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**2008 Long Term Acquisition Plan**

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**APPENDIX L2**

**Site C – Stage 2 Project Definition and  
Consultation: Primary Objectives and Key  
Activities by Task Area**

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## **Site C Hydro Project**

### ***Stage 2: Project Definition and Consultation: Primary Objectives and Key Activities by Task Area***

**June 2008**

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## **1. Introduction**

Site C is a potential hydroelectric dam and generating station on the Peace River in northeastern British Columbia. It is one of several options that BC Hydro and the Government of British Columbia are considering to help British Columbia meet its long-term electricity needs.

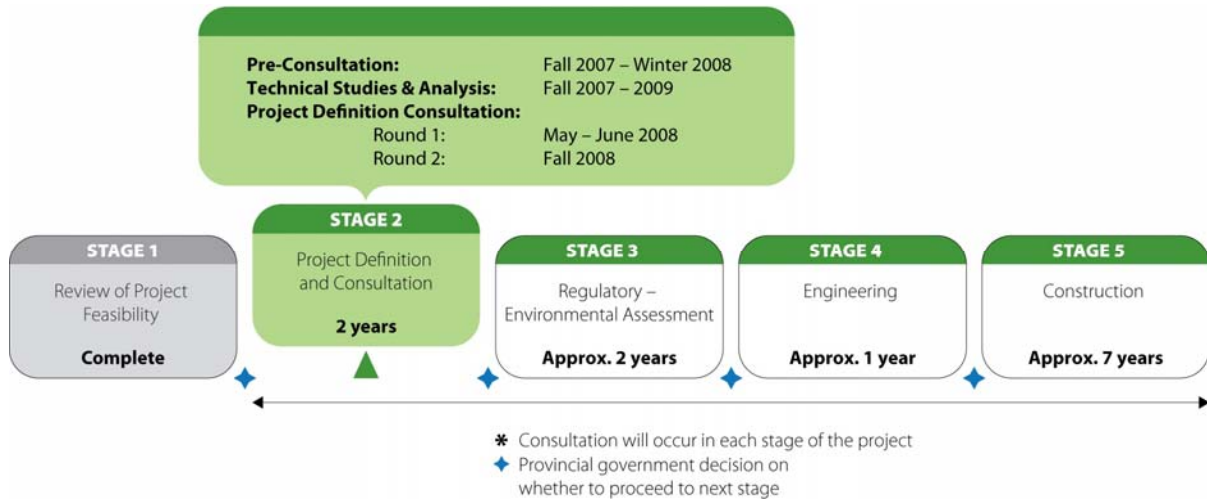
If built, Site C would be a mid-size facility with a significant upfront capital cost, a long operating life and low operating costs. Site C would have one of the most stable reservoirs in the BC Hydro system, with a maximum range of fluctuation of +/- three feet, and would not appreciably change downstream flows. The reservoir would be 83 kilometres long, on average two to three times the width of the current river, and would flood approximately 5,340 hectares of land. Site C would be publicly owned. Early interim project estimates indicate that Site C could cost between \$5 billion and \$6.6 billion. As a decision to build is still years away, any project estimates at this stage are only interim. Cost estimates will be updated at the end of each stage of project review.

Because Site C was examined as a resource option more than 25 years ago, and again from 1989–1991, significant engineering design and environmental studies have been done. Today's approach to Site C will consider environmental concerns, impacts to land, and opportunities for community benefits, and will update design, financial and technical work.

## **2. Multi-Stage Evaluation Process**

No decision has been made to build Site C. However, large projects like Site C have a long lead time, and require early evaluation and study. To preserve Site C as an option for the future, significant work needs to take place now to understand the project's impacts and benefits from a technical, financial and environmental perspective. For that reason, there are a number of studies and comprehensive consultation planned today to update the project.

BC Hydro is taking a stage-by-stage approach to the evaluation of Site C as a potential resource option for meeting B.C.'s future electricity needs. At the end of each stage of review, BC Hydro will make a recommendation to government for a decision on whether to proceed to the next stage of project planning and development.



