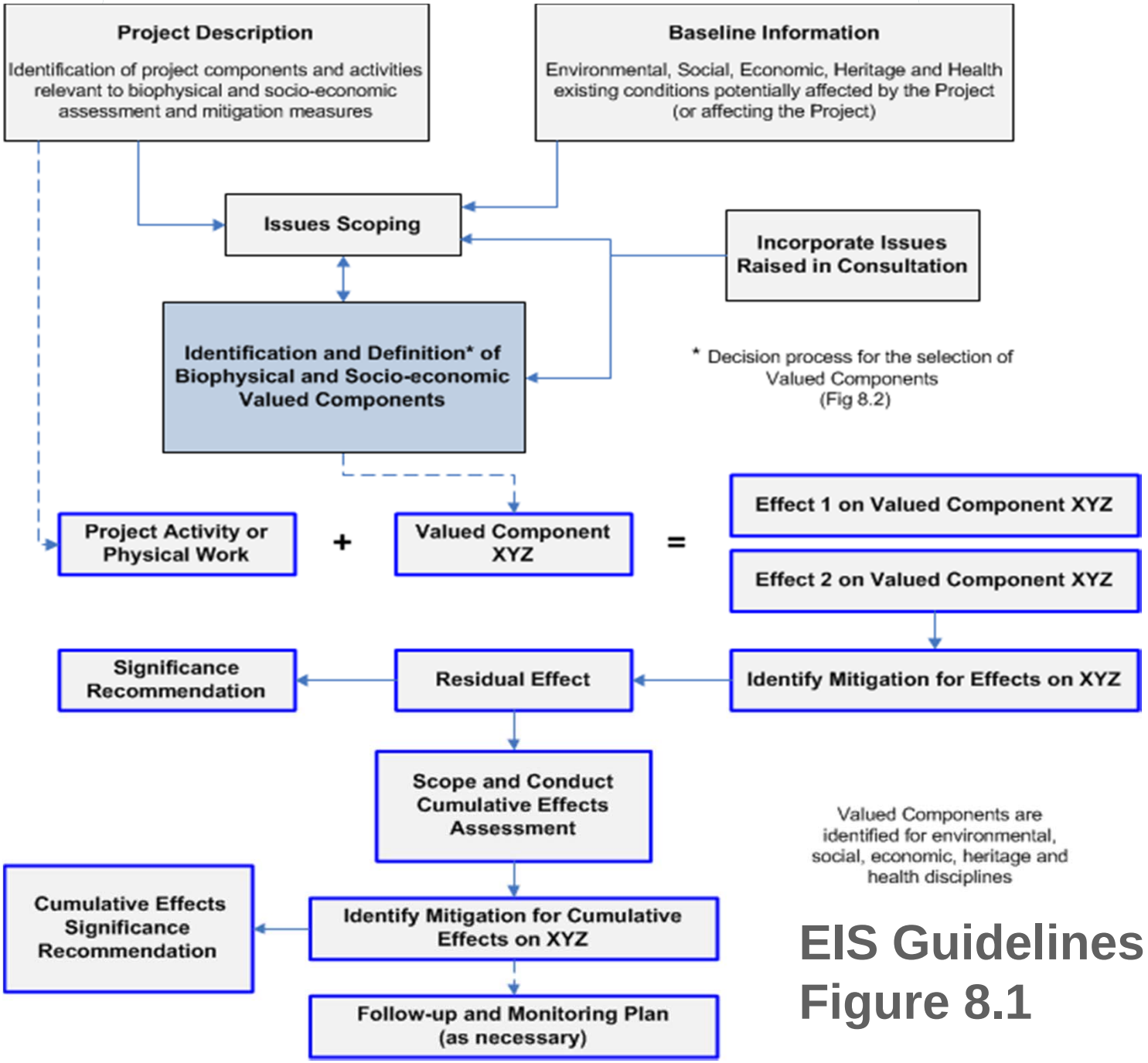
Describing Residual Effects (EIS Guidelines Table 8.3, p 26)

- Criteria
  - Direction
  - Magnitude
  - Geographic Extent
  - Duration
  - Frequency
  - Reversibility
  - Context
  - Level of Confidence
  - Probability

