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November 16, 2020

Mr. Patrick Wruck
Commission Secretary and Manager
Regulatory Support
British Columbia Utilities Commission
Suite 410, 900 Howe Street
Vancouver, BC V6Z 2N3

Dear Mr. Wruck:

RE: Project No. 3698674
British Columbia Utilities Commission (BCUC or Commission)
British Columbia Hydro and Power Authority (BC Hydro)
John Hart Generating Station Replacement Project
PUBLIC Semi-Annual Progress Report No. 14
April 2020 to September 2020 (Report)

BC Hydro writes in compliance with Commission Order No. C-2-13, to provide its confidential Report.

BC Hydro is providing the confidential Report to the Commission only. A public version of the Report is being filed under separate cover redacting commercially sensitive and contractor-specific information. BC Hydro seeks this confidential treatment pursuant to section 42 of the *Administrative Tribunals Act* and Part 4 of the Commission's Rules of Practice and Procedure.

For further information, please contact Chris Sandve at 604-974-4641 or by email at bchydroregulatorygroup@bchydro.com.

Yours sincerely,

Fred James
Chief Regulatory Officer

st/rh

Enclosure

BC Hydro
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John Hart Generating Station Replacement Project

Semi-Annual Progress Report No. 14

F2021 Six Month Period

April 2020 to September 2020

PUBLIC

Table of Contents

List of Tables

Appendices

1 Introduction

The John Hart Generating Station Replacement Project (**the Project**) was initiated to address the risks of: 1) the deteriorating condition and reliability of the existing generating equipment and facilities; 2) the failure of the powerhouse superstructure and wood stave penstocks in the event of a major earthquake; and 3) environmental impact of flow interruptions on the Campbell River. The Commission issued a Certificate of Public Convenience and Necessity (**CPCN**) for the Project in February 2013. In December 2013, BC Hydro's Board of Directors (the **Board**) approved full Implementation phase funding. In February 2014, the Board approved the execution of the Project Agreement and associated commitments to construct the replacement John Hart facility (**the Facility**).

The Project was built under a Design-Build-Finance-Rehabilitate (**DBFR**) procurement model where the successful proponent, InPower BC General Partnership (**Project Co**), is responsible for design, construction and then asset management, which involves planning and managing the maintenance of the new assets, during the 15 years following construction (**the Services Period**). BC Hydro remains the operator of the assets during the period and BC Hydro Operations' staff will perform the maintenance work.

The Project Agreement for the original scope of work between BC Hydro and Project Co is a fixed price contract. Project Co billed BC Hydro monthly for work progressed. The payments for the scope of work covered by the fixed price are called Progress Payments (**Progress Payments**). See section 2.3.1 for further details on Progress Payments made to date. The Progress Payments were subject to deductions during construction and commissioning for impacts to the Existing (original generating) Units' availability and for unavailability of new Generating Unit / Low Level Commercial Assets (**GU/LL Assets**). These deductions that arose from events that occurred during commissioning and construction are called

Remittances (**Remittances**). Deductions that have arisen (or will arise) from events during the Services Period are called Non-Availability Event Deductions (**NAED**). Decommissioning was also a fixed payment amount which is also subject to Remittances. In this case, the Remittances are for variances from baselines related to contaminated soil volumes removed. See section 4.3 for all Remittance amounts on the Project.

Under the DBFR procurement model, Project Co is financing 40 per cent of their direct construction costs and all of their management costs during construction. These Project Co costs get paid back to Project Co via monthly Availability Payments (**Availability Payments**) over the 15 years following construction. There are two components to the Availability Payments; the first component is debt repayment of the costs financed by Project Co during construction and the second component is for asset management services that Project Co will provide for the first 15 years.

The Availability Payments started in May 2018 when the first new **GU/LL Asse**t came in-service and they will end in October 2033. This repayment period is called the Availability Term (**the Availability Term**).

There are two parts to the Availability Term. The Bridging Period (**the Bridging Period**) was the first part and the Services Period (**the Services Period**) is the second part.

The Bridging Period started at the beginning of the Availability Term, with the first GU/LL Asset coming in service as noted above and ended at Service Commencement (**Service Commencement)** in June 2019. Service Commencement is a contractually defined term which marked the transition point for the site from construction to the Services Period; after Service Commencement, BC Hydro Operations staff began performing the Project Co prescribed maintenance of the

Facility. The Services Period ends at the end of the Availability Term in October 2033.

BC Hydro remains the owner and operator of the assets through all periods.

This extended procurement model; and the associated contractual requirements for four, eight, and twelve-year Condition Assessments and end-of-term handback provisions; were put in place to incent a focus on long term asset-quality in the design, installation and commissioning.

The Project Agreement includes a schedule of Maximum Availability Payments for each month of the Availability Term. During the Services Period portion of the Availability Term, these maximum payments are subject to deductions for asset unavailability, Non-Performance Events, or for variances from labour or Project Co insurance baselines in the Project Agreement. The key difference between availability deductions from events that occurred during the Bridging Period (called Remittances) and deductions from events occurring during the Services Period (called Non-Availability Event Deductions) is that Remittances are deducted off of Progress or Decommissioning Payments, but Non-Availability Event Deductions are deducted off of Availability Payments. See Appendix E for further details on asset availability during the Services Period and Availability Payments made to date.

