

In the Matter of

**Capacity Additions to the Transmission System on Gaz
Métro's Saguenay and Eastern Township Networks**

Written Evidence of

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National Economic Research Associates, Inc.

On behalf of

Gaz Métro

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1 **I. Introduction and Personal Qualifications**

2 **Q1. Please state your name, business address and current position.**

3 A1. My name is Jeff D. Makhholm. I am a Senior Vice President at National Economic Research
4 Associates, Inc. (“NERA”). NERA is a firm of consulting economists with its principal
5 offices in a number of cities in the U.S., Canada and around the world. My business address
6 is 200 Clarendon Street, Boston, Massachusetts, 02116.

7 **Q2. Please describe your academic background.**

8 A2. I have M.A. and Ph.D. degrees in economics from the University of Wisconsin, Madison,
9 with a major field of Industrial Organization and a minor field of Econometrics/Public
10 Economics. My 1986 Ph.D. dissertation is entitled “Sources of Total Factor Productivity
11 in the Electric Utility Industry.” I also have B.A. and M.A. degrees in economics from the
12 University of Wisconsin, Milwaukee. Prior to my latest full-time consulting activities, I
13 was an Adjunct Professor in the Graduate School of Business at Northeastern University
14 in Boston, Massachusetts, teaching courses in microeconomic theory and managerial
15 economics.

16 **Q3. Please describe your general work experience pertinent to this proceeding.**

17 A3. My work involves pricing, regulation and market issues for regulated infrastructure
18 industries, including gas, electricity, water and telecommunications utilities, natural gas
19 and oil pipelines, airports, toll roads and passenger and freight railroads. More specifically,
20 I have consulted for firms, governments, regulatory agencies or others on the issues of
21 competition, rate design, fair rate of return, regulatory rulemaking, incentive ratemaking,
22 load forecasting, least-cost planning, cost measurement, contract obligations and
23 bankruptcy. A particular focus of my work has involved all aspects of regulated energy
24 transmission—in natural gas, oil and electricity. As shown in Exhibit JDM-1, my
25 curriculum vitae, I have appeared as an expert witness in public utility rate cases and have
26 testified before courts on more than two hundred occasions.

1 I have directed studies on behalf of utility companies, governments and the World Bank in
2 many countries. In these countries, I have drafted regulations, established tariffs,
3 recommended financing options for major capital projects and advised on industry
4 restructurings. I also have assisted in the privatization of state-owned gas utilities. As part
5 of my international work pertaining to the gas industry, I have conducted formal training
6 sessions for government, industry and regulatory personnel on the subjects of privatization,
7 pricing, finance and regulation of the gas industry.

8 **Q4. Please explain your recent experience with Canadian regulation.**

9 A4. I have given evidence a number of times before federal and provincial regulatory boards
10 in Canada. My most recent testimony came before the National Energy Board (“NEB”) in
11 which I testified on behalf of the FortisBC Energy Inc. (“FEI”) relating to a NOVA Gas
12 Transmission proposal to extend its pipeline system into a portion of British Columbia
13 (Docket No. GH-001-2014). I testified on behalf of FEI in a similar case in 2012 (NEB
14 Docket No. GH-001-2012). I appeared before the NEB for three distributors in Ontario and
15 Quebec (Enbridge, Union and Gaz Métro, known as the Market Area Shippers or “MAS”
16 group) in Docket RH-001-2014 regarding the proposed settlement between TransCanada
17 and the MAS group. I also appeared on behalf of the MAS group in TransCanada’s
18 restructuring case before the NEB in Docket RH-003-2011 regarding its proposed tariff
19 amendments. I appeared for Enbridge and Union in Docket MH-001-2013 regarding
20 collection mechanisms for TransCanada’s abandonment costs. I also appeared for Alliance
21 Pipeline Ltd. (Docket RH-002-2014) regarding its application to implement new services
22 and related tolls and tariffs.

23 In 2012 and 2013, I served as an independent expert before the Alberta Utilities
24 Commission (“AUC”) on matters associated with the implementation of performance-
25 based regulation, including methods of measuring of total factor productivity. Upon the
26 completion of that assignment, ATCO Gas subsequently retained me to give evidence in
27 connection with its 2013 “capital tracker” application that arose as part of the
28 implementation of the AUC’s incentive-based regulatory plan.

1 In 2010, I was retained by Hydro-Québec TransEnergie (“HQT”) to give evidence before
2 the Régie de l’énergie on the application of traditional regulatory principles to HQT’s cost
3 allocation practices and electricity transmission rates. In 2008, on behalf of the Canadian
4 Gas Association, I performed a study of economic, technical and institutional similarities
5 and differences affecting the allowed returns on equity granted by Canadian and US
6 regulators.

7 **Q5. Please provide the Régie with a summary of your experience with regulation of the**
8 **North American oil and gas sectors.**

9 A5. My involvement in the United States Federal Energy Regulatory Commission (“FERC”)
10 natural gas pipeline rate regulation has been extensive before, during and after the
11 restructurings that led to today’s competitive markets in both the use and expansion of
12 natural gas pipeline transport capacity. I testified before the FERC in many cases involving
13 interstate pipelines for dozens of clients—principally gas distributors, either individually
14 or in groups—on questions of rate design, cost allocation, pipeline competition, and the
15 treatment of costs for pipeline expansions. For oil pipelines, on behalf of particular oil
16 pipeline shippers or the Association of Oil Pipelines, I have testified before the FERC
17 regarding market-based rates and the operation of the FERC’s cap mechanism for oil
18 pipeline charges. In 2006 and again in 2011, I testified in the Trans-Alaska Pipeline System
19 (“TAPS”) rate proceeding before the FERC on various pipeline cost and ratemaking issues
20 on behalf of the State of Alaska. In NERA’s work for natural gas distributors in the United
21 States, I have analyzed supply options and tariff conditions for the various pipelines that
22 provide Canadian natural gas to U.S. markets.

23 I have longstanding and extensive experience with gas distributors in North America and
24 around the world. My curriculum vitae lists 47 natural gas distributors that I have worked
25 with around the world on many different regulatory issues.

