

1 **Q. C. Douglas Bowman Report, page 39, lines 7-10. Mr. Bowman states that**
2 **Newfoundland Power’s current metering system is “effectively obsolete”.**
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4 **(i) Please explain the basis for this opinion, including whether Mr. Bowman has**
5 **completed a review of the number of Canadian utilities using AMR**
6 **technology, the utilities transitioning to AMI technology and those using AMI**
7 **technology currently.**
8

9 **(ii) Has Mr. Bowman considered or reviewed any industry information which**
10 **would provide an estimated timeline on when AMR systems will no longer be**
11 **supported by vendors?**
12

13 **A. (i) Mr. Bowman has not completed a review of the number of Canadian utilities using**
14 **AMI technology currently. He based his opinion that Newfoundland Power’s**
15 **current metering system is effectively obsolete on the evidence submitted in the**
16 **GRA as stated in Section 5.5 of his Pre-filed Evidence.**
17

- 18 • (CA-NP-034) *“in 2022, electric utilities had installed about 119 million AMI*
19 *installations, equal to about 72% of the total number of electric meter*
20 *installations in the United States and according to New Brunswick Power,*
21 *more than 50% of Canadian households have smart meters (AMI).”¹*
22
- 23 • According to Berg Insight, smart electricity meters in North America are
24 forecast to grow at a compound annual growth rate of 4.8 percent during 2021-
25 2027. Over the next six years, the penetration of smart meters will reach a level
26 of 94% of homes in Canada, and 93% of homes in the U.S.
27
- 28 • CA-NP-034 (Footnote 5) indicates that *“AMI technology has been mandated*
29 *by legislation in British Columbia and Ontario,”* and Footnote 7 indicates
30 *“Nova Scotia Power received approval for a \$133 million smart meter project”*
31 *before the Nova Scotia Utility and Review Board and “New Brunswick Power*
32 *received approval for a \$110 million smart meter project”* before the New
33 Brunswick Energy and Utilities Board.
34
- 35 • Newfoundland Power identifies some of the benefits of AMI in CA-NP-034c,
36 stating *“The benefits of AMI technology can include: the ability to remotely*
37 *read meters, automatic outage detection and management; the ability to*
38 *remotely connect or disconnect service to customers; monitoring power*
39 *quality; implementation of demand response programs such as Time-Of-Use*

¹ According to Nova Scotia Power, more than 70% of Canadian homes and businesses currently use smart meter technology (<https://www.nspower.ca/my-energy-insights/smart-meter-faqs> - see Are Smart Meters Safe?)

1 (“TOU”) rates; enablement of distributed energy generation; and the ability
2 to provide customers personalized energy-saving tips and recommendations.”
3

- 4
- 5 • In CA-NP-299 it is stated “Newfoundland Power observes that certain AMI
6 meters can provide outage and power restoration notifications. New
7 Brunswick Power outlines that one benefit of its conversion to AMI is quicker
8 notification of outages which could reduce response time.”
 - 9 • Newfoundland Power’s new \$31.6 million customer service system that is
10 expected to be fully installed this year (PUB-NP-016) will provide it with the
11 capability to bill customers under more complex rate structures.
 - 12 • In CA-NP-034b Newfoundland Power indicates that smart meters are not
13 currently being used by Manitoba Hydro and Northland Utilities in the city of
14 Yellowknife.
15

16

17 Therefore, it appears that utilities in Canada have already implemented AMI
18 technology, or are in the process of doing so, except NL, Manitoba and the city of
19 Yellowknife. In CA-NP-034b Newfoundland Power states “AMR technology is not
20 obsolete.” Mr. Bowman agrees that AMR technology is not now obsolete, but
21 based on the evidence cited above, it likely soon will be. The evidence is
22 overwhelming that smart meter technology is now the metering technology of
23 choice in the industry.
24

- 25 (ii) Mr. Bowman offers the following excerpts from Docket No. 22-49-EL-The
26 Narragansett Electric Company d/b/a Rhode Island Energy Advanced Metering
27 Functionality Business Case.² The Docket relates to the filing with the Public
28 Utilities Commission of Rhode Island on Narragansett Electric Company’s (the
29 “Company’s”) Advanced Metering Functionality (“AMF”) Business Case.
- 30 • (page 1 of 6) The Company’s filing consists of a detailed proposal for full-
31 scale deployment of AMF³ across its electric service territory in Rhode Island.
32 The proposal will enable significant customer and grid benefits in line with the
33 State’s climate mandates.
34

² <https://ripuc.ri.gov/sites/g/files/xkgbur841/files/2022-11/2249-RIE-AMFPlan-Book1%2011-18-22.pdf>

³ Footnote 3 states “AMF refers to the functionality provided by advanced meters, also referred to as smart meters. AMF is a broader concept than Advanced Metering Infrastructure (“AMI”); AMI commonly refers only to the smart meters themselves; AMF refers to the functionality that comes from the broader deployment of hardware and software solutions needed to utilize the smart meter data in a timely and efficient manner. The Company uses the term AMF universally throughout this filing to signify that the Company considered the viability of non-smart meter solutions.”