Total Completion (**Total Completion**) is another contractually defined milestone related to construction. Total Completion marks completion of Asset Performance Verification Testing and of construction and decommissioning work (with acceptable deficiencies and a deficiency plan, as agreed to between BC Hydro and Project Co). Total Completion was achieved in May 2020.

Following close-out reporting, ongoing semi-annual reporting to the BCUC will continue on asset availability, Availability Payments, and Condition Assessment outcomes.

The first four-year Asset Condition Assessment is expected to be conducted in summer 2022.

2 Project Status

This Semi-Annual Progress Report No. 14 (**Report No. 14**) provides information concerning the Project from April 1, 2020 to September 30, 2020 (**the Reporting Period**). Report No. 14 follows the Project report methodology laid out in British Columbia Utilities Commission (**BCUC or Commission**) Order No. G-68-14 except for the Key Performance Indicator Methodology changes which are outlined in Appendix G.

2.1 General Project Status Since the Last Semi-Annual Progress Report

Implementation, decommissioning and restoration work is largely complete. All work was sufficiently progressed for Project Co to meet the requirement for the contractual Total Completion milestone, with acceptable deficiencies as allowed for under the Project Agreement. This was attained on May 22, 2020.

The assets have continued to perform well to date. See Appendix E, Progression of Availability Payments, for further details on asset availability during the Services Period and Availability Payments made to date.

Table 1 provides a Project Status dashboard for the Reporting Period.

Table 1 Project Status Dashboard[1]

● Green: No Concerns; ● Amber: Some Concerns but in Control; ● Red: Serious Concerns

Status as of:		September 30, 2020
Overall Assessment	●G	BC Hydro is now receiving beneficial use of the assets, all of the Project risk-drivers were addressed ahead of schedule, and the assets are all performing well to-date.
Schedule	●G	Some deficiency, decommissioning and site restoration work was progressed in the Reporting Period despite COVID restrictions. Outstanding work is expected to be completed in summer 2021. See sections 2.2.2.4 and 2.2.2.5 for further details. BC Hydro's close out reporting to the Board, and then to the BCUC, will follow the final reports from Project Co. These reports are expected to be submitted to BC Hydro in late 2021 / early 2022. Schedule remains green because the remaining work does not impact the benefits being derived from the key assets being In-Service.
Cost	●G	The total Project cost forecast is $1,002 million, which is $1 million more than forecast in the last Progress Report, and $48 million less than the Board approved P50 Expected Amount of $1,050 million. The increase is due to COVID delays. See section 4 for more details on Project Costs.
Environment	●G	There were no significant environmental incidents in the Reporting Period. There was one minor, but reportable incident. Details are in section 2.3.2.5.
Risks	●G	All material contract risks have now been closed, as noted in section 5. Completion of a Sudden Short Circuit test on one of the Generating Units, which is currently planned for summer 2021, could impact Generating Unit availability if issues arise. If there are issues, it is Project Co's responsibility to rectify. BC Hydro is also protected from Generating Unit availability losses via Non-Availability deductions from Availability Payments, per the terms of the Project Agreement.
Safety	●G	There were no Major or Moderate injuries, and no WorkSafe BC inspections, during the Reporting Period. Refer to section 2.3.2.6.

The post-financial close, Board-approved Project (P50-Expected Amount to P90-Authorized Amount) cost range is $1,050 million to $1,118 million. The Board-approved Expected Amount was $110 million more than the Design-Build-Finance-Rehabilitate P50 amount of $940 million but within the CPCN Design-Bid-Build range of $1,014 million to $1,159 million.

2.2 Major Accomplishments, Work Completed and Key Decisions

2.2.1 Government Agency Approvals

No further approvals are required on the Project.

The Decommissioning Summary Report was submitted to the Comptroller of Water Rights Office in September 2020.

No further submittals to external agencies related to the Project are required.

[1] The key performance indicator guidance is outlined in Appendix G.

2.2.2 Construction

2.2.2.1 BC Hydro Contract Management

Submittals

BC Hydro continues to process submittals in accordance with the timeline requirements as laid out in the Project Agreement.

Quality

The Project team is closely monitoring Project Co's progress towards closing deficiencies.

Issues and Risks

There are no outstanding notices of potential claims from Project Co. The five previously outstanding claims notices were closed in the Reporting Period as shown below:

2.2.2.2 Project Co Management, Engineering, and Design

Work on final documentation items (such as as-built drawings, operations and maintenance manuals, and commissioning reports) is ongoing with completion expected late 2021 / early 2022.

2.2.2.3 Procurement and Manufacturing

There are no ongoing procurement and manufacturing activities.

2.2.2.4 Construction and Commissioning

Some deficiency work originally planned for summer 2020, required out of province contractors/engineers to attend site and to work in close quarters with our crews. This work was deferred due to COVID considerations. Work that could be done within COVID restrictions was completed during summer 2020 planned outages.

Deferred work includes completion of the Sudden Short Circuit Test on one Generating Unit, some remedial work on guide bearings to address minor oil leakage, application of Turbine-Inlet-Valve anti-sweat-coating, and adjustment of the wicket gates on one Generating Unit to reduce leakage.