This process will enable the B.C. government to understand the potential impacts and benefits of Site C and to make informed decisions at each stage about whether BC Hydro should proceed to the next stage of the Site C project.

***Stage 1: Review of Project Feasibility (completed)***

In Stage 1, BC Hydro conducted a feasibility review of Site C which involved reviewing existing studies and historical information about the Site C project.

***Stage 2: Project Definition and Consultation (ongoing)***

Stage 2 includes comprehensive consultation, as well as further updating and analysis of the environmental, social, technical and economic factors that may affect the project.

Stage 2 is expected to take approximately 2 years. At the end of Stage 2, BC Hydro will make a recommendation to the B.C. government. The province will then decide whether we should continue on to Stage 3.

***Stage 3: Regulatory/Environmental Assessment***

In Stage 3, the Site C project would undergo a comprehensive provincial and federal environmental assessment and an extensive regulatory review by the B.C. Utilities Commission.

This stage will also require both BC Hydro and the regulators to engage in further consultation with local governments, First Nations and the public.

Stage 3 would take approximately two years.

### ***Stage 4: Detailed Engineering and Procurement***

In Stage 4, BC Hydro would complete detailed engineering design work, and finalize the project's design, construction, and procurement plans.

Stage 4 would take approximately one year.

### ***Stage 5: Construction***

Should the project proceed to Stage 5, Construction, this stage would take approximately seven years and would involve the actual construction of the Site C hydroelectric facility.

At its earliest, Stage 5 would start in 2012 and end in 2019.

## **3. Stage 2 Objectives**

Stage 2 objectives:

- Conduct comprehensive review of the Site C project that will provide information required to make decision on whether to advance or suspend development of the project;
- Identify, define and assess environmental, social, technical and financial issues and potential impacts;
- Conduct consultation with the public, First Nations, communities and the Province of Alberta; and
- Engage independent third-party review of key technical and commercial tasks of the project.

## **4. Stage 2: Primary Objectives and Key Activities by Task Area**

### ***a) Project Management***

#### **Stage 2 Primary Objectives**

- To ensure that Stage 2 achieves its overall objectives and remains on time and on budget.
- To coordinate and monitor individual task areas and activities.

- To lead the development of an updated Site C project report and a recommendation at the conclusion of Stage 2.

**Stage 2 Key Activities**

Key Activity	Timeline
Recruit and build project team from other areas of organization and externally.  Monitor any changes in project scope, cost or schedule, and develop solutions where possible.  Update cost estimates within each task area.	December 2007 - June 2009
To lead the development of an updated Site C project report and a recommendation at the conclusion of Stage 2.	

**b) Environmental**

**Stage 2 Primary Objectives**

- Identify the potential environmental, social, economic, heritage and health issues associated with the Site C project. This includes potential effects on:
  - The physical and biological environment – land, water, air, climate, vegetation, fish, wildlife and geomorphology (river channel).
  - The people of the region, their lifestyle, health and economy.
  - Archeological or heritage sites.
- Conduct field studies to develop a baseline inventory of existing environmental, social, economic, health and heritage conditions.
- Establish Technical Advisory Committees that engage government agencies, regulators and First Nations to review:
  - Recently completed studies.
  - Current studies and approaches.
  - Potential environmental and socio-economic project issues.
  - Spatial and temporal assessment boundaries.
  - Remaining data needs.

- Participate in public consultation meetings to seek public input into environmental and socio-economic topics.
- Identify environmental regulatory and permitting requirements.
- Prepare an outline of a workplan for [Stage 3: Regulatory/Environmental Assessment](#).

