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Via E-file

August 4, 2020

B.C. Utilities Commission  
Suite 410, 900 Howe Street  
Vancouver, BC V6Z 2N3

File No.: 4.2.7(2020)

Attention: Marija Tresoglavic  
Acting Commission Secretary

Dear Ms. Tresoglavic:

**Re: Pacific Northern Gas (N.E.) Ltd.  
Application for a Certificate of Public Convenience and Necessity to  
Implement Automated Meter Reading (AMR) Infrastructure  
Applicant's Final Argument**

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Accompanying, please find the written Final Argument of Pacific Northern Gas (N.E.) Ltd. in the referenced proceeding.

Please direct any questions regarding the application to my attention.

Yours truly,

*Original on file signed by:*

Verlon G. Otto

Enclosure

**PACIFIC NORTHERN GAS (N.E.) LTD.**

**APPLICATION  
to the  
BRITISH COLUMBIA UTILITIES COMMISSION**

**FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY  
TO IMPLEMENT AUTOMATED METER READING (AMR)  
INFRASTRUCTURE**

**APPLICANT'S FINAL ARGUMENT**

**August 4, 2020**

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## 1. INTRODUCTION

1. On March 25, 2020, Pacific Northern Gas (N.E.) Ltd. (PNG(NE)) filed an Application for a Certificate of Public Convenience and Necessity (CPCN) to Implement Automated Meter Reading (AMR) Infrastructure (Application) with the British Columbia Utilities Commission (BCUC) seeking approval, pursuant to sections 45 and 46 of the *Utilities Commission Act* (UCA), for a CPCN for capital expenditures of approximately \$4.2 million to update and replace the current manual meter reading process for residential and commercial customers with AMR infrastructure (AMR Project).<sup>1</sup>

2. One party, British Columbia Old Age Pensioners' Organization, Active Support Against Poverty, Disability Alliance BC, Council of Senior Citizens' Organizations of BC, and the Tenant Resource and Advisory Center, known collectively as BCOAPO et al. (BCOAPO), registered as an Intervener in the proceeding. One party, FortisBC Energy Inc., registered as an Interested Party in the proceeding.

3. Two rounds of information requests on the Application were issued by the BCUC to PNG(NE). Responses were filed by PNG(NE) on May 21, 2020 (Exhibit B-3) and July 21, 2020 (Exhibit B-7). The BCUC also issued two rounds of confidential information requests, which PNG(NE) responded to on May 21, 2020 (Exhibit B-4) and July 21, 2020 (Exhibit B-7-2).

4. One round of information requests on the Application were issued by the BCOAPO to PNG(NE). Responses to these information requests were filed by PNG(NE) on July 21, 2020 (Exhibit B-8).

5. One Letter of Comment was placed on the record of the proceeding, by Kira Baines of Fort St. John.<sup>2</sup> In her letter, Ms. Baines expressed concern with radio waves, job losses, 'smart meter' issues, and the possibility of a rate hike as a result of the proposed AMR Project. PNG(NE) submits that each of these matters has been addressed within its Application and are addressed generally in the discussion that follows.

6. PNG(NE) submits that, as evidenced in the Application and further explained in the responses to Information Requests and as summarized in the submissions that follow,

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<sup>1</sup> Exhibit B-1

<sup>2</sup> Exhibit E-1

approval of the CPCN for the AMR Project is in the public interest.

7. The submissions below generally follow the framework of the Application, addressing the justification for the AMR Project CPCN, including the project need, benefits and risks, followed by matters relating to project costs and other issues that arose in the course of the proceeding.

8. PNG(NE)'s reply submission, to be filed with the BCUC on August 25, 2020, will address any issues that may be raised by the Intervener in its final submission to be filed with the BCUC on August 18, 2020.

9. Given the proposed AMR Project timelines, PNG(NE) requests that the BCUC give consideration to the timeliness of a decision on the Application, including the possibility of expediting the issuance of the decision with reasons to follow.

## **2. PROJECT NEED AND JUSTIFICATION**

10. As stated in the Application, PNG(NE) is committed to making improvements that positively impact the safety, efficiency and reliability of its natural gas service. While PNG(NE)'s existing manual meter reading process has been reliable and has produced adequate results for customers, PNG(NE) has determined that the implementation of AMR technology is a prudent decision when the potential financial and operational benefits are considered.<sup>3</sup>

### **2.1 Project Benefits**

11. PNG(NE)'s primary objectives for giving consideration to the automation of the meter reading function include achieving tangible operational efficiencies and improving employee safety, while also improving customer satisfaction.