26 **Q6. Does your experience with the regulation of the natural gas and oil sectors extend**
27 **outside of North America?**

1 A6. Yes. I have worked on privatization and tariff regulation, including assessments of the
2 opportunity cost of capital, for major gas pipelines and/or distributors in many countries,
3 including Poland, the United Kingdom, Spain, Argentina, Chile, Bolivia, Mexico, China,
4 New Zealand, and Australia. I have directed three projects involving commercial and
5 pricing terms, including the opportunity cost of capital, for major crude and oil products
6 pipelines in Mexico (for Mexico's state-run pipeline company), South Africa (for a group
7 of oil companies, government agencies and the air transport association there) and Russia
8 (for the World Bank).

9 **Q7. In addition to the above, have you published articles or written papers on issues**
10 **related to regulation and economics of public utilities, and specifically natural gas**
11 **transportation companies?**

12 A7. Yes. Listed on my curriculum vitae (Exhibit JDM-1) are 24 published (or forthcoming)
13 articles, eight working papers and two books, including *The Political Economy of*
14 *Pipelines, A Century of Comparative Institutional Development*, published in 2012 by the
15 University of Chicago Press, pertaining to economic and regulatory issues associated with
16 gas and oil pipelines and public utilities around the world. My forthcoming peer-reviewed
17 paper, entitled "Regulation for a Low Carbon Fuel: Natural Gas," *Review of Environmental*
18 *Economics and Policy*, examines the institutional and political endowments that are
19 promoting natural gas use in Canada and the United States and inhibiting natural gas use
20 in Europe.

1 **II. Purpose of Testimony and Key Findings**

2 **Q8. What is the purpose of your testimony?**

3 A8. The purpose of my testimony is to review, in light of my experience with regulated
4 infrastructure industries and of regulatory precedent on similar issues, the economic and
5 regulatory merits of Gaz Métro’s proposed ratemaking treatment of its planned upgrade to
6 the Saguenay and Eastern Township networks (“the Upgrades”).

7 My testimony thus complements the justification of the project costs that Gaz Métro
8 provides in its own written evidence.

9 **Q9. What analysis did you conduct in this regard?**

10 A9. I studied the technical and economic aspects of Gaz Métro’s proposal. I also analyzed the
11 proposed ratemaking treatment in the context of Gaz Métro’s current ratemaking practices
12 and past decisions of the Régie de l’énergie (“the Régie”) addressing similar projects. My
13 assessment considered regulatory criteria found in *An Act respecting the Régie de l’énergie*
14 and well-established ratemaking criteria in broad use for similarly-situated public utilities.
15 Finally, I undertook to compare the proposed ratemaking treatment to the ratemaking
16 practices of other distributors in North America for similar investments.

17 **Q10. What did you find concerning the technical and economic aspects of the Upgrades?**

18 A10. The continued growth of gas as a fuel and energy resource is to be expected in the modern
19 North American market. As such, Gaz Métro will likely face increasing demand and have
20 new clients to serve throughout its territory, on the Saguenay and Eastern Township
21 networks and elsewhere. Indeed, demand on those particular networks has already
22 exceeded operational capacity.¹

¹ See Gaz Métro’s Application and also section III of this evidence.

1 To my understanding, the Upgrades, which I describe below, have been selected from a
2 range of possible investment alternatives and are expected to meet demand growth. Also
3 to my understanding, until recently, Gaz Métro has anticipated and met demand growth.²
4 However, Gaz Métro has informed me that it cannot maintain security of supply, ensure
5 system integrity and reliability, and provide Quebecois with access to the highly-desirable
6 fuel it distributes in the upcoming years without implementing these proposed Upgrades.

7 **Q11. Given the nature of the Upgrades and the analysis you have completed, what do you**
8 **conclude concerning how their costs should be recovered?**

9 A11. I conclude that to the extent that Gaz Métro reasonably justifies providing gas service to
10 customers in its service regions of Quebec, then the system costs of doing so should be
11 rolled into the rate base used to serve all of its customers in Quebec (other than for
12 individual line extensions and their associated costs, which can be recouped from the
13 individual customers those lines serve). Economics and regulatory precedent call for the
14 case-by-case regulatory evaluation of prudence and reasonableness to govern how gas
15 networks are expanded to serve customers who desire access to the fuel. It is both
16 customary and reasonable to socialize the common costs of the network used to serve the
17 customers of gas distribution utilities. The treatment of costs Gaz Métro proposes for such
18 prudent service expansions mirrors the cost treatment of other North American gas
19 distribution utilities. As such, the costs of the Improvement and Reinforcement investments
20 associated with the planned Upgrades merit rate-base treatment, as proposed by Gaz Métro.

21 **Q12. How do you organize your evidence?**

22 A12. In Section III, I describe the Upgrades and how Gaz Métro proposes to treat them for
23 ratemaking purposes. In Section IV, I summarize pertinent considerations and well-
24 established objectives for gas distributor rates and review experience in Québec. In Section
25 V, I review the approaches taken in selected other jurisdictions; while, in Section VI, I

² Communication with Gaz Métro.

1 assess how Gaz Métro's approach fits within this broader regulatory context. Section VII
2 provides my conclusions.

1 **III. Gaz Métro’s Proposed Upgrades and Ratemaking Treatment**

2 **Q13. What are the Saguenay and Eastern Township networks?**

3 A13. As I understand it, the Saguenay and Eastern Township networks are two of the seven gas
4 networks (comprising transmission and distribution lines) owned by Gaz Métro. The
5 Saguenay network runs north and northeast from Saint-Maurice to Saguenay; whereas the
6 Eastern Township network operates in the southeast portion of Quebec (east of Montreal).
7 The Eastern Township network also has two sections, the Sabrevois-Courval section and
8 the Waterloo-Windsor section. Gaz Métro further describes these networks in its
9 Application.³

10 **Q14. Please describe the current balance of available supply and demand on the Saguenay
11 and Eastern Township networks, as you understand it.**

12 A14. I first describe the supply/demand balance on the Saguenay network and follow with a
13 description of the supply/demand balance on the Sabrevois-Courval and Waterloo-
14 Windsor sections of the Eastern Township network.