**Stage 2 Key Activities**

Key Activity	Timeline
<p>Develop and implement the 2008 environmental field study program to collect baseline data on current conditions in five primary topic areas:</p> <ol style="list-style-type: none"> <li>1. <b>Wildlife</b> Studies will complete or complement 2005 and 2006 Site C wildlife studies, and focus on identifying habitat capability and wildlife presence and abundance for a number of key species, including several species at risk species.</li> <li>2. <b>Fish/Aquatic</b> Studies will complement studies undertaken since 2005 to determine fish communities, habitats and movement as well as food sources on the Peace River and its tributaries.</li> <li>3. <b>Socio-Economic</b> Studies will explore topics such as land use (forestry, agriculture, mining, oil and gas, parks and protected areas), community services and infrastructure, transportation, economy, health, recreation, and other social topics. One study will review the existing information on the region's heritage, such as the paleontological resources (fossils) and human history including historic aboriginal and early European use of the Peace River Valley.</li> <li>4. <b>Water Quality</b> Studies will monitor water quality by capturing information on current water temperatures, sediment levels, water and soil composition in the Peace River.</li> </ol>	<p>Spring 2008 - Spring 2009</p>



<p><b>5. Climate and Air Quality</b>          Studies will monitor the local climate by installing new meteorological stations and collecting information from existing stations in the region. Studies will also establish baseline noise levels and an approach for understanding the potential benefits and impacts of Site C on greenhouse gas (GHG) emissions.</p>	
<p>Establish Technical Advisory Committees in key topic areas, made up of representatives from relevant federal, provincial and municipal government agencies, regulators, and First Nations. The committees will review:</p> <ul style="list-style-type: none"> <li>• Recent study results where available;</li> <li>• Proposed studies, methodologies and spatial and temporal boundaries;</li> <li>• Potential environmental issues and effects;</li> <li>• Proposed impact assessment frameworks; and</li> <li>• Provide preliminary ideas for avoiding or mitigating potential project impacts (to be evaluated in Stage 3).</li> </ul> <p>Complete Stage 2 Technical Advisory Committee meetings and develop final Technical Advisory Committee Summary Reports for each committee/topic area.</p>	<p>Spring 2008 - Spring 2009</p>
<p>Complete the 2009 environmental field study program workplan. Implementation of 2009 field program.</p>	<p>March 2009</p>
<p>For each of the five primary topic areas, develop a preliminary approach for impact assessment (to be applied in Stage 3, if approved) to identify the potential environmental, social, economic, heritage and health effects of Site C. This methodology will:</p> <ul style="list-style-type: none"> <li>• Consider current methodologies or regulatory guidelines, relevant metrics or indicator species, spatial and temporal boundaries, and predictive models;</li> <li>• Consider input from Technical Advisory Committees, public consultation and First Nations consultation;</li> <li>• Review existing information, past and recent studies, and identify any data needs or models necessary to complete the impact assessment in Stage 3; and</li> <li>• Determine how Stage 2 baseline data will be used in Stage 3 for assessing the potential effects of the Site</li> </ul>	<p>Summer 2008 - Spring 2009</p>

C project on the environment and the people of the region.	
Prepare regulatory materials that may be required for initiating Stage 3, if approved	June 2009

**c) Engineering**

**Stage 2 Primary Objectives**

- Update the engineering analysis and design of the Site C project in order to:
  - Update the cost estimate and risks.
  - Define the physical impacts of the project.
  - Prepare for regulatory review in Stage 3 (if approved).
  - Support the consultation process.

**Stage 2 Key Activities**

Key Activity	Timeline
<p>Design workplans for conducting a series of engineering studies (many in the field) in two major areas:</p> <ol style="list-style-type: none"> <li>1. <b>Design, Project Footprint and Costs</b>                      Studies will update key design aspects of the Site C project and will be used to refine the physical footprint of the project as well as its costs. The design studies will look at such topics as:                     <ul style="list-style-type: none"> <li>• Probable maximum precipitation and probable maximum flood requirements;</li> <li>• Maximum earthquake requirements;</li> <li>• Requirements for diverting the Peace River during construction;</li> <li>• The stability of the left bank and other slopes;</li> <li>• The impact of the project on reservoir shoreline stability and safety;</li> <li>• The location of construction materials and disposal areas;</li> <li>• Foundation requirements for the earthfill dam and right bank structures; and</li> </ul> </li> </ol>	Throughout Stage 2