12. As to operational efficiencies, based on PNG(NE)'s analysis of the proposed AMR Project, the benefits to be realized by existing customers will be primarily in the form of positive rate impacts arising from a net reduction in operating costs. Subject to certain adjustments identified in responding to information requests (see Section 3.2.2 of this submission), PNG(NE) has determined that the AMR Project will provide net operating and

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<sup>3</sup> Exhibit B-1, page 4

maintenance cost savings with a net present value (NPV) of approximately \$2.2 million over a 20-year analysis period. This determination reflects that, once fully implemented, on a net basis, the AMR Project will provide operating and maintenance cost savings averaging \$673,000 per year. This equates to cost savings for the average PNG(NE) Residential customer of approximately \$8 annually over the 20-year life of the project.<sup>4</sup>

13. In addition to these financial aspects, PNG(NE) submits that the reduced number of meter reading staff and vehicles will reduce employee exposure hours to potentially hazardous conditions, both at customer premises and on the road. Further, the reduction in vehicles will contribute to a reduction in greenhouse gas emissions and the overall environmental impact of PNG(NE)'s meter reading activities. Lastly, AMR will allow for timely collection of customer usage data and will eliminate the risk of billing errors resulting from manual entry errors, with both of these factors expected to contribute to an improvement in customer satisfaction.<sup>5</sup>

## 2.2 Project Risks

14. AMR technology has proven to be very reliable and widely accepted as evidenced by the many installations across utilities in Canada and throughout the United States and Europe. Despite this fact, PNG(NE) is cognizant that any complex project carries potential risk and to this end has undertaken a risk analysis of the AMR Project, including risk control and mitigation strategies.<sup>6</sup>

15. PNG(NE) had identified adverse weather as a risk and the initial project plan was to undertake the AMR installation in non-winter months to mitigate this risk. With delays in the regulatory approval process, the risk of delayed project implementation to winter 2020/2021 has increased. PNG(NE) has observed that as weather conditions at time of implementation cannot be predicted with any certainty, potential incremental costs are extremely difficult to predict with precision. PNG(NE) submits that once approval for the AMR Project has been granted, a full implementation plan will be developed that will consider forecast weather conditions at that time. An expedited regulatory decision on the Application will assist in mitigating the risk of delayed implementation. Further to the foregoing, PNG(NE) submits that

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<sup>4</sup> Ibid., Section 2.4

<sup>5</sup> Ibid., Section 2.4.4

<sup>6</sup> Ibid., Section 2.5

it anticipates potential incremental costs to be within the contingency provision embedded in the estimated project costs.<sup>7</sup>

16. In consideration of the evolving COVID-19 pandemic situation, PNG(NE) was asked to provide an update to its risk evaluation and mitigation strategies and did so to identify special considerations for execution of the AMR Project.<sup>8</sup> PNG(NE) submits that it does not expect current pandemic conditions to significantly impact execution of the AMR Project.

17. As the project advances, PNG(NE) will focus resources on risks of greater likelihood and cost impact to ensure that mitigation efforts provide a reasonable balance between cost and risk.

### **3. PROJECT DESCRIPTION AND COSTS**

18. As described previously, mobile AMR is considered a cost-effective meter reading solution that will enable more efficient and effective meter reads and will also provide a number of operational benefits, both financial and qualitative. PNG(NE)'s Application proposes implementation of an AMR system for residential and commercial customers. Industrial customers are not within the scope of the AMR Project, as industrial customers often have unique data and information requirements and many already have advanced metering systems in place.

#### **3.1 Project Description**

19. PNG(NE) has determined the most appropriate AMR system for its service area to be one comprised of mobile data collection making use of ERT electronic devices that would be retrofitted to existing customer meters.

20. PNG(NE) has selected a preferred vendor, Vendor A, to support the AMR Project with the implementation of Itron AMR technology. PNG(NE)'s preference for Vendor A is based on an established working relationship and on the fact that Itron meter reading hardware, software and interfaces are presently in place between the Itron system and PNG(NE)'s Banner billing system. Vendor A has provided PNG(NE) with a quotation for materials and services whereby it will undertake the installation and implementation of a fully functioning

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<sup>7</sup> Exhibit B-3, BCUC IR 14's; Exhibit B-7, BCUC IR 24.1

<sup>8</sup> Exhibit B-3, BCUC IR 7.1

AMR system for all residential and small commercial customers in PNG(NE)'s service areas.<sup>9</sup>