The remaining work is currently scheduled to be completed in summer 2021, assuming there are no delays due to COVID restrictions, river flow levels, or crew availability.

2.2.2.5 Decommissioning & Restoration

Final decommissioning and restoration was completed in summer 2020. This included the removal of the old high voltage disconnects from the substation during each unit's outage window and completion of the new tailrace viewing area linked to the Canyon View Trail. Completion of the tailrace viewing area included the addition of two totem poles to acknowledge the depth of First Nations spiritual, cultural, and physical presence in the area, and BC Hydro's commitment to a lasting relationship with the First Nations. (See photo A-5 in Appendix A).

The City of Campbell River is also still working on removal of the original City-water infrastructure. This is expected to be complete in early 2021.

2.3 Key Project Agreement Developments, Challenges and Issues

2.3.1 Progress Payments under the Project Agreement

Under the terms of the Project Agreement, there is a maximum amount that Project Co can invoice for Eligible Costs (**Eligible Costs**) each month. Eligible Costs are all direct construction costs properly and reasonably invoiced by the Design-Builder to Project Co for design and construction for the original scope of work. The total commitment to Project Co for Eligible Costs under the Project Agreement is fixed as noted in section 1.

BC Hydro has provided a table in Appendix B which shows the Maximum Eligible Costs amount that could be billed each month under the Project Agreement, the actual amounts approved to date, and the monthly and cumulative variances.

Appendix C shows the summary of the work breakdown for the work to be completed by Project Co, the total Eligible billing allowed for each category, and the approved value (and corresponding percentage) of the work completed to date for each category.

As discussed in section 1, BC Hydro pays Project Co 60 percent of the progressed (billed) Eligible Amounts as Progress Payments. The remaining 40 per cent of the Eligible Amounts (along with the fixed amount for Project Co's Interest During Construction (**IDC**),[2] and the fixed amount for Project Co Ineligible Costs (**Ineligible Costs**)[3] are booked as a liability (debt) on BC Hydro's balance sheet which is being repaid to Project Co through the Availability Term.

2.3.2 Contract Management

2.3.2.1 BC Hydro Initiated Changes and Impact to Cost and Schedule

There have been no material BC Hydro initiated changes that have impacted overall cost or schedule to date.

2.3.2.2 Material Changes to the Project Agreement and Exercise of Project Agreement Rights

During the Reporting Period, the Total Completion Longstop Date in the Project Agreement was extended from August 13th to 23rd, 2020. There was no incremental cost or negative impact to BC Hydro from this change. Total Completion was attained on May 22, 2020.

2.3.2.3 Changes to Project Financing Arrangements

There have been no changes to Project financing arrangements since Financial Close.

2.3.2.4 Project Reserve Draws

There have been no Project reserve draws to date.

[2] As estimated at financial close of the Project Agreement for the portion of the costs being financed by Project Co.

[3] Project Co indirect or 'ineligible' costs include bidding fees, insurance during construction, and Project Co overhead costs during construction.

2.3.2.5 Material Environmental Incidents

There were no material environmental incidents in the Reporting Period. There was one minor reportable ramp rate violation in August 2020 following a Generating Unit trip. The flow remained within the preferred flow zone and no environmental impacts were observed. The incident was reported to the Comptroller's Office and the Department of Fisheries and Oceans.

2.3.2.6 Material Safety Incidents

Project Co's life-to-date All-Injury-Frequency statistic at Total Completion in May 2020 was 0.63 with 3.80 million Project Co hours worked to date. The calendar-year-to-date All-Injury-Frequency statistic was 0.0 to May 2020.

In April 2020, BC Hydro became Prime Contractor at the John Hart Facility, with primary safety coordination responsibility.

2.4 Plans During the Next Six Months

The plans for the next six months include:

- Ongoing deficiency management and completion;
- Ongoing work on outstanding documentation such as Operating and Maintenance manuals and as-built drawings;
- Planning for and advancing Project close-out activities; and
- Planning, coordinating and conducting Facility maintenance activities as prescribed by Project Co, under the Services Period.

2.5 Site Photographs

Refer to Appendix A for photographs.

3 Project Schedule

3.1 Project Agreement Target and Commercial Operation Dates

The target and achieved commercial operation dates are tabulated in Table 2 below.

Table 2 Target and Achieved Commercial Operation Dates

	Original Target Commercial Operation Dates	Revised Target Commercial Operation Dates following Innovation Proposal 001	Actual Commercial Operation Dates
1	May 2, 2018 1st GU	May 2, 2018 Tunnel and LLO OR Tunnel and 1st GU	May 2, 2018 Tunnel and LLO
2	Jul 21, 2018 2nd GU	Jul 21, 2018 1st unit (if LLO 1st) OR 2nd unit (if a GU was 1st)	July 21, 2018 1st GU
3	Oct 10, 2018 3rd GU & Service Commencement	Oct 10, 2018 Remaining unit(s) & Service Commencement	October 26, 2018 2nd GU
			November 5, 2018 3rd GU
			March 29, 2019 Completion of the Original Conditions Precedent for Service Commencement (Renamed 'Interim Service Commencement')
4	Feb 1, 2019 Bypass System	Feb 1, 2019 Bypass System[4]	Feb 1, 2019 – Bypass System Commercial Operation [redacted] Nov 9, 2018 – Bypass System Actual operational In-Service-Date [redacted]
5.	Aug 13, 2019 Total Completion	No Change	May 22, 2020

Appendix E has further details on how the late dates impacted Availability Payments.

[4] [redacted]

4 Project Costs

4.1 Project Cost Summary

Table 3 below provides a summary of:

- The Board approved Project Cost, the current forecast Project Cost and the variance between the two; and
- The plan to date amounts based on the Board approved cost schedule, the actual costs to date and the variance between the two.

Table 3 Total Project Expenditure Summary ($M) (Public Version)

Description	Board Approved (Plan)	Forecast	Forecast vs Plan	Plan to Date	Actuals to Date	Actuals vs Plan to Date
Total Project Co Costs[5]	781	772	(9)	781	772	(9)
BC Hydro Costs Including Contingency	187	171	(16)	187	169	(18)
BC Hydro loadings	82	59	(24)	82	59	(24)
Total Owner's Costs	269	230	(39)	269	227	(42)
P50 Project Cost[6]	**1,050**	**1,002**	**(48)**	**1,050**	**999**	**(51)**
Project Reserve	68	-	(68)	-	-	-
Authorized Project Cost	**1,118**	**1,002**	**(116)**	**1,050**	**999**	**(51)**

Note: Minor addition errors occur due to rounding.

Further variance explanations are provided in the confidential filing of the more detailed cost breakdown in Appendix D.

4.2 BC Hydro Construction Payments to Project Co

In addition to the fixed amount for Progress Payments for the planned Project scope, BC Hydro must also pay Project Co for Design Development Changes and for Change Notices and Innovation Proposals that are accepted by BC Hydro.

[5] The total Project Co Costs include the cost to decommission existing John Hart facilities.
[6] The Project Cost excludes Net Book Value write-downs and costs related to Impact Benefit Agreements.

The net cost of Project Changes and Design Development Changes to date is approximately [redacted][7] These are being paid within the current Project forecast amount.

There have also been two accepted Innovation Proposals, Innovation Proposal 001 and Innovation Proposal 003. Innovation Proposal 001 was the only material one, with a value of [redacted] which was paid in 2016 (refer to Semi-Annual Progress Report No. 6 for more detail). Innovation Proposal 003 was agreed and paid in April 2018 with a value of [redacted]

4.3 Project Co Payments to BC Hydro during Construction

As outlined in section 1, payments from Project Co to BC Hydro for asset non-availability or for variances from Project Agreement baselines during construction and commissioning (i.e., prior to and during the Bridging Period) are called Remittances. Remittances related to construction are netted off of the implementation Progress Payments and Remittances related to decommissioning are netted off of the Decommissioning payments to Project Co. All Remittances are included as reductions in Project implementation costs.

As of September 30, 2020, [redacted] has been netted off the Progress Payment Amounts for minor outages related to construction and commissioning. Another [redacted], which is still owing from Project Co to BC Hydro for outages during construction and commissioning, will be deducted from the remaining Progress Payment Amounts. This final invoice is expected within the next reporting period. There was a further Remittance amount of [redacted] which was netted off the Decommissioning Payment to account for contaminated soil volumes (that had to be removed from the old Penstock and Powerhouse areas) being less than baselines in the Project Agreement.

[7] [redacted]

5 Material Project Risks

All material Project risks that have potential to impact the Project by [redacted] [redacted]have now been closed.

John Hart Generating Station Replacement Project

Semi-Annual Progress Report No. 14

Appendix A

Site Photographs

Figure A-1 Existing Dam with New Intake Structure and Water Discharging from the New Environmental Flow Release

Figure A-2 Aerial View from the Dam along the Old Penstock Corridor

Figure A-3 Aerial View further along the Penstock Corridor and above the Powerhouse Access Portal and Surge Tower Areas

Figure A-4 Main and Service Portal Entrances, Remaining Surge Tower, and New Tailrace Area (From the Opposite Direction as shown in Figure A-3)

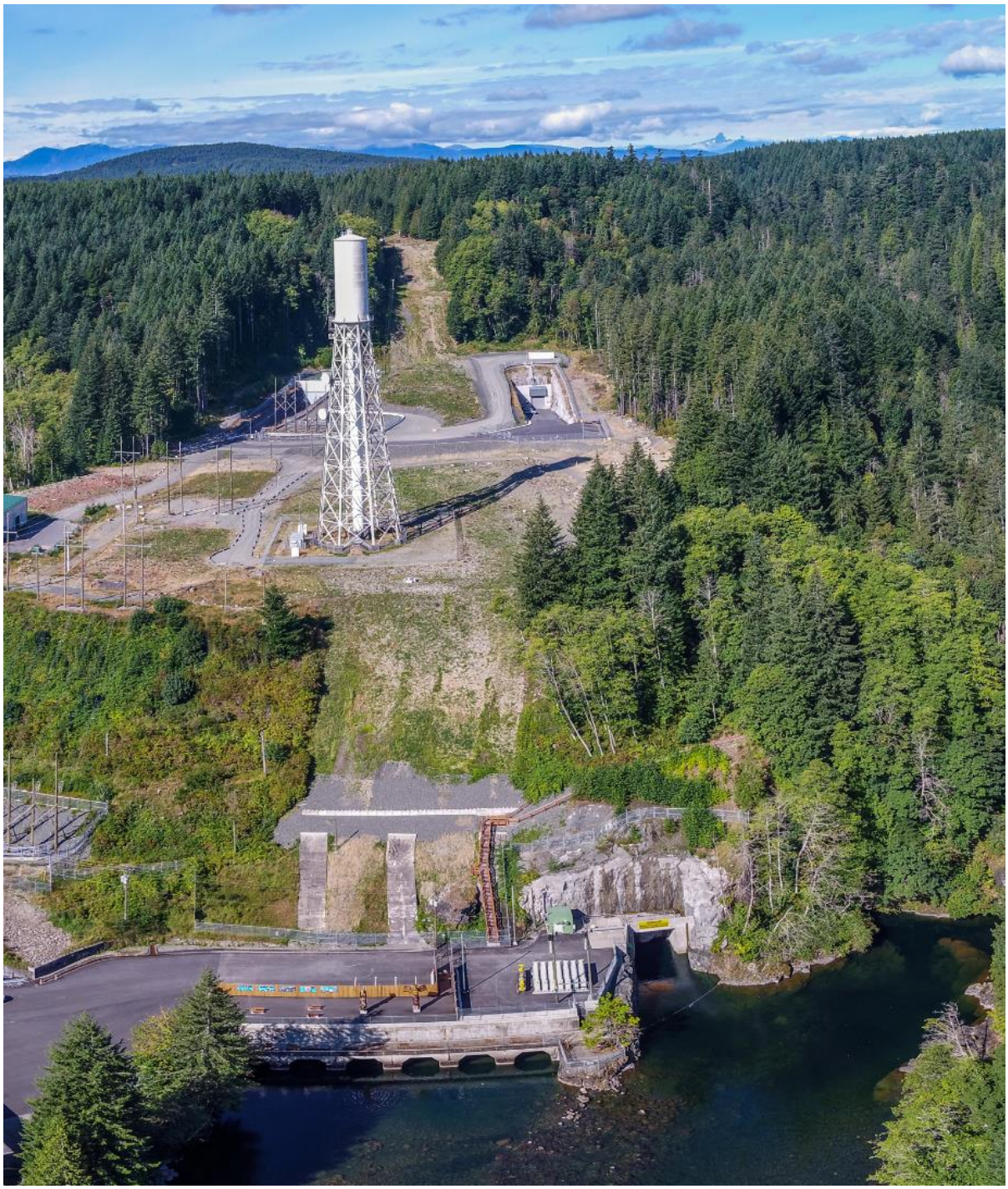

Figure A-5 A small group marked the installation of the totems. From left to right: Thomas Hunt, carver for Wei Wai Kum, Wei Wai Kum Chief Chris Roberts, Max Chickite, carver for We Wai Kai, Allister McLean, BC Hydro, We Wai Kai Chief Brian Assu, and Stephen Watson, BC Hydro.

Figure A-6 Same Picture as Figure A-4 from Further Out Showing the Substation Area in the Foreground

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Semi-Annual Progress Report No. 14

Appendix B

Project Co Direct (Progression) Payments to Date

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REDACTED

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Appendix C

Project Progression of Eligible Costs

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REDACTED

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Semi-Annual Progress Report No. 14

Appendix D

Detailed Project Expenditures

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Semi-Annual Progress Report No. 14

Appendix E

Progression of Availability Payments

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Section 1 explained that there are two distinct periods in the Availability Term called: 1) the Bridging Period; and 2) the Services Period.

During the Bridging Period, the maximum possible Availability Payments were multiplied by a Ramp Rate percentage which depended on the number of Commercial Assets in Commercial Operation.

Table E-1 below outlines the original Target Dates for the GU/LL Assets and the Bypass System; the Revised Target Dates for the GU/LL Assets under Innovation Proposal 001; the added interim date of October 10, 2018 for the completion of the automation of the Bypass System; the actual Commercial Operation Dates for the GU/LL assets; the actual completion date of the automation of the automation of the Bypass System; and the Ramp Rate attained with each Commercial Asset coming in service.

Table E-1 Project Agreement ISDs

Contractual Ramp Rate Item No. and Associated Incremental Ramp Rate (%)[1]	Original Target Commercial Operation Dates and GU/LL Assets	Revised Target Commercial Operation Dates and GU/LL Assets following Innovation Proposal 001	Actual / Forecast Commercial Operation Dates	Status and Comments[2]
1 [redacted]%)	May 2, 2018 1st GU	May 2, 2018 Tunnel and LLO OR Tunnel and 1st GU	May 2, 2018 (Actual) Tunnel and LLO	Met
2 [redacted]%)	Jul 21, 2018 2nd GU	Jul 21, 2018 1st unit (if LLO 1st) OR 2nd unit (if a GU was 1st)	Jul 21, 2018 (Actual) 1st GU	Met

1 The Ramp Rate percentage is multiplied by the value, in the relevant month, in the schedule of Availability Payments which is included in the Project Agreement.

2 Met" means attained on or before the Target Date, 'Late' means completed but not attained on or before the Target Date, 'On Track' means it is forecasting to occur on or before the Target Date, 'Missed' means not completed and the Target Date has passed.

Contractual Ramp Rate Item No. and Associated Incremental Ramp Rate (%)[1]	Original Target Commercial Operation Dates and GU/LL Assets	Revised Target Commercial Operation Dates and GU/LL Assets following Innovation Proposal 001	Actual / Forecast Commercial Operation Dates	Status and Comments[2]
3 [redacted]%)	Oct 10, 2018 3rd GU & Service Commencement	Oct 10, 2018 Remaining unit(s) & Service Commencement	Oct 26, 2018 (Actual) 2nd GU	Late
			Nov 5, 2018 (Actual) 3rd unit	Late
			Mar 29, 2019 (Actual) Completion of the Original Conditions Precedent for Service Commencement (Renamed 'Interim Service Commencement')	Late
4a [redacted]%)	Feb 1, 2019 Bypass System	Feb 1, 2019 Target Bypass System Completion Date for the last Ramp Rate Increment Remained Unchanged	Feb 1, 2019 (Actual) = the later of Bypass System completion (November 9, 2018) and February 1, 2019	Met
4b (No Ramp Rate increment)	N/A	Partial Repayment of the increment to Innovation Proposal 001 for automated Bypass System completion delays beyond Oct 10, 2018	Nov 9, 2018 (Actual)	Late
5 (No Ramp Rate increment)	Aug 13, 2019 Project Total Completion	Aug 13, 2019	May 22, 2020	Late
6 (No Ramp Rate increment)	Oct 9, 2033 Service Period End	Oct 9, 2033	Oct 9, 2033	Fixed end-date

The table below shows the Availability Payments paid to Project Co to September 30, 2020.

Table E-2 Availability Payments to Project Co[3, 4] ($M)

A	B				C				D
	Non-Indexing (Debt Repayment) Portion				Indexing (Asset Management Fee) Portion				
	B1	B2	B3	B4	C1	C2	C3	C4	
Date	Maximum	Cost of Delays to In-Service Dates	Availability Deductions	Actual Net Non-Indexing Portion	Maximum	Cost of Delays to In-Service Dates	Immediate Callout Billable Hours Deductions	Actual Net Indexing Portion	Total Availability Payments Net of Deductions
May 2018 – Mar 2020	63.3	(3.5)	(0.1)	59.7	12.5	(0.8)	-(0.0)	11.6	71.3
Apr 2020	3.1	NA	(0.0)	3.1	0.6	NA	-	0.6	3.7
May 2020	3.1	NA	(0.0)	3.1	0.6	NA	-	0.6	3.7
Jun 2020	3.1	NA	(0.0)	3.1	0.6	NA	-	0.6	3.7
Jul 2020	3.1	NA	(0.0)	3.0	0.6	NA	-	0.6	3.6
Aug 2020	3.1	NA	(0.0)	3.0	0.6	NA	(0.0)	0.6	3.6
Sep 2020	3.1	NA	(0.0)	3.1	0.6	NA	(0.0)	0.6	3.6
Total	81.8	(3.5)	(0.2)	**78.1**	15.9	(0.8)	(0.0)	15.1	**93.2**

None of the adjustments show up in the Project actuals. They show up elsewhere in BC Hydro statements of accounts as explained in the next two bullets.

- Section B of the table above shows the deductions to the Non-Indexing (debt repayment) portion of the Availability Payments. These deductions show up as a write-off of part of the debt provision on the BC Hydro balance sheet for the money owing to Project Co for the portion of the construction costs they financed. There are two types of Non-Indexing deductions; the

[3] Minor addition errors occur due to rounding.

[4] '-' means zero deductions that billing period. Where '0.0' appears instead of '-', it means there were minor deductions under $0.05M.

first is for delays in the Asset In-Service Dates (which have now passed), and the second is for Assets not being available during the Services Period.

- Section C of the table above shows the deductions to the Indexing (asset management fee) portion of the Availability Payments. The budget for the Indexing portion of the Availability Payments is held by BC Hydro Operations. Therefore, deductions to these payments show up in their cost center. To date, Indexing Payment deductions have occurred for the following items:

  1. Delays in the Asset In-Service Dates (See the summary in Table E-1. No further deductions for this item can occur.); and
  2. Minor deductions for BC Hydro crews being called out for forced outages and priority alarms in excess of the contractual allowance (BC Hydro recovers these costs at fixed labour rates under the Project Agreement).

