

# Working with BC Hydro

Capital Infrastructure Project Delivery

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## Introduction

We have planned work of varying sizes and complexity all over the province. Our external partners are an essential part of the project delivery process as they deliver over 80% of our annual direct capital needs. Vendors and external contractors supply the bulk of the materials and equipment, and perform the bulk of the construction work.

We have forecasted the major equipment needs represented in our 10-Year Capital Plan. The forecast includes the need to procure and install almost 1,700 pieces of major equipment and 375 km of transmission lines as represented in the Capital Plan.

We continue to engage early to solicit feedback to help us to better understand the market, take advantage of bundling opportunities, and prevent unnecessary delays in delivering major equipment.

We strive to be a fair business partner that balances cost-effectiveness with leading public sector procurement practices while meeting its obligations to rate payers. We will continue to improve existing procurement and contract management practices with respect to how we interact with suppliers and service providers to be a best-in-class owner.

The main purpose of this document is to provide suppliers insight into the planned upcoming major generation and transmission capital work.

The aim is to:

- Provide increased transparency and visibility into our 10-Year Capital Plan.
- Highlight how we intend to manage engagement and the engagement process with the market.

We anticipate sharing this information will result in better supplier engagement, more competitive proposals and tenders from suppliers, and improved resource allocation.



The BC Hydro website ([bchydro.com](http://bchydro.com)) has new content and is regularly updated to better support communication with Suppliers.

## Engagement Process

To support the delivery of the 10 Year Capital Plan, we will undertake the following supply chain initiatives:

- Early and ongoing engagement with the market to share long term investment forecasts; assess market capacity and potential; communicate requirements and changes; and receive input from the market that will be used to develop future procurement strategies.
- Build on an optimal base of quality suppliers with longer term agreements that can be leveraged across multiple projects to drive efficiency and cost effectiveness. The use of longer term agreements are being investigated for these assets: Governors, Operating & Maintenance Gates, Penstock Recoating, and Shunt Reactors.

- More strategic supplier relationship management including regular assessment of performance using a balanced scorecard approach and key performance indicators; and working together with suppliers to improve in areas such as contract administration, efficiency, quality, cost, safety, and overall performance.