<ul style="list-style-type: none"> <li>• Highway 29 relocation options.</li> </ul> <p>2. <b>Preparation for Environmental Assessment Studies</b> will help prepare for the environmental assessment of Site C in Stage 3 (if approved) by examining:</p> <ul style="list-style-type: none"> <li>• Fish passage options, such as fish ladders</li> <li>• Turbine alternatives to reduce fish mortality;</li> <li>• Physical environment characteristics (groundwater, contaminated sites and geomorphology); and</li> <li>• Methods to clear and prepare land for the reservoir.</li> </ul>	
Complete 2008 engineering field studies.	May 2008 - October 2008
Complete 2009 engineering field studies.	May – June 2009
Reporting of Stage 2 engineering studies.	2009

***d) Public Consultation, Community Relations and Communications***

**Stage 2 Primary Objectives**

- To consult meaningfully with the public and local, regional and provincial stakeholders on the key impacts, benefits and features of the Site C project.
- To consider public input – in combination with technical, environmental and economic studies also underway – to further refine and define the Site C project.
- To keep communities, stakeholders and the public informed of the Site C Stage 2 project definition and consultation, including producing public information materials and a website.

**Stage 2 Key Activities**

Key Activity	Timeline
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<p>Establish a Community Consultation Office in Fort St. John that anyone can visit to learn about the Site C project, ask questions and submit feedback. The office would include maps, computer terminals for filling out online consultation feedback forms, public consultation materials and a library of historical studies.</p> <p>Conduct a range of community relations activities – outside of formal consultation – with local, regional and provincial communities potentially affected by or interested in the potential project.</p>	<p>January 2008 – duration of the Site C project</p>
<p>Develop public information materials, and consultation materials for Stage 2:</p> <ul style="list-style-type: none"> <li>• Consultation discussion guides</li> <li>• Information Sheets</li> <li>• Media materials</li> <li>• Website</li> <li>• Other</li> </ul>	<p>Ongoing</p>
<p>Conduct a Pre-Consultation process, locally, regionally and provincially, about the Site C project to determine how people want to be consulted and about what topics.</p>	<p>December 2007 - February 2008</p>
<p>Complete and release a <i>Pre-Consultation Summary Report</i>.</p> <p>Design the Stage 2 - Project Definition Consultation program.</p> <p>Develop a Consideration Memo outlining how input received in pre-consultation was considered in planning for consultation.</p>	<p>March - April 2008</p>
<p>Complete Round 1 of public consultation, providing information and consulting on topics identified in the pre-consultation. These will include:</p> <ul style="list-style-type: none"> <li>• Site C as an energy option;</li> <li>• Community and provincial benefits of Site C;</li> <li>• Project design elements;</li> <li>• Reservoir impact lines;</li> </ul>	<p>October/November 2008</p>

<ul style="list-style-type: none"> <li>• Water management;</li> <li>• Recreation;</li> <li>• Relocation of segments of Highway 29;</li> <li>• Worker housing;</li> <li>• Potential increase of fog;</li> <li>• Impacts on fish;</li> <li>• Heritage and archaeological resources; and</li> <li>• How to ensure lasting benefits from this project for the local community and British Columbia.</li> </ul>	
<p>Complete and release a <i>Project Definition Consultation Round 1 Summary Report</i>.</p> <p>Complete Round 2 of public consultation, providing information and consulting on such key topics as:</p> <ul style="list-style-type: none"> <li>• Site C as an energy option;</li> <li>• Community and provincial benefits of Site C, such as regional employment and skills training, enhanced recreational opportunities and a lasting legacy community fund;</li> <li>• Project design elements, such as options for reservoir preparation, construction material and disposal sites, water management and reservoir operating levels, and the potential environment and social effects of each option;</li> <li>• Infrastructure, including alignment options for relocation of segments of Highway 29 and potential public use of the construction access bridge, and the potential environment and social effects of each option;</li> <li>• Climate and greenhouse gas emissions; and</li> <li>• Land uses, such as the potential effects of the project on agriculture, forestry and parks and protected areas.</li> </ul>	<p>Fall 2008</p>
<p>Complete and release a <i>Project Definition Consultation Round 2 Summary Report</i>.</p> <p>Develop a “Consideration Memo” outlining how we incorporated the results of the two rounds of consultation into our planning for Site C.</p>	<p>Winter 2008/09</p>