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John Hart Generating Station Replacement Project

Semi-Annual Progress Report No. 14

Appendix F

Key Contractual Terminology

- Below are explanations of key contractual terminology and acronyms used in this report.
- **Actual Commercial Operation Date** is the later of the Target Commercial Operation Date and the date on which all of the conditions precedent to Commercial Operation of the applicable Commercial Asset(s) have been satisfied as certified by the Independent Certifier.
- **Availability Payments** are the payments from BC Hydro to Project Co during the Availability Term to repay the costs financed by Project Co during the Implementation (construction) Phase and for asset management fees. These payments started when the first commercial asset attained Commercial Operation in May 2018 and they will end in October 2033.
- The **Availability Term** is the period when Availability Payments are made and it encompasses both the Bridging and the Services Periods. It started in May 2018 and ends in October 2033.
- **Bridging Period** is the duration between: 1) the time that the first GU/LL (GU/LL) Asset attains Commercial Operation; and 2) the time that the last GU/LL Asset is in Commercial Operation and all Conditions Precedent to Service Commencement have been met. During the majority of the Bridging Period, both the Existing and the new Facility are in operation.
- **Bypass System** – is the automatic system that controls three pressure-reducing ‘bypass valves’ to restore flow to the river in event of a Unit outage. The term bypasses is used to refer to the individual bypass valves which were initially manually operable.
- **Commercial Assets** are the GU/LL Assets, the conditions precedent to Service Commencement, and automatic operability of the Bypass System.

- A **Commercial Asset's Operation Date** is the later of when the relevant Commercial Asset is completed and the Target Date for that asset. This is the date that the Ramp Rate percentage increment of the Availability Payments related to that asset can start being paid to Project Co.
- **Comptroller** – Comptroller of Water Rights.
- **Conditions Precedent** to Service Commencement are the things that must be complete under the Project Agreement before the Services Period can start. This includes all assets being in service, Balance of Plant work, BC Hydro staff training, and submittal of key documentation.
- **CPCN** – Certificate of Public Convenience and Necessity
- **DBFR** (Design-Build-Finance-Rehabilitate) is the Procurement Model for the Project. Under this model, BC Hydro holds one contract with the consortium InPower BC (Project Co) which then has subcontracts with the suppliers and vendors. Under this model, Project Co is financing part of the construction costs and will only get paid for these costs in the 15 years after construction. The 'Rehabilitate' component of this model is that Project Co retains a significant amount of the asset quality risk during the first 15 years and must meet specific asset condition assessment criteria every four years. Project Co will also provide asset management services during this 15-year period.
- **Effective Date** means the date of the Project Agreement between BC Hydro Power Authority and InPower BC General Partnership. The Effective Date was February 25, 2014.
- **Eligible Costs** are all costs properly and reasonably invoiced by the Design-Builder to Project Co for design and construction for the original scope of work.

- **EFRS** – The Environmental Flow Release System, providing flows of 4 cm to 10 cm into the Elk Falls Canyon to meet operational Water Use Plan obligations.
- **Existing Facility** means the original John Hart Generating Station, including the Existing Powerhouse, Existing Penstocks, Existing Intake, Existing Surge Towers, Existing Tailrace, Existing Intake Control Building (Concrete), Existing Intake Control Building (Steel), Existing Intake Gates, Existing Site Office Building, Existing Units, Substation, Dams, Spillway and all associated buildings, structures, facilities, systems, monitoring instruments and other infrastructure, as it existed on the Effective Date.
- **Existing Units** are the old generating units in the Existing Facility.
- **Facility** means the new hydro-electricity generating facilities, including the Power Intake, Water Conveyances, Generating Units, Powerhouse, any modifications to the Dams, any modifications or improvements to other portions of the Existing Facility (to the extent incorporated into the design of the Facility), and all associated buildings, structures, tunnels, shafts, roads and infrastructure and all other civil, structural, mechanical, electrical, instrumentation and other equipment and systems to be designed, constructed, procured or otherwise provided by Project Co pursuant to the Project Agreement.
- **Generating Units** are the new units in the new powerhouse. This term refers to all machinery and equipment making up a new complete and independent hydro-electric generator including the water passages, Turbine, Generator, Unit Transformer, protection and control system and replacements thereof.
- **GU/LL Asset** means any one of the three Generating Units (**GUs**) or the Low Level Outlet (**LLO**) (including the Environmental Flow Release System and manual operability of the bypasses).

- **Ineligible Costs** means the indirect or 'ineligible' costs include bidding fees, insurance during construction, and Project Co overhead costs during construction.
- **KPI** – Key Performance Indicator.
- **LLO** – the Low Level Outlet valve, which includes the Environmental Flow Release Valve and the bypasses (with manual operability). The Low Level Outlet Valve is capable of providing up to 40 cm into the upper Elk Falls canyon.
- The **LLO System** includes the Low Level Outlet, the Environmental Flow Release System and the automated Bypass System.
- **PPM** – Project and Portfolio Management
- **Progress Payments** are the payments for progression of Implementation works.
- **The Project** is the John Hart Generating Station Redevelopment Project.
- **Project Co** means InPower BC General Partnership.
- The **Ramp Rate** is the percentage increment of the Availability Payments that Project Co becomes entitled to as the Commercial Operation Dates for the Commercial Assets are attained. The Ramp Rate is multiplied by the relevant month's value in the schedule of Availability Payments which is included in the Project Agreement. This determines the Availability Payment amount that Project Co will receive.
- **Remittances** means a payment from Project Co to BC Hydro for specific events such as non-availability of the GU/LL assets during the Bridging Period.
- **Service Commencement** is when the Bridging Period ends and the Services Period begins. This occurs either on October 10, 2018 or when all of the GU/LL

assets are in Commercial Operation and all of the Conditions Precedent to Service Commencement have been met, whichever is later. The key difference at Service Commencement is that the Facility is handed over to BC Hydro operations and BC Hydro's crews will be used in maintenance and operation of the Facility.