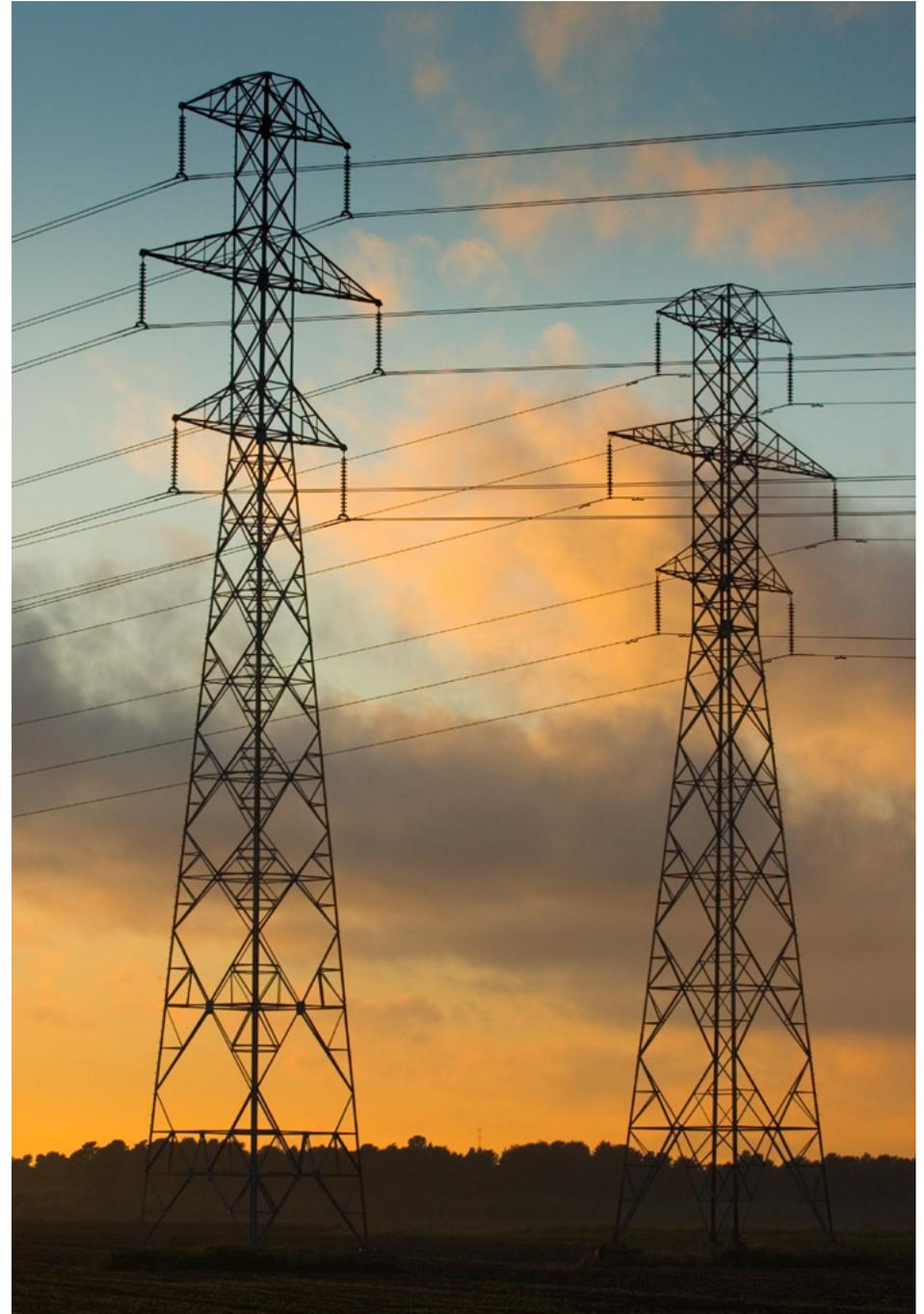
Feedback from suppliers that can assist us in developing the right strategies, while not mandatory, is welcome. Early engagement will allow BC Hydro to receive timely information on:

- Innovative procurement approaches for bundling equipment or components for multiple projects to increase efficiency.
- Market dynamics for key major equipment and assessment of its impact on project delivery.
- Feedback into the long-term capital planning process to ensure we build a plan that can be delivered.
- Ways to better develop and foster sustainable relationships with key suppliers.

## Engagement Types

### ENGAGING WITH CONSTRUCTION CONTRACTORS

The bulk of the construction work on projects is done by external construction contractors. We engage using various construction delivery models: variations of the Design-Bid-Build approach and the “turnkey” Design-Build or Engineering, Procurement & Construction Management (EPCM) approaches. We also make decisions on when in a project’s lifecycle engagement with construction contractors will take place depending on the project’s complexity.



- The Design-Bid-Build approach works for asset sustainment projects and programs as there are more opportunities to standardize the design and the contracting process.
- The Design-Build approach is well suited for our smaller projects such as road works, bridges, and town sites.
- We have generally used the EPCM approach for smaller, lower risk greenfield transmission projects.
- Early Contractor Involvement (ECI) has been used when constructability input is important to the success of the project.

#### ENGAGING WITH EQUIPMENT SUPPLIERS

We engage early with our major equipment manufacturers and suppliers to help develop the right procurement strategies to deliver the work represented in the capital plan. One of the ways we do this is through a market sounding process. The scope of work in the Capital Plan represents almost 1,700 pieces of major transmission and generation equipment, and 375 km of transmission lines that would need to be procured in the next ten years. Through Category Management, we will expand the use of blanket purchase orders to increase purchasing efficiency and allow us to develop longer-term relationships with manufacturers and suppliers.