**d) First Nations Consultation**

**Stage 2 Primary Objectives**

- Through early and meaningful consultation, gain a thorough understanding of the potential impacts, both adverse and beneficial, that Site C may have on First Nations.
- To ensure that First Nation traditional knowledge is considered in and incorporated into all activities – including technical, environmental and economic studies undertaken to further define the Site C project.

**Stage 2 Key Activities**

Key Activity	Timeline
<p>Build BC Hydro First Nations Engagement team</p> <p>Undertake research to identify First Nations where consultation is required or important and assess the extent of consultation appropriate for each First Nations.</p>	<p>December 2007 onwards</p>
<p>Seek introductory meetings with all B.C. Treaty 8 First Nations to provide overview of the project, begin designing a structured consultation process and determine need for capacity funding.</p> <p>Develop and negotiate consultation agreement and capacity funding with B.C. Treaty 8 First Nations. Consultation agreements and capacity funding will encourage and facilitate information sharing between First Nations and BC Hydro, community outreach and First Nations participation on Technical Advisory Committees established by BC Hydro (see Environment task area).</p> <p>Work with First Nations to encourage community involvement in the consultation process.</p> <p>Coordinate First Nations participation on Technical Advisory Committees (see Environmental task area).</p>	<p>December 2007 March – June 2008</p> <p>June – August 2008</p>
<p>Begin consultation with Treaty 8 Bands in Alberta and NWT and non-treaty bands in the Williston reservoir region.</p>	<p>June 2008 - August 2008</p>

Develop and negotiate consultation agreement and capacity funding, as appropriate.	August – October 2008
Work with First Nations to complete studies on the ways First Nations have traditionally used areas that may be affected by the Site C project.	August 2008 - March 2009
Conduct further consultation, as required, by exploring topic-by-topic, potential impacts and means for avoiding or mitigating negative effects. Where appropriate, begin exploring potential benefit agreements with First Nations.	July 08 – December 2009
Complete Stage 2 consultations with First Nations, then develop and release a <i>First Nations Consultation Summary Report</i> .	June 2009

**e) Commercial**

**Stage 2 Primary Objectives**

- To analyze all financial issues and options related to the development and operation of a hydroelectric facility at Site C.
- To update the project’s interim cost estimate by the end of Stage 2, incorporating new data gathered this stage from environmental, technical, and engineering work, as well as public and First Nations consultation.
- Develop Project Risk Registry which includes an analysis of the probability and significance of specific risks, informing the cost estimate, financial model, and procurement strategy.
- To analyze potential procurement options and strategies.
- Conduct analysis of potential operating scenarios.
- Support for consultation and regulatory process by providing context around specific project operations options.

**Stage 2 Key Activities**

Key Activity	Timeline
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Identify resources and develop workplans for financial analysis.	December 2007
Development of the project Risk Registry.	March 2008 – December 2008
Study of water management archetypes to inform public consultation process	May 2008
Financial and operational analysis of engineering options for Site C.	July/August 2008
Evaluation of potential project procurement strategies for Stages 3 - 5.	June 2008 – June 2009
Update project cost estimate with new data from Stage 2 activities.	June 2009
Update project financial model with new data from Stage 2 activities	June 2009

**f) Properties**

**Stage 2 Primary Objectives**

- Working with the Engineering Group to assist with mapping the properties (and their owners or leaseholders) that may be directly affected by the Site C project if it goes ahead. This includes properties that may be flooded or are:
  - Located within reservoir impact lines;
  - Located along the segments of Highway 29 that need to be re-routed; or
  - Identified as a potential source for construction materials.
- To keep property owners and lease holders informed about the Site C project and how they may be impacted based on historical engineering information.