- **Services Period** starts at Service Commencement and ends on October 9, 2033. During this period, Project Co provides asset management services and retains asset quality risk. The other key difference at Service Commencement is that BC Hydro's crews will be used in maintenance and operation of the Facility.
- **Target Commercial Operation Dates** (for the Commercial Assets) and the **Target Service Commencement Date** are the earliest possible dates that the percentage of the Availability Payments related to each Commercial Asset can start.
- **Total Completion** marks completion of construction and decommissioning on the Project, with deficiencies or trailing costs as allowed under the Project Agreement.
- The **Total Completion Longstop Date** is a milestone date of August 23, 2020 under the Project Agreement.

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John Hart Generating Station Replacement Project

Semi-Annual Progress Report No. 14

Appendix G

Key Performance Indicator Methodology

The table below outlines the Key Performance Indicator Methodology. Note that the guidance has been periodically updated to align with BC Hydro Project Delivery's internal guidance. The current methodology is shown in the table immediately below. Since the Project is In Service, the Schedule methodology has been deleted; schedule will be green in this and any subsequent Progress Reports. The original methodology from 2014 is shown in a separate table at the end of this appendix.

Indicator	Red	Amber	Green
Overall Project Health (Amended)	**Amended Guidance:** Cost, schedule, safety, or environment is red; or, subject to Project Manager discretion if Indigenous Relations or Regulatory are red.	**Amended Guidance:** Cost, schedule, safety, or environment is amber; or, subject to Project Manager discretion if Indigenous Relations or Regulatory are amber.	**Amended Guidance:** All other cases.
Environment (Amended)	**Amended Guidance:** Any Major incident; Moderate preventable externally reportable PCB Spill; Moderate preventable Archaeology incident; Minor or Moderate preventable SF_6 incident; Minor, Moderate or Major preventable fish incidents; or Moderate or Major regulatory action. 'Major', 'Moderate' and 'Minor' are defined in BC Hydro's Incident Management System and our internal Project and Portfolio Management Environment practice.	**Amended Guidance:** Any Moderate incident not categorized as 'Red', or multiple Minor Incidents or Near Misses if a pattern of risk is emerging.	All other cases.
Cost (No change)	Project actual or forecast costs exceed the expected (P50) budget of $1,050 million by greater than 5 per cent or > $100k.	Project actual or forecast costs exceed the expected P50 budget of $1,050 million by < 5 per cent or < $100k or a new issue or event has arisen, or risk associated with an existing issue or event has increased, and as a result BC Hydro wishes to signal that there is significant risk of the cost indicator going red in the future.	All other cases.

Indicator	Red	Amber	Green
Safety (No change)	Serious contractor safety performance issues reported that have resulted in a lost time injury.	Re-occurring safety performance issues or poor audit results requiring mitigation. Treatment plan(s) developed and implemented.	All other cases.
Risks (No change)	Material risks previously identified have materialized with treatment plan(s) in place; New material risk(s) materialized, treatment plans in place. The Project is forecasting to exceed the Upper Bound of $1,118 million.	Project risks have materialized and been treated. The Project is forecasting to be within the Upper Bound of $1,118 million.	Material risks identified, up-to-date treatment plan developed. Lower ranked risks are monitored and addressed.

Negotiated Key Performance Indicator methodology filed with the BCUC in 2014

	Red 🔴	Amber 🟡	Green 🟢
Overall	Serious Concerns – if any of the sub-components are red	Some Concerns but in Control	No Concerns – all sub-components are green
Schedule – In Service Dates	Project is forecasting to miss ISD for one or multiple assets specified in the Project Agreement (per Table 2)	Project is forecasting to miss a Project Agreement work progress item (per Table 3), the contractor has taken action to rectify, ISDs for key assets are not at risk	All other cases - ISD expected to be met
Cost	Project is forecast to exceed the Upper Bound of the Project ($1,118 million)	Forecast to complete exceeds P50 budget ($1,050 million) and a draw on Board Project Reserve is required	Forecast to complete is expected to be within P50 cost amount ($1,050 million[1])
Environmental	A violation of environmental regulation or law, multiple environmental incidents have occurred with adverse impact to BC Hydro's reputation is forecast	A new reportable environmental related issue or re-occurring environmental issues identified in audits.	All other cases
Risks	Material risks previously identified have materialized, with treatment plan(s) in place; New material risk(s) materialized, treatment plan(s) in place. The Project is forecasting to exceed the Upper Bound of $1,118 million	Project risks have materialized and treated. The Project is forecasting to be within the Upper Bound of $1,118 million	Material risks identified, up-to-date treatment plan developed. Lower ranked risks are monitored and addressed
Safety	Serious contractor safety performance issues reported that has resulted in a lost time injury	Re-occurring safety performance issues or poor audit results requiring mitigation. Treatment plan(s) developed and implemented	All other cases