#### ENGAGING WITH SERVICE PROVIDERS

We engage with external service providers to provide engineering services, construction management, project management, project support, and procurement services, depending on the type and complexity of the work. This engagement optimizes resource utilization by allowing for flexible staffing; and allows for greater certainty and increased stability for both parties.

Our current contracting approach is to either enter into a number of long fixed-term arrangements for services or to put in place blanket contracts or pre-qualifications for specific and niche assignments outside the fixed-term arrangements.



#### SITE C CLEAN ENERGY PROJECT

The Site C project will provide significant opportunities for small, medium and large businesses. BC Hydro is committed to working with Peace Region communities to provide local contracting and employment opportunities, and is working to advance economic opportunities for Aboriginal groups through capacity-building and procurement opportunities. Appendix 2 provides a summary of the Site C Clean Energy Project's procurement forecast for various components of work.

## Engagement Considerations

### ABORIGINAL PROCUREMENT POLICY

The Aboriginal Procurement Policy is under review to better align with our commitments to First Nations. The updated policy will support the safe and efficient delivery of the 10-Year Capital Plan while providing meaningful benefits to First Nations.

### CONTRACTOR & SUPPLIER PERFORMANCE MANAGEMENT

BC Hydro is in the early stages of developing Contractor and Supplier Performance Management frameworks. The frameworks will provide us with the ability to objectively and consistently evaluate contractor and supplier performance over time.

### CONTRACTOR SAFETY

Building on our principles for managing the safety of all workers at our Sites and Facilities, the Contractor Safety Management program is a comprehensive set of clear policies, procedures and tools for consistent,



end-to-end contractor safety management from initial planning and procurement to completion with the goal of improving contractor safety performance. An important element of this program is the revision of our Standard Form Contracts so there is clarity in the roles, responsibilities, and obligations of both BC Hydro and the Contractor with respect to sustaining a high performing safety culture.

### QUALITY MANAGEMENT

One of our top priorities is working to ensure the quality of equipment manufacturing and delivery supplied from the global marketplace meets our standards and requirements. We intend to eliminate delays and/or increased costs that result from the delivery of sub-standard services, equipment or components. We will continue to work with equipment manufacturers and contractors to ensure their internal quality management processes are to our standards.

### SAFETY BY DESIGN

Safety by Design is the identification of safety hazards and the assessment of associated safety risks in the early stages of a project, and the elimination of those hazards during the design process. The application of Safety by Design is mandatory.

### SUPPLIER INTERACTION GUIDELINES

The Supplier Interaction Guidelines were developed in response to the Supplier Engagement review recommendation. They incorporate the spirit and intent of many of our existing codes and policies, and should be considered complementary to BC Hydro's Code of Conduct and Contractor Standards for Ethical Conduct. Where there might be conflict between existing policies and these guidelines, the guidelines should be followed.

## 10-Year Capital Plan

The 10-Year Capital Plan, approved by the BC Hydro Board, is an optimized forecast of the projects and programs required to meet system needs over the next ten year planning period. The 10-Year Capital Plan is subject to change, and is dependent on changing system needs and an available supply of resources and equipment. The data provided in this document is for guidance and should not be relied on solely for upcoming procurement requirements.