15 The current capacity of the Saguenay network is 115,000 m³/h (cubic meters per hour).⁴
16 The “starting point”⁵ (defined as “reference hourly flow”) calculated by Artelys (a firm
17 retained by Gaz Métro for the purpose of forecasting the hourly flow until 2024) for this
18 section is 130,133 m³/h—over 15,000 m³/h above the network’s capacity.

19 On the Sabrevois-Courval section of the Eastern Township network, the current capacity
20 is 79,332 m³/h.⁶ The starting point calculated by Artelys for this section is 89,450 m³/h —
21 more than 10,000 m³/h over capacity.

³ Communication with Gaz Métro; see Gaz Métro 1, Document 1 of Gaz Métro’s application for more details.

⁴ Per communication with Gaz Métro, this level is valid at the minimal contractual conditions of 4,000 kPa with TQM’s network.

⁵ See Artelys’ report, Gaz Métro 1, Document 7.

⁶ Per communication with Gaz Métro, this level is valid at the minimal contractual conditions of 4,000 kPa with TQM’s network.

1 Last, on the Waterloo-Windsor section of the Eastern Township network, the current
2 capacity is 43,600 m³/h.⁷ The starting point calculated by Artelys for this section 55,820
3 m³/h—exceeding capacity by over 12,000 m³/h.

4 Due to the capacity constraints described above, Gaz Métro’s service options are currently
5 limited.⁸ I understand that Gaz Métro is facing increased difficulties accepting new
6 customers on the Saguenay and Eastern Township networks and currently cannot:

- 7 • operate a secure network with adequate reserve capacity,
- 8 • allow customers to switch from interruptible to firm service, or
- 9 • accommodate normal load increases due to customer and volume growth.⁹

10 Gaz Métro thus appears to have no other viable choice but to increase capacity on these
11 networks.

12 **Q15. If Gaz Métro is to increase capacity on the Saguenay and Eastern Township networks,**
13 **as proposed, which customers benefit?**

14 A15. All customers that derive their service from the common network benefit. Current
15 customers are assured more secure and flexible supply and afforded opportunity for
16 growth. Both current and new customers would receive additional natural gas as demanded
17 in the future. Indeed, due to capacity limitations on the Saguenay and Eastern Township
18 networks, Gaz Métro currently is unable to provide incremental capacity to some customers
19 and, for other customers, is forced to serve incremental demand on the with interruptible
20 service—service restrictions that would end with the Upgrades.¹⁰

⁷ Per communication with Gaz Métro, this level is valid at the minimal contractual conditions of 4,000 kPa with TQM’s network.

⁸ Communication with Gaz Métro.

⁹ *Ibid.*

¹⁰ *Ibid.*

1 **Q16. In summary, what are the reasons behind Gaz Métro’s need to increase capacity on**
2 **Saguenay and Eastern Township networks?**

3 A16. As I understand from its filing, Gaz Métro needs to increase capacity on these networks to
4 be able to ensure security of supply for existing and future customers, as well as to accept
5 new customers.

6 **Q17. As you understand, how does Gaz Métro plan to deal with the need for new capacity?**

7 A17. On the Eastern Township network, Gaz Métro plans to add one new compressor station in
8 Waterloo. On the Saguenay network, Gaz Métro plans to upgrade the St. Maurice
9 compressor station and add a new compressor station in La Tuque. However, these
10 facilities would take several years to construct and would not be ready until the winter of
11 2017-2018. Therefore, in the meantime, I understand that Gaz Métro plans to increase
12 capacity to a sufficient level by using additional pressure from agreements with
13 TransCanada and TransQuebec and Maritimes in conjunction with several other efforts.¹¹

14 With these additions, capacity on the Saguenay and Eastern Township networks would be
15 increased to a level sufficient to meet the demand of existing customers, while also
16 allowing Gaz Métro to accept and reliably serve new customers.

17 **Q18. How has Gaz Métro classified the investments necessary to complete the Upgrades?**

18 A18. Consistent with how other utilities have classified costs (see Section V), Gaz Métro has
19 placed the investments into the following three categories,¹² which I discuss my
20 understanding of in turn:

- 21 (1) Improvements,
22 (2) Reinforcements, and
23 (3) Developments.

¹¹ See Gaz Métro’s application for more details.

¹² *Ibid.*

1 Improvements refer to projects that maintain system integrity and reliability in order to
2 ensure existing customers receive adequate service. Gaz Métro describes this category in
3 its own evidence.

4 Reinforcements are investments that increase the capacity and operating flexibility of the
5 pipeline system. For example, when several interruptible customers want to switch to firm
6 service, Gaz Métro may also need to increase capacity on the main system. Gaz Métro
7 explains its definition of Reinforcements in its own evidence.

8 Developments are investments needed to directly respond to customer growth of existing
9 and new customers. The types of investments covered under this category include
10 equipment needed to facilitate new customer connections and to improve service to
11 existing customer sites. Developments refer to costs needed to respond to growth in
12 customer demand. As with Improvements and Reinforcements, Gaz Métro defines
13 Developments in its own evidence.

14 In short, Improvements are projects needed to improve system integrity and reliability,
15 Developments are projects needed to directly respond to customer growth, and
16 Reinforcements are projects expanding the capacity and flexibility of the pipeline system.
17 Reinforcements thus have the effect of both improving system functionality and
18 accommodating customer growth.

19 **Q19. Which assets at issue in this proceeding in particular serve which purposes?**

20 A19. The St-Maurice compressor upgrade is largely an Improvement. The Waterloo and Tuque
21 compressors are Reinforcements. The pipes, building connections and grants included in
22 the revenue requirement are Developments.¹³

¹³ Communication with Gaz Métro.