21. A noteworthy development for PNG(NE)'s proposed project is a recent announcement that the 100G ERT devices planned to be deployed by PNG(NE) are being discontinued by Itron, with Itron now focusing solely on the 500G ERT devices. In response to this development, Vendor A has agreed to provide the 500G ERT to PNG(NE) as a substitute for the 100G ERT, and to maintain the 100G ERT price structure presently in place. While PNG(NE) will not be using the full functionality of the 500G ERT device (i.e. AMI capability), if economics are more favorable in the future to take advantage of the functionality, PNG(NE) will be in a better position to do so.<sup>10</sup>

### **3.2 Project Costs**

22. PNG(NE) submits that in the course of this proceeding the financial evaluation and underlying costs supporting its proposal to implement AMR has been subject to thorough review. BCUC Confidential IRs No. 1<sup>11</sup> and No. 2<sup>12</sup> included very focused questions on cost estimate components and planned infrastructure elements. PNG(NE) further submits that it provided fulsome responses to these questions and that the AMR Project cost estimates are sound and that the overall financial evaluation is robust.

#### **3.2.1 Capital Costs**

23. As described in the Application, the AMR Project has an estimated capital cost of \$4.2 million. The estimate to install and implement the proposed Itron AMR infrastructure is based on a quotation from Vendor A in the amount of \$3.1 million, with additional provision for BC PST (7%), PNG(NE) overhead (10%), and contingency (15%).

24. The Vendor A cost estimate is considered to be definitive as it is understood that Vendor A has a clear and thorough understanding of PNG(NE)'s requirements and has applied this knowledge when preparing its quotation. Further, Vendor A is considered to be proficient in the implementation of AMR projects such as that proposed by PNG(NE), and hence knowledgeable of the anticipated costs to be incurred. On this basis, PNG(NE)'s cost estimate

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<sup>9</sup> Exhibit B-1, Section 3.3

<sup>10</sup> Exhibit B-7, BCUC IR 23.1

<sup>11</sup> Exhibit B-4

<sup>12</sup> Exhibit B-7-2

is considered to be at a Class 2 level of accuracy as per the Association of Cost Engineering Guidelines 17R-97 and 18R-97 (Cost Estimating Classification System – revision November 2011).<sup>13</sup>

25. As noted, while the capital cost estimate is based on a vendor quote that is considered definitive, provision has been made for overhead (10%) and for contingency (15%). In forecasting capital projects, PNG(NE) typically includes a provision for overhead for internal resources that may be incidental to the base cost components of a project. For an undertaking such as the AMR Project which will be executed primarily by a third-party, the 10% provision for internal overhead might be considered conservative.<sup>14</sup> The contingency provision is also considered conservative but necessary as the quotation is subject to certain conditions that could result in project costs escalating.<sup>15</sup> While PNG(NE) does not expect project costs to materially exceed the quotation, PNG(NE) believes it prudent, conservative and appropriate to include these provisional amounts in its analysis so as not to overstate the net benefits to customers.

### **3.2.2 Cost of Service**

26. The cost of service forecast incorporated into the AMR Project NPV analysis presented in the Application includes ratebase items and a net reduction in operating costs.<sup>16</sup>

27. Ratebase items in the cost of service forecast primarily relate to the additional capital expenditures required for the AMR Project, net of avoided capital costs for vehicles historically required for manual meter reading, including provision for depreciation, taxes, capital cost allowance, interest, and return on equity. In the Application these costs are estimated to average approximately \$393,000 annually over the 20-year analysis period.

28. As noted, PNG(NE) anticipates a net reduction in overall operating costs due to reductions in labour and vehicle operating costs as result of eliminating five meter reading staff positions and the five associated vehicle units dedicated to meter reading. PNG(NE) has included a nominal average annual provision of \$6,500 for maintenance costs for the new mobile collection system in the forecast for AMR Project operating costs, however does not

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<sup>13</sup> Exhibit B-3, BCUC IR 10.1

<sup>14</sup> Exhibit B-4, BCUC Confidential IR 3.7

<sup>15</sup> Exhibit B-8, BCOAPO IR 3.1

<sup>16</sup> Exhibit B-1, Section 2.4

anticipate any other significant incremental operating and maintenance costs. Importantly, PNG(NE) customers will be the beneficiary of significant operating cost savings due to the innovations associated with this project. As presented in the Application, on a net basis, overall operating costs are expected to be reduced by an annual average of approximately \$673,000 over the 20-year analysis period.