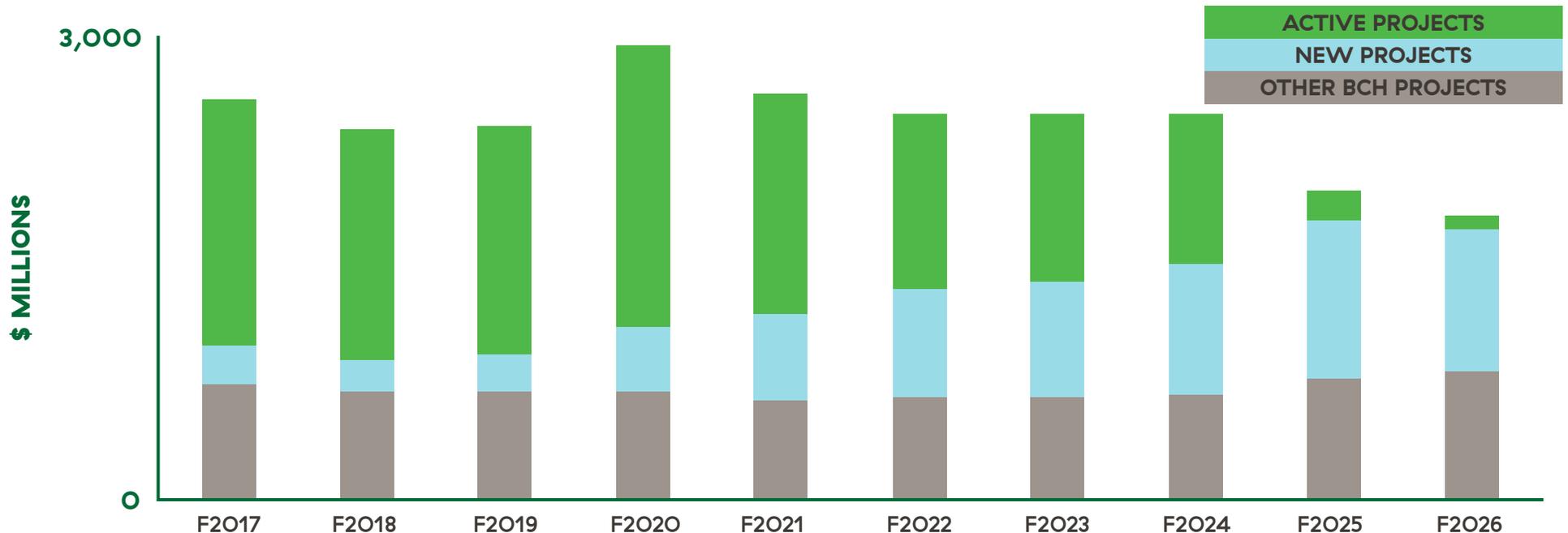
Prior to the release of funding for various stages, individual projects and programs are subject to the approval of senior management, and depending

on the size, the executive team, BC Hydro's Board of Directors, or the British Columbia Utilities Commission. We advertise public procurement opportunities on BC Bid once approval has been received.

The chart below represents the forecast of active and new major Generation and Transmission System projects over the ten year planning period. The category labeled 'Other BCH Projects' includes the annual forecast for Distribution System Programs and BC Hydro Support Services.

**Figure 1:**

BC Hydro F2017-F2026 Capital Plan: Highlighting Trend in New & Active Distinct Generation and Transmission Projects



## Contact Information

We kindly request all our suppliers address any questions to the individuals listed below. This will assist us in providing you with accurate information in a timely manner.

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# Appendix 1

## LONG TERM EQUIPMENT & STRUCTURE REPLACEMENT FORECAST



The table below lists the equipment and structures we forecast will be replaced in the F2017–F2026 period. This information should be used as a guide only as the information might change or become obsolete over time.