Cumulative Effects Assessment

EIS Guidelines
Section 8.5.3, p27





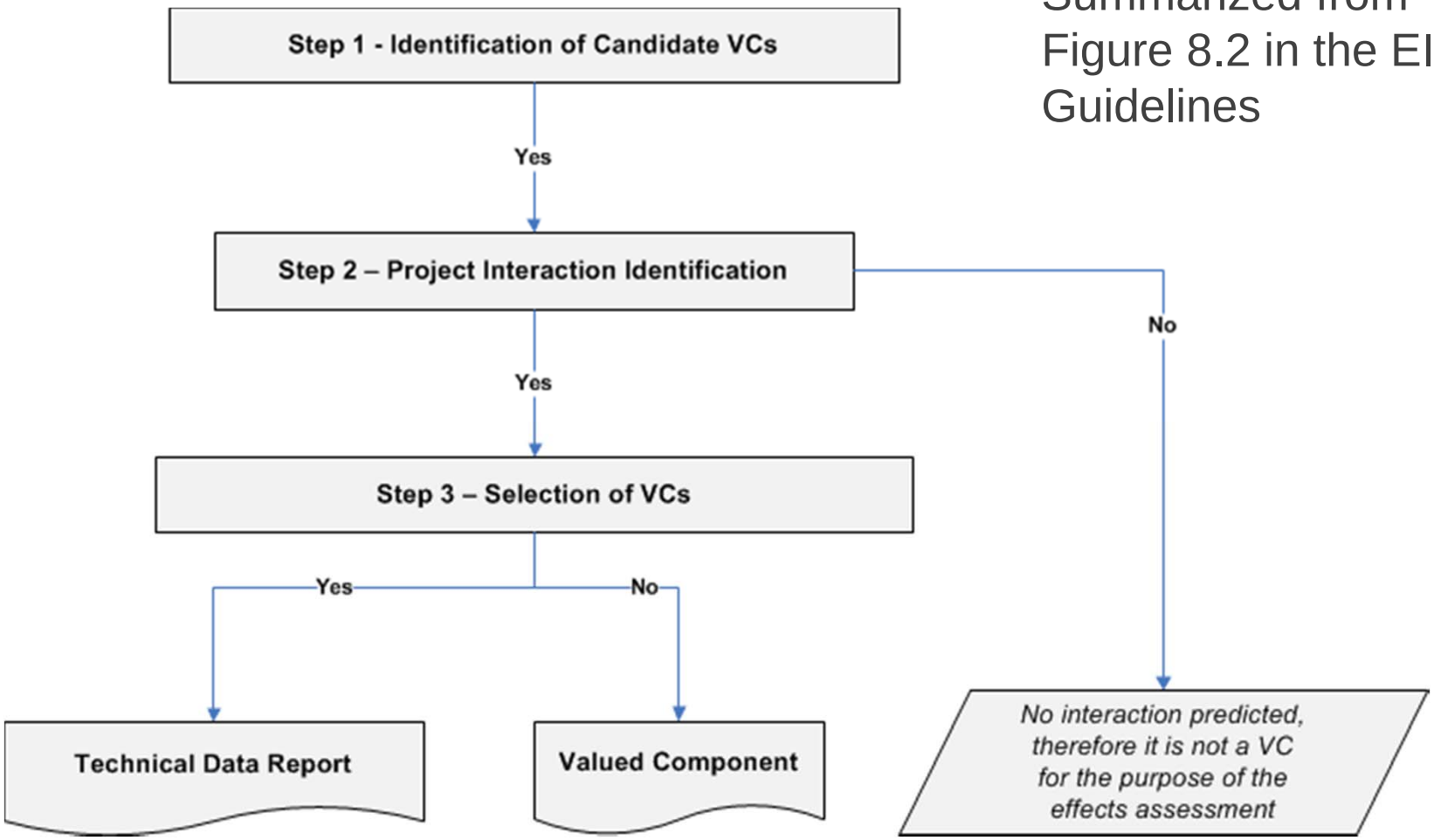
Scoping Process

Effects Assessment

Cumulative Effects Assessment

EIS Guidelines Figure 8.1

Selection of Valued Components



Summarized from Figure 8.2 in the EIS Guidelines

Technical Data

Inputs into the Valued Components

Land	Water	Air
Geology, Terrain and Soils	Surface Water Regime	Micro-climate
Land Requirements	Water Quality	Air quality
	Groundwater Regime	Noise and Vibration
	Thermal and Ice regime	Electric and Magnetic Fields
	Fluvial Geomorphology and Sediment Transport	
	Methylmercury	