29. In responding to information requests PNG(NE) identified two items requiring correction in its forecast operating cost savings. First, PNG(NE) notes that it should have assumed a positive salvage value of 15% in the vehicle capital costs applied in its analysis as this is the practice in accounting for depreciation of vehicles. Implementing this change results in a decrease in the NPV of customer benefits from the AMR Project by \$68,640.<sup>17</sup> Second, it came to PNG(NE)'s attention that a provision for annual maintenance costs for the Itron Mobile Radio (IMR) components should apply each year over the 20-year evaluation period, rather than the originally modeled annual replacement of each IMR device in each of 2020 to 2022. Correcting the forecast for these items results in an increase in the NPV of customer benefits from the AMR Project by \$8,557.<sup>18</sup> The net reduction arising from these two items of \$60,083, reduces the NPV of cost savings of \$2,179,576 presented in the Application to \$2,119,493.

## **4. OTHER MATTERS**

### **4.1 Project Alternative - AMI**

30. In its evaluation of alternatives to the existing manual meter reading process, PNG(NE) gave consideration to advanced metering infrastructure (AMI), a meter reading solution that has capabilities beyond gathering meter read data.<sup>19</sup>

31. PNG(NE) emphatically believes that AMI is not viable in any way at this time. PNG(NE)'s evaluation of AMI indicated significantly greater capital and operating costs, primarily for fixed communication network requirements and for system integration and for added human resources to operate and support a comprehensive AMI system. In addition to these significant additional costs and negative NPV, there were no significant incremental

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<sup>17</sup> Exhibit B-7, BCUC IR 26.1

<sup>18</sup> Exhibit B-7-2, BCUC Confidential IR 6.3

<sup>19</sup> Exhibit B-1, Section 2.3.2

benefits to PNG(NE) or its customers beyond those identified for the proposed AMR Project, specifically the reduction in the number of meter reading staff and the reduction in the number of vehicles required for the meter reading function.

32. Numerous information requests queried AMI as an alternative to the proposed AMR Project, including consideration of the potential to reduce infrastructure costs by pursuing joint use agreements with third parties with existing network infrastructure in the region, and realization of certain benefits offered by AMI technology.<sup>20</sup> PNG(NE) submits that it has demonstrated that the costs associated with the required fixed communication network makes an AMI proposal uneconomic in all instances.<sup>21</sup> Further, PNG(NE) has illustrated that many of the desired operational benefits associated with AMI can only be achieved with further capital investment, for example to replace existing meters with new solid state technology,<sup>22</sup> further eroding the business case for AMI.

33. PNG(NE) reiterates that implementation of AMI is well beyond the scope envisioned for the automation of PNG(NE)'s meter reading function. Notably, given the significant incremental costs and marginal incremental benefits, an AMI solution of any scale has been shown to generate significant negative NPV. PNG(NE)'s analysis of a fully-functioning fixed network AMI system indicated significant initial capital costs of \$23.1 million, generating a negative NPV of \$32.7 million over a 20-year test period.<sup>23</sup> PNG(NE) updated its AMI financial analysis to remove the costs associated with fixed network infrastructure and again a negative NPV was indicated, of \$10.9 million over a 20-year test period, before provision for any joint use agreement payments that may be required for using a third-party network.<sup>24</sup> A further update of the AMI financial analysis was undertaken to remove both the costs associated with fixed network infrastructure as well as costs specifically identified as necessary to an AMI system (i.e. a proxy for an AMR system using a third-party network), and again a negative NPV was indicated, of \$6.2 million over a 20-year test period. Given the extremely unfavourable financial indications for an AMI system in comparison to the positive NPV of \$2.1 million for the proposed mobile AMR system, PNG(NE) can find no basis to support undertaking an AMI

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<sup>20</sup> Exhibit B-3, BCUC IR 6's, 8's and 9's ; Exhibit B-7, BCUC IR 22's

<sup>21</sup> Exhibit B-7, BCUC IR 22.2 and 22.6

<sup>22</sup> Exhibit B-3, BCUC IR 6.5's and 6.6's

<sup>23</sup> Exhibit B-7, BCUC IR 22.6

<sup>24</sup> Ibid.

project at this time.

34. To conclude on this matter, PNG(NE) reiterates that the primary objectives for giving consideration to automation of the meter reading function include achieving operational efficiencies and improving employee safety, while improving customer satisfaction. PNG(NE) submits that the proposed AMR Project utilizing mobile reads is a prudent, cost-effective solution that is supported by the opportunity to realize tangible financial benefits as well as operational benefits.

## **4.2 Consultation**

35. A key element in planning the Application was the undertaking of consultative activities targeted at the general public and local municipal governmental agencies. Community Information Sessions targeting the general public were held in the municipalities of Fort St. John, Dawson Creek and Tumbler Ridge. PNG(NE) also met with municipal representatives from the City of Fort St. John, the City of Dawson Creek and the Peace River Regional District, providing an overview of the planned AMR Project. Representatives from Fort St. John and Dawson Creek were very familiar with the technology proposed for the AMR Project as they make use of AMR for their water systems, and they were familiar with BC Hydro's implementation of smart meters in their communities.