1 **Q20. How does Gaz Métro propose to recover the costs of these three different cost**
2 **categories?**

3 A20. Gaz Métro proposes to have all customers share the costs of investments for the
4 Improvements and Reinforcements categories.¹⁴ In contrast, for Developments, Gaz Métro
5 proposes to recover costs by direct assigning them to new customers, with the caveat that
6 the internal rate of return provided by directly assigning costs must be greater than the
7 prospective capital cost (per the Régie's usual profitability criteria for approving
8 Developments¹⁵).

9 **Q21. What is the rate impact of recovering the costs using Gaz Métro's proposed**
10 **ratemaking methodology?**

11 A21. Gaz Métro has informed me that the upgrades on the whole will increase rates. Specifically,
12 the upgrades in Eastern Township will increase rates by \$ 70.3 million over 32 years; and
13 the upgrades in Saguenay will increase rates by \$ 117.5 million over the same time period.

¹⁴ See Gaz Métro 1, Document 2 and Gaz Métro 1, Document 3 of Gaz Métro's application for more details.

¹⁵ D-2004-197, page 20.

1 **IV. Regulation of Natural Gas Distributor Capacity Upgrades in** 2 **Québec**

3 **Q22. What considerations and objectives are relevant for rate structures for gas-**
4 **distributor capacity upgrades?**

5 A22. Other than for facilities linked to specific customers, such as Developments, gas
6 distribution customers customarily pay common distribution charges based on a single cost
7 of service that applies to all. In this respect, Gaz Métro does not propose any change in its
8 basic rate structure for distribution service, generally based (as it currently is) on the
9 average cost of the entire network, calculated regardless of location. That is, Gaz Métro
10 proposes not to segregate higher charges for newer or more distant customers on its
11 distribution network.

12 Regarding the criteria that it considers when assessing rates generally for expanded energy
13 network services, the Régie indicated in D-2006-66 that it considers criteria such as cost
14 causality, economic efficiency, rate stability and the simplicity of application.¹⁶ The
15 Régie's list is part of a wider list—the best of which, in my opinion, comes from the now-
16 classic text of James Bonbright, a former professor of economics at Columbia University
17 whose text has been referred to by regulation authorities on innumerable occasions in the
18 formulation of modern regulation—both in the assessment of the costs to serve and the
19 structure of reasonable tariffs.¹⁷ For the purpose of assessing rate reasonableness,
20 Bonbright first presents the “typical” list derived from various sources, in no particular
21 order, reflecting the elements of the Régie's list: (1) practicality and simplicity; (2) freedom
22 from controversy and proper interpretation; (3) effectiveness in yielding the revenue
23 requirement; (4) revenue stability; (5) rate stability; (6) fairness among different customer
24 classes; (7) avoidance of “undue discrimination” in rate relationships; and (8) economic

¹⁶ D-2006-66, page 22.

¹⁷ See: Bonbright, J.C., *Principles of Public Utility Rates*, Columbia University Press, New York (1961), pages 290-294. It is not often remembered—but perhaps should be—that Bonbright was the witness for the Federal Power Commission in the case that is now the bedrock of US utility regulation and is referenced in each and every rate case—the *Hope Natural Gas* case where the Supreme Court defined the opportunity cost standard as the measure of just and reasonable returns to utilities.

1 efficiency in discouraging wasteful use of resources. Bonbright then goes on to aggregate
2 this list into three items that he calls “primary” objectives of a sound rate structure, namely
3 the:

- 4 (1) revenue requirement or financial need objective;
- 5 (2) fair cost apportionment objective; and
- 6 (3) consumer-rationing objective to promote all use that is justified in view of the
7 relationship between cost and benefits received.

8 The Régie’s criteria of cost causality, economic efficiency, and rate stability (taken by
9 themselves or in reference to his more disaggregated criteria) generally satisfy these
10 principles outlined by Bonbright. Rates that—to the extent practically possible—confront
11 customers with the resource costs of their service are economically efficient as they reflect
12 the costs caused. Rate stability—particularly for a utility service dominated by fixed costs
13 such as gas distribution—enhances low cost financing. Fairness, at its core, means the
14 practical avoidance of unjust discrimination—that is, rate discrimination that is not based
15 on cost causation.

16 Such considerations are often reviewed using the “public interest” and “prudent
17 investment” standards, and generally governed under the “regulatory compact.” I briefly
18 describe how this works below, beginning with a discussion of the regulatory compact and
19 concluding by describing how the public interest and prudent investment standards are
20 relevant in such a context.

21 Under the *regulatory compact*, gas distributors, unlike pipelines,¹⁸ have an obligation to
22 provide gas at regulated rates for any household or business that requests service. As
23 Bonbright (again) states:

24 [i]t is a general doctrine ... almost universal in its application to public utility
25 companies operating under special franchises or ‘certificates of convenience

¹⁸ Federally-regulated interprovincial pipelines are semi-rival regulated transport companies that serve particular users by contract (most of whom are public utilities). Pipelines do not serve all comers, but rather a sharply-defined clientele.

1 and necessity,' that these companies are under a duty to offer adequate service
2 at 'reasonable' (or 'just and reasonable') rates. In addition, the governing state
3 or Federal statutes require that, in its rates of charge as well as in its supply of
4 services, a company must avoid 'unjust' or 'undue' discriminations or
5 preferences among consumers.¹⁹

6 Beyond serving all who seek service at just and reasonable rates, advancing the *public*
7 *interest* is, in Bonbright's words, "the assumed goal of rate making".²⁰ While the overall
8 "public interest" evades a precise definition, Bonbright states that "public utility economics
9 may usefully accept as 'given' those basic conceptions of social welfare that prevail in the
10 country and in the time period under review."²¹

11 Infrastructure investments, in addition to being in the public interest and being seen as a
12 means to the end of serving all customers at just and reasonable rates, must hold to the
13 *prudent investment* standard. According to Bonbright, "[p]rudent' imports the requirement
14 that the investment, in order to gain recognition in the rate base, must have been prudently
15 incurred in the light of foresight rather than of hindsight."²² Thus gas infrastructure
16 investments must be planned in advance with specific customers in mind.

