



Suite 1600 Cathedral Place
925 West Georgia Street
Vancouver, BC
Canada V6C 3L2

Ian Webb
T: 604.631.9117
F: 604.694.2932
iwebb@lawsonlundell.com

BY E-FILING

January 31, 2018

British Columbia Utilities Commission
Sixth Floor – 900 Howe Street
Vancouver, B.C. V6Z 2N3

Attention: Patrick Wruck, Commission Secretary

Dear Mr. Wruck:

**Re: British Columbia Utilities Commission (Commission)
British Columbia Hydro and Power Authority (BC Hydro)
Inquiry of Expenditures related to the adoption of the SAP Platform
Project No. 3698878**

We are counsel to BC Hydro for the Commission's Inquiry of Expenditures related to the adoption of the SAP Platform (the **Inquiry**). In accordance with the regulatory timetable established by Commission Order No. G-181-17, we enclose the final argument of BC Hydro with respect to the Inquiry.

The enclosed final argument includes an appendix that provides a complete chronology of significant events in the development of BC Hydro's SAP Strategy, BC Hydro's 2009 IT&T Five-Year Plan, and BC Hydro's Enterprise Financials Upgrade / Financial Systems Replacement project, including disclosures to the Commission regarding those matters. The purpose of the appendix is to provide, in one place, a comprehensive chronological summation of the record regarding what we believe is the only remaining issue of the Inquiry: were BC Hydro's disclosures to the Commission regarding those three matters appropriate?

The final argument references limited portions of a single document within the 2010 Code of Conduct complaint materials that were filed as Exhibit B-24. These references in the final argument are framed to avoid the concerns raised in previous submissions about disclosure of private personal information. Accordingly, the final argument does not include any confidential information, and it may be placed on the public record of the Inquiry.

The 2010 Code of Conduct complaint is referenced on page 14 of the appendix to the final argument, in its proper chronological position with respect to the events related to the three matters above. The final argument does not otherwise include submissions on the 2010 Code of Conduct complaint because we believe that the complaint and the BC Hydro documents related to the resolution of the complaint do not add anything to the Scope Items of the Inquiry beyond what is already on the public record. We will respond in our reply argument to any intervener submissions regarding the 2010 Code of Conduct complaint and related materials, if necessary.

Yours very truly,

LAWSON LUNDELL LLP

A handwritten signature in black ink that reads "Ian Webb". The signature is written in a cursive, flowing style.

Ian Webb

cc. BC Hydro

encl.

British Columbia Utilities Commission

**Inquiry of Expenditures related to the
Adoption of the SAP Platform**

**Final Argument of
British Columbia Hydro and Power Authority**

January 31, 2018

Part I

Introduction and Overview

Introduction

1. A little over two years ago, a complaint was filed with the Commission that, among other things, made certain statements and allegations relating to BC Hydro's expenditures on Information Technology & Telecommunications (IT&T) projects and BC Hydro's strategy to adopt SAP as its default technology platform for enterprise resource planning (ERP)¹ applications (the **Complaint**).²
2. On January 8, 2016, BC Hydro filed its response to the Complaint (**January 2016 Response**)³ and as part of its response, suggested that there could be merit in an in-depth review by the Commission to achieve a common understanding of BC Hydro's SAP-related expenditures. BC Hydro also suggested that it would be timely to enter into discussions with the Commission regarding the practices for Commission review and oversight of BC Hydro's capital projects generally.
3. After subsequent process related to the Complaint,⁴ pursuant to Order No. G-58-16 and section 83 of the *Utilities Commission Act (UCA)*, the Commission established an inquiry to "review BC Hydro's SAP expenditures related to the adoption of the SAP platform"⁵ (the current **Inquiry**). The Commission also established a separate proceeding to review the regulatory oversight of BC Hydro's capital expenditures and projects.⁶

¹ ERP is software that allows an organization to use a system of integrated applications to manage the business, as described by Gartner's IT Glossary: <http://www.gartner.com/it-glossary/enterprise-resource-planning-erp/>.

² The Complaint was filed by Mr. Adrian Dix, MLA, on December 8, 2015, see Exhibit A2-1.

³ See Exhibit A2-2.

⁴ Specifically, on April 8, 2016 BC Hydro filed responses to the Commission's IRs related to the Complaint (see Exhibit A2-5).

⁵ Order No. G-58-16, para. 2.

⁶ This separate proceeding is Commission Project No. 3698877, Review of the Regulatory Oversight of BC Hydro Capital Expenditures and Projects.

4. Pursuant to Order No. G-62-16, the Commission issued a proposed scope for the Inquiry and confirmed its purpose as follows:

“An Inquiry by the Commission is a fact finding exercise, and evidence will be collected for matters included in the final scope of this proceeding. Based on the evidence collected during the Inquiry, the Commission may make recommendation on matters within the Commission’s mandate prescribed by the *Utilities Commission Act*.”

5. The Commission further provided that the following five scope items would be addressed in the Inquiry⁷:

Item 1: what are the total capital and operating expenditures incurred by BC Hydro as at the end of F2016 on the SAP platform, SAP modules and other supporting capital enhancements to support the platform adoption?

Item 2: what are BC Hydro’s approval and oversight controls and processes related to the authorization and governance of information technology capital expenditures and projects? Were these controls and processes appropriately designed and operating effectively with respect to management’s review and oversight of SAP-related expenditures?

Item 3: have the goals outlined in BC Hydro’s Information Technology and Telecommunication (IT&T) Five-Year Plan related to SAP initiatives been achieved?

Item 4: what is BC Hydro’s planned capital spending on the adoption of the SAP platform and independent SAP projects on a go-forward basis?

Item 5: were all SAP-related disclosures to the Commission appropriate, reasonable and in accordance with the UCA?

6. On June 29, 2016 BC Hydro filed over 900 pages of evidence related to the five scope items in a “Consolidated Information Filing” that remains BC Hydro’s comprehensive response to the issues being reviewed in the Inquiry and provides the primary basis for the submissions that follow.⁸
7. The Inquiry has provided a thorough and detailed review of BC Hydro’s decision to move incrementally to a single ERP system and to use SAP as the default ERP solution (the **SAP Strategy**) in addition to a comprehensive review

⁷ Commission Order G-62-16, Appendix B. These five scope items were confirmed in Commission Order G-81-16 dated June 2, 2016.

⁸ The Consolidated Information Filing was filed as Exhibit B-3.

of expenditures related to the implementation of SAP-related projects. It has provided the opportunity to explore each of the five scope items established by the Commission in a thoughtful and in-depth manner.

8. Ultimately, it is BC Hydro's view that the Inquiry has confirmed that the essential points BC Hydro made in its January 2016 Response are correct, specifically:

- In 2007, BC Hydro began developing a long-term IT&T strategy.
- In May 2008, BC Hydro's Executive Team (**ET**) agreed to adopt a high-level strategy to move incrementally to a single ERP system and to the use of SAP as the default ERP solution.
- The SAP Strategy did not represent a financial decision, nor did it approve or authorize future IT&T projects or expenditures; it was not a "blank cheque" in any way.
- The SAP Strategy is not a single project. Treating BC Hydro's SAP-related projects as a single project would not be consistent with BC Hydro's policies or with good project management practices.
- BC Hydro did not break up its IT&T projects in an effort to avoid Commission oversight of BC Hydro's SAP-related projects.
- With the exception of certain testimony and a response to an undertaking given during the F2009/F2010 RRA hearing in October 2008 that BC Hydro has been clear did not meet its standards for providing complete, open and transparent information, BC Hydro has not found any evidence that its disclosures to the Commission were anything other than appropriate, reasonable and in accordance with the UCA.
- Any shortcomings related to the disclosures at the October 2008 hearing were remedied through BC Hydro's reporting to the Commission in June and July 2009 and in BC Hydro's F2011 RRA filing in March 2010.
- The SAP-related projects BC Hydro has implemented have served BC Hydro well, and the SAP Strategy was and remains an appropriate and reasonable strategy for BC Hydro.

Overview of Final Argument

9. The remainder of BC Hydro's final argument is organized as follows:
 - Part II provides an explanation of BC Hydro's SAP Strategy;
 - Part III provides a summary of BC Hydro's implementation of SAP-related projects during the F2009 to F2016 time period; and
 - Part IV addresses each of the Inquiry's five scope items in turn.

Part II

BC Hydro's SAP Strategy

Background

10. During 2007 and 2008, BC Hydro began to focus on its IT&T strategy in anticipation of changing business needs at BC Hydro and in particular, an increasing portfolio of capital projects and maintenance work programs.⁹
11. Up until this point BC Hydro had a decentralized IT&T management structure characterized by the following:¹⁰
 - An Office of the Chief Information Officer (**OCIO**) was responsible for IT&T policy, strategy, architecture and security, and enterprise-wide systems;
 - Individual lines of business were responsible for most of their own IT&T needs subject to the standards and policy framework established by the OCIO;
 - Each line of business managed its own IT&T assets, projects and services; and
 - Each line of business had IT&T personnel to manage their specific business requirements.
12. A result of this approach meant that by 2008 BC Hydro had over 600 applications and over 200 databases supporting its business groups. In addition to the hundreds of applications and databases BC Hydro was operating, BC Hydro relied on four non-optimal ERP solutions.¹¹
13. A key focus of the long-term IT&T strategy BC Hydro was developing was to simplify and standardize the core enterprise application footprint as a foundation that would provide the agility to support and integrate emerging

⁹ Consolidated Information Filing, Attachment 1 - Executive Summary: Information Technology Update submitted to Audit and Risk Management Committee by Office of the Chief Information Officer, May 24, 2007.

¹⁰ Consolidated Information Filing, section 2.1.

¹¹ The four ERP solutions were (1) PeopleSoft for Finance and Human Resources, (2) PassPort for Supply Chain and Work Management, (3) SAP for Customer Care, and (4) JD Edwards for the Construction Business Unit.

business needs and technologies into all aspects of the business.¹² Additionally, BC Hydro was adopting a “One Hydro” business direction to eliminate or reduce the barriers associated with the line of business approach, in particular, to simplify financial management across the company.¹³

14. Historically, BC Hydro utilized custom built mainframe systems to support major utility business processes such as Customer Care and Billing, Work and Asset Management, Financial Systems, Supply Chain, Human Resources and Payroll, etc. These systems were largely developed “in-house” on legacy IBM mainframe platforms.
15. With the advent of ERP software packages in the 1990s, there was a broad technology trend away from custom built systems toward packaged software. Adoption of ERP software from vendors such as SAP, Oracle and PeopleSoft became the dominant approach for supporting core business processes for essentially all large enterprises globally, including utilities.
16. In the mid-1990s, BC Hydro began adopting ERP software, which effectively marked the beginning of its transition from mainframe/custom software to enterprise-scale packaged products. BC Hydro followed the “best of breed” approach that was to select the best individual software package for each discrete function.¹⁴ Most often, this meant a different vendor was used for each individual system. A number of factors influenced BC Hydro’s decision at that time to adopt the “best of breed” approach including the lack of ERP market maturity, the absence of a comprehensive end-to-end offering (i.e., no single vendor offered good coverage across all utility functions), and the BC Hydro line of business organization model.
17. Between 1998 and 2008, BC Hydro had implemented the following ERP systems that, at the time, were judged to have the best coverage for their respective business functions:

¹² Consolidated Information Filing, Attachment 1.

¹³ Consolidated Information Filing, Attachment 1.

¹⁴ Consolidated Information Filing, section 2.1.1.

- PeopleSoft: for Financials and Human Resources (installed as two separate instances of PeopleSoft);
 - PassPort: for Supply Chain and Work and Asset Management;
 - SAP: for Customer Care, including billing;
 - JD Edwards: for the Construction Business Unit; and
 - Oracle Suite: implemented by the British Columbia Transmission Corporation (**BCTC**).¹⁵
18. BC Hydro also had COGNOS, which attempted to unify ERP-related reporting requirements.

Toward a Single ERP System (2008-2009)

19. One important question under consideration in the IT&T strategy was whether to continue with the historical “best of breed” approach or to move to a single ERP system.¹⁶
20. By 2008 BC Hydro’s IT&T environment was characterized as having weak business integration, difficult to maintain systems (including systems that had not been technically upgraded and were at risk of losing vendor support), and sub-optimal overall usability. Coupled with the emerging business needs that were becoming increasingly more difficult to service, BC Hydro began development of its IT&T strategy with a view to integrating the IT&T landscape that would better support business needs and reduce overall system complexity and costs. This meant moving away from the decentralized approach to IT&T decision-making and towards a consolidated, company-wide approach where all systems and business processes were able to “speak to one another.” This pointed to the adoption of a single ERP system.

¹⁵ BCTC was re-integrated into BC Hydro in 2010.

¹⁶ Consolidated Information Filing, Attachment 2.

21. The following additional factors influenced moving to a single ERP system:¹⁷

- BC Hydro's "One Hydro" business direction to operate as a fully-integrated utility (rather than as semi-independent lines of business) highlighted the need to adopt a company-wide ERP system to enable integrated business processes;
- A single ERP system was expected to require less effort to maintain when compared to multiple interfaced 'best-of-breed' systems. Multiple systems require different skill sets, are upgraded at different times, and rely on complex custom-built interfaces to communicate. These all add to the overall cost to support the same business functions;
- A single ERP system would provide greater flexibility to adapt to evolving business requirements, when compared to multiple interconnected systems;
- A common data model across processes would improve access to consistent, reliable, and up-to-date information (the so-called 'single source of truth'); and
- Adoption of a single ERP system would not preclude other specialized 'bolt-on'¹⁸ solutions where required. BC Hydro's IT&T strategy anticipated that there would be situations where the core ERP software would not have full coverage, or, where the functionality of that technology would not sufficiently meet BC Hydro's requirements. Therefore, the decision to move incrementally to a single ERP system would not preclude other systems where warranted.

Decision to Adopt the SAP Strategy (2008-2009)

22. In May 2008, BC Hydro's ET agreed that BC Hydro should adopt a high-level strategy to move incrementally to a single ERP system and to the use of SAP as the default ERP solution.¹⁹ The SAP Strategy recommended that when a business requirement arises, the SAP alternative would be examined to confirm whether the business need can be appropriately satisfied with SAP. If SAP does not meet the business need, a bolt-on solution would be considered. In either case, each major initiative would complete the business process design and business functional requirements prior to software design. The choice of

¹⁷ Consolidated Information Filing, section 2.1.2.

¹⁸ "Bolt-on" refers to non-SAP applications that can be integrated to SAP.

¹⁹ Consolidated Information Filing, section 2.2.

SAP as a default solution did not approve the implementation of any specific project initiative. Rather, the decision meant that SAP would be evaluated on a project-by-project basis and only selected when it met business needs.

