Q. The response to PUB-NP-014 at page 9 of 10 states that a capital project would be required in 2021 to upgrade the Customer Service System ("CSS") to the last line of Integrity servers at an estimated cost of $1.6 million to be consistent with Newfoundland Power's policy of replacing servers every 7 years if the CSS project is delayed. Although the proposed CSS project is not planned to be deployed until the 3rd quarter of 2023, it does not appear that Newfoundland Power plans on replacing the servers in 2021 if the CSS replacement project is approved. How did Newfoundland Power determine that it would be appropriate to defer replacement of the servers beyond the seven-year period if the CSS project commences in 2021? If the CSS replacement project is deferred by one to two years could the replacement of the servers be further deferred? If not, why not?

A. **A. General**

Servers are the foundational computing hardware upon which all software applications operate. Managing the availability and performance of server infrastructure is critical to managing the overall availability and performance of the applications used in providing service to customers.

The availability and performance of server infrastructure is managed, in part, through the routine replacement of aged components. As stated in this Request for Information, Newfoundland Power generally replaces its servers every 7 years. This exceeds the industry average of 5 years for server replacement.[1]

Newfoundland Power's CSS operates on Integrity servers provided by Hewlett Packard Enterprises ("HPE"). These servers were last upgraded in 2015. In keeping with Newfoundland Power's practice, the next server upgrade would typically be required by year-end 2022. However, the timing and scope of this upgrade is fundamentally impacted by market conditions.

With respect to timing, market guidance originally suggested HPE's Integrity servers would be available until December 2021. In June 2020, HPE provided notice that Integrity servers were no longer being manufactured and that the existing supply was not expected to last beyond 2020.[2]

As a result, Newfoundland Power was required to proceed with procuring replacement servers in 2020 prior to the existing supply becoming exhausted. Should the CSS Replacement Project be deferred, it would be necessary to proceed with a capital project to install these servers in 2021 – one year earlier than typically required.[3]

[1] See response to Request for Information CA-NP-070, page 4, footnote 8.
[2] See response to Request for Information PUB-NP-014, page 3, lines 18 to 26.
[3] A 2021 installation timeframe will ensure that any issues, such as faulty hardware components, could be reasonably addressed with the vendor while spare parts are available. Should installation not be required, procurement of these servers would be expensed as incurred.

With respect to scope, investigation by Newfoundland Power in 2020 determined that this would be a complex upgrade to undertake.

The Integrity servers are tightly integrated with various software components that allow CSS to operate. This includes the OpenVMS operating system and the PowerHouse and Axiant programming languages. The last line of Integrity servers is not compatible with existing CSS software components. As a result, replacing the existing servers will necessarily require upgrading related components. Given the complexity of CSS, upgrading these components inherently carries a high degree of execution risk. The current estimated cost of this upgrade is approximately $1.6 million.

This upgrade would mitigate short-term reliability and security risks, but would not mitigate other risks that indicate system replacement is required.[4]

B. Response

Newfoundland Power's *Customer Service Continuity Plan* proposes to implement a replacement Customer Information System by the third quarter of 2023. This would require extending operation of the existing Integrity servers by 8 to 9 months past their expected service life (i.e. 8 to 9 months beyond year-end 2022).

In assessing upgrading the Integrity servers, Newfoundland Power evaluated the complexity and cost of this upgrade against other potential risk mitigation measures. The Company ultimately determined that reasonable measures could be taken to manage risks over the 8 to 9 additional months required for the existing servers.

Specifically, the Company removed an existing server from its development environment to act as an emergency spare.[5] This ensures a compatible, like-for-like replacement should an existing server fail.[6] Newfoundland Power has also adopted a strategy to minimize changes to CSS to 2023. Minimizing changes will help ensure existing server capacity remains adequate.[7] These risk mitigation measures were undertaken at no cost to customers and would provide for reasonable risk management over the additional 8 to 9 months required.

However, these measures are short-term solutions. Deferring the CSS Replacement Project by 1 or 2 years would require the existing servers to remain in operation for nearly 2 to 3 years past their expected service life. Requiring servers to operate for 9 to 10 years is well beyond the 5-year average industry guidance suggests. This timeframe, in Newfoundland Power's view, would increase reliability and security risks and would not be reasonable for a critical business application, such as CSS. The system upgrade would therefore be required if the CSS Replacement Project is deferred by 1 or 2 years.

[4] See response to Request for Information PUB-NP-020 for a discussion of risks.
[5] See response to Request for Information CA-NP-150, page 2, lines 15 to 22.
[6] The additional servers procured in 2020, as described on page 1, are not compatible with existing software. As a result, they cannot act as emergency spares.
[7] See response to Request for Information CA-NP-150, page 2, lines 24 to 31.