17 Industry publications such as the American Gas Associations' *Gas Rate Fundamentals* rely
18 on regulatory goals similar to those highlighted by Bonbright, for example:

- 19 • Achieving the revenue requirement
- 20 • Economic efficiency
- 21 • Fairness or equity
- 22 • Simplicity and administrative ease
- 23 • Conservation of resources
- 24 • Stability and gradualism

¹⁹ Bonbright, J.C., *Principles of Public Utility Rates*, Columbia University Press, New York (1961), page 33.

²⁰ *Ibid.*, page 26.

²¹ *Ibid.*, page 29.

²² *Ibid.*, page 174, footnote 2.

- 1 • Social goals
2 • Environmental protection”²³

3 These goals, in my view, generally coincide with the encompassing idea of advancing the
4 public interest. They are reasonable and I support their use in the making of rates to recover
5 costs of capacity additions.

6 **Q23. Are there well-accepted economic principles that apply to setting prices on a network
7 where the need to serve new customers necessitates the construction of expanded
8 common facilities?**

9 A23. Yes. As Professor Alfred E. Kahn (my late colleague at NERA) put it in his well-known
10 book *The Economics of Regulation*: “[a]s far as causal cost responsibility is concerned ...
11 all customers are marginal.”²⁴ That is to say, if a utility has two groups of customers (A
12 and B) where group A has stable demand and group B is growing, there is no economic
13 justification for charging group B alone the cost of the expansions needed to serve the
14 whole. This is because the additional cost could, as Kahn put it: “just as well be saved if A
15 reduced their purchases as if B refrained from increasing theirs.”²⁵

16 **Q24. With respect to the above considerations, do current customers have special benefits
17 from already being connected to the system and having paid rates for a number of
18 years?**

19 A24. From an economic perspective, no. Existing customers have no special benefit or
20 advantage as compared to new customers. In the context of a franchise distributor with a

²³ American Gas Association Rate Committee, *Gas Rate Fundamentals*, 1987, page 152.

²⁴ Kahn, A.E., *The Economics of Regulation, Principles and Institutions*, Vol. 1, Wiley, New York (1970), page 140. Professor Kahn, in addition to publishing very widely on the economics of regulation, and holding important leadership positions at Cornell University (where he was a Dean and Trustee), was the Chairman of the New York Public Service Commission and the U.S. Civil Aeronautics Board. He is widely credited with proposing and implementing new kinds of efficient pricing (“marginal-cost pricing”) in the telecommunications and energy sectors, and generally stands as one of more important contributors to the economics of regulation.

²⁵ *Ibid.*

1 general obligation to serve all comers,²⁶ all customers (existing and new) must be treated
2 equally. There is no economic justification for two similarly-situated customers paying
3 different rates. Such an example, in my opinion, would constitute discrimination, as
4 recognized by the NEB,²⁷ Régie²⁸ and regulators generally.

5 **Q25. What are the implications of the lack of any benefit or advantage for existing**
6 **customers?**

7 A25. From the perspective of reasonable cost responsibility, because all customers, existing and
8 new, share the same rights to service at reasonable, cost-based rates, the economic principle
9 that I described above directs that the ratemaking process should confer no special benefits
10 on the basis of how long a given customer has taken service from the utility because the
11 cost to the system of retaining an old network customer is the same as the cost of adding a
12 new customer on the network.

13 **Q26. Are you aware of the criteria has the Régie considered in deciding whether to approve**
14 **past applications for system upgrades or additions?**

15 A26. I understand that the criteria used in some recent cases by the Régie in such instances are
16 that the project should be economically justifiable *and* not have a long-term effect of
17 increasing rates.²⁹ The first criterion is reasonable on its face. The second, however—not
18 having the long-term effect of increasing rates—is not a criterion included in the economic
19 principles that I have just discussed (and as reflected either in Bonbright’s writings or in
20 Kahn’s). There is no general economic principle that supports capping either nominal or

²⁶ While section 77 of *An Act respecting the Régie de l’énergie* states that Gaz Métro “is required to supply and deliver natural gas to every person who so requests” within Gaz Métro’s service territory, section 79 also states that Gaz Métro may be absolved of this requirement if “the public interest so requires”, “the cost of service would not be borne by the consumer”, “it would be detrimental to the profitability or efficient operation of the distributor’s enterprise”, or “the security of supply of another consumer is likely to be endangered.”

²⁷ *NEB Act*, section 67.

²⁸ See, for example, the Régie’s 2013-2014 Annual Report, page 6 and Gaz Métro’s November 6, 2007 presentation on the Impact of Régie’s 2008 Rate Case Decision, page 7, accessed from http://www.corporatif.gazmetro.com/data/media/2007-11-02_r%C3%A9gie%20decision_analysts%20presentation_final.pdf?culture=en-ca.

²⁹ D-2004-197, page 20.

1 real utility rates if the average costs of meeting the requirements for reasonable services
2 rise. Given the temporal and spatial aspect of utility distribution network service, it is
3 generally reasonable to reflect that the largest concentrations of customers, in cities and
4 towns, are served first, and then extensions to outlying regions happen later. Average costs
5 of maintaining and expanding such networks can be expected to rise—a cost attributable
6 (as Kahn said) as much to continued service to existing customers as expended service to
7 new customers.

8 From the perspective of Gaz Métro, I understand that serving growth in gas demand in
9 communities within its service territory is not discretionary.³⁰ As the area and amount of
10 customers served increases, the associated increase in demand for gas service requires
11 increases in the capacity to meet that demand. For customers without service limits or
12 contracts (as would be the case, for example, with inter-provincial pipelines), there is no
13 practical or economic way to segregate new network costs to new customers precisely
14 because of the economic conditions that I just described regarding cost causation.

15 My understanding is that the Régie also has to give importance to other criteria, including
16 the public interest.³¹ Advancing the public interest in this instance would require
17 promoting, as Bonbright put it: “basic conceptions of social welfare that prevail in the
18 country and in the time period under review.”³² In my view, these conceptions could
19 include:

- 20 • Network security;
- 21 • The ability to serve new and current customers at the lowest costs and at just and
22 reasonable rates;
- 23 • Environmental impacts;
- 24 • Economic efficiency;

³⁰ See footnote 26.