23. There may be a misunderstanding that the Audit and Risk Management Committee (**ARMC**) of the Board or the full BC Hydro Board approved the SAP Strategy and/or expenditures to implement this strategy. Contrary to some statements on the record including in BC Hydro documents, the adoption of the SAP Strategy was a decision of BC Hydro's ET and it was not approved (nor did it need to be approved) by the ARMC or by the full Board.²⁰
24. The ARMC reviews the management of principal risks not identified as the responsibility of other Board committees or the full Board. The role of the ARMC with respect to IT&T strategies is to review with management to determine whether policies and procedures are in place to identify, manage and monitor material risks related to IT&T strategies.²¹
25. Strategies like the SAP Strategy fall within the operational responsibility of BC Hydro management, under the general oversight of the ARMC, as summarised above. Such strategies do not require Board approval.
26. The decision by BC Hydro's ET to adopt the SAP Strategy does not have formal implications from an authorization or approval standpoint. The ET does not have any formal authority, as a group, to approve financial transactions or set corporate policy.
27. Under BC Hydro's governance framework, decision-making authority is generally either vested in the Board of Directors, a Committee of the Board, or an individual member of management such as the CEO, CFO, an Executive Vice-President, or delegate. BC Hydro's approval and oversight controls and processes related to the authorization and governance of IT&T capital

²⁰ Consolidated Information Filing, section 2.2; Exhibit B-6, the responses to BCUC IRs 1.2.1, 1.2.5, 1.2.12 and 1.2.13; Exhibit B-8, the response to Mr. Dix IR 1.19.0; and Exhibit B-12, the witness statement of Mr. Chris O'Riley, answer to question 1.

²¹ Exhibit B-6, the response to BCUC IR 1.2.11.

expenditures and projects are fully described in Section 4 of the Consolidated Information Filing and related attachments.

28. The decision to adopt the SAP Strategy was based on a number of factors, including:²²

- Overall fit and functionality:
 - SAP would provide BC Hydro with good overall fit for supporting cross-functional business requirements. The SAP architecture provided extensive ERP capabilities within a single integrated product set;
 - All of the functional capabilities of SAP are delivered as part of the core product, unlike competing vendors that may deliver capabilities via separate product lines;
 - SAP has a common look and feel across the various functional areas which is a significant productivity enabler; and
 - SAP's common architecture is well suited for establishing a single source of truth. There is little functional redundancy across the product line and hence information is defined and maintained in a common way.
- Proven solution for BC Hydro and other utilities:
 - BC Hydro had a history of demonstrable success with SAP starting with the 2003 deployment for Customer Care. After this original SAP implementation, BC Hydro extended its SAP implementation many times to deliver new functionality and to consolidate processes (e.g., meter management, payment funnel, conservation research, customer self-service). BC Hydro achieved the elimination of numerous legacy systems and/or avoidance of new point solutions through its deployment of SAP. This demonstrated that an incremental SAP approach was viable at BC Hydro;
 - SAP is the world's largest enterprise software vendor and the third largest global software vendor. It is headquartered in Walldorf, Germany, and has 310,000 customers in 190 countries. SAP is the leading ERP system within the utilities sector, with 4,200 customers in 118 countries, and there have been many successful deployments. Of these customers, 2,000 utilities run ERP and/or Customer Relationships & Billing; and

²² Consolidated Information Filing, Section 2.2, pages 9-11.

- SAP is used for ERP functions by most regulated utilities in Canada, including FortisBC, TransAlta, SaskPower, Manitoba Hydro, Hydro One, Hydro Quebec and NB Power.
- Leverage BC Hydro's existing SAP system:
 - BC Hydro had a large and robust SAP foundation to build upon since the Customer functionality (Industry Solution for Utilities - Customer Care and Services or **IS-U-CCS**) was in place and up-to-date, having undergone a successful implementation in 2003 and subsequent technical upgrade in 2007. Having the SAP IS-U-CCS system in place was a significant advantage because the core SAP software and hardware infrastructure was installed and in productive use at BC Hydro. This provided the opportunity to leverage and extend this core system for other business functions; and
 - This also allowed BC Hydro to reduce overall risk by leveraging existing organizational skills and experience with the known SAP system.
- Limited alternatives:
 - The only other vendor with comparable functional coverage in the marketplace was Oracle, which at the time had recently acquired PeopleSoft, JD Edwards, Siebel and SPL. Oracle's solution combined the capabilities of its own ERP product line with the product lines of the companies it had acquired. This alternative was judged as less optimal for BC Hydro since it did not allow BC Hydro to leverage its existing ERP investments and involved additional architectural complexity since Oracle had not yet fully integrated its various product lines; and
 - Within BC Hydro, both of the core Oracle PeopleSoft implementations (Finance, HR) had not been up-graded, were no longer fully supported by the vendor, and were highly customized in some areas. The PeopleSoft product line also did not have specific utility functionality such as Customer Care or Work Management, and as such would have necessitated a mix of Oracle product lines and associated architectures.

29. Business requirements in large enterprises are not static and a key objective for improving BC Hydro's ERP environment was to ensure that IT&T systems could evolve and adapt in support of emerging business needs and organizational priorities. The SAP Strategy means that BC Hydro evaluates whether the SAP system can be leveraged whenever there is a need to adjust or extend ERP-associated business functionality.

30. BC Hydro's SAP Strategy is not a project or program with a defined beginning and end. The decision to adopt the SAP Strategy was not a financial approval decision, and it was not an approval to necessarily use SAP for any specific project or purpose either at the time or in the future. In the words of Mr. Chris O'Riley, who was a member of BC Hydro's ET at the time and party to the decision to adopt the SAP Strategy,²³

"I don't believe this decision represented a financial commitment in any way. There was no Expenditure Authorization Request attached to the decision, which would be required to authorize the expenditure of funds. I believe our decision to approve the SAP strategy was highly conditional and assumed that any future expenditures would be subject to considerable due diligence and appropriate approvals. Any projects that would incorporate the strategy and any expenditures related to implementing the strategy would be subject to the normal financial governance processes and would require approval by the appropriate decision making authority. Specifically, approval of any project expenditures would be conditional on following the governance requirements for financial approval of projects, which requires that BC Hydro follow a gated project development process for all projects. Under the strategy, non-SAP applications would still be acceptable as bolt-on solutions in cases where SAP did not meet the business need. Approval of the SAP strategy in May 2008 was not a blank cheque in any way.

...

By way of analogy, the May 2008 ET decision with respect to the SAP strategy mapped out the road along which BC Hydro expected to travel with respect to SAP, while the CEO's July 29, 2009 approval of the FSR project business case committed BC Hydro to move a certain distance down that road. How far down the road BC Hydro would ultimately travel remained the subject of future financial decisions. Significantly, benefits would accrue to BC Hydro in stages as it moved down the road; benefits were not dependent on reaching a final destination. Alternative routes in the form of bolt-on solutions would be allowed in certain circumstances."

31. Financial approval decisions, as well as specific IT&T architectural recommendations, were and are always made within the context of specific project proposals and associated funding requests.

²³ Exhibit B-12, witness statement of Mr. Chris O'Riley, answer to question 1. In 2008, Mr. O'Riley was BC Hydro's Senior Vice President, Engineering, Aboriginal Relations & Generation. At the time of Mr. O'Riley's Exhibit B-12 witness statement, Mr. O'Riley was Deputy CEO of BC Hydro. Mr. O'Riley is now President of BC Hydro.

Current Technology Standards

32. BC Hydro is still pursuing the SAP Strategy adopted in 2008, and SAP remains BC Hydro's technology solution for ERP applications.²⁴
33. BC Hydro also looks at its other technology solutions in a similar manner. For example, BC Hydro defaults to IBM FileNet when it contemplates ECM (Enterprise Content Management) projects, or GE Smallworld when it contemplates GIS (Geographical Information Systems) projects, and TIBCO ESB (Enterprise Service Bus) for middleware when it needs to share information across platforms, etc.²⁵

²⁴ Exhibit B-6, response to BCUC IR 1.4.3.

²⁵ *Ibid.*

PART III

Summary of BC Hydro's Investment in SAP F2009 to F2016

34. Although SAP is an integrated system (i.e., multiple functions combined to work as a single entity on a common underlying database), it can also be conceptualized as a series of modules, each corresponding to a specific business function. BC Hydro has now implemented SAP in whole or in part across seven major business areas:
- SAP Customer Care, Financials, Human Resources and Project Management modules have been implemented; and
 - Supply Chain, Work Management and Asset Management modules have been partially implemented.²⁶
35. In addition to the seven major business functions and associated SAP modules above, there are other areas where SAP provides useful business functionality; examples include Environment Health & Safety, Governance, Risk & Controls, mobility, data management and standardized reporting capabilities.²⁷
36. The resulting systems have served BC Hydro well, and the SAP Strategy was and remains an appropriate and reasonable strategy for BC Hydro.²⁸

²⁶ Consolidated Information Filing, section 2.3, Table 1. BC Hydro is currently making further investment in SAP Supply Chain Applications as accepted by Commission Order No. G-158-17.

²⁷ Consolidated Information Filing, page 14.

²⁸ Exhibit A2-2, page 10 of 13; Exhibit B-12, witness statement of Mr. Chris O'Riley, answer to question 1, page 5 of 12.

Part IV:

The Five Scope Items of the Inquiry

Inquiry Scope Item 1

37. Scope Item 1 of the Inquiry is:

What are the total capital and operating expenditures incurred by BC Hydro as at the end of F2016 on the SAP platform, SAP modules and other supporting capital enhancements to support the platform adoption?

38. In Section 3 of the Consolidated Information Filing, BC Hydro summarized the evidence relevant to this scope item in the following sections:

- Section 3.1 provides BC Hydro's SAP-related expenditures over the period F2009 to F2016;
- Section 3.2 reviews BC Hydro's SAP-related projects over the time period;
- Section 3.3 reviews BC Hydro's actual versus authorized SAP-related expenditures; and
- Section 3.4 reviews the deferred and cancelled SAP-related projects that were part of the Transformation Initiative.

39. Appendices A and B of the Consolidated Information Filing provide further detail on each SAP-related project as follows:

- Appendix A provides an overview of each SAP-related project using a template similar to the Appendix J format in BC Hydro Revenue Requirement Applications (**RRAs**). Each template includes a summary of the project and key outcomes; and
- Appendix B provides explanations of the variance between authorized and actual total capital and operating costs for all completed SAP-related projects.

40. For the purpose of this Inquiry, BC Hydro reviewed all IT&T projects and made an assessment of the degree to which each project involved SAP. BC Hydro considers "SAP-related" projects to include projects that invest in the SAP

platform and core modules, and projects in which functionality resides primarily in SAP core capabilities. Projects that integrate with SAP are not considered “SAP-related” if their primary function does not reside in SAP.²⁹

41. On that basis, over the F2009 to F2016 period BC Hydro spent \$197 million on over 70 SAP-related projects, including SAP-related expenditures for the Smart Metering and Infrastructure (**SMI**) project.

Actual SAP-related Capital and Operating Initiative Expenditures, F2009-F2016

42. Table 1 below summarizes actual SAP-related project capital and initiative operating expenditures from F2009-F2016.³⁰ Project expenditures include projects, work programs and capital acquisitions.

Table 1: Summary of Total SAP-related Project Initiative Expenditures, F2009-F2016³¹

| | Capital (\$000) | Initiative Operating (\$000) | Total (\$000) |
|--|----------------------------|---|--------------------------|
| SAP-related Projects ³² | 144,044 | 24,097 | 168,141 |
| SAP-related Projects: Write-offs ³³ | 9,663 | 938 | 10,601 |
| Subtotal | 153,707 | 25,035 | 178,742 |
| SMI SAP-related ³⁴ | 18,300 | - | 18,300 |
| Total | 172,007 | 25,035 | 197,042 |

43. Initiative operating costs are those costs associated with implementing a project that are ineligible for capitalization under International Financial Reporting Standards (**IFRS**). For example, costs that are incurred during the Identification

²⁹ Consolidated Information Filing, page 15.

³⁰ F2009-F2016 is the period from adoption of the SAP Strategy to the fiscal year end before the Inquiry was established.

³¹ Table 1 of this final argument is a reproduction of Table 4 of the Consolidated Information Filing.

³² For an elaboration, see Table 2 of the Consolidated Information Filing.

³³ For an elaboration, see Table 3 of the Consolidated Information Filing.

³⁴ For an elaboration, see pages 20-21 of the Consolidated Information Filing.

phase of a project are typically expensed.³⁵ Other project-related activities that are typically classified as Initiative Operating are change management, training documentation, training and data conversion.³⁶

44. SAP-related project write-offs relate to certain Transformation Initiative Technology projects that did not proceed to implementation because they were cancelled or because they were deferred or re-scoped. See section 3.4 of the Consolidated Information Filing for a more detailed discussion of Transformation Initiative Technology projects.
45. The SMI project also incurred SAP-related expenditures which are shown separately because they were under separate governance and were not in the IT&T capital budget.³⁷
46. Table 2 below summarizes SAP-related project initiative expenditures by category (excluding the write-offs and SMI SAP-related expenditures).

Table 2: Summary of SAP-related Project Initiative Expenditures, F2009-F2016, by Category³⁸

| Category | Capital (\$000) | Initiative Operating (\$000) | Total (\$000) |
|--|-----------------|------------------------------|---------------|
| Platform | 20,486 | 732 | 21,218 |
| Customer | 11,661 | 1,730 | 13,391 |
| Financial | 20,119 | 3,364 | 23,483 |
| Financial & Human Resources (PeopleSoft decommissioning) | | 347 | 347 |
| Human Resources | 21,884 | 3,909 | 25,793 |
| Project & Portfolio Management | 22,419 | 4,996 | 27,415 |
| Supply Chain | 19,989 | 3,548 | 23,537 |
| Work and Asset Management | 27,486 | 5,471 | 32,957 |
| Total | 144,044 | 24,097 | 168,141 |

³⁵ Exhibit B-7, the response to BCOAPO IR 1.6.1. Please refer to pages 10-11 of BC Hydro's Information Technology Delivery Standard Practices (ITDSP), at Attachment 19 of the Consolidated Information Filing, for descriptions of the various phases of project delivery.

³⁶ *Ibid.*

³⁷ Consolidated Information Filing, page 20.

³⁸ Table 2 of this final argument is a summarised version of Table 2 of the Consolidated Information Filing.

47. In addition, BC Hydro incurred approximately \$74.6 million of SAP-related expenditures prior to the adoption of the SAP Strategy in F2009, comprised of \$55.9 million capital and \$18.7 million initiative operating.³⁹ Those expenditures related solely to the SAP Customer Care system implemented in 2003 that replaced BC Hydro's legacy Customer Information System, at that time over 30 years-old.⁴⁰
48. For context, non-SAP ERP-related project expenditures (PeopleSoft, PassPort, JD Edwards, Oracle, etc.) prior to F2009 are estimated to be in the range of \$150 million to \$200 million since the 1990s.⁴¹

Management Plan versus Actual SAP-Related Expenditures

49. Section 3.1.2 of the Consolidated Information Filing reports total planned and actual SAP operating and capital expenditures in each fiscal year over the period F2009-F2016 as related to the annual management plan of the OCIO.⁴² Section 3.1.2 is an update to the information BC Hydro provided in its April 2016 response to BCUC IR 1.6.2 (Exhibit A2-5).
50. With the exception of two years (F2011 and F2014), actual SAP-related operating expenditures were approximately the same as planned. The actual operating expenditures in F2011 were higher than the management plan due to higher costs for change management, data conversion and training activities related to implementation of the Project & Portfolio Management, Financials Systems Replacement and EMPower projects. The actual operating

³⁹ The information is considered approximate because there are limited records available given the length of time that has elapsed.

