1 **Q.** **In its June 17, 2018 report Ernst & Young ("EY") provided its assessment of the**
2 **technical risks associated with the continued use of Newfoundland Power's**
3 **Customer Service System (CSS), including its assessment of three risks as moderate-**
4 **high: the vendor market share risk, the vendor health risk, and the business**
5 **enabling risk; one risk as moderate: support risk and one risk as low-moderate:**
6 **reliability and security. What criteria did EY use in determining that a risk was low,**
7 **moderate or high?**
8
9 A. EY utilized probability and impact assessment criteria to perform a qualitative risk
10 analysis during our 2018 CSS Technical Risk Assessment. The probability and impact
11 matrix is a standard tool in the Project Management Institute (PMI)[1] Project Management
12 Body of Knowledge (PMBOK) that uses a combination of probability and impact scores
13 to rank and prioritize individual risks. Probability is the likelihood of a risk occurring.
14 Impact is the effect should that risk occur. Our assessment measured probability as
15 improbable, possible, and likely; and impact as low, moderate, and high; in order to
16 qualify risks as low, low-moderate, moderate, moderate-high, and high.

Figure 1.1

17 The following is the application of probability and impact criteria as applied for the CSS
18 Technical Risk Assessment report - June 17, 2018. Please refer to the report for
19 additional details of the assessment, including results of surveys, interviews and
20 research.[2]

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[1] PMI is the leading association for project/program management, with a global membership of over 2.9 million professionals.
[2] Reference: Table 3.1: Description of risk dimensions in EY's 2018 CSS Technical Risk Assessment report which describes how each risk was measured and for what purpose.

Vendor Market Share Risk

Definition: Vendor Market Share Risk = risk of declining vendor market share.

Rating: Moderate-High

Probability: Likely
- CSS's foundational technology components (operating system, server platform, programming languages) are either cautioned or no longer tracked by leading industry analysts, Gartner and Forrester. Declining market share is a leading indicator for discontinued support and further obsolescence.
- CSS Customer/1 platform Canadian peer utility market share is minimal, and the declining North American market share is anticipated to continue, as supported by a recent Gartner study naming Oracle and SAP as the preeminent vendors of choice in new implementations.

Impact: Moderate
- Technologies with declining market share due to obsolescence receive little to no investment, see reduced or eliminated vendor support, gain no new customers, fail to stay abreast with emerging standards, and attract limited IT talent.

Vendor Health Risk

Definition: Vendor Health Risk = risk of foundational technology vendor instability and/or decreased investment commitment in the technologies.

Rating: Moderate-High

Probability: Likely
- While the CSS foundational technology vendors appear to be financially viable, their shift to more modern technologies is apparent and the legacy technologies they once sold are obsolete or approaching obsolescence.
- Vendor investment in most of CSS underlying technologies has ended or has no defined roadmap.

Impact: Moderate
- Technologies reaching obsolescence will receive little to no investment, see reduced or eliminated vendor support, gain no new customers, fail to stay abreast with emerging standards, and attract limited IT talent.

Business Enabling Risk

Definition: Business Enabling Risk = risk that CSS is unable to accommodate system modifications to meet business, regulatory or customer expectations.

Rating: Moderate-High

Probability: Possible
- Enhancements to CSS have become increasingly difficult to make, as is common in aging legacy systems. CSS limitations cause enhancements to become costly and/or complex to implement.
- Functionality needs to be implemented outside of CSS or manual process work-arounds are often required to address the shortfall of CSS.

Impact: High
- Enhancements, some of which are easily handled by configuration in modern billing systems, can often require significant resource and time investments in CSS. The 2011 government mandated Residential Energy Rebate required 26 weeks of effort for an IT team of four to design, code, and test.
- Changes can require work/integration in other applications outside of CSS or significant manual intervention. A more recent one-time bill credit required manual intervention on over 1000 accounts.

Internal Support Capacity Risk

Definition: Internal Support Capacity Risk = risk of Newfoundland Power lacking adequate skills and expertise to maintain CSS and its foundational technologies and related business functions.

Rating: Moderate

Probability: Possible
- CSS support was assessed as adequate, however, there is a small group responsible for both technical and functional upkeep. From a technical perspective, two individuals provided primary support to 60% of Newfoundland Power's foundational technologies, with three to four others possessing moderate to low knowledge.

Impact: Moderate
- This high level of concentration of technical proficiency is a concern, as unexpected departures can cause system support issues.
- Finding resource availability to support aging technologies is difficult and expensive. Sometimes it may not be possible at all. Building these skill sets

internally is time consuming, costly, and challenging, even if resources are willing to learn outdated technologies with limited value in the external market.
- Without CSS support that possess the required proficiencies, Newfoundland Power would have challenges maintaining system availability and performance.

Reliability & Security Risk

Definition: Reliability and Security Risk = risk of CSS reliability challenges or becoming vulnerable from a security perspective.

Rating: Low-Moderate

Probability: Improbable
- The 2018 CSS Technical Risk Assessment revealed a stable billing system with infrequent unplanned outages.
- Information obtained from interviews and assessments workshops indicated that CSS appeared to be adequately protected from external intrusions.

Impact: Moderate
- As more modifications are made to an aging system, overall instability and the frequency of unplanned outages can easily increase.
- Security vulnerabilities to aging systems often arise due to the lack of support, investment, and security patches from vendors.