³¹ Section 5 of the *An Act respecting the Régie de l'énergie*; see also D-2014-064, paragraph [26] (page 10).

³² Bonbright, J.C., *Principles of Public Utility Rates*, Columbia University Press, New York (1961), page 29.

- 1 • Stability and gradualism
2 • Fairness and equity; and
3 • Conservation of resources

4 —most of which are also cited by *Gas Rate Fundamentals* (see above).³³

5 **Q27. Are these criteria applicable for Gaz Métro’s current application?**

6 A27. Yes, but in my opinion the Régie should hold the encompassing idea of advancing the
7 public interest as the criterion of paramount importance. The criteria of “economically
8 justifiable” and “not have a long-term effect of increasing rates”³⁴ are not, for customers
9 served on a common grid, of equal importance. Indeed, the Régie has in earlier Decisions
10 approved projects on non-economic grounds. I am familiar with two such examples.

11 The first occurred in 1995, when the Régie approved³⁵ a Gazifère project that had a
12 negative net present value and would cause significant rate increases.³⁶ The approval cited
13 D-94-25, a 1994 decision in which the Régie stated that the effect of any project that
14 improves network security must be evaluated in a long-term perspective and the usual
15 criteria of profitability cannot always be applied to such a project.³⁷

16 The second was more recent, when the Régie in 2011 approved Gaz Métro’s Jacques-
17 Cartier and Pétrumont project, for which Gaz Métro did not file revenues. Gaz Métro’s
18 main justification for the project was maintaining security of supply for the island of
19 Montreal and the south shore.³⁸ The Régie confirmed that the project was necessary for

³³ See footnote 23.

³⁴ Per communication with Gaz Métro, this criterion applies differently to specific projects that have a positive effect on rates but are part of a long-term investment that provides adequate profitability of future projects.

³⁵ D-95-51, page 48.

³⁶ *Ibid.*, page 24.

³⁷ D-94-25, page 21.

³⁸ D-2011-104, page 6, paragraph [15].

1 maintaining security of supply³⁹ and approved the project⁴⁰ despite Gaz Métro having
2 estimated that the project would increase tariffs by \$26.4 million over 40 years.⁴¹ The
3 investments for the project were added to the Reinforcements category described in Section
4 III.⁴²

5 In fact, as I understand it, when the Régie has applied both the “economically justifiable”
6 and “not have a long-term effect of increasing rates” criteria, some of the projects it has
7 analyzed have historically, at least for Gaz Métro, been subsidized by way of federal
8 grants.⁴³ To my understanding, Gaz Métro has primarily received these subsidies for
9 projects accessing new regions, but not for Reinforcements.⁴⁴ I understand that the
10 proposed upgrade would not receive subsidies and the profitability calculations do not
11 include any such revenues or customer contributions.

12 Of course the use of federal subsidies to prevent general increases in rates for
13 Reinforcement projects is of benefit to local ratepayers. But it does not affect the economic
14 criteria that drive the wisdom of approving investments to serve ratepayers as a group if
15 those subsidies are not forthcoming. None of the traditional and useful criteria for sound
16 rates structures, as reflected by Bonbright of Kahn, would exclude economically justifiable
17 system investments simply because it raised the average price of maintaining and
18 increasing services.

19 **Q28. What is the Régie’s policy for Improvements projects, specifically?**

³⁹ *Ibid.*, page 8, paragraph [22].

⁴⁰ *Ibid.*, page 12, paragraphs [33] and [37].

⁴¹ *Ibid.*, page 11, paragraph [30].

⁴² Communication with Gaz Métro.

⁴³ *Ibid.*

⁴⁴ *Ibid.*

1 A28. My understanding is that the Régie has endorsed a policy that for Improvement projects,
2 all customers must pay for them.⁴⁵

3 **Q29. What about Reinforcement projects?**

4 A29. I understand that the Régie has not yet defined, in its decisions, a policy on Reinforcement
5 projects. The Régie has, however, indicated that Reinforcement projects should only
6 proceed if they are the optimal solution: for example, they should be unavoidable and cost-
7 effective.⁴⁶

8 **Q30. And Development projects?**

9 A30. For Developments, I understand that the Régie has a policy that they must pay for
10 themselves: to be precise, the project's internal rate of return must be greater than the
11 prospective cost of capital. I also understand that Developments must also not have a long-
12 term effect of increasing rates.⁴⁷

13 **Q31. The Régie also regulates electricity transmission and distribution. Do electricity**
14 **upgrade policies in Québec provide relevant benchmarks for the evaluation of Gaz**
15 **Métro's proposal?**

16 A31. In my opinion, no. The considerations that reasonably guide the Régie's oversight of
17 Hydro-Québec Transénergie's upgrade policies deal with factors that have little pertinence
18 to the instant application. For example, the allocation of costs as between wheeling
19 customers on the one hand and native load on the other is not an issue for Gaz Métro. In
20 addition, Hydro-Québec Transénergie provides service pursuant to an Open-Access
21 Transmission Tariff, based on a standard developed by the FERC in the United States. The
22 FERC's open-access tariff design intends to encourage competition in the use of the

⁴⁵ For example, see: D-95-51, pages 46-47 and D-2011-104, page 12.

⁴⁶ D-2004-151, page 8.

⁴⁷ D-2004-197, page 20.

1 transmission system. Gaz Métro's upgrade policy and the Upgrades at issue in this
2 proceeding have little to do with the policy considerations that must be addressed in the
3 context of electricity transmission investment in North America. While I have reviewed
4 Hydro-Québec's Complément de preuve du Transporteur à la suite de la décision D-2014-
5 117 de la Régie de l'énergie⁴⁸ and am familiar with its system upgrade policy, for the
6 reasons I describe above relating to unique features of how electricity transmission in the
7 context of competitive power markets interfaces with local electricity distribution, I do not
8 think that they have any simple or direct application to Gaz Métro's application.