- To process Crown Permits from Crown Agencies and obtain permission to enter private lands from land owners and leaseholders for BC Hydro to conduct environmental or engineering field studies.
- To manage the existing Passive Land Acquisition Program.
- Recommend and revise any terms and conditions to existing leases to ensure that lease terms and conditions are reasonable and fair.
- To provide policy direction relating to property matters on an ongoing basis to meet project requirements.

**Stage 2 Key Activities**

Key Activity	Timeline
Identify owners and leaseholders and map the boundaries of Crown land and private properties that may be affected by the potential Site C project.	January 2008 - June 2009
Secure access to public and private land where necessary for environmental and engineering field studies.	April 2008 - June 2009
Meet one-on-one with potentially affected property owners and leaseholders.  Acquire properties, if approached by landowners, consistent with the longstanding Passive Acquisition Program around the potential Site C project area.	January 2008 - June 2009

**g) Regulatory**

**Stage 2 Primary Objectives**

- To identify the regulatory requirements (rules, restrictions, licenses and laws) that apply to a large hydroelectric project such as Site C.
- To advise the project team in developing a plan for meeting regulatory requirements, should the project proceed to Stage 3.

***h) Legal***

**Stage 2 Primary Objectives**

- To provide legal support to the project team.
- To provide legal support in developing both the procurement strategy and contracts with external groups or individuals.

***i) Quality Assurance***

**Stage 2 Primary Objectives**

- To ensure quality control of the project activities conducted during Stage 2 of the Site C project.
- To establish a multi-layered process for reviewing project activities. This process will include four levels of oversight:
  1. **Peer review** by BC Hydro staff of day-to-day activities.
  2. **Specialist review** of key products within each task area, such as workplans, studies and reports – for example, an environmental specialist will review fish and wildlife field studies and conclusions.
  3. **External review** by independent third-parties of major studies and reports to ensure the products meet or exceed industry standards.
  4. **A Technical Advisory Board** made up of world-class experts in major hydroelectric projects and geotechnical engineering to ensure the Site C project is defined, designed and constructed to the highest standards.

**Stage 2 Key Activities**

Key Activity	Timeline
Work with task groups to integrate quality assurance into all project activities.  Prepare a checking and review plan to help identify and track key reviews.  Help task groups identify, set-up and document specialist and third-party reviews.	January 2008 - June 2009

Provide a link between third-parties and task groups to ensure information and recommendations are communicated smoothly back and forth.	
Develop structure, terms of reference and membership for Site C Technical Advisory Board.	April 2008 - May 2008
Facilitate meetings Technical Advisory Board and reports from the board to the Project C Executive Steering Committee.	May 2008 - June 2009

**5. Budget**

The estimated cost for Stage 2 - Project Definition and Consultation is \$41 million. With an interim project cost estimate ranging from \$5.1 to \$6.6 billion, it is prudent to invest in early understanding of the project to determine whether BC Hydro should continue to investigate the project.

*Estimated Stage 2 Spending by Task Group*

Task Group	\$000s
Project Management <ul style="list-style-type: none"> <li>• Project Management</li> <li>• Quality Assurance</li> <li>• Legal</li> </ul>	3,200
Project Definition <ul style="list-style-type: none"> <li>• Environmental</li> <li>• Engineering</li> <li>• Commercial</li> <li>• Properties</li> <li>• Regulatory</li> </ul>	20,900
Consultation <ul style="list-style-type: none"> <li>• Public Consultation</li> <li>• Community Relations</li> <li>• Communications</li> </ul>	9,800

• First Nations Consultation	
Accounting <ul style="list-style-type: none"><li>• Overhead</li><li>• IDC</li><li>• Contingency</li><li>• Inflation</li></ul>	7,100
Total Stage 2	41,000