- 1 • (page 1 of 6) If approved, the program is estimated to cost \$188 million on a
2 net present value (“NPV”) basis and provide benefits of \$729.2 million NPV
3 over the 20-year project life, yielding a benefit-cost ratio of 3.9.
4
- 5 • (page 1 of 6) As explained in more detail in the AMF Business Case, the
6 Company’s AMF proposal is intended to address three key unmet needs in
7 Rhode Island: (1) replacement of the existing electric automated meter
8 reading (“AMR”) meters, which are reaching the end of their design life, are
9 obsolete, and will not scale (author’s emphasis added); (2) ambitious State
10 climate mandates, including the 2021 Act on Climate, that require greater
11 visibility into and operational capability of the electric grid to maintain safety
12 and reliability; and (3) evolving customer expectations and desire to make
13 more informed energy choices.
14
- 15 • (pages 1 and 2 of 6) The Company’s proposal represents an opportunity to
16 deploy this foundational technology, which is a necessary first step to
17 transforming Rhode Island’s electric distribution grid.
18
- 19 • (page 3 of 6) Because the Company is proposing to recover only actual,
20 incremental capital and O&M costs through the semi-annual AMF Factor, the
21 Company has provided illustrative AMF Factor calculations for each period
22 beginning on January 1, 2024 through January 1, 2028 by rate class and
23 illustrative bill impacts reflecting the illustrative AMF rates for AMF
24 Recovery Years 1, 2, 3, 4, and 5 (the peak year of revenue requirement as
25 shown on Schedule SAB/BLJ-1). For AMF Recovery Year 1, the illustrative
26 monthly bill impact for a residential electric customer on Last Resort Service
27 (which was previously known as Standard Offer Service prior to January 1,
28 2021) and using 500 kWh per month is \$0.07 or 0.04%. The total cumulative
29 monthly bill impact over the first five AMF Recovery Years is \$2.46 or 1.48%.
30

31 To summarize, Narragansett Electric Company believes that automated meter
32 reading (“AMR”) meters are reaching the end of their design life, are obsolete, and
33 will not scale. Further, its smart metering program is forecast to have a benefit to
34 cost ratio of 3.9. However, it will take time for the benefits to exceed
35 implementation costs. These costs are expected to increase rates in the initial 5-
36 year period by a total of \$2.46, which equates to an average of about 4.1
37 cents/month (\$2.46 / 60 months) during the initial five years. Stated in Canadian
38 dollars, the rate impact is expected to increase customer bills by 5.6 cents/month
39 in the initial 5 years of the program.⁴ It can be concluded that smart meter

⁴ Based on an exchange rate of 1.3759 Canadian dollars equals 1.0 US dollar (Bank of Canada rate for May 1, 2024).

1 technology in Rhode Island is consistent with providing reliable service in an
2 environmentally responsible manner at least cost.

3
4 Puget Sound Energy (PSE) states:⁵
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- 6
- 7 • We are updating our electric and natural gas metering equipment across our
8 entire service area. This is a six-year project, scheduled to complete in 2023.
9 The project will involve swapping out almost 2 million meters – 1.1 million
10 electric meters and 800,000 gas modules – along with the supporting
11 infrastructure across all 10 counties we serve.
 - 12 • Our automated meter reading (AMR) system is approaching the end of its
13 projected lifespan. We were one of the first adopters of digital AMR
14 technology in the country in the late 1990s, making us an industry leader in
15 metering technology during that time. Today, AMR hardware and software are
16 becoming increasingly obsolete, making them difficult to support and
17 maintain. (author’s emphasis added).
 - 18
 - 19 • AMI (advanced metering infrastructure) is the current standard for metering
20 technology and is a crucial step for us. It uses two-way communication and
21 on-board memory (AMR has one-way communication and no memory) to
22 send meter data through a secured wireless network.
- 23

24 British Columbia Hydro states that its smart metering program will: “*Help*
25 *modernize British Columbia’s electricity system by replacing **nearly obsolete***
26 ***meters**, and creating the foundation for supporting new uses of electricity such as*
27 *electric vehicles, customer generation and microgrids.”⁶ (author’s emphasis*
28 *added)*

29

30 While National Grid does not discuss obsolescence of AMR technology, it states
31 in its report entitled Advanced Metering Infrastructure (AMI) Benefits
32 Implementation Plan Niagara Mohawk Power Corporation d/b/s National Grid
33 (page 39) “*The AMI Order represents a once-in-a-generation opportunity to drive*
34 *approximately \$700 million (20-year NPV) in benefits for customers, the system,*
35 *and the environment. National Grid continues to believe AMI is a foundational*
36 *investment for achieving the shared vision of the clean-energy future, in support*
37 *of the aggressive carbon reduction and equity goals outlined in the CLCPA.”^{7 8}*

⁵ <https://www.pse.com/en/pages/meter-upgrade>

⁶ <https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/projects/smart-metering/smi-program-business-case.pdf> (Executive Summary)

⁷ file:///C:/Users/cdlbo/Downloads/%7B923313F3-41F2-47D4-A199-CA11C1FB5D97%7D.pdf

⁸ CLCPA is the Climate Leadership and Community Protection Act.

1 While perceptions in the industry concerning the demise of AMR vary,
2 Narragansett Electric Company, Puget Sound Energy and British Columbia Hydro
3 believe that AMR is already, or soon will be, obsolete, and that AMI (smart meters)
4 is the current standard for metering technology.