36. As the scope of the AMR Project is limited to the installation of ERT devices on existing metering infrastructure in place at customer premises, PNG(NE) has made the assessment that no Indigenous or treaty rights are potentially affected, adversely or otherwise, as a result of the proposed project. Based on this assessment, PNG(NE) is of the view there was a limited duty to consult with Indigenous Nations on the Application and that the general consultation and communication activities apply to Indigenous Nations as an element of the general public.

37. PNG(NE) submits that the foregoing activities fulfill the consultation requirements for the AMR Project as specified in section 3(v) of the BCUC CPCN Guidelines.<sup>25</sup>

## **4.3 Radio Frequency Concerns**

38. PNG(NE) acknowledges that the use of AMR technology results in radio frequency (RF) emissions from the ERT devices and that some stakeholders have expressed concern over the

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<sup>25</sup> Exhibit B-3, BCUC IR 20.1

health implications associated with the RF emissions from automated and advanced metering installations. The matter of RF issues as they pertain to the AMR Project have been addressed in the Application.<sup>26</sup> Further to that information, while PNG(NE) will now install 500G ERTs rather than the 100G ERTs originally planned, the RF emissions of these two products are exactly the same.<sup>27</sup>

39. Lastly, PNG(NE) observes that utility use of RF emitting meter reading devices is prevalent in its service area, including BC Hydro's installation of AMI smart meters, and the installation of AMR technology for the water utilities of the City of Fort St. John and the City of Dawson Creek.

#### **4.4 AMR Opt Out**

40. Despite RF emissions from AMR infrastructure complying with Industry Canada standards for safety, some customers, including Ms. Baines,<sup>28</sup> continue to express a desire to have the wireless transmit functions disabled (radio-off option) on devices installed in their premises. In the course of the proceeding, PNG(NE) clarified that the ERTs to be installed as part of the AMR Project can not be programmed to be on or off but rather must be physically removed to facilitate a customer's request to have a radio-off configuration.<sup>29</sup>

41. Even though PNG(NE)'s proposed AMR Project will result in very low RF emissions, PNG(NE) will provide an opt-out option to customers requesting this alternative. In the Application, PNG(NE) indicated that there would be a \$60 fee associated with opting out. PNG(NE) subsequently clarified that this fee would only apply to opting out after deployment of the AMR Project, where an ERT is already installed at the customer premise. There would be no fee associated with opting out before the initial deployment of AMR and installation of ERTs. There would also be a fee of \$60 associated with opting back on AMR in order for PNG(NE) to recover the cost associated with this activity.<sup>30</sup>

42. Customers opting out of AMR would also be charged a bi-monthly fee of \$30 to cover

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<sup>26</sup> Exhibit B-1, Section 3.6

<sup>27</sup> Exhibit B-7, BCUC IR 23.1

<sup>28</sup> Exhibit E-1

<sup>29</sup> Exhibit B-3, BCUC IR 15.4

<sup>30</sup> Ibid., BCUC IR 15.2 and 15.4

the cost of manually reading their meter.<sup>31</sup>

43. PNG(NE) submits that the proposed fees to be levied on customers opting out from AMR are prudent and reasonable, and are at a level that will recover the incremental costs PNG(NE) expects to incur for continuing to manually read the meters of these customers. Upon approval of the Application, PNG(NE) will apply to the BCUC to amend the Standard Fees and Charges Schedule contained within the General Terms and Conditions of its Consolidated Gas Sales Tariff to reflect these new charges.

## 5. CONCLUSION

44. PNG(NE) submits that it has demonstrated that AMR is a cost-effective meter reading solution that will enable more efficient and effective meter reads, while providing quantifiable financial benefits and a number of qualitative operational benefits. In consideration of the evidence on record in this proceeding and the arguments presented in this submission, PNG(NE) submits that the AMR Project is in the public interest and that the approval sought in the Application should be granted.

ALL OF WHICH IS RESPECTFULLY SUBMITTED.

Dated at Vancouver, British Columbia this 4<sup>th</sup> day of August 2020.

PACIFIC NORTHERN GAS (N.E.) LTD.

*Original on file signed by:*

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Gordon Doyle  
Vice President, Regulatory Affairs, Legal & Gas Supply

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<sup>31</sup> Ibid., BCUC IR 15.5