9 **Q32. You mentioned competition. Are competitive considerations important in attempting**
10 **to distinguish between existing and new users generally on either regulated**
11 **distribution utilities or the regulated firms (such as gas pipelines) that serve them?**

12 A32. Competition is a critical consideration. In gas supply, for example, both the FERC and the
13 NEB have recognized that rolling in new facilities costs on federally-regulated pipelines
14 can negatively affect competition in the market for gas and its transport.⁴⁹ In such cases,
15 where competition is an important consideration (which is manifestly the case in upstream
16 gas pipeline supply), then there are important reasons to distinguish between customers
17 based, as in the case of federally-regulated gas pipelines, on contracts to distinguish
18 objectively between different types of customers and limit the responsibilities of the
19 regulated firms that work to meet those contract requirements.

20 But it should be definitively understood that both from economic and practical
21 perspectives, those competitive considerations do not apply to local gas utilities where
22 there is no such contractual distinction and the firms involved have service obligations that
23 that go beyond those of federally-regulated gas pipelines. Without long-term contracts and
24 with an obligation to serve, local gas utilities have no principled or practical way to assign
25 differential cost responsibilities for common system expansions and upgrades on new as

⁴⁸ Demande R-3888-2014, September 12, 2014.

⁴⁹ For the NEB, see the NEB's January 2013 Report in GH-001-2012. For the FERC, see FERC's September 15, 1999 Statement of Policy in Docket No PL99-3-000 (88 FERC ¶ 61,227).

1 opposed to existing customers, whether average costs go up or down when new customers
2 come onto the system. In such cases, the thrust of experience and practices for local utilities
3 is reasonable—that common facilities costs are rolled in for ratemaking purposes. This is
4 not to say that there are exceptions to such practices based on idiosyncratic local
5 circumstances or cost considerations. But apart from any such idiosyncrasies, the
6 traditional practices for dealing with common system expansions, in my opinion, are the
7 correct practices both economically and practically.

8 **Q33. To sum up, could you please review your understanding of the regulatory goals**
9 **applicable for this specific network upgrade?**

10 As I understand, the overarching public policy goal set in place by the Régie is the
11 advancement of the public interest. The Régie has also put forth a number of profitability
12 and rate-impact requirements that typically apply to network upgrades, at least for those
13 concerning Development projects, but sometimes absolves these requirements when the
14 project's main purpose is to advance the public interest and improve network security.⁵⁰
15 As discussed above, to my understanding, the Régie typically allows rate-base treatment
16 for Improvements; requires directly assigning costs for Developments, and has not yet
17 defined a policy for Reinforcements aside from indicating that Reinforcements should be
18 necessary and least-cost.

⁵⁰ See D-95-51 and D-2011-104, as discussed in A27.

1 **V. Comparison to Other Jurisdictions**

2 **Q34. How have regulators outside of Québec dealt with the type of capacity upgrade**
3 **proposed by Gaz Métro?**

4 I address this question by examining regulatory treatment for upgrades in other Canadian
5 and US jurisdictions; specifically, whether other jurisdictions allow for ratemaking
6 treatment for Improvement, Reinforcement, and Development investments in manners
7 similar to that proposed by Gaz Métro.

8 The first jurisdiction I examined is Ontario, where I focused on the treatment of upgrade
9 projects by the Ontario Energy Board (“OEB”).

10 **Q35. Please proceed.**

11 **A35.** The OEB approves system upgrades according to whether they are in the public interest.⁵¹
12 In doing so, the OEB examines three primary criteria: whether the project is a) needed, b)
13 the best option to meet the claimed need, and c) economically feasible.⁵²

14 The first two criteria of whether the project is necessary and is the best alternative for
15 meeting that need are to my understanding matters of engineering and demand forecasts,
16 and the OEB assesses them as such.⁵³

17 In assessing whether the project is economically feasible (the third criterion), the OEB first
18 looks at whether or not the upgrades are system expansion projects that generate
19 incremental revenues. If the upgrade is *not* a system expansion generating incremental
20 revenues, the Project is not subject to the economic feasibility tests and this criterion is

⁵¹ OEB Decision and Order in EB-2012-0433, EB-2012-0451, and EB-2013-0074, page 1; see also OEB Act section 96.

⁵² OEB Decision and Order in EB-2012-0433, EB-2012-0451, and EB-2013-0074, generally and on page 5. The OEB also assesses other criteria, such as environmental, technical and safety issues, and landowner matters (see page 5 of Decision and Order cited at beginning of footnote), but I do not deem these criteria as “primary” for my purposes.

⁵³ *Ibid.*, sections 2.1, 3.1, and 4.1.

1 waived.⁵⁴ However, if an upgrade *is* a system expansion project generating incremental
2 revenues, the OEB uses an analysis with three stages to assess the project’s economic
3 feasibility.⁵⁵

4 First, the OEB assesses the project’s profitability index (“PI”), where the PI is roughly
5 equal to the present value of operating cash flows divided by the present value of net capital
6 expenditures.⁵⁶ If the PI is at least 1.0, then the OEB deems project to be economically
7 feasible. (This criterion is approximately equivalent to Régie’s requirement that IRR of
8 Development projects be greater than their prospective cost of capital.) If the PI is less than
9 1.0, the OEB moves to the second stage, which assesses “all other quantifiable public
10 interest information as to costs and benefits” of the project. Stage 3 then reviews “all other
11 relevant public interest factors plus the results from stage one and stage two.”⁵⁷ The OEB
12 then proceeds to determine whether the project is, economically speaking, in the public
13 interest, based on the results of the three stages. If, for example, the PI is less than 1.0, the
14 OEB may still approve the upgrade, having stated that:

15 it is appropriate for existing customers to subsidize, through higher rates,
16 financially non-sustaining extensions that are in the overall public interest if
17 the subsidy does not cause an undue burden on any individual, group or
18 class.⁵⁸

19 **Q36. How does this treatment of system expansion costs compare to what Gaz Métro has**
20 **proposed?**

⁵⁴ *Ibid.*, page 9.