⁴⁰ Exhibit B-6, BC Hydro's responses to BCUC IRs 1.6.4 and 1.6.5.

⁴¹ Exhibit B-6, BC Hydro's response to BCUC IR 1.6.5.

⁴² A management plan is prepared annually and is separate and distinct from an RRA plan, which is a 'point in time' estimate prepared for a future test period prior to filing an RRA. In preparing a management plan, BC Hydro considers the applicable RRA plan, as well as external and internal factors including company-wide priorities, cost pressures, and project information such as scope, schedule and cost estimates. Thus, a management plan reflects adjustments made as a result of changed circumstances between the time the RRA plan is prepared versus when a management plan is prepared. See Exhibit B-7, the responses to BCOAPO IRs 1.7.2, 1.7.2.1, 1.10.1 and 1.10.2.

expenditures in F2014 were lower than planned predominantly due to the cancelled and deferred Transformation Initiative Technology projects.⁴³

51. With respect to actual SAP-related capital expenditures compared to the management plan, the variances are primarily attributed to changes to the priority and/or feasibility of projects in the context of value, risk and costs. As part of normal process, projects will be reprioritized as they progress through their life cycle and as a result the actual capital expenditures in any given fiscal period can vary quite significantly from the forecast. The lower capital expenditures compared to plan in F2009 and F2010 are not material. The lower expenditures in the F2011-F2014 period were predominantly driven by the Transformation Initiative Technology projects that were forecasted and subsequently deferred or cancelled. The lower capital expenditure in F2016 was primarily attributed to the delay of the Supply Chain Applications (**SCA**) project.

Deferred and Cancelled Transformation Initiative Technology Projects

52. As reported in Table 3 of the Consolidated Information Filing, during the F2009 to F2016 period there were two SAP-related projects that were deferred:

- Supply Chain Management, and
- Schedule Dispatch Mobility,

and three SAP-related projects that were cancelled:

- Work Management Foundational Technology,
- Customer Connections Foundational Technology and
- Asset Management Foundational Technology.

53. These five projects were Transformation Initiative Technology SAP-related projects intended to support a new operating model for the Transmission &

⁴³ Exhibit B-7, the response to BCOAPO IR 1.12.1.

Distribution business group.⁴⁴ The expectation at the time was that BC Hydro would implement these projects in SAP over a relatively short timeframe.

54. In late 2013, as a result of overall cost, complexity and resource requirements, BC Hydro's ET, under advisement of the Technology Governance and Transformation Oversight Committees, decided not to roll out the technology as part of one large project, but rather to implement the technology components of the Transformation Initiative in a phased rollout over a number of years to reduce risk. In light of the complexity, the view was that the number of internal resources and the amount of management attention required to implement the technology projects along with the significant amount of business change associated with it would be difficult to absorb, while a phased timeline would allow both the Transmission & Distribution group and the newly formed Supply Chain group to focus first on completing people and process changes and follow with technology once those changes were in place.⁴⁵ Thus, the deferrals and cancellations of these projects were primarily the result of the decision to delay and re-sequence a phased implementation of the respective technology components, not an overall decision to cancel implementation outright.⁴⁶
55. BC Hydro's expectations regarding when it would make investment decisions to implement the majority of Transformation Initiative Technology investments shifted to 2016 or later. The SCA project was one such project.⁴⁷
56. Without a firm date for implementing the cancelled projects, the decision was made to write off costs. The expected implementation of the two deferred projects was deemed to be more imminent and thus the costs incurred on those projects were not written off.⁴⁸

⁴⁴ Consolidated Information Filing, section 3.4.1, page 23.

⁴⁵ Exhibit B-8-1, Attachment 44-2 of the response to DIX IR 1.9.0; and Exhibit B-8, the response to DIX IR 1.18.0.

⁴⁶ See Consolidated Information Filing, section 3.4.2; Exhibit B-6, the response to BCUC IR 1.9.3; and Exhibit B-8-1, Attachment 44-2 to the response to DIX IR 1.9.0.

⁴⁷ Exhibit B-6, the response to BCUC IR 1.9.4.

⁴⁸ See Consolidated Information Filing, section 3.4.2. Figure 1 at page 24 in the Consolidated Information Filing depicts the timing of SAP-related projects in relation the Transformation Initiative.

Conclusions Regarding Scope Item 1

- From F2009 to F2016, BC Hydro spent \$197 million on SAP-related projects, including capital expenditures, initiative operating costs (ineligible for capitalization under IFRS), capital expenditures that were written off related to Transformation Initiative Technology SAP-related projects that did not proceed to implementation, and SMI project SAP-related expenditures.
- Non-SAP ERP-related project expenditures (PeopleSoft, PassPort, JD Edwards, Oracle, etc.) prior to F2009 are estimated to be in the range of \$150 million to \$200 million since the 1990s.
- During the F2009 to F2016 period, three Transformation Initiative Technology SAP-related projects were cancelled and approximately \$10 million of costs was written off.⁴⁹

Recommendations Arising from Conclusions Regarding Scope Item 1

BC Hydro suggests that no further action by the Commission is warranted in respect of Scope Item 1 given that:

- the Inquiry provided for in-depth review of BC Hydro's IT&T capital and initiative operating expenditures over the period from F2009 to F2016, and the Commission proceeding to review BC Hydro's F17-F19 RRA provided for in-depth review of BC Hydro's IT&T capital and initiative operating expenditures that are impacting revenue requirements in the F2017 to F2019 period;
- the Commission has ongoing oversight of BC Hydro capital projects and expenditures pursuant to BC Hydro's RRA filings, BC Hydro's annual reports to the Commission; project-specific compliance filings; and BC Hydro's major project filings for acceptance of expenditures pursuant to section 44.2 of the UCA; and
- Commission Project No. 3698877, Review of the Regulatory Oversight of BC Hydro Capital Expenditures and Projects, is considering issues related to the treatment and review of BC Hydro's capital projects and/or programs; review of the 2010 Capital Project Filing Guidelines for IT capital expenditures and specifically, whether separate IT capital project filing guidelines may be appropriate; review of the expenditure thresholds contained in the 2010 Capital Project Filing Guidelines; and review of UCA section 46(1) versus UCA section 44.2 filings.⁵⁰

⁴⁹ See Consolidated Information Filing, Table 3.

⁵⁰ All as more fully described in Commission Order No. G-63-16, Appendix B.

Scope Item 2

57. Scope Item 2 of the Inquiry is:

What are BC Hydro's approval and oversight controls and processes related to the authorization and governance of information technology capital expenditures and projects? Were these controls and processes appropriately designed and operating effectively with respect to management's review and oversight of SAP-related expenditures?

58. In Section 4 of the Consolidated Information Filing, BC Hydro summarized the evidence relevant to this scope item in the following sections:

- Section 4.1 provides an overview of the oversight of IT&T at BC Hydro;
- Section 4.2 reviews financial oversight and expenditure authorization policies and procedures;
- Section 4.3 reviews IT&T project delivery governance;
- Section 4.4 reviews the role of BC Hydro's Audit Services group in relation to continuous improvement of IT&T delivery processes;
- Section 4.5 summarizes project delivery governance over the F2009 to F2016 time period; and
- Section 4.6 provides observations on the effectiveness of financial oversight and project delivery governance for SAP-related projects over the F2009 to F2016 time period.

59. BC Hydro has rigorous, multi-layered approval and oversight controls and processes related to the authorization and governance of IT&T capital expenditures and projects. These controls and processes are well-designed and appropriate.

Oversight of IT&T at BC Hydro⁵¹

60. Board-level oversight of IT&T is provided by a Board committee.⁵² Board approval is not and never was required for BC Hydro management to adopt a specific product or approve a specific strategy.

⁵¹ See Consolidated Information Filing, section 4.1.

⁵² The ARMC of the Board (renamed the Audit and Finance Committee September 2011) provided oversight until April 2015 when Board-level oversight was transferred to the Customer Service,

61. Between F2009 and F2011, senior management level oversight was provided by an IT&T Governance committee, chaired by the CIO and including senior managers from the operating groups and corporate groups. The committee ensured that IT&T investments are prioritized, achieve business value, simplify processes, enable reliability and safety goals, and are achievable with minimal risk to the organisation.
62. In March 2011, the ET established a Technology Governance Committee, whose mandate included oversight of IT&T expenditures. This committee received periodic reports on portfolio health and the status of individual key projects beginning September 2011. The Technology Governance Committee approved the annual technology capital plan (not specific initiatives, projects or expenditures) until 2016, when this function was transferred to the full ET. As of 2016, IT&T projects over \$6 million were brought to the ET for review prior to advancing to the next development stage.
63. The response to BCUC IR 1.15.6⁵³ provides information about the composition, functions and responsibilities of the ARMC, CSOPC, the IT&T Governance Committee and the ET, in the context of IT&T over the period F2009 to F2016. The responsibilities of these Board and senior management-level committees are high-level oversight of risk management and strategies. These committees, as groups, do not have authority to approve financial transactions. The authority to approve financial transactions (i.e., expenditures) is reviewed in the next section.

Financial Oversight⁵⁴

64. The authority to approve financial transactions (i.e., expenditures) at BC Hydro is pursuant to the Corporate Policy Statement (**CPS**) Financial Responsibility

Operations & Planning Committee of the Board of Directors (**CSOPC**) which oversees IT&T expenditures through its review of quarterly reports from the CIO, including high level status update and portfolio level views of capital plan delivery, and key initiatives.

⁵³ Exhibit B-6.

⁵⁴ Consolidated Information Filing, Section 4.2.

Policy⁵⁵ approved by the Board of Directors. Board approval is required for any project exceeding \$50 million. The Board has delegated authority to the CEO and other officers and senior managers for financial decision-making up to specified limits as shown in Table 7 of the Consolidated Information Filing.

65. Financial approval is governed by the CPS Financial Approval Procedure,⁵⁶ which documents the authority assigned to BC Hydro employees to approve control documents including an Expenditure Authorization Request (**EAR**).
66. Specific financial approval authority is governed by Financial Approval Authority (**FAAP**) within the Management and Accounting Policies and Procedures (**MAPP**) 1.2.1B.2.⁵⁷ Between 2009 and the present, there have been no significant changes to the CPS or MAPP. Overall financial governance has stayed constant.
67. BC Hydro's MAPP 4.1.1B.1 Business Case Requirements outline the requirements for each business case.⁵⁸ A business case is required for any project (or initiative) greater than \$1 million requiring investment, expenditure or commitment that has significant impact on business operations, creates material risk, and/or where there are credible alternatives to a recommended course of action.⁵⁹
68. For IT&T projects, a business case and EAR is required for every project (including projects with total costs under \$1 million). The level of information required for projects under \$1 million is generally lower.
69. In the responses to BCUC IRs 1.16.1 through 1.16.5, BC Hydro provided further information concerning business case requirements. In particular, further details were provided on the factors used in business cases to assess recommended/default options against credible alternatives. The decision-

⁵⁵ Consolidated Information Filing, Attachment 11.

⁵⁶ Consolidated Information Filing, Attachment 12.

⁵⁷ Consolidated Information Filing, Attachment 13.

⁵⁸ Consolidated Information Filing, Attachment 14.

⁵⁹ Consolidated Information Filing, Attachment 14, pages 1-3.

making process in the business case includes a consequence table in which all criteria (benefits, strategic alignment, risk and cost) are identified and alternatives scored on these criteria. Overall assessment is made using best judgement to weigh cost and risk against benefit and strategic fit for each alternative. The initial assessment is made by the project team including business and technology stakeholders, and reviewed by the Steering Committee and other governance bodies as required. All credible alternatives analysed in this way are recorded in the Definition phase business case.

70. The MAPP 4.1.1B.1 Business Case Requirements also defines the roles and responsibilities of project stakeholders in relation to the business case. For example, the Project Initiator is responsible for preparing the business case and reviewing the business case during implementation to ensure it remains current, and the Project Sponsor is ultimately accountable for the project, operationalization of the project's outcomes and realization of the project's benefits.
71. The EAR is a control document used for authorization of expenditures and commitments over \$100,000. For expenditures below this level, a hard copy document with limited project details must be created for review and approval within the specific business group. The documentation required at this level is left to the discretion of the business group Finance Director.
72. An EAR is required for each identifiable project and is required to commence the Definition Phase of the project,⁶⁰ except that for most IT&T projects an EAR is required at the earlier Identification phase of the project. An EAR revision is required where there is a project scope change (cancellation, write-off, expenditure overrun, or draw on the project reserve).
73. In the responses to BCUC IRs 1.17.1 to 1.17.10, BC Hydro provided further details concerning the preparation, use and life-cycle of EARs. In particular,

⁶⁰ Consolidated Information Filing, Attachment 15. In general, costs incurred for the Identification Phase of a project cannot be capitalized; and do not require an EAR unless they are expected to exceed \$2 million.

validating the assumptions and forecasts included in the business case that gave rise to the EAR is the responsibility of the Project Sponsor, Project Initiator, and Technology and Business Owners. The Finance Director is responsible for the execution of sufficient and appropriate accounting or financial due diligence on all funding requests. The Finance group ensures the cost estimate and contingencies have been properly prepared and reviewed per the estimating practices.

74. Once the EAR is fully approved and funds are released, the project code is created in SAP with the approved authorized funding amount, and with other key project attributes based on the approved EAR. Thereafter, both summarized and detailed project reporting is prepared on a monthly basis to ensure adherence to the established authorized funding for the project. The response to BCUC IR 1.17.5 describes the structure for tracking and project reporting over the life cycle of an EAR.
75. Project Completion and Evaluation Reports (**PCERs**) are used to show how a project was managed to completion in terms of scope, cost and schedule, and to provide an evaluation of the impacts and realized benefits. The PCER policy was promoted as a MAPP document in F2012. The requirement for a PCER depends on project cost, except that since 2013 a PCER is completed for each IT&T project.⁶¹ The PCER is completed by the Project Manager and is signed off by the Project Initiator, Project Sponsor, external Review Team and the Benefits Recipient(s).⁶²
76. The Business Case, EAR and PCER requirements provide a rigorous framework for the approval, monitoring and review of project expenditures.

⁶¹ In Exhibit B-8, the response to Dix IR 1.16.0, BC Hydro produced EARs and Business Cases and, where applicable, PCERs, in relation to each of the SAP-related projects listed on pages 16-20 of the Consolidated Information Filing.

⁶² The roles and responsibilities of these individuals and teams are defined in Attachment 17 to the Consolidated Information Filing.

IT&T Project Delivery Governance⁶³

77. IT&T project governance is performed through key roles on the project. Since 2009, all major projects have had a Project Sponsor, Project Manager and Steering Committee. More complex projects may have a Working Group and Business Advisory Team. Each of these roles is defined in BC Hydro's Project Management Guidelines for Technology Projects (6D.105)⁶⁴ and summarised in section 4.3.1 of the Consolidated Information Filing.
78. BC Hydro manages IT&T projects using consistent project delivery practices as set out in the Information Technology Delivery Standard Practices (**ITDSP**) and Tailoring Guidelines (6D.103).⁶⁵ The practices are built on the phases of the project life cycle: Identification, Definition and Implementation. Each of the phases concludes with a "Gate Review" with a go/no go decision to recommend approval of funding for the next phase of the project.
79. ITDSP provides a standard framework for delivering IT&T projects. All IT&T projects are required to follow ITDSP and exceptions require formal approval from BC Hydro's Technology Project Management Office (**Technology PMO**).
80. The Gate Review at the end of each project phase is the ultimate control point for scope, schedule, quality and risk, as all of these aspects are reviewed on standardized criteria before the project will be allowed to proceed to the next phase.
81. Gate Reviews involve examining the key project deliverables at the gate being reviewed, and verifying that the proposed project solution remains aligned with the stated project business drivers and that the gate requirements have been met.
82. In addition to governing the Gate Reviews in accordance with ITDSP, the Technology PMO sets standards for IT&T project delivery, and reviews

⁶³ See Consolidated Information Filing, section 4.3.

⁶⁴ See Consolidated Information Filing, Attachment 18.

⁶⁵ See Consolidated Information Filing, Attachment 19.

standardized monthly project status reports, monthly financial reports and schedule variance reports. For example, the Technology PMO reviews the monthly reports and identifies any overspent projects and initiates corrective actions in response to any project overspend.

83. The ITDSP framework and Project Management Guidelines address aspects of quality by requiring all projects to prepare testing strategies and plans. Testing includes user acceptance testing to ensure business expectations are met. More complex projects may have Quality Assurance Leads assigned and accountable for developing and steering quality, as well as reporting to the Steering Committee.
84. The Technology PMO conducts annual quality reviews of active projects and assesses the performance of Project Managers. Annual quality reviews follow established criteria and a scoring mechanism is in place to assess compliance with the delivery framework. An action plan to address the findings of the annual quality review is established. In addition, external organizations are engaged for additional quality reviews (e.g., project delivery quality, or design quality) on complex projects. The Technology PMO also governs the Sustainment Handover Technical Review to ensure that the solution developed by the project is properly transitioned into the relevant BC Hydro organization(s).
85. In relation to risk, all projects are required to create and maintain a risk register to allow project team members to understand and address key risks for the project. Project Managers are responsible for the risk register, risk treatment plans, and for reporting on project risks. The standardized monthly status reports require Project Managers to report on the top three to five risks, along with issue resolution for each risk identified. This is reviewed as a standing agenda item in Steering Committee meetings or with the Project Initiator and Sponsor.

86. BC Hydro's response to BCUC IR 1.15.5⁶⁶ details the mechanisms, controls and structures in place over time to ensure compliance with IT&T policy, processes and standards. The response provides a chronology of the development of the major controls and responsibilities described in section 4 of the Consolidated Information Filing, which included introduction of monthly financial IT reporting (2008-2009), major update of ITDSP (March 2009) introducing hard and soft Gate Reviews, and a major release of ITDSP increasing the rigor and prominence of Gate Reviews (March 2013).
87. BC Hydro's responses to BCUC IRs 1.21.1 and 1.21.2⁶⁷ provide further details relating to controls and measures used to manage and track scope, schedule, quality, cost and associated risk, and the frequency of controls and measures being tracked and reported on, readership of the reports, and thresholds for triggering action/escalation. Project Managers have responsibility for managing the project scope, schedule and budget to meet the approved business case, to report significant changes to the Project Sponsor and Project Initiator, and to formally seek direction if the project schedule or objectives (including scope and cost) cannot be maintained with approved resources.
88. A Project Level Change Notice (**PLCN**) will be required for changes that impact the project scope, materially impact the project schedule, or that would require the use of contingency funds identified in the Business Case/EAR. PLCNs must be reviewed with the Technology PMO advisor and approved by the Project Initiator.⁶⁸
89. A Business Case/EAR revision will be required where a change impacts the overall business benefits stated in the approved business case or impacts the budget stated in the approved Business Case/EAR. The approval process followed for the original Business Case/EAR must be followed for any revision.

⁶⁶ Exhibit B-6.

⁶⁷ Exhibit B-6.

⁶⁸ Exhibit B-6, the response to BCUC IR 1.21.1.

90. Additionally, BC Hydro's Audit Services group conducts periodic audits of compliance with IT&T delivery processes and adherence to solutions delivered by projects.⁶⁹ Management considers and adopts the audit recommendations as appropriate as part of a continuous improvement approach.
91. For example, the 2012 audit of the EMPower project resulted in a more prominent role and increased staffing for the Technology PMO, increased focus on project delivery standards and controls, and the 2013 revision of ITDSP resulting in overall better control and performance of IT&T projects.⁷⁰
92. ITDSP underwent a major revision in 2013 to align with the standard BC Hydro Project Management Procedure and PPM lifecycle. Since then, the Technology PMO and IT&T management at BC Hydro has made further improvements to project delivery. In 2015 an internal audit reviewed IT&T planning, governance and project delivery. The overall conclusion of the audit report, regarding governance, was:
- “Governance over IT investment spending and project delivery is appropriate with a defined strategy and layered governance structure. Key improvement areas relate to establishing a benefit realization process, updating roles and responsibilities and documenting key decisions.”⁷¹
93. With respect to project management and delivery, the audit report concluded that “[a] robust and managed project delivery process is in place which includes an established framework, monitoring mechanisms and a compliance function.”⁷²
94. In summary, BC Hydro's IT project delivery governance processes are designed appropriately to provide a standardized, detailed and rigorous project

⁶⁹ Consolidated Information Filing, section 4.4.

⁷⁰ A copy of the 2012 audit reports (Management Report and Summary Report) regarding the EMPower project's compliance with BC Hydro's project development standards can be referred to at Attachments 20 and 21 of the Consolidated Information Filing. The follow-up report to the 2012 audit is at Attachment 22.

⁷¹ See page 5 of Attachments 23 of the Consolidated Information Filing.

⁷² *Ibid*, page 10.

management system, with a layered structure, frequent reporting and review procedures and go/no go Gate Reviews at the end of each project phase.

Effectiveness of Controls and Governance Processes

95. Scope Item 2 of the Inquiry includes consideration of whether the above-detailed financial controls and governance processes were operating effectively. Sections 4.5 and 4.6 of the Consolidated Information Filing review the effectiveness from F2009 to the present.
96. In the early part of the time period reviewed, the version of ITDSP in effect was complex and there were limited resources in the Technology PMO (there was only one person in the Technology PMO working on implementing project delivery standards), which meant that there was limited oversight of compliance. In most cases, successful project outcomes were delivered; however, there were numerous minor and a few major occurrences of non-compliance with governance and oversight standards and policies.⁷³
97. A concerted effort was made in F2013 to improve IT&T project governance standards and compliance.⁷⁴ The management response to the 2012 audit of the EMPower project⁷⁵ resulted in more staffing and a more prominent role for the Technology PMO, increased focus, and the 2013 revision of ITDSP. Since then, a more robust and managed project delivery process has been in place.
98. Table 9 in section 4.6 of the Consolidated Information Filing provides, for each of BC Hydro's SAP-related projects from F2009 to F2016, a summary of comments and any issues identified in relation to compliance with financial policies and controls, and project delivery standards (i.e., ITDSP). The projects in Table 9 are ordered chronologically by their start date. The evolution of effectiveness of IT&T project governance and oversight to the current state, as

⁷³ Consolidated Information Filing, section 4.5.2 and Table 9. The few major occurrences of non-compliance were in the PSW and Transformation Initiative Technology projects in the F2011-F2013 timeframe.

⁷⁴ Consolidated Information Filing, section 4.5.3.

⁷⁵ Consolidated Information Filing, Attachments 20 - 22.

discussed in the paragraphs above, is reflected in the table; that is, there has been demonstrated considerable improvement in standards and policy performance over this time period.

99. In its responses to BCUC IRs 1.23.1 and 1.23.1.1,⁷⁶ BC Hydro provided a Table 9A to supplement the original Table 9. Table 9 in the Consolidated Information Filing and Table 9A in the response to BCUC IR 1.23.1.1 demonstrate that in most cases, successful project outcomes were delivered and that after early F2013 the majority of SAP-related projects have been compliant with financial controls and project delivery has been robust and well-managed. In particular, projects initiated after early F2013 show almost total compliance with both financial controls and project delivery governance standards.

Conclusions Regarding Scope Item 2

- BC Hydro's approval and oversight controls and processes relating to the authorization and governance of information technology capital expenditures and projects are appropriately designed.
- Overall, BC Hydro's financial control policies have remained constant from F2009 to F2016.
- Project governance processes have been updated over the period and staffing has been increased to provide overall better control and performance of IT&T projects as part of a continuous improvement approach.
- BC Hydro undertook periodic audits of IT&T project alignment to governance policies and management appropriately responded to the audit recommendations by implementing improvements.
- With these updates and improvements, after early F2013 BC Hydro has been rigorously applying high standards in project governance, approval and oversight controls and the vast majority of BC Hydro IT&T projects have met the high standards.

⁷⁶ Exhibit B-6.

Recommendations Arising from Conclusions Regarding Scope Item 2

BC Hydro suggests that no further action by the Commission is warranted in respect of Scope Item 2 given that:

- BC Hydro has a record of delivering successful project outcomes for its IT&T projects;
- BC Hydro's approval and oversight financial controls and project delivery governance processes for the authorization and governance of IT&T projects and expenditures are rigorous;
- After early F2013 the vast majority of BC Hydro's SAP-related projects have been fully compliant with financial controls and project delivery has been robust and well-managed; and
- BC Hydro will continue to undertake periodic audits related to IT&T and management will address any recommendations as part of a continuous improvement approach.

Scope Item 3

100. Scope Item 3 of the Inquiry is:

Have the goals outlined in BC Hydro's Information Technology and Telecommunication (IT&T) Five-Year Plan related to SAP initiatives been achieved?

101. In Section 5 of the Consolidated Information Filing, BC Hydro summarized the information relevant to this scope item in the following sections:

- Section 5.1 reviews the goals described in the IT&T Plan and assessed the applicability to, and outcome of, the SAP Strategy and initiatives in relation to those goals; and
- Section 5.2 summarizes key accomplishments associated with the implementation of SAP projects across major functional areas, in reference to applicable aspects of the IT&T Plan.

102. The goals of the IT&T Plan are being achieved. BC Hydro has taken an incremental approach to consolidating its ERPs, with each individual project undergoing business process design and business functional requirements prior to approval and implementation. The key advantage of the approach is that BC Hydro can optimize implementation by focusing on areas as business priorities change and by managing the extent of change introduced to the organization at one time. The approach has simplified overall IT&T operations by reducing the use of products with overlapping and/or redundant functionality. BC Hydro is well on the way to achieving a common and clear information system and 'single source of truth' with high quality and satisfaction within business groups, while containing IT&T operating costs.

IT&T Plan Goals and Applicability to SAP

103. BC Hydro filed its F2011 RRA with the Commission on March 3, 2010, which included BC Hydro's IT&T Five-Year Plan.⁷⁷ The IT&T Plan is not an SAP plan and it is not the same thing as the SAP Strategy. Further, the IT&T Plan did not

⁷⁷ Consolidated Information Filing, Attachment 10.

represent or describe a single project or program. The IT&T Plan set out strategic intents, goals and targets relating to a transformation of all IT&T within BC Hydro and the development of technology solutions to support and enable BC Hydro's business needs, based on the principle of "One Hydro".

104. Table 10 of the Consolidated Information Filing set out the eight goals of the IT&T Plan, the targets related to those goals and the applicability of each goal to the SAP Strategy,⁷⁸ and is reproduced below.

| IT&T Plan Goal | Targets | Applicability of Goal to SAP Strategy |
|--|---|---|
| 1. Enterprise-wide investment decision making focused on BC Hydro Priorities | Single, enterprise-wide investment plan and governance group | Not applicable – this goal relates to the implementation of processes and governance to improve planning, generally, for IT&T |
| 2. Simplified Integrated Applications with SAP as the Core | < 300 Applications < 50 databases SAP as ERP | This goal and the 'SAP as ERP' target are applicable – discussion follows below |
| 3. Business Satisfaction | TBD % | Partially applicable – discussion follows below |
| 4. Virtualized and controlled environment for lower cost and improved responsiveness | 75% virtualization of storage and servers 1 PC per office worker < 10 PC images | Not applicable—this is unrelated to the SAP strategy |
| 5. Integrated end-to-end services with 3-4 key IT Service Providers | > 85% of external spend on strategic suppliers | Not applicable – this is unrelated to the SAP strategy |
| 6. Clear information architecture and 'single source of truth' with high quality | Information architecture established meta data model deployed | Partially applicable – discussion follows below |
| 7. Lower cost of IT | 30% reduction of IT&T OMA as a % of BC Hydro OMA | Partially applicable – discussion follows below |
| 8. Predictable IT project delivery | 90% on-time, on -budget, on-scope of top priority pieces | Not applicable – this goal relates to the implementation of IT&T project delivery processes and governance, generally |

⁷⁸ See specifically pages 52-53 of the Consolidated Information Filing.

105. BC Hydro's responses to BCUC IRs 1.27.1 through 1.27.8⁷⁹ provide further explanation as to why goals 1, 4, 5 and 8 of the IT&T Plan are not applicable to the SAP Strategy.
106. Sections 5.1.1 through 5.1.4 of the Consolidated Information Filing review the extent to which the SAP Strategy helped achieve the targets for IT&T Plan goals 2, 3, 6 and 7.
107. With respect to Goal 2 - Simplified Integrated Applications with SAP as the Core – implementing business capabilities and processes in fewer than one integrated system was assumed to allow disparate systems to be decommissioned, resulting in reduced cost, and enable the improvement of business processes due to the integrated nature of ERP software. BC Hydro has implemented many major business functions in SAP, and in most cases the implementation of these projects allowed another system to be decommissioned simplifying the application environment. BC Hydro has decommissioned PeopleSoft (both Financials and HR), JD Edwards and Oracle.⁸⁰
108. With respect to Goal 3 - Business Satisfaction – the goal was to improve the general satisfaction of BC Hydro business stakeholders with IT&T systems and services. The SAP Strategy helped to achieve this goal. There is general business satisfaction with the SAP systems in place, demonstrated by the effectiveness of support to business activities, the high reliability and scalability of the systems and the stability of SAP for critical business transactions. For example, BC Hydro has never missed a customer billing cycle, payroll cycle or financial reporting cycle.
109. In response to BCUC IR 1.5.1,⁸¹ BC Hydro further explained how the SAP investments have successfully contributed to the IT&T Plan goals, including effective support for BC Hydro's external customers and internal business

⁷⁹ Exhibit B-6.

⁸⁰ Exhibit B-6, response to BCUC IR 1.25.1.

⁸¹ Exhibit B-6.

groups, IT&T operational reliability being consistently high on standard metrics, the stability of ERP operating budgets since F2009 and project and program successes.

110. Additionally, Mr. Chris O'Riley in his witness statement expressed a high level of business satisfaction with both the Financial Systems Replacement (**FSR**) Project, which implemented SAP Financials, and the Project and Portfolio Management (**PPM**) Project, which implemented project management functionality in SAP.⁸²
111. With respect to Goal 6 - Clear Information Architecture and 'Single Source of Truth' with High Quality – the goal was to improve business processes by applying the 'single source of truth' principle. A single source of truth can be achieved by the implementation of integrated ERP systems on a common technology standard. The integrated nature of SAP ERP systems provides for common definitions of business entities and a common repository for such data.
112. For example, prior to the implementation of project management functionality in SAP, via the PPM Project, high level project information was stored in PeopleSoft and detailed project costs were maintained in different in-house systems, causing effort, on a monthly basis, to reconcile between systems. Following the PPM Project, SAP is the single source of truth for project structures and costs for BC Hydro. Goal 6 has been successfully achieved for each major business function migrated to SAP: all financial transactions; all project structures and costs; all distribution work orders and their costs; all employees and their cost centres and work centers; all time entries and pay transactions; all vendors and related invoices; all electric meters; and all residential and commercial customers and most of their related data is in SAP as a single source of truth.

⁸² Exhibit B-12, witness statement of Mr. Chris O'Riley, answers to questions 1 and 4.

113. In response to BCUC IR 1.27.6,⁸³ BC Hydro confirmed that the “high quality data” component of this goal has been partially achieved. By leveraging a consolidated ERP system in SAP BC Hydro has alleviated some of the data management challenges associated with an otherwise highly fragmented IT landscape; however, further work remains within both ERP-related and non-ERP initiatives to further advance BC Hydro’s capabilities in regards to data quality and business intelligence. BC Hydro views this goal through a ‘continuous improvement’ approach.

114. With respect to Goal 7 - Lower cost of IT - this goal envisioned IT&T operating costs being reduced as a percentage of BC Hydro operating costs. This goal is partially related to the SAP Strategy in that there was an expectation that by decommissioning disparate systems, operational cost savings could be achieved.

115. The IT&T Plan referenced a cost reduction of \$9.3 million, and as set out in BC Hydro's response to BCUC IR 1.275.3 in the F2011 RRA proceeding, \$4 million of the \$9.3 million reduction in IT&T operating costs were related to reduced software and application maintenance costs,⁸⁴ which are partly applicable to SAP initiatives. In response to BCUC IR 1.27.5,⁸⁵ BC Hydro noted that it is not able to provide specific accurate dollar savings information attributable to SAP investments as such information has not been tracked historically, and that the type of benefits and reductions that IT&T projects can deliver are as follows:

- Direct benefits which result in financial savings to the organization (e.g., headcount reductions, support cost reductions);
- Indirect benefits (e.g., cost increase avoidance, productivity savings that result in staff saving a small portion of time each day which can then be used for other tasks); and

⁸³ Exhibit B-6.

⁸⁴ The response from the F2011 RRA proceeding is provided at Attachment 25 of the Consolidated Information Filing.

⁸⁵ Exhibit B-6.

- Improved operational capability and risk mitigation to support corporate goals (e.g., reliability, extended life for utility assets, safety and compliance related business objectives).

116. In response to BCUC IR 1.27.1, BC Hydro provided operating and capital costs for the OCIO for the period F2010-F2016 as a metric to track success. This showed generally constant operating expenditures from F2012-F2016 (after a rise from F2010-F2012 reflecting the consolidation of previously de-centralized IT&T groups into the OCIO over that period). In the context of rising requirements, this is demonstrative of operating cost containment.

117. In IR 1.13.0 to BC Hydro, the Commission asked questions about the following statement from the FSR Project Implementation phase business case.⁸⁶

... once fully implemented the SAP ERP will result in a simplified IT landscape that will enable a reduction in total IT spending that would not otherwise be achievable in a complex multi ERP environment ...

The anticipated reduction in future IT spending associated with a single vendor IT environment (the SAP solution) relates to lower future costs for development, sustainment, and maintenance of BC Hydro's enterprise applications. It is also expected that the new SAP systems will have minimal customization which will in turn lower the ongoing development and sustainment costs. The potential savings will increase as BC Hydro commits to invest in future phases of the SAP program as these future phases will ultimately combine with this Project to create a fully integrated IT environment.

118. BC Hydro provided⁸⁷ a summary of base IT operating expenditures to highlight that consolidation of the ERP system has enabled BC Hydro to maintain its application support budgets at approximately the same level as in prior years, while increasing functionality and support to the business, demonstrating the following:

- BC Hydro has essentially contained its ERP-related base operating costs while simultaneously increasing the scope of the ERP functionality deployed.

⁸⁶ Tab Z of Exhibit A2-2.

⁸⁷ Exhibit B-6, the responses to BCUC IRs 1.13.1 and 1.13.2.

- Greater scope is being supported while costs have remained stable indicating an IT support productivity benefit.
- ERP solutions are more extensive than the systems that were replaced, for example, the PPM solution has much greater capabilities for scheduling, forecasting and reporting, while the EMPower HR solution has extensive new capabilities to support recruiting and self-service business processes.

119. BC Hydro believes that consolidation of its ERP system in SAP has been successful in terms of supporting increased business requirements with a flexible and highly reliable platform, and from both operating cost containment and productivity perspectives. It is BC Hydro's view that continuing to use multiple ERPs (including continuing with PeopleSoft for Financials) would have been more costly over the long term given the technical and business complexities.⁸⁸

Summary of Key Successes with SAP Initiatives

120. The implementation of SAP solutions across the major functional areas has delivered numerous positive outcomes, such as:⁸⁹

- **Customer Care:**
 - The Customer module replaced an obsolete heritage system that had significant problems, and which could have resulted in any or all of the following: system crashes that would render BC Hydro unable to bill customers, errors in customer bills and accounts, as well as an inability to implement new rate structures and system changes.
- **Financial:**
 - The FSR project implemented all planned financial, reporting, and control functions in SAP in F10/F11. In addition, as a result of implementing the EMPower project and the FSR project, BC Hydro was able to decommission its PeopleSoft systems. Reducing the number of applications is one of the stated benefits of the SAP strategy.
 - Implementation of the Financials module delivered a fully up-to-date Enterprise class Financials system (SAP) and the capability to

⁸⁸ *Ibid.*

⁸⁹ As more detailed in section 5.2 of the Consolidated Information Filing.

support a variety of existing and emerging internal and external financial reporting requirements (original PeopleSoft was not able to handle the adoption of IFRS and the BCUC Uniform System of Accounts (**USoA**), whereas SAP financials was able to handle both). The up-to-date platform enabled future financial requirements and the ability to adapt to business changes; for example, re-integration of BCTC into BC Hydro in 2010, and other corporate reorganizations as needed.

- **Project and Portfolio Management:**

- BC Hydro's investment in PPM, including the SAP project management module, has been critical to the successful delivery of BC Hydro's capital plan;⁹⁰
- The PPM project, in conjunction with the FSR project, provides a consistent best practice foundation from which to manage engineering construction projects that comprise a significant portion of BC Hydro's \$2.4 billion per year capital plan. All projects have detailed schedules that are resource loaded and are progressed systematically on a monthly basis, and there is an improved ability overall to manage scope, schedule, cost and quality; and
- The SAP Business Warehouse provides an integrated data repository for project and portfolio dashboard reporting.

- **Human Resources:**

- In F2011 the EMPower project was implemented to provide the majority of BC Hydro's human resources and payroll systems functionality in SAP. This replaced multiple and non-integrated systems, including PeopleSoft HR that were at the end of their useful life and which would have required significant application support and costs for sustainment.
- The new self-service system for employees and managers has removed administrative bottlenecks and provided automation to processes so employees and managers spend less time on administrative and transactional tasks.

- **Supply Chain:**

- The Supply Chain Management project, Supply Chain Solutions – SAP, and Supply Chain Solutions – SAP Meters projects implemented many foundational business functions. Electric meters, for example, are fully managed and tracked as materials and assets

⁹⁰ See Exhibit B-12, witness statement of Mr. Chris O'Riley, page 10.

in SAP as a result of these projects, and they are directly linked to work orders and customer records.

- **Work and Asset Management:**

- PSW, Work Management Technical Readiness, and the Distribution Work Scheduling projects, in summary, established SAP as a single source of truth for Distribution work orders. The majority of these work orders are also planned, scheduled, closed, and reported on via SAP.

121. In addition to providing reliable support for increased business requirements, the SAP solutions have enabled BC Hydro to avoid the complexity and expense of continually upgrading, customizing and supporting multiple different software programs that were increasingly unable to adapt to changing requirements. PeopleSoft Financials, PeopleSoft HR, JD Edwards, BCTC's Oracle system, and many other custom systems have been decommissioned, and BC Hydro is no longer incurring expenditures to maintain those applications. BC Hydro has simplified its overall IT&T operations by reducing the use of products with overlapping and/or redundant functionality.

Conclusions Regarding Scope Item 3

- The goals of the 2009 IT&T Five-Year Plan applicable to the SAP Strategy are being achieved. BC Hydro recognizes that not all of the original goals were fully achieved within the original Five-Year timeframe because prudent adjustments were subsequently made to align with emerging business priorities and to manage delivery risks. As described under Scope Item 1 above, significant adjustments were made to the Transformation Initiative Technology projects to reduce implementation risks.
- The adoption of SAP as the default ERP solution and the implementation of SAP initiatives are helping BC Hydro to meet its strategic intents, goals and targets. In addition to providing reliable support for increased business requirements, this includes containment of IT operating costs in the context of rising requirements, common and clear information architecture with a single source of truth, simplified integrated applications and satisfaction within the business groups, each of which was a goal of the IT&T Plan.
- Continuing to use multiple ERPs (including continuing with PeopleSoft for Financials) would have been more costly over the long term given the technical and business complexities.

Recommendations Arising from Conclusions Regarding Scope Item 3

BC Hydro suggests that no further action by the Commission is warranted in respect of Scope Item 3 given that the goals of the 2009 IT&T Five-Year Plan applicable to the SAP Strategy are being achieved.

Scope Item 4

122. Scope Item 4 of the SAP Inquiry is:

What is BC Hydro's planned capital spending on the adoption of the SAP platform and independent SAP projects on a go-forward basis?

123. In Section 6 of the Consolidated Information Filing, BC Hydro provided its 10-Year Capital Forecast F2017-F2026 for SAP-related investments in the following sections:

- Section 6.1 provides an overview of the major focus areas planned for SAP-related investments over the F2017-F2026 period.
- Section 6.2 provides a summary of the forecast capital and operating expenditures over the period F2017-F2026.

Overview of the major focus areas planned for SAP-related investments

124. The primary focus areas for SAP-related expenditures over the F2017-F2026 period are the customer service, supply chain, and work and asset management business functions.

125. The short-term focus is on two projects currently underway:

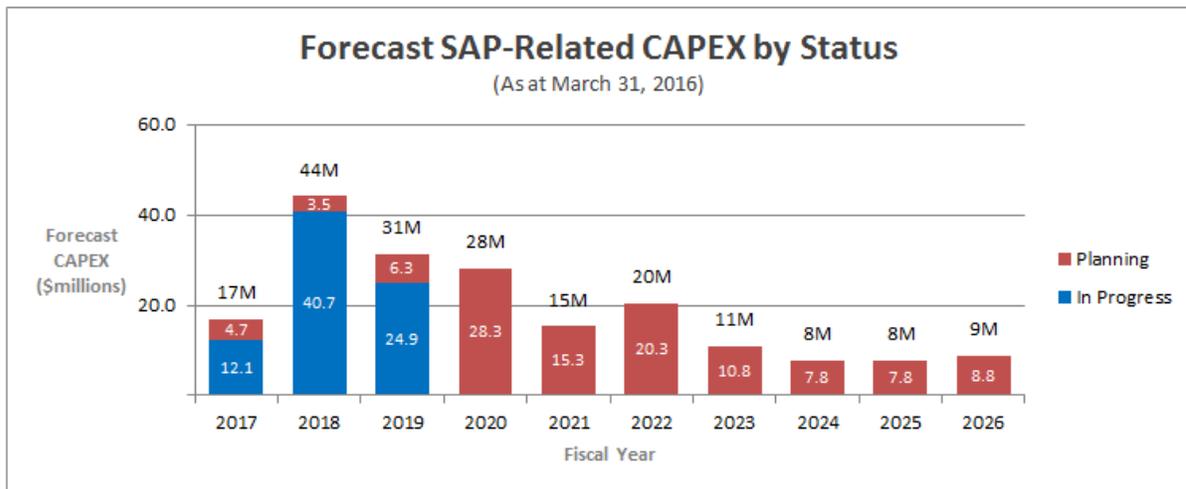
- The Enterprise Billing Infrastructure project is anticipated to upgrade the bill generating and delivery infrastructure and provide enhancements to the paper and online bills and the call centre view. This project is part of a broader BC Hydro priority to make it easier for customers to do business with BC Hydro.
- The SCA project involves the design and implementation of new business processes and IT to support the acquisition of materials and services from third-parties. BC Hydro filed its SCA project application with the Commission on December 21, 2016, seeking acceptance of the capital expenditures up to the end of the Definition phase for the project. Pursuant to Order No. G-158-17 the Commission determined that the work required to the end of the Definition phase of the SCA project is in the public interest, and accepted capital expenditures ranging from \$22.5 million to \$29.7 million required to complete such work.

126. Following completion of the projects above, work and asset management will be the primary focus area. There will also be recurring SAP enhancements and upgrades to maintain technical currency and system health.

Forecast Capital Expenditures F2017-F2026

127. Figure 1 below shows the total forecast SAP-related capital expenditures in F2017-F2026 by status (in progress or planned).