SITE C CLEAN ENERGY PROJECT

Valued Components

Environment	Economic	Social	Heritage	Health
Fish and Fish Habitat	Local Government Revenue	Population and Demographics	Heritage Resources	Human Health
Vegetation and Plant Communities	Labour Market	Housing		
Wildlife Resources	Regional Economic Development	Community Infrastructure and Services		
Greenhouse Gases		Transportation		

Land and Resource Use				
Current Use of Lands and Resources for Traditional Purposes	Agriculture	Forestry	Oil, Gas, and Energy	Minerals and Aggregates
Harvest of Fish and Wildlife Resources	Outdoor Recreation and Tourism	Navigation	Visual Resources	

BC hydro REGENERATION

SITE C CLEAN ENERGY PROJECT

Additional Requirements

- Environmental Management Plans
- Effects of the Environment on the Project
- Potential Accidents and Malfunctions
- Capacity of Renewable Resources

BC hydro REGENERATION

Questions?

Lunch

Technical Data – Environmental Background

EIS-G Section 9 (pg 30)

Technical Data

Land	Water	Air
Geology, Terrain and Soils	Surface Water Regime	Micro-climate
Land Requirements	Water Quality	Air quality
	Groundwater Regime	Noise and Vibration
	Thermal and Ice regime	Electric and Magnetic Fields
	Fluvial Geomorphology and Sediment Transport	
	Methylmercury	

Environmental Background

Land: Geology, Terrain and Soils

Selection Rationale		
Interests/Concerns	Project Interactions	Dependent Valued Component
• Reservoir shoreline erosion • Shoreline stability • Ground disturbance	• Site preparation • Reservoir creation • Roads	• Vegetation and Plant Communities • Greenhouse Gases • Agriculture • Forestry • Visual resources

Environmental Background

Land: Geology, Terrain and Soils

Scope of studies:

- Baseline description:
  - bedrock and surficial geology
  - terrain stability
  - physical and chemical properties of bedrock and soils
  - earthquake hazard
  - terrain and slope stability
  - landslide potential

- Assessment of shoreline erosion and slope stability

Environmental Background

Water: Surface Water Regime

Selection Rationale		
Interests/Concerns	Project Interactions	Dependent Valued Component
• Aquatic habitat • Riparian habitat • Ecological productivity • Fish effects • Wildlife effects • Recreation • Transportation • Industry	• Reservoir formation • Reservoir water levels • River flow and levels	• Fish and Fish Habitat • Wildlife Resources • Transportation • Harvest of Fish and Wildlife • Outdoor Recreation and Tourism • Navigation • Visual Resources • Community Services and Infrastructure

Environmental Background

Water: Surface Water Regime

Scope of studies:

- Baseline description of the hydrologic features and surface water regime of the Peace River and its main tributaries.
- Assessment of the potential changes to hydrological regime associated with the project
  - Watershed hydrology and power studies
  - Flow routing
  - Reservoir and river hydraulics

Environmental Background

Air: Micro-climate

Selection Rationale		
Interests/ Concerns	Project Interactions	Dependent Valued Component
• Local weather patterns	• Reservoir formation	• Agriculture • Vegetation and Plant Communities • Wildlife Resources • Outdoor Recreation and Tourism • Navigation • Transportation • Visual Resources

Environmental Background

Air: Micro-climate

Scope of studies:

- Baseline description:
  - Weather in the Peace River valley and at Fort St. John (BC Hydro, government, and other stations)
  - Supplemental detailed climate monitoring

- Assessment of potential changes in local weather due to proposed reservoir

Environmental Valued Components and Effects Assessments

EIS-G Section 10-13 (pg. 38-51)

SITE C CLEAN ENERGY PROJECT

Valued Components

Environment	Economic	Social	Heritage	Health
Fish and Fish Habitat	Local Government Revenue	Population and Demographics	Heritage Resources	Human Health
Vegetation and Plant Communities	Labour Market	Housing		
Wildlife Resources	Regional Economic Development	Community Infrastructure and Services		
Greenhouse Gases		Transportation		

Land and Resource Use				
Current Use of Lands and Resources for Traditional Purposes	Agriculture	Forestry	Oil, Gas, and Energy	Minerals and Aggregates
Harvest of Fish and Wildlife Resources	Outdoor Recreation and Tourism	Navigation	Visual Resources	

BC hydro REGENERATION

Environment Valued Components

Fish and Fish Habitat (EIS Guidelines, Section 10, p38)

Selection Rationale		
Interests/Concerns	Project Interactions	Valued Component
• Ecosystem Health • Subsistence/cultural uses, Recreation uses, • Fisheries Act, BC Water Act	• Construction activities in or around water • Reservoir formation • Dam operation	**Fish and Fish Habitat**

Environment Valued Components

Fish and Fish Habitat

Key Indicators:

- Fish species, community structure, abundance, distribution, and life history
- Fish habitat conditions and habitat use
- Changes in key factors in their environment (i.e. food, flow, temperature)

Scope of studies:

- Baseline description:
  - Fish populations and habitat conditions
  - Patterns of habitat use and movement
  - Aquatic productivity
  - Water quality assessment
  - Mercury assessment
- Assessment of changes resulting from the project

Rotary Screw Trap, Peace River

Environment Valued Components

Vegetation and Plant Communities (EIS Guidelines Section 11, p41)

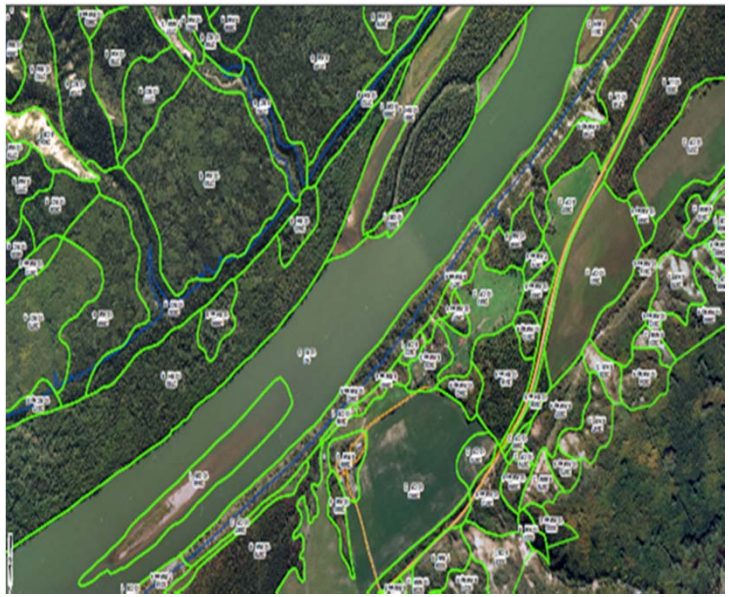
Selection Rationale		
Interests/Concerns	Project Interactions	Valued Component
• Wildlife habitat quality • Medicinal plants/ food gathering • Recreation • Biodiversity • Species at Risk Act	• Land Clearing • Reservoir formation • Operational activities	**Vegetation and Plant Communities**

Environment Valued Components

Vegetation and Plant Communities

Key Indicators:

- Area and structural stage of each ecosystem type
- Number of unique ecosystems and their distribution
- Number and distribution of rare plant species observed



Scope of studies:

- Terrestrial Ecosystem Mapping
- Composite Habitat Mapping
- Ground truthing
- Wetland surveys
- Rare plants and sensitive plant community surveys
- GIS based assessment of changes

Environment Valued Components

Wildlife Resources (EIS Guidelines Section 12, p45)

Selection Rationale		
Interests/Concerns	Project Interactions	Valued Component
• Biodiversity • Loss/fragmentation of habitat • Species at Risk Act • Migratory Bird Convention Act, BC Wildlife Act	• Reservoir formation • Changes in or loss of habitat from dam and other project components • Disturbance from construction and operation activities	**Wildlife Resources**

Environment Valued Components

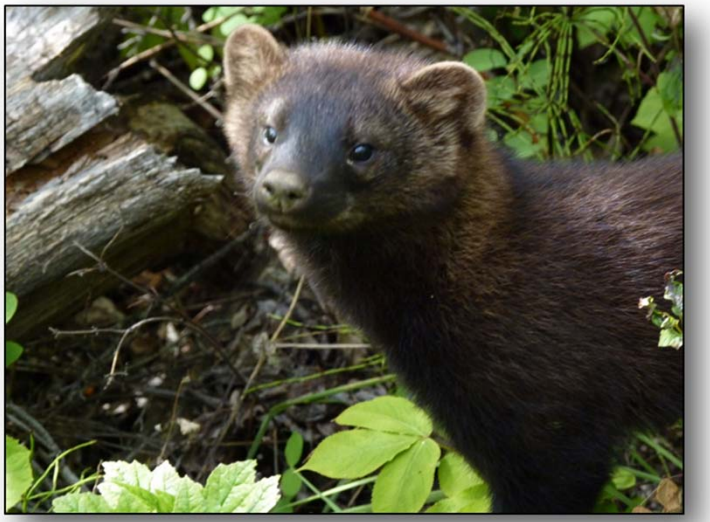
Wildlife Resources

Key Indicators:

- Habitat alteration and fragmentation
- Displacement or disturbance
- Individual mortality

Key Species Groups

- Ungulates
- Furbearers
- Migratory birds
- Non-migratory birds
- Raptors
- Amphibian and reptiles
- Bats
- Butterflies and dragonflies



Environment Valued Components

Wildlife Resources

Scope of studies:

- Ungulates
- Fisher
- Beaver
- Waterfowl
- Gamebirds
- Raptors
- Songbirds
- Shorebirds
- Marsh birds
- Harlequin ducks
- Bats
- Snakes
- Amphibians
- Small mammals

- Habitat Suitability Mapping
- Habitat Use
- Movement
- Distribution
- Abundance

Environment Valued Components

Greenhouse Gases (EIS Guidelines Section 13, p49)

Selection Rationale		
Interests/Concerns	Project Interactions	Valued Component
• Climate change interest • Federal and provincial policy and regulations	• Land clearing • Reservoir formation • Construction emissions	**Greenhouse Gases**

Environment Valued Components

Greenhouse Gases

Key Indicators:

- Estimated net change in greenhouse gases emissions

Scope of studies:

- Baseline estimation of net GHG emission from current conditions
- Multi-year greenhouse gases emission profile from constructing and operating the Project

Questions?

SITE C CLEAN ENERGY PROJECT

Valued Components

Environment	Economic	Social	Heritage	Health
Fish and Fish Habitat	Local Government Revenue	Population and Demographics	Heritage Resources	Human Health
Vegetation and Plant Communities	Labour Market	Housing		
Wildlife Resources	Regional Economic Development	Community Infrastructure and Services		
Greenhouse Gases		Transportation		

Land and Resource Use				
Current Use of Lands and Resources for Traditional Purposes	Agriculture	Forestry	Oil, Gas, and Energy	Minerals and Aggregates
Harvest of Fish and Wildlife Resources	Outdoor Recreation and Tourism	Navigation	Visual Resources	

Economic Valued Components and Effects Assessments

EIS-G Section 14 (pg 52)

SITE C CLEAN ENERGY PROJECT

Economic Valued Components

Selection Rationale		
Interests/Concerns	Project Interactions	Valued Components
Government revenue and expenditure impacts BC EAO requirement	Changes in government expenditures and revenue	**Local Government Revenue**
Employment, skill development, training	Labour supply and demand	**Labour market**
Business opportunities and capacity BC EAO requirement	Contracts and opportunities	**Regional Economic Development**

BC hydro REGENERATION

Economic Valued Components

Key Indicators

Local Government Revenue

- Local government expenditures
- Local government revenue

Labour Market

- Local labour force by occupation, industry, skills
- Non-resident workers in region's labour force,
- Employment rates
- Skill shortages and surpluses

Regional Economic Development

- Regional business and contracting profile, capabilities and capacity

Economic Valued Components

Scope of studies:

- Interviews with government, industry associations, industry members, employment agencies
- British Columbia Input-Output Model for project transactions and indirect employment
- Direct project labour needs relative to the availability and skills of the residents
- Project's contracting requirements relative to regional business and contracting profile

Land Use Valued Components and Effects Assessments

EIS-G Section 15 and 16 (pg 59-73)

Land Use Valued Components

Current Use of Lands and Resources for Traditional Purposes

Selection Rationale		
Interests/Concerns	Project Interactions	Valued Component
Changes to the land and resources, change to access, CEAA requirement	Overlap of project activity zone with current use of lands and resources by Aboriginal persons for traditional purposes, including activities conducted in the exercise of treaty rights and asserted Aboriginal rights	**Current Use of Lands and Resources for Traditional Purposes**

Land Use Valued Components

Current Use of Lands and Resources for Traditional Purposes

Key Indicators:

- Current use of lands and resources for hunting, fishing and trapping activities, including the location, the target species, and the traditional uses of the harvested animals
- Current use of lands and resources for other traditional activities

Scope of studies:

- Traditional Use Studies
- Biophysical baseline studies for fish, wildlife, and vegetation
- Information collected through consultation

Land Use Valued Components

Harvest of Fish and Wildlife Resources

Selection Rationale		
Interests/Concerns	Project Interactions	Valued Component
Public or tenured trapping, hunting, and fishing.	Change to land and resources and access to land and resources affecting the public or commercial harvest activities	**Harvest of Fish and Wildlife Resources**

Land Use Valued Components

Harvest of Fish and Wildlife Resources

Key Indicators:

- Public harvesting licences and areas
- Tenured traplines and guide outfitting areas
- Aboriginal participation in commercial activities

Scope of studies:

- Primary data from wildlife and fisheries studies
- Angler / creel survey (2 year)
- Interviews with local organizations
- Provincial harvest data and license sales
- Guide Outfitting Association of BC database

Land Use Valued Components

Agriculture

Selection Rationale		
Interests/Concerns	Project Interactions	Valued Component
Concern of change to agricultural land and farm operations, BC requirement	Interaction with land base, crop and livestock production	**Agriculture**

Farming, Bear Flat, BC
Photo Credit: Ken and Arlene Boon

Land Use Valued Components

Agriculture

Key Indicators:

- Agricultural land capability, crop suitability
- Agricultural utility (e.g. usability and access)
- Agricultural / grazing tenures
- Current and expected future agricultural operations
- Local and regional agricultural economic activity
- Local and regional food production and consumption

Land Use Valued Components

Agriculture

Scope of studies:

- Agricultural soil capability field studies and mapping
- Incorporation of local climate studies
- Interviews with industry, government, farmers and ranchers

Land Use Valued Components

Selection Rationale		
Interests/Concerns	Project Interactions	Valued Components
Interest in loss of timber, availability of merchantable timber, change to licensed areas	Change to forested land base, harvest merchantable timber	**Forestry**
Concerns of land access, overlapping tenure areas, BC regulations	Changes to land access and overlap with tenured areas	**Oil, Gas, and Energy**
Alienated resources, change to land access, supply and demand of resources	Changes to land access and overlap with tenured areas	**Minerals and Aggregates**

Land Use Valued Components

Key Indicators:

Forestry

- Timber harvest land base
- Annual Allowable Cut
- Forest sector employment and government revenue

Oil, Gas and Energy

- Production activity
- Oil and Gas Tenures

Minerals and Aggregates

- Record of metal, industrial mineral, and aggregate potential
- Record of exploration, development, and production
- Aggregate pricing and current and forecast consumption profile
- Remaining mine, quarry or pit life
- Mineral or aggregate tenures

Land Use Valued Components

Scope of studies:

Forestry

- Clearing Plan and access
- Forest inventory
- Information and interviews from government, industry
- GIS analysis

Oil, Gas, and Energy

- Information from government, industry
- GIS analysis

Minerals and Aggregates

- Information from government, industry
- GIS analysis

Land Use Valued Components

Selection Rationale		
Interests/Concerns	Project Interactions	Valued Component
Participation in outdoor activities in the area	Interaction with use of the land and water for recreational purposes.	**Outdoor Recreation and Tourism**
Public use of water ways for recreational, transportation, or commercial purposes, NWPA legislation	Interaction with dams, bridges, booms, culverts Aviation and airport use	**Navigation**
Changes to the visual landscape	Change to the landscape and viewpoints	**Visual Resources**

Land Use Valued Components

Key Indicators:

Outdoor Recreation and Tourism

- Features and amenities
- Recreation use levels
- Visitor levels
- Activities undertaken on the land base
- Commercial interests

Visual Resources

- Selected public viewpoints

Navigation

- Defined existing navigable waters
- Water navigation use and purposes
- Air navigation routes and airports

Alwin Holland Park, Hudson's Hope, BC

Land Use Valued Components

Outdoor Recreation and Tourism

Navigation

Scope of studies:

- Baseline information from government databases
- 2 Year Peace River angler / creel / recreation use study and inventory
- Interviews with government staff or non-governmental organizations

Visual Resources

Scope of studies:

- Photomontage at visual quality viewpoints

Peace River Rail Bridge, Taylor, BC

Questions?

Social Valued Components and Effects Assessments

EIS-G Section 17 (pg 74)

SITE C CLEAN ENERGY PROJECT

Social Valued Components

Selection Rationale		
Interests/Concerns	Project Interactions	Valued Components
Public and Aboriginal interest in population change	Change in local and regional population due to labour and service demands	**Population & Demographics**
Public and Aboriginal interest in cost and supply of housing	Project employment and Population to increase housing demand.	**Housing**
Public and Aboriginal interest in demand, access and quality of infrastructure and services	Population change and the implications on infrastructure and services	**Community Infrastructure and Services**
Public and Aboriginal interest in the demand on transportation infrastructure	Project use of existing or development of new infrastruture and services	**Transportation**

BC hydro REGENERATION

Social Valued Components

Key Indicators:

Population and Demographics

- Population numbers
- Household and demographic characteristics

Transportation

- Traffic baseline and forecasting
- Train movements

Housing

- Occupancy and vacancy rates
- Housing costs, market activity
- Land zoning (availability), planned housing developments

Social Valued Components

Key Indicators:

Community Infrastructure and Services

- Recreation and leisure facilities
- Sewer and water services
- Police, court, fire protection, ambulance and provincial emergency planning
- Public and private schools, post-secondary institutions
- Vital statistics, medical service expenditures, medical and dental facilities, practitioner numbers and services

Social Valued Components

Scope of studies:

- Previous studies and recent consultation review
- Research and data gathering including:
  - Discussions with local government on infrastructure and services
  - Discussions with agencies and service providers on community, emergency, education, and health social services and facilities.
  - Development of infrastructure inventory
  - Discussions with local government and Ministry of Transportation and Infrastructure on transportation and traffic forecasting
  - Traffic count program
  - Use of results from Labour Market assessment to assess effects on population

Health Valued Component and Effects Assessments

EIS-G Section 19 (pg 82)

Health Valued Component

Human Health

Selection Rationale		
Interests/Concerns	Project Interactions	Valued Component
Public and Aboriginal interest in changes to air and water quality, and methylmercury in foods BC / CEAA requirement	Construction and operational effects on biophysical inputs that may affect human health	**Human Health**

Human Health

Key Indicators:

Health effect of potential changes to:

- Air quality
- Noise
- Water quality
- Methylmercury
- Electric and Magnetic Fields

Scope of studies:

- Baseline human health indicators and analysis from related biophysical technical reports
- Methylmercury assessment

Heritage Valued Component and Effects Assessments

EIS-G Section 18 (pg 80)

Heritage Valued Component

Heritage Resources

Selection Rationale		
Interests/Concerns	Project Interactions	Valued Components
Interest in historic, archaeological, paleontological resources BC *Heritage Conservation Act* BC / CEAA requirement	Construction and operational effects on historic, heritage or paleontological resources, access to sites	**Heritage Resources**

Ammonite fossil found along the Peace River, August 2011

Heritage Resources

Key Indicators:

- Historic, archaeological, and palaeontological sites; artifacts; fossils; features

Scope of studies:

- Literature review and research to inform field studies / potential
- Field inventory for archaeological sites
- Field inventory for historic sites
- Field inventory for palaeontological sites

Questions?

Next Steps

For More Information

Principal Contact for the Environmental Assessment:

Danielle Melchior
Director, Site C Environmental Assessment and Regulatory
Phone: 604 699-7344
Fax: 604 623-4333
Email: sitec@bchydro.com
Web: www.bchydro.com/sitec

Thank you

Questions?