⁵⁵ As reviewed, for example in OEB Decision and Order in EB-2012-0433, EB-2013-0074, and EB-2012-0451, section 3.2.

⁵⁶ OEB Report of the Board EBO 188, Appendix B: Guidelines for Assessing and Reporting on Natural Gas System Expansion in Ontario, page 9, paragraph 13.

⁵⁷ See OEB Decision and EB-2012-0433, EB-2013-0074, and EB-2012-0451, page 25. See also OEB Report of the Board 134, issued in 1987, pages 46-47.

⁵⁸ OEB Report of the Board 134, issued in 1987, page 48; see also OEB Filing Guidelines on Economics Tests for Transmission Pipeline Applications (EB-2012-0092), page 3. Note that in this quote the OEB appears to be using the term “extensions” synonymously with the term “expansion”.

1 A36. To my understanding, the OEB has indicated that costs in the PI calculation should include
2 some normalized measure of reinforcement costs.⁵⁹ This potentially contrasts with Gaz
3 Métro’s proposal, which requests that all customers cover the costs of Reinforcements.

4 However, as shown in the prior Q/A, the OEB’s economic feasibility test does allow for
5 unprofitable expansions as long as those expansions are overall in the public interest. As
6 such, it appears to me that the OEB has indicated that, under certain circumstances, it is
7 willing to approve system expansions even if their costs, seemingly including associated
8 reinforcement costs, are greater (on present value terms) than the incremental revenues that
9 result from the expansion. In other words, to my understanding, the OEB appears to be
10 willing to roll-in the Reinforcement and Development costs of system upgrades even if
11 doing so raises average costs⁶⁰—which, in a general sense, is consistent with what Gaz
12 Métro has proposed.

13 **Q37. What other Canadian jurisdictions did you assess?**

14 A37. I assessed both Alberta and British Columbia.

15 **Q38. What did you find in Alberta?**

16 A38. In 2012, the Alberta Utilities Commission adopted a performance-based regulation
17 (“PBR”) mechanism to determine the rates charged by natural gas distributors. Rates in a
18 plan period are established by adjusting a base rate, from a previous proceeding, by a rate
19 of inflation (“I factor”) relevant to the prices of inputs the companies use less an offset (“X
20 factor”), to reflect the productivity improvements the companies can be expected to
21 achieve. Companies can also apply for additional funding for projects that are a) outside
22 their normal course of operations, b) unless an exception is warranted, for the replacement

⁵⁹ OEB Report EBO 188, pages 10-11, sections 2.3.3 and 2.3.8. See also Appendix B to Report EBO 188, section 2.1, paragraph 290.

⁶⁰ Projects raise average costs when the profitability index is greater than 1. This is equivalent to the IRR being less than the prospective cost of capital.

1 of existing capital assets or required by a third party and c) financially material.⁶¹ For gas
2 distributors particularly, the AUC employs a revenue-per-customer cap, limiting the
3 change in the companies' revenue per customer on a class by class basis. The AUC argues
4 that the revenue-per-customer cap approach provides an incentive to continue connecting
5 new customers because customer growth drives revenue growth.⁶² Gas distributors in
6 Alberta require customers to pay pre-specified contributions for new service connections.⁶³

7 Prior to implementing PBR, the Alberta Energy and Utilities Board ("AEUB"), the AUC's
8 predecessor, found that the following concerning how much new customers should pay for
9 system expansions:

10 ... customer contributions are suitable in circumstances where service to a
11 customer may impose costs on other customers for which they should not be
12 responsible. An appropriate contribution policy therefore provides a suitable
13 balance to an unlimited obligation to serve by imposing economic discipline
14 on siting decisions. It transfers the economic burden of connection of new
15 customers from the utility and its existing customers to the new customer. In
16 other words, it exerts some of the discipline of the utility's economics on the
17 economic decision-making of the customer. The Board considers that
18 customer contributions should relate only to the local connection costs of the
19 system expansion. The deep system costs of expansion are properly the
20 responsibility of all customers, form part of the utility's revenue requirement
21 and should be recovered from all customers through rates.⁶⁴ [emphasis added]

22 **Q39. Are the AEUB's statements consistent with Gaz Métro's proposal?**

23 A39. Yes, they are. As I understand its statement above, the AEUB found that only Development
24 costs should be directly assigned to customers, and that Improvements and Reinforcements
25 should be socialized across the whole customer base. This exactly mirrors the cost recovery
26 that Gaz Métro has proposed for these three categories.

⁶¹ AUC Decision 2012-237, page 126, paragraph 592.

⁶² *Ibid.*, page 31, paragraph 141.

⁶³ *Ibid.*, page 181, paragraph 842.

⁶⁴ AEUB Decision 2000-01, page 270.

1 **Q40. Please also explain what you found in British Columbia.**

2 A40. The British Columbia Utilities Commission (“BCUC”) distinguishes between
3 Reinforcements needed for a) system extensions (extensions of the distribution system to
4 new areas), b) new infill customers (“the addition of new customers who attach to the
5 existing distribution system, and thus only require a connection from the street to their
6 premises in order to receive service”), and c) incremental demand from current customers.
7 For all categories of customer/demand growth, the BCUC recommends that the costs of
8 Reinforcements “should be allocated as fairly as possible to those who cause them”.⁶⁵

9 For system extensions, I understand that utilities in British Columbia typically have a
10 “system extension test” that compares the costs and revenues of a system extension, which
11 they use to determine whether an extension is economically feasible. The costs side of the
12 equation would presumably include all Development costs plus, to the extent a system
13 extension *causes* Reinforcements, the costs of Reinforcements. For example, the test of
14 FortisBC Energy Inc. divides the present value of an extension’s revenues by the present
15 value of an extension’s costs to calculate a “profitability index” (similar to the index used
16 by the OEB). If the resulting index is at least 0.8, FEI goes ahead with the mains
17 extension.⁶⁶ If the index is less than 0.8, the customer in question has to pay a contribution
18 to make up the difference in order for the extension to proceed. The costs used to calculate
19 the index include “an allocation” of Reinforcement costs, