

Detection and Response to Cybersecurity Threats on BC Hydro’s Industrial Control Systems Released [03/19]

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PAC Meeting Plan¹ [12/09/19] Prepared by: Kip Morison, Paul Choudhury, BC Hydro

Reviewed by: Les MacLaren, ADM, EMPR

1st APPA Update [19/02/20] Prepared by: Kip Morison, BC Hydro

Reviewed by: Les MacLaren, ADM, EMPR

2nd APPA Update [DD/MM/YY] Prepared by: [Name], [Organization Name]

Reviewed by: [Name of Deputy Minister or Assistant Deputy Minister]

Rec. # Accepted? Yes / No ²	OAG Recommendations	Actions Planned & Target Date(s) ³	Assessment of Progress to date ⁴ and Actions Taken ⁵ (APPA update)
1 Yes	We recommend that BC Hydro assess cybersecurity risk over its entire industrial control systems (ICS) environment to ensure appropriate detection and response measures are implemented.	<p>BC Hydro is extending assessment of cyber security risks to areas of the power system not already covered by mandatory standards and legal requirements in British Columbia.</p> <p>BC Hydro will use a risk based approach to prioritize mitigation measures where needed.</p> <p>An external consultant has been retained to develop a prioritized list of stations that would benefit from the Auditor General’s recommendations as well as cyber security additions that are already being planned for compliance with future mandatory reliability standards. Site visits to representative substations were completed in June and July, and risk assessment workshops are scheduled for August.</p> <p>BC Hydro anticipates a report being completed with findings, recommendations, and a prioritized remediation plan by October 31, 2019. A multi-year program will then be developed with target plans for the number of stations to be addressed each year.</p> <p>Target Dates: Start date April 1, 2019 – completion October 31, 2019.</p>	<p>Substantially implemented.</p> <p>A risk assessment report of a representative sample of BC Hydro’s industrial control systems (ICS) was completed and delivered to BC Hydro in October 2019.</p> <p>The report was summarized and presented to BC Hydro’s executive team in November 2019.</p> <p>BC Hydro is using the report and previously assessed measure of criticality of its stations to drive a program of remediation activities for identified vulnerabilities.</p> <p>The remaining activity is to initiate the program. This is expected to be a multi-year program addressing the highest risk facilities that are not previously covered by mandatory requirements.</p> <p>The program is expected to begin in April 2020.</p> <p>Revised Target Dates: Start date April 1, 2019 – completion March 31, 2020</p>

¹ The audited organization will be required to present their initial action plan at this meeting (i.e. First three columns completed for each OAG recommendation included in the audit report)

² For each recommendation, the audited organization should state whether or not they have accepted the recommendation and plan to implement it fully by typing either “Yes” or “No” under the number of the recommendation.

³ Target date is the date that audited organization expects to have “fully or substantially implemented” the recommendation. If several actions are planned to implement one recommendation, indicate target dates for each if they are different.

⁴ The Select Standing Committee on Public Accounts (PAC) will request that the audited organization provide a yearly update (i.e. completed “Assessment of Progress and Actions Taken” column) until all recommendations are fully implemented or otherwise addressed to the satisfaction of the PAC. This is for the APPA update.

⁵ This action plan and the subsequent updates have not been audited by the OAG. However, at a future date that Office may undertake work to determine whether the entity has implemented the recommendations. The results of that work will be reported in a separate report prepared by the OAG.

Please provide your email response to:

Email: Comptroller General’s Office of the Government of British Columbia Comptroller.General@gov.bc.ca

Cc email to: the Office of the Auditor General of British Columbia actionplans@bcauditor.com

Attention: Shirley Bond, Chair and Mitzi Dean, Deputy Chair of the Select Standing Committee on Public Accounts

Rec. # Accepted? Yes / No ²	OAG Recommendations	Actions Planned & Target Date(s) ³	Assessment of Progress to date ⁴ and Actions Taken ⁵ (APPA update)
2. Yes	We recommend that BC Hydro maintain an inventory of hardware and software components, including their configuration, settings for all ICS-related systems and devices, regardless of whether they currently fall under the mandatory standards	<p>Based on the risk assessment and program development activities resulting from recommendation #1, BC Hydro will develop plans and cost estimates for building inventories at stations where there are gaps. The work associated with building missing inventories will be coordinated with actions resulting from recommendation #3 for efficiency reasons.</p> <p>This work will start in November 1, 2019 and will continue on an ongoing basis for several years.</p> <p>All expenditures associated with these actions will be subject to BCUC approval.</p> <p>Target Dates: Start date November 1, 2019 – completion Dec 31, 2024</p>	<p>Partially implemented.</p> <p>BC Hydro is developing an automated system for maintaining inventory, including configuration settings, for systems and devices that currently fall under mandatory standards. This system is due to launch in March 2020.</p> <p>BC Hydro expects to extend the use of this system to all ICS-related systems over the course of the remediation program resulting from recommendation #1.</p> <p>Target Dates: Start date November 1, 2019 – completion Dec 31, 2024</p>
3. Yes	We recommend that BC Hydro implement detection mechanisms and monitor, in real time, for anomalous activity on ICS-related systems and devices not currently under the mandatory standards.	<p>Based on the risk assessment and program development activities resulting from recommendation #1, BC Hydro will develop plans and cost estimates for implementing detection and monitoring mechanisms at stations where there are gaps and where it is technically feasible to do so. These actions will be coordinated with those resulting from recommendation #2 for efficiency reasons.</p> <p>This work will start in November 1, 2019, and will continue on an ongoing basis for several years.</p> <p>All expenditures associated with these actions will be subject to BCUC approval.</p> <p>Target Dates: Start date November 1, 2019 – completion Dec 31, 2024</p>	<p>No action taken.</p> <p>BC Hydro expects the capability for detection of anomalous activity to be partially implemented through the automated system resulting from recommendation #2.</p> <p>Additional detection and monitoring capability will be implemented where it is technically feasible to do so. This work will be implemented in conjunction with the remediation program resulting from recommendation #1.</p> <p>Revised Target Dates: Start date April 1, 2020 – completion Dec 31, 2024</p>

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