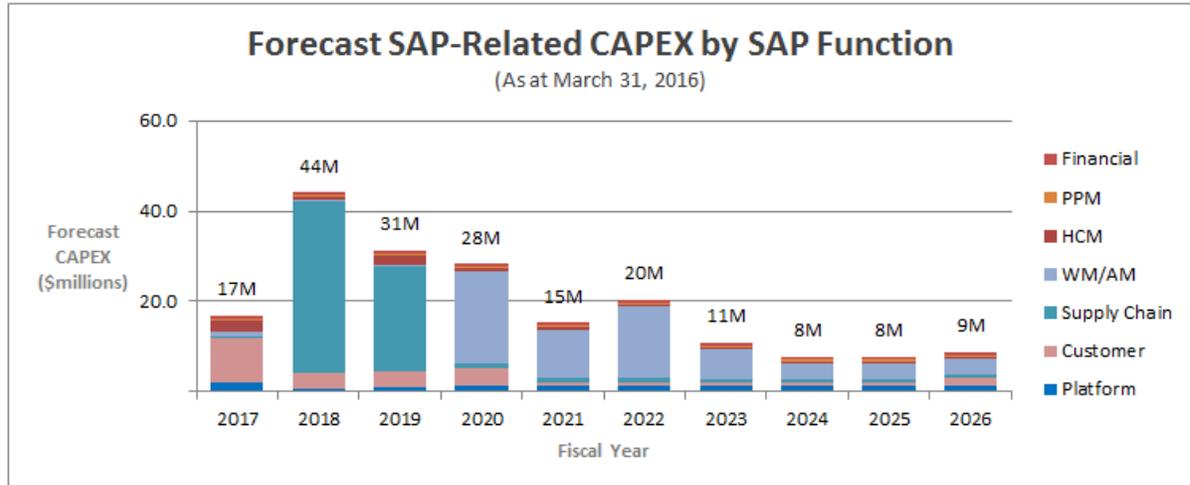
Figure 1 Forecast of In Progress and Planned SAP-related Capital Expenditures, F2017-F2026⁹¹



⁹¹ Consolidated Information Filing, Figure 3.

128. Figure 2 below shows the total forecast capital expenditures in F2017-F2026 by functional area/module.

Figure 2 Forecast of SAP-related Capital Expenditures by Functional Area, F2017-F2026⁹²



129. Table 3 below provides a summary, by functional area, of the forecast SAP-related capital and operating expenditures for in-progress and planned projects and programs over the forecast periods F2017-F2019 and F2017-F2026, as at March 31, 2016.

130. Note that reported forecast amounts represent the plan forecast at a point in time and exclude prior year expenditures. Plans can change for various reasons, including in response to new or changing business needs and priorities, changes to project scope, and the refinement of cost estimates based on Identification and Definition phase work. In addition, early project cost estimates are uncertain, especially during pre-Identification stage work.

⁹² Consolidated Information Filing, figure 4.

Table 3 Forecast SAP-related Expenditures F2017-F2026 for Planned and In-Progress Projects⁹³

| Category | RRA F2017-F2019 | | | 10 Year Forecast F2017-F2026 | | |
|-----------------------------------|-----------------|-----------|---------|------------------------------|-----------|---------|
| | Capital | Operating | Total | Capital | Operating | Total |
| \$000 | | | | | | |
| Platform | 3,880 | 570 | 4,450 | 13,505 | 570 | 14,075 |
| Customer | 16,323 | 1,365 | 17,688 | 25,923 | 2,165 | 28,088 |
| Finance | 1,857 | 111 | 1,968 | 6,057 | 356 | 6,413 |
| Human Capital Management | 5,422 | 569 | 5,991 | 8,572 | 569 | 9,141 |
| Project and Portfolio Management | 868 | 0 | 868 | 4,018 | 0 | 4,018 |
| Supply Chain | 61,704 | 6,225 | 67,929 | 67,404 | 6,225 | 73,629 |
| Work Management /Asset Management | 2,182 | 1,542 | 3,724 | 65,682 | 9,442 | 75,124 |
| Total | 92,236 | 10,382 | 102,618 | 191,161 | 19,327 | 210,488 |

131. As at March 31, 2016, planned and in progress SAP-related capital expenditures in the fiscal years 2017 to 2026 were estimated to be \$191 million, requiring an estimated \$19.3 million in operating expenditures over this period related to overall implementation.⁹⁴

⁹³ This is a summary of Table 11 in the Consolidated Information Filing.

⁹⁴ Information Technology capital projects, including SAP-related projects, typically require operating funding for activities with costs that cannot be capitalized; this funding is needed for activities such as early stage planning, project identification, analysis of alternatives, requirements analysis, change management, training, and data migration. These planned operating expenditures typically account for 5 to 10 per cent of total Technology operating expenditures in any period. Refer to Exhibit B-7, response to CEC IR 1.21.3.

Conclusions Regarding Scope Item 4

- As at March 31, 2016, planned and in progress SAP-related capital expenditures for the F2017 to F2026 period are estimated to be \$191 million, requiring an estimated \$19.3 million in operating expenditures over this period related to overall implementation.
- The major areas of focus for near-term SAP initiatives are enterprise billing infrastructure and supply chain applications. Following completion of the enterprise billing infrastructure and supply chain projects currently in progress, work and asset management will be the primary focus area. There will also be recurring SAP platform enhancements and upgrades to maintain technical currency and system health.

Recommendations Arising from Conclusions Regarding Scope Item 4

BC Hydro suggests that no further action by the Commission is warranted in respect of Scope Item 4 given that:

- the Commission has ongoing oversight of BC Hydro capital projects and expenditures pursuant to BC Hydro's RRA filings, BC Hydro's annual reports to the Commission; project-specific compliance filings; and BC Hydro's major project filings for acceptance of expenditures pursuant to section 44.2 of the UCA;
- pursuant to Order No. G-158-17 the Commission determined that the work required to the end of the Definition phase of the SAP-related SCA project is in the public interest, and accepted capital expenditures ranging from \$22.5 million to \$29.7 million required to complete such work; and
- Commission Project No. 3698877, Review of the Regulatory Oversight of BC Hydro Capital Expenditures and Projects, is considering issues related to the treatment and review of capital projects and/or programs; review of the 2010 Capital Project Filing Guidelines for IT capital expenditures and specifically, whether separate IT capital project filing guidelines may be appropriate; review of the expenditure thresholds contained in the 2010 Capital Project Filing Guidelines; and review of UCA section 46(1) versus UCA section 44.2 filings.⁹⁵

⁹⁵ All as more fully described in Commission Order No. G-63-16, Appendix B.

Scope Item 5

132. Scope Item 5 of the Inquiry is:

Were all SAP-related disclosures to the Commission appropriate, reasonable and in accordance with the *Utilities Commission Act*?

133. In section 7 of the Consolidated Information Filing, BC Hydro summarized the evidence relevant to this scope item in the following sections:

- Section 7.1 provides in Table 12 an annotated summary of the UCA provisions, BC Hydro commitments and Commission requirements that applied to BC Hydro's reporting of SAP-related projects and expenditures. Information on the 2003 to 2007 period is provided as background to explain the regulatory regime in effect at the beginning of the period under review in this Inquiry.
- Section 7.2 provides in Figure 5 an illustrated summary of the concordance of the applicable regulatory regime with the information that BC Hydro filed with the Commission from time to time in respect of its SAP Strategy, program and projects over the period F2009-F2016.
- Table 13 of the Consolidated Information Filing references all BC Hydro filings with the Commission that included SAP-related disclosures over the period F2009-F2016, the respective filing date and a reference to where each document is attached to the Consolidated Information Filing. BC Hydro also provided in Attachment 47 of the Consolidated Information Filing a listing of other information by topic that BC Hydro provided to the Commission in the proceedings noted in Table 13 in so far as the information relates to the IT&T Plan, SAP Strategy and SAP-related projects.

134. In BC Hydro's view, the thorough and detailed review by this Inquiry process has not identified any issues in relation to the appropriateness of BC Hydro's disclosures to the Commission beyond the testimony and response to an undertaking given during the F09/10 RRA hearing in October 2008, which BC Hydro addressed in its January 2016 Response. These matters are addressed further below.

135. In addition, pursuant to Order No. G-168-16 the Commission directed BC Hydro to provide witness statements addressing among other things the Plan and Schedule Work (**PSW**) Project. In BC Hydro's view there is no issue in relation

to BC Hydro's disclosures about the PSW Project. This matter is also addressed below to demonstrate that there is no such issue.

The Testimony and Undertaking at the 2008 Hearing

136. The Commission directed BC Hydro to address the following questions in witness statements: "With regard to Mr. Stuckert's alleged failure to disclose BC Hydro's decision to adopt SAP, what were the reasons or considerations leading to this failure? Who reviewed and/or approved his response to Undertaking 62? What did those who reviewed and/or approved the proposed response tell him and how did he respond to their comments on his proposed response?"⁹⁶ The questions appear to be premised on a theory that BC Hydro personnel might have withheld information and/or directed or encouraged the witness to provide inaccurate testimony with intent to mislead the Commission. We believe that this testimony and undertaking response given in October 2008 continue to be the main if not only outstanding issues of the Inquiry. Lingering concerns about that evidence appear to be based primarily on a misunderstanding or incomplete understanding of the facts regarding development of the SAP Strategy and the progress of the Financial System Replacement (FSR) Project⁹⁷ as of the October 2008 hearing.

137. The appendix to this final argument provides a complete chronology of significant events in the development of (i) the SAP Strategy, (ii) the IT&T Five-Year Plan and (iii) the Enterprise Financials Upgrade / FSR Project, including disclosures to the Commission regarding these matters. The purpose of the appendix is to provide, in one place, a comprehensive chronological summation

⁹⁶ Order No. G-168-16 (Exhibit A-11 in the Inquiry), question 3.

⁹⁷ As discussed in Exhibit B-6, the response to BCUC IR 1.1.4, in December 2007 the PeopleSoft Financials Upgrade project Business Case and EAR was approved. Subsequently, this project was at times referred to as the Enterprise Financials Upgrade project. Once the decision was made in May 2008 to use SAP as the default solution for ERP applications, BC Hydro began a process to evaluate SAP Financials through the Financial System Replacement (FSR) project, whose first Business Case and EAR for Blueprinting Phase 1 was approved in August 2008. The FSR project was also sometimes referred to as the Enterprise Financials Upgrade project. The chronology of these events is set out in the appendix to this final argument.

of the record regarding what we believe are the only outstanding issues of the Inquiry.

138. In addition to the summation in the appendix, BC Hydro provides the following submissions regarding the testimony at issue and the response to Undertaking 62 at the 2008 hearing.
139. BC Hydro has been clear since its January 2016 Response that the testimony at issue and the response to Undertaking 62 at the 2008 hearing did not meet BC Hydro's expectations for complete, open and transparent answers. BC Hydro agrees that complete, open and transparent answers to the questions at the hearing and to Undertaking 62 should have included an update on the SAP Strategy and information that re-platforming to SAP Financials had become the favoured option and work was underway to verify that SAP Financials will meet BC Hydro's requirements.
140. Following the thorough and detailed review of this Inquiry process, BC Hydro has not found any evidence whatsoever that anyone directed or encouraged the witness to provide inaccurate or misleading evidence. To the contrary, to help the witness prepare for the hearing he was provided a briefing note on the recent developments including with respect to the SAP Financials Blueprint work underway to verify whether SAP Financials will work for BC Hydro.
141. The failure to provide these updates at the 2008 hearing was identified by the FSR Project team as a risk to the project.⁹⁸ The project team planned to remedy this failure by updating the Commission in reports anticipated to be filed with the Commission in 2009,⁹⁹ which is precisely what happened:¹⁰⁰
- On June 12, 2009 BC Hydro reported to the Commission that BC Hydro had recently completed its assessment of the viability of re-platforming its

⁹⁸ See Exhibit B-12, Enn Kiudorf Witness Statement, answer to question 3, pages 5-6.

⁹⁹ *Ibid.*

¹⁰⁰ These steps are set out in the chronology in the appendix.

financial system to SAP and that BC Hydro was proposing to move to SAP Financials.¹⁰¹

- On July 13, 2009, BC Hydro reported to the Commission on compliance with Directive 53 of the F09/F10 RRA Decision, including the adoption of the SAP Strategy.¹⁰²
- On March 3, 2010 BC Hydro filed its F2011 RRA, which included the IT&T Five-Year Plan and reports on the SAP Strategy.¹⁰³

142. If there had been any intent to mislead the Commission on these matters, clearly BC Hydro would not have planned and followed through on its plan to update the Commission on the SAP Strategy and on the expectation to re-platform its financial systems to SAP.

143. With respect to Undertaking 62, the request was for the approved principles that had been presented to BC Hydro's ET and the ARMC of the Board upon which the IT strategic plan will be based. The response to Undertaking 62 was prepared under the direction of Mr. Stuckert. The response to Undertaking 62 provided a document that was dated October 2007 and was an accurate reproduction of the principles that had been presented to the ET and the Committee of the Board at that time. In BC Hydro's view, a complete, open and transparent response to Undertaking 62 would have included both the document that was filed and an update on the SAP Strategy given that the SAP Strategy was approved by ET and was a principle for the development of the IT&T Plan.

The PSW Project

144. The Commission also directed BC Hydro to provide witness statements addressing "Why was the "Plan and schedule work project" determined to cost \$33.6 million, broken up into smaller projects?" The question appears to be

¹⁰¹ Consolidated Information Filing, Attachment 31.

¹⁰² Consolidated Information Filing, Attachment 30.

¹⁰³ Consolidated Information Filing, Attachments 10, 33, 34 and 35.

premised on a theory that the PSW project might have been broken up into smaller projects to avoid the \$20 million threshold for applying for Commission approval of IT&T projects as set out in BC Hydro's Capital Project Filing Guidelines in effect as of July 2010.

145. BC Hydro's response to BCUC IR 1.10.1¹⁰⁴ provides a timeline of the PSW project starting in October 2009 when the project started with a total project cost forecast of \$20 million. While the PSW project was in the design phase, in July 2010 BCTC was re-integrated into BC Hydro and the PSW business case, project scope and plan were adjusted to reflect the integration of the transmission work into BC Hydro's Transmission & Distribution business group. In May 2012 the PSW scope was incorporated into the Transformation Initiative¹⁰⁵ and PSW was closed as a separate project.
146. BC Hydro's response to BCUC IR 1.9.4¹⁰⁶ confirms that in 2013 BC Hydro had planned to file an application with the Commission under section 44.2 of the UCA if it continued to move forward with all of the Transformation Initiative Technology projects, including the PSW scope, at once as originally contemplated. In Fall 2013, to reduce risk, BC Hydro decided to pursue a longer duration implementation than previously anticipated.¹⁰⁷
147. As noted in section 3.4.1, page 24, of the Consolidated Information Filing:

"BC Hydro undertook considerable blueprint work to gain sufficient understanding of the required changes to business process, the human resource impacts, the technical complexity, and the total cost estimate of the full Transformation Initiative. At the time that design work was being developed, the expectation was that BC Hydro would implement these projects, in SAP, over a relatively short timeframe. BC Hydro looked at what other utilities had planned in regard to large technology rollouts and found that the 'all-at-once' approach had been a struggle for these utilities, both in

¹⁰⁴ Exhibit B-6.

¹⁰⁵ Consolidated Information Filing, section 3.4.

¹⁰⁶ Exhibit B-6.

¹⁰⁷ Exhibit B-6, the responses to BCUC IRs 1.10.1 to 1.10.4 provide additional information on the PSW project as originally contemplated, including the timeline of approvals, oversight and major decisions related to the project.

- terms of higher than expected costs and in terms of significant impact to people and processes.”
148. BC Hydro made a decision in late 2013 not to roll out the Transformation Initiative Technology as part of one large project, but rather, to phase the rollout in a series of manageable steps over a number of years. As a result of the broad impact of the decision regarding the Transformation Initiative, the scope of PSW was then confined to a technical upgrade to deliver immediate benefits for Distribution, and the final approved authorized funding for PSW of \$10.5 million aligned with the reduced scope. Some of the remaining deliverables of the former PSW project were carried forward into the Schedule Dispatch & Mobility (**SD&M**) and Distribution work Scheduling (**DWS**) projects, as explained in section 3.4 of the Consolidated Information Filing.
149. Mr. Greg Reimer, BC Hydro’s Executive Vice-President of Transmission & Distribution at the time, addressed the Commission’s question regarding the PSW project in his witness statement.¹⁰⁸ Mr. Reimer explains in his witness statement that the decision to de-scope the Transformation Initiative Technology projects and move forward with reduced scope overall in smaller staged projects was taken to de-risk a large project that had been determined to be “fraught with significant implementation and financial risks”.¹⁰⁹
150. In response to DIX IR 2.4.1,¹¹⁰ Mr. Reimer provided the material that was presented to the Technology Governance Committee on September 30, 2013 in support of the proposal to not proceed with the large technology initiative but instead roll out a series of phased initiatives.
151. Mr. Reimer is clear in his witness statement that at no point were the decisions to de-scope and/or separate portions of the originally-envisioned PSW project made as a result of an intention to avoid Board or Commission oversight of spending. Those decisions were made as a result of prudent executive

¹⁰⁸ Exhibit B-12, witness statement of Mr. Greg Reimer, answer to question 5.

¹⁰⁹ *Ibid*, page 4 of 5.

¹¹⁰ Exhibit B-14.

management in the face of escalating costs and risks, and, in his opinion, they remain strong defensible decisions today.¹¹¹

Conclusions Regarding Scope Item 5

- The thorough and detailed review by this Inquiry process has not identified an issue in relation to the appropriateness of BC Hydro's disclosures to the Commission beyond the testimony and response to an undertaking given during the F09/10 RRA hearing in October 2008 that BC Hydro addressed in its January 2016 Response.
- The thorough and detailed review by this Inquiry process has not identified any evidence whatsoever that anyone directed or encouraged the witness to provide misleading evidence at the 2008 hearing.
- BC Hydro has been clear since its January 2016 Response that the testimony at issue and the response to Undertaking 62 did not achieve BC Hydro's expectations for complete, open and transparent answers to the Commission's questions. Complete, open and transparent answers to the questions and the Undertaking 62 should have included updates on the FSR Project and the SAP Strategy.
- Any shortcomings related to the disclosures at the F09/10 RRA hearing were corrected in June and July 2009 when BC Hydro reported to the Commission that it was proposing to move to SAP Financials and provided details regarding its adoption of the SAP Strategy, and in March 2010 when BC Hydro filed its F2011 RRA that included the IT&T Five Year Plan and reported on the SAP Strategy.

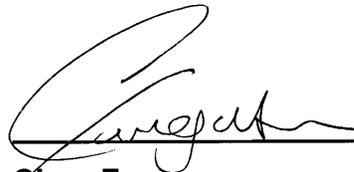
Recommendations Arising from Conclusions Regarding Scope Item 5

Given the above conclusions, BC Hydro suggests that no further action by the Commission is warranted in respect of Scope Item 5.

**ALL OF WHICH IS RESPECTFULLY SUBMITTED THIS 31st DAY OF
JANUARY 2018.**



Ian Webb



Clara Ferguson

¹¹¹ Exhibit B-12, witness statement of Mr. Greg Reimer, answer to question 5, page 5 of 5.

Appendix to Final Argument

Events in the development of the IT&T Plan, SAP Strategy, and Enterprise Financial Upgrade / Financial Systems Replacement Project

| Event | | Date and Reference | Was the event a BCUC filing or disclosure? |
|---|---|--|--|
| Re. IT&T Plan and SAP Strategy | Re. Enterprise Financials Upgrade / Financial Systems Replacement Project | | |
| <p>BC Hydro management updates the Audit and Risk Management Committee (ARMC) of the BC Hydro Board of Directors on the management and use of IT at BC Hydro and the future strategic direction.</p> | | <p>May 24, 2007 Consolidated Information Filing (CIF), Attachment 1</p> | <p>No</p> |
| | <p>BC Hydro approves EAR for the PeopleSoft Financials Upgrade project to upgrade to Release 9.0. This project has also been referred to as the Enterprise Financials Upgrade project.</p> <ul style="list-style-type: none"> • Business case considers the option to re-platform financial systems to SAP, and concludes that this option would be expected to take significantly longer to implement and have far greater change management challenges than upgrading PeopleSoft, in addition to having a higher cost. • Business case recommends the PeopleSoft upgrade option as the most expeditious and least risk option; however, it was noted that the PeopleSoft upgrade option would likely delay ERP consolidation and system integration visions. • EAR was approved for \$5.7 million to upgrade PeopleSoft Financials to Release 9.0 by March 31, 2009. | <p>Dec. 12, 2007 Exhibit A2-2, Tabs M and N</p> | <p>No</p> |

| Event | | Date and Reference | Was the event a BCUC filing or disclosure? |
|--|---|--|--|
| Re. IT&T Plan and SAP Strategy | Re. Enterprise Financials Upgrade / Financial Systems Replacement Project | | |
| | <p>BC Hydro submits its F09/F10 RRA to the BCUC.</p> <ul style="list-style-type: none"> Includes in Appendix J a description of the Enterprise Financial Upgrade Project in the Identification Phase with two alternatives identified: (1) re-platform to SAP Financials, or (2) upgrade PeopleSoft Financials. Consistent with the December 2007 PeopleSoft Financials Upgrade project business case, the Appendix J summary says that re-platforming to SAP is not recommended because it would be more costly and require more management and staff resources thereby delaying other important projects. | Feb. 20, 2008 | Yes |
| | BC Hydro submits its response to BCUC IR 1.71.2.1 in F09/F10 RRA proceeding identifying the Enterprise Financial Upgrade project as in the Identification Phase with an estimated in-service date of April 2009. | April 23, 2008 Exhibit A2-2, Tab FF | Yes |
| BC Hydro submits its response to BCUC IR 1.71.2.2 in the F09/F10 RRA proceeding stating that BC Hydro is currently updating its five-year IT Strategic Plan to support the forthcoming major IT initiatives, the plan is scheduled to be presented to the Board in May 2008, and that BC Hydro will file the plan as part of the RRA evidentiary update. | | April 23, 2008 Exhibit A2-2, Tab FF | Yes |
| <p>BC Hydro's Executive Team (ET) agrees that BC Hydro should adopt a high-level strategy to move incrementally to a single ERP system and to the use of SAP as the default ERP solution (SAP Strategy).</p> <ul style="list-style-type: none"> The SAP Strategy recommended that when a business requirement arises, the SAP alternative | | May 12, 2008 CIF, Attachments 3, 4 and 6 (p. 6 of 6 CIO's note re. Agreement on IT&T) | No |

| Event | | Date and Reference | Was the event a BCUC filing or disclosure? |
|---|---|--|--|
| Re. IT&T Plan and SAP Strategy | Re. Enterprise Financials Upgrade / Financial Systems Replacement Project | | |
| <p>will be examined to confirm whether the business need can be appropriately satisfied with SAP. If not, a bolt-on solution will be considered.</p> <ul style="list-style-type: none"> Mr. Chris O'Riley's witness statement confirms that the BC Hydro ET approved the SAP Strategy in May 2008, and also confirms that the SAP Strategy did not represent a financial commitment in any way – there was no EAR attached to the decision which would be required to authorize expenditure of funds, and any future expenditures would be subject to the standard due diligence and financial governance processes. The May 2008 ET decision on the SAP Strategy mapped out the road along which BC Hydro expected to travel with respect to SAP, while BC Hydro's normal business case and financial governance processes apply to any decision to make a commitment to move down that road. Mr. O'Riley's response to BCOAPO IR 2.15.1 also confirms that the SAP Strategy does not change the obligation for BC Hydro employees to identify and implement cost effective solutions that meet the business requirements. | | <p>Architectures)</p> <p>Mr. O'Riley's witness statement is a part of Exhibit B-12.</p> <p>Mr. O'Riley's responses to IRs on his witness statement are provided in Exhibit B-14.</p> | |
| <p>BC Hydro management provides an update to ARMC with an overview of a proposed strategy for IT&T architecture and operations / organizations.</p> <ul style="list-style-type: none"> The purpose of the IT&T Strategy presentation was to provide the ARMC with an annual report on IT&T Strategy as mandated by the Terms of Reference of the ARMC in effect at the time and | | <p>May 22, 2008</p> <p>CIF, page 11, line 10 to page 12, line 4; and Attachments 2, 6 and 7.</p> <p>Exhibit B-6,</p> | No |

| Event | | Date and Reference | Was the event a BCUC filing or disclosure? |
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| Re. IT&T Plan and SAP Strategy | Re. Enterprise Financials Upgrade / Financial Systems Replacement Project | | |
| <p>as part of the ARMC's broader risk management mandate. The IT&T Strategy presentation was for informational purposes only, and nothing specifically resulted from this presentation.</p> <ul style="list-style-type: none"> • BC Hydro's records indicate that only the first four pages of the May 2008 IT&T Strategy Development document were provided to the ARMC. BC Hydro does not have a record of whether the CIO's notes (that is, the final two pages of Attachment 6 to the CIF) were provided to the ARMC in advance of or during the May 22, 2008 meeting. • The minutes of the ARMC meeting do not indicate whether there was any discussion of SAP or strategy to make SAP the default solution for ERP initiatives, and the ARMC passed no resolution with respect to any aspect of IT&T strategy. | | <p>responses to BCUC IRs 1.2.1, 1.2.3, 1.2.5 and 1.2.11.</p> | |

| Event | | Date and Reference | Was the event a BCUC filing or disclosure? |
|--|--|---|--|
| Re. IT&T Plan and SAP Strategy | Re. Enterprise Financials Upgrade / Financial Systems Replacement Project | | |
| | BC Hydro issues a request for proposals on BC Bid stating that BC Hydro is considering migration of its current PeopleSoft Financials environment to SAP Financials and is therefore requesting consulting services to conduct a blueprint for this potential project. | June 23, 2008 Exhibit A2-2, Tabs T, U | No |
| BC Hydro submits F09/F10 RRA Evidentiary Update (“EU”) <ul style="list-style-type: none"> • Reports that BC Hydro’s five-year IT strategic plan is “not available”. • Consistent with past practice, EU does not update RRA Appendices I and J. EU states that there have been no changes to the forecasts of capital expenditures or additions in either F2009 or F2010. • Ms. Sofield’s witness statement confirms that it was not standard practice to include any updates regarding operating and maintenance costs or capital expenditures and additions in RRA EUs. • Mr. O’Riley’s witness statement also confirms that it was not standard practice for EUs to update project information in Appendix J; the focus of the EU was on changes that would impact customer rates during the test period. | | July 2, 2008 The witness statements of Mr. O’Riley and Ms. Sofield witness are part of Exhibit B-12. A copy of the EU is attached to Ms. Sofield’s witness statement. | Yes |
| | With the decision to adopt the SAP Strategy, BC Hydro began to move forward with the Financial Systems Replacement (FSR) project, the first stage of which was to evaluate SAP Financials. The business case and EAR were approved for the FSR Project SAP Financials | August 22, 2008 Exhibit A2-2, Tab J | No |

| Event | | Date and Reference | Was the event a BCUC filing or disclosure? |
|--------------------------------|--|--|--|
| Re. IT&T Plan and SAP Strategy | Re. Enterprise Financials Upgrade / Financial Systems Replacement Project | | |
| | <p>Blueprint Phase I.</p> <ul style="list-style-type: none"> The purpose of this project was to assess whether SAP Financials will meet BC Hydro's business requirements and provide estimates that will support completion of business cases. Expected to result in a "go or no go" recommendation in Q4 F2009 related to finalizing design and implementation of SAP Financials. | | |
| | BC Hydro and Accenture Inc. enter into consulting services agreement for the SAP Financials Blueprint Phase I work. | August 22, 2008 Exhibit A2-2, Tab V | No |
| | <p>FSR Project SAP Financials Blueprint Phase I status report for August 21 – September 3, 2008</p> <ul style="list-style-type: none"> Identifies a project risk in regards to regulatory alignment between the FSR Project blueprinting of the SAP Financials solution versus the F09/F10 RRA Appendix J description of the Enterprise Financials Upgrade project. Indicates a draft response would be prepared to "reposition BC Hydro approach" for review by the project steering committee. | <p>Sept. 3, 2008</p> <p>Mr. Kiudorf's witness statement (Exhibit B-12), answer to Q3 and Appendix 1</p> | No |
| | <p>FSR Project SAP Financials Blueprint Phase I status report for September 4 – September 17, 2008</p> <ul style="list-style-type: none"> Indicates a draft response was provided to Mr. Stuckert on September 11, 2008. Indicates that no further work was required at that point but identified a possibility that the issue may resurface | <p>Sept. 17, 2008</p> <p>Mr. Kiudorf's witness statement (Exhibit B-12), answer to Q3 and Appendix 2</p> | No |

| Event | | Date and Reference | Was the event a BCUC filing or disclosure? |
|--|---|--|--|
| Re. IT&T Plan and SAP Strategy | Re. Enterprise Financials Upgrade / Financial Systems Replacement Project | | |
| | as preparations for the RRA hearing proceed. | Exhibit A2-2, Tab K | |
| <p>F09/F10 RRA oral hearing testimony re. IT&T Plan</p> <ul style="list-style-type: none"> BC Hydro's Chief Information Officer, Mr. Stuckert, was asked by BCUC counsel why BC Hydro had not filed a five year IT strategic plan that BC Hydro had earlier indicated it expected to complete in May 2008. Mr. Stuckert said that the five-year plan that was expected to have been approved by then will cover "approximately nine different layers in the strategy" and that it is "a much more complicated process than we originally envisioned." Mr. Stuckert was also asked when the IT&T plan would be finalized. He responded that it would have to go through a review process with BC Hydro's Executive Team and then be presented to the Board's Audit and Risk Management Committee before being published as a formal document. He indicated that he hoped to finish his work on the plan by the end of 2008 but was unable to say how long it would take to get the final document approved. Mr. O'Riley's witness statement confirms that the IT&T Plan had not been finalized and approved at the time of the hearing, and that it was not finalized until 2009. In June 2010 Mr. Stuckert explained that "the draft [IT&T] plan was under construction during the hearing and the latest version was produced | | <p>October 15, 2008</p> <p>Exhibit A2-2, Tabs D, E</p> <p>Pages 1508 to 1511 of the F09/F10 RRA hearing transcript.</p> <p>Mr. O'Riley's witness statement (Exhibit B-12), answer to question one.</p> <p>Mr. Stuckert's statements in June 2010 are provided in Exhibit B-24 at Tab 44.</p> | Yes |

| Event | | Date and Reference | Was the event a BCUC filing or disclosure? |
|---|--|---|--|
| Re. IT&T Plan and SAP Strategy | Re. Enterprise Financials Upgrade / Financial Systems Replacement Project | | |
| in February 2009. The updated 5 year plan was presented to management in May 2009.” | | | |
| | <p>F09/F10 RRA oral hearing testimony re. Enterprise Financials Upgrade / Financial Systems Replacement project</p> <ul style="list-style-type: none"> • BC Hydro’s Chief Information Officer, Mr. Stuckert, was asked by BCUC counsel about what sort of enhancements in financial reporting could be expected from the upgrade to PeopleSoft 9.0. Mr. Stuckert responded that “...we’re going through a business process re-design project right now, as to incorporate not only the functions and processes we see for the future, but also to incorporate the requirements for IFRS. We are, in fact, looking at PeopleSoft as one of the solutions, but we are also looking at other options, just in case we want to find a better solution.” • BCUC counsel sought clarification on whether PeopleSoft 9.0 will accommodate the IFRS reporting requirements. Mr. Stuckert responded “that is some current analysis we’re going on right as we speak today.” • The BCUC Chair sought confirmation that BC Hydro was looking at systems other than PeopleSoft, and Mr. Stuckert confirmed that BC Hydro was doing so as part of a review of business process and reporting requirements with a reflection on IFRS in particular. • The evidence indicates Mr. Stuckert’s testimony was inaccurate or incomplete specifically with respect to whether BC Hydro was still studying the PeopleSoft Financial upgrade option and the extent to which BC | <p>October 15, 2008</p> <p>Exhibit A2-2, Tabs F, G, H - pages 1548 to 1550 of the F09/F10 RRA hearing transcript.</p> <p>Mr. Stuckert’s statements in June 2010 are provided in Exhibit B-24 at Tab 44.</p> | Yes |

| Event | | Date and Reference | Was the event a BCUC filing or disclosure? |
|---|--|---|--|
| Re. IT&T Plan and SAP Strategy | Re. Enterprise Financials Upgrade / Financial Systems Replacement Project | | |
| | <p>Hydro's preferred solution had shifted to SAP Financials at the time of the hearing. The testimony was accurate with respect to the specific issue raised by the BCUC Chair and BCUC counsel: whether the financial system solution ultimately chosen will accommodate reporting on the basis of both IFRS and the BCUC Uniform System of Accounts (USoA), as reflected in Directive 55 of the BCUC's subsequent decision on the F09/F10 RRA.</p> <ul style="list-style-type: none"> In June 2010 Mr. Stuckert explained that the shift in focus to SAP Financials was not raised at the hearing because, "at the hearing, as stated in the testimony, we were still investigating solutions, plans, costs, etc as part of our plan. The business case for the FSR project was approved in July 2009. | | |
| <p>F09/F10 RRA oral hearing undertaking re. IT&T Plan</p> <ul style="list-style-type: none"> Mr. Stuckert, was asked by BCUC counsel if BC Hydro could file the principles and directions on which the IT&T Plan strategies will be governed. Mr. Stuckert agreed and undertook to file the approved principles upon which the 5 year IT&T strategic plan will be based. | | <p>October 15, 2008 Exhibit A2-2, Tab D - pages 1508 to 1509 of the F09/F10 RRA hearing transcript.</p> | Yes |
| | <p>Mr. Koyanagi, a senior manager in BC Hydro's Finance group and a business representative on the FSR project, sends an email to Mr. Kiudorf and FSR project Steering Committee members noting that, in light of Mr. Stuckert's testimony, a few items need clarification for the purposes of completing the business case.</p> <ul style="list-style-type: none"> Mr. Koyanagi asked if everyone was agreed that the | <p>October 18, 2008 Exhibit B-8, the response to Mr. Dix IR 1.23.0, Attachments 3-5.</p> | No |

| Event | | Date and Reference | Was the event a BCUC filing or disclosure? |
|--|---|---|--|
| Re. IT&T Plan and SAP Strategy | Re. Enterprise Financials Upgrade / Financial Systems Replacement Project | | |
| | business case does not need to consider alternatives, if there is an issue with not doing the analysis of PeopleSoft R9 as Mr. Stuckert had suggested, and whether there is a need to inform the Commission prior to proceeding further with this work. | | |
| <p>BC Hydro files response to Undertaking No. 62 in the F09/F10 RRA</p> <ul style="list-style-type: none"> Response provided a summary presented to the BC Hydro Executive Team on Oct. 31, 2007 with a framework and 10 agreed principles for developing the future IT strategy. Ms. Sofield's witness statement confirms that as far as Ms. Sofield knows Undertaking No. 62 followed the standard process for drafting, reviewing and approving. Mr. Stuckert (the witness directly involved with making the undertaking) would have prepared and approved the response with the assistance of his support team (including Mr. Sully Wong). Once deemed final, the Chief Regulatory Officer would review and approve it for filing. Ms. Sofield recalls seeing the draft response and asking if it was the most recent document that could be provided, since it was dated almost a year previous, from October 2007, and that she was advised that it was. In June 2010 Mr. Stuckert explained that he chose the October 2007 document as the response to Undertaking No. 62 because "they had asked for a copy of the principles." | | <p>October 28, 2008</p> <p>Exhibit A2-2, Tab C Undertaking 62</p> <p>The witness statements of Ms. Sofield and Mr. Wong are part of Exhibit B-12.</p> <p>Mr. Stuckert's statements in June 2010 are provided in Exhibit B-24 at Tab 44.</p> | Yes |

| Event | | Date and Reference | Was the event a BCUC filing or disclosure? |
|--------------------------------|---|---|--|
| Re. IT&T Plan and SAP Strategy | Re. Enterprise Financials Upgrade / Financial Systems Replacement Project | | |
| | <p>FSR Project risk register updated to indicate that BC Hydro would report its plan for the FSR project to the BCUC in June 2009.</p> <ul style="list-style-type: none"> Mr. Kuidorf's response to Mr. Dix's IR 2.3.2 on Mr. Kuidorf's witness statement confirms that he does not recall any details about this updating of the FSR Project risk register. | <p>Date of update is unknown</p> <p>Mr. Kuidorf's witness statement, answer to Q3 and Appendix 3</p> <p>The IR response is in Exhibit B-14.</p> | No |
| | BC Hydro issues a request for proposals on BC Bid requesting consulting services for the design phase of the FSR Project. | December 12, 2008 Exhibit A2-2, Tab X | No |
| | BC Hydro approves EAR for FSR Project SAP Financial Blueprint Phase II | February 17, 2009 Exhibit A2-2, Tab S | No |
| | <p>BCUC issues its Decision on the F09/F10 RRA, which includes</p> <ul style="list-style-type: none"> Directive No. 55: "The Commission Panel further directs that if BC Hydro is to re-platform to a replacement financial system this replacement financial system is to fully incorporate the BCUC USoA." Directive No. 56 directing BC Hydro to submit an Action Plan in respect of the USoA within three months of the Decision. | <p>March 13, 2009</p> <p>BCUC Decision on the F09/F10 RRA at p. 235</p> | No |
| | <p>BC Hydro submits report to BCUC on USoA implementation action plan, in compliance with Directive No. 56 of the BCUC's Decision on the F09/F10 RRA.</p> <ul style="list-style-type: none"> Reports that as part of incorporating IFRS and the | <p>June 12, 2009</p> <p>Exhibit A2-2, Tab A</p> | Yes |

| Event | | Date and Reference | Was the event a BCUC filing or disclosure? |
|--|---|---|--|
| Re. IT&T Plan and SAP Strategy | Re. Enterprise Financials Upgrade / Financial Systems Replacement Project | | |
| | <p>USoA, BC Hydro is undertaking a FSR Project where the reporting requirements of the USoA are included in the System Application and Products (SAP) Design.</p> <ul style="list-style-type: none"> • Reports that financial schedules will be developed in the SAP Design for the F2011 RRA and F2011 annual financial report to the BCUC. • Appendix B of the filing provides an overview of the FSR Project noting that BC Hydro had recently completed its assessment of the viability of re-platforming to SAP and that BC Hydro is proposing to move to SAP Financials on a coordinated basis with the implementation of IFRS reporting and in alignment to the strategy to migrate toward a single SAP ERP environment. | | |
| | BC Hydro prepares detailed business case for FSR project | June 2009 Exhibit A2-2, Tab Z | No |
| <p>BC Hydro submits IFRS implementation report to BCUC in compliance with Directive No. 53 of the BCUC's F09/F10 RRA Decision.</p> <ul style="list-style-type: none"> • Reports that as part of BC Hydro's IT&T strategy, BC Hydro will implement a single ERP through a staged implementation over time. The first step in this strategy is the FSR Project which will implement SAP Financials. | <p>The IFRS implementation report also states that</p> <ul style="list-style-type: none"> • BC Hydro expects to complete implementation of SAP Financials during F2010 and effective for F2011 reporting. | July 13, 2009 CIF, Attachment 30 (refer to p. 14 of 123, s. 6.1.1) | Yes |

| Event | | Date and Reference | Was the event a BCUC filing or disclosure? |
|--------------------------------|--|---|--|
| Re. IT&T Plan and SAP Strategy | Re. Enterprise Financials Upgrade / Financial Systems Replacement Project | | |
| | <p>BC Hydro approves EAR for FSR Project Implementation Phase.</p> <ul style="list-style-type: none"> Approval to spend funds on full implementation of SAP Financials with a target go-live date of April 1, 2010. | <p>July 2009 Exhibit A2-2, Tab B</p> | No |
| | <p>BC Hydro submits annual progress report to BCUC on implementing the USoA in compliance with Directive No. 56 of the BCUC's Decision on the F09/F10 RRA.</p> <ul style="list-style-type: none"> Reports that USoA implementation is on schedule in accordance with the action plan filed in the June 2009 report. Confirms that BC Hydro staff met with BCUC staff in July 2009 to discuss how the new SAP Financials system should support the USoA from an administrative perspective. Reports the completed status of various components of the SAP Financials implementation. | <p>Oct. 26, 2010 CIF, Attachment 32</p> | Yes |

| Event | | Date and Reference | Was the event a BCUC filing or disclosure? |
|---|--|--|--|
| Re. IT&T Plan and SAP Strategy | Re. Enterprise Financials Upgrade / Financial Systems Replacement Project | | |
| <p>BC Hydro submits F11 RRA to the BCUC</p> <ul style="list-style-type: none"> • Reports that BC Hydro is implementing an Information Technology & Telecommunications Five Year Plan (IT&T Plan). The IT&T Plan was included as Appendix N. • Reports that IT&T capital expenditures in F09 were \$14 million above the F09 RRA forecast, F10 IT&T capital expenditures were expected to be \$40 million above the F10 RRA forecast, and F11 IT&T capital expenditures were forecast to further increase as a result of implementation of the IT&T Plan. | <p>The F11 RRA also reports that</p> <ul style="list-style-type: none"> • Appendix J reports the Enterprise Financials Upgrade project is in the implementation phase to migrate BC Hydro's financial systems from PeopleSoft to SAP by further leveraging the SAP platform BC Hydro has been using for customer care billing since 2003. | <p>March 3, 2010 CIF, Attachments 10, 33, 34, 35</p> | <p>Yes</p> |
| <p>Anonymous and confidential complaint submitted to BC Hydro's Code of Conduct Advisor alleging a possible breach of BC Hydro's Code of Conduct in relation to disclosures on the scope and cost of the IT&T plan in general and the Enterprise Financial Upgrade project specifically.</p> | | <p>April 2010 Exhibit B-24, Tab 1</p> | <p>No</p> |
| <p>BC Hydro submits F12-F14 RRA to BCUC</p> <ul style="list-style-type: none"> • Includes an updated version of the IT&T Plan as Appendix R. • Reports that IT&T capital expenditures in F12, F13 and F14 are forecast at \$84 million, \$82 million and \$81 million respectively, related to implementing the projects contemplated in the IT&T Plan provided with the F11 RRA. | <p>The F12-F14 RRA also reports in Appendix I that the FSR project has been completed.</p> | <p>March 1, 2011 CIF, Attachments 38 to 40.</p> | <p>Yes</p> |

| Event | | Date and Reference | Was the event a BCUC filing or disclosure? |
|---|--|---|--|
| Re. IT&T Plan and SAP Strategy | Re. Enterprise Financials Upgrade / Financial Systems Replacement Project | | |
| | <p>BC Hydro submits F2011 Annual Financial Report to the BCUC</p> <ul style="list-style-type: none"> • Reports on status of BC Hydro's actions to comply with Directives 55 and 56 of the BCUC's decision on the F09/F10 RRA. Reports that BC Hydro has completed the project to re-platform the financial systems and that the replacement system (SAP Financials) fully incorporates the BCUC USoA. | <p>July 29, 2011 CIF, Attachment 36</p> | <p>Yes</p> |
| <p>BC Hydro response to BCUC IR 2.139.5 in the F12-F14 RRA proceeding explains when and by whom the SAP Strategy was adopted.</p> <ul style="list-style-type: none"> • States that the direction to simplify the application environment with SAP as the core was endorsed by BC Hydro's Executive Team in May 2008. • States that SAP is evaluated on a project-by-project basis, and selected when it meets business needs. Where the project requires integration with ERP functionality, BC Hydro seeks to leverage the existing SAP foundation rather than acquire and/or configure additional systems, improving business process integration and simplifying the IT landscape over time. | | <p>April 5, 2012 CIF, Attachment 48</p> | <p>Yes</p> |

| Event | | Date and Reference | Was the event a BCUC filing or disclosure? |
|--|--|-------------------------------------|---|
| Re. IT&T Plan and SAP Strategy | Re. Enterprise Financials Upgrade / Financial Systems Replacement Project | | |
| CIF, Table 13, provides a list of BC Hydro filings with the BCUC that included SAP-related disclosures, the respective filing date and the reference to where the document is attached to the CIF. | | Various dates CIF, Table 13 | Yes |
| CIF, Attachment 47 provides a complete list of other related SAP and IT&T information BC Hydro provided to the Commission in the F09/F10 RRA, F11 RRA and F12-F14 RRA proceedings. | | Various dates CIF, Attachment 47 | Yes |