Equipment & Structure Replacements F2017–F2026		Procurement Approach	F17	F18	F19	F20	F21	F22	F23	F24	F25	F26	Total
Common Across Systems	Circuit Breaker	Low/Medium voltage contract ends F2021/F2016	146	136	125	136	147	118	105	100	87	77	1,177
	GIS Switchgear	Contract/Extension Ends 2018			4	5	8	7	10	2	1		37
	Power Transformer	Contract/Extension Ends 2024	15	16	6	8		1	13	20	4	1	84
	Cranes & Hoists	Contract/Extension Ends 2021	1	1	5	1		1					9
	Disconnect Switches	Strategy being developed					30						30
	Fire Protection System	Strategy being developed		1	3								
Generating System	Generator	Contract/Extension Ends 2023			1	3	1	3		4	3	5	20
	Turbine	Strategy being developed					1	1	4		5	1	12
	Exciter/Exciter Transformer	Contract/Extension Ends 2018			4		3	1	9	2	2	2	23
	Governor	Strategy being developed				1	6	1	8	2	1	1	20
	Penstock/ Penstock Coating	Strategy being developed			1	6	4	4	1	6		2	24
	Maintenance/Operating Gates	Strategy being developed		14	12		5		14			1	46
	Spillway/ Spillway Gates	Contract/Extension Ends 2026			10	6	5			3	2	1	27
	Powerhouse Common Systems	Strategy being developed					1		4				5
Transmission System	Transmission Lines (Km)	Strategy being developed			1	116	85		88	85			375
	Surge Arrestors	Strategy being developed	30	30	20	20	20	20	20	20	20	20	220
	Series Capacitors	Strategy being developed					3			21			24
	Shunt Reactors	Strategy being developed			1	3			3	2			9
	Shunt Capacitors	Strategy being developed					2			1			3
	Modular Control Room	Strategy being developed		1	1	1	1	1	1	1	1	1	9

## Appendix 2

### SITE C PROCUREMENT FORECAST

The procurement forecast is based on the project's expected construction sequencing and schedule, and assumptions about market conditions. Details of the procurement forecast may be refined as the project moves through construction and additional opportunities to encourage the participation of regional and Aboriginal contractors are identified.

The timing for Site C procurements is summarized on the next page. Upcoming Site C procurement opportunities include: hydro-mechanical equipment supply contract; powerhouse bridge crane supply contract; Highway 29 realignments; transmission and substation. Contractors have been selected for site preparation activities, public road improvements, worker accommodation, main civil works and turbines and generators and are no longer shown in the table below.



Components	Procurement Model	Timing (Subject to Change)	Construction (Subject to Change)
<b>Generating Facilities</b>			
<b>Generating Station and Spillways Civil Works</b>	Design-Bid-Build	Request for Qualifications issued May 2016	2017 – 2023
<b>Hydro-Mechanical Equipment</b>	Supply Contract	Procurement Process: Summer 2016	Supplied from 2017 – 2021
<b>Powerhouse Bridge Crane</b>	Supply Contract	Procurement Process: 2017	Supplied from 2017 – 2023
<b>Supporting Works</b>			
<b>Highway 29 Realignments</b>	Multiple Design-Bid-Build	Ministry of Transportation & Infrastructure Public Tenders or Direct Awards: 2017 – 2019	Early sections: 2017 – 2019 Final sections: 2019 – 2021
<b>Transmission Line: Construction</b>	Design-Bid-Build	Procurement Process: Winter 2017	2017 – 2022
<b>Transmission Line: Supply of Lattice Towers</b>	Supply Contract	Procurement Process: Summer 2016	Supplied from 2017 – 2019
<b>Transmission Line: Supply of Conductor</b>	Supply Contract	Procurement Process: Spring 2017	Supplied in 2018
<b>Transmission Line: Supply of Grillage Foundations</b>	Supply Contract	Procurement Process: Fall 2016	Supplied from 2017–2018
<b>Site C Substation: Design and Supply of 500kV Shunt Reactor</b>	Supply Contract	Procurement Process: Summer 2016	Supplied in 2018
<b>Site C Substation: Construction</b>	Design-Bid-Build	Procurement Process: Winter 2017	2017 – 2019
<b>Site C Substation: Supply of Steel Structures</b>	Supply Contract	Procurement Process: Spring 2017	Supplied in 2017
<b>Site C Substation: Supply of Buildings</b>	Supply Contract	Procurement Process: Fall 2016	Supplied in 2017
<b>Other Supporting Activities</b>	Varies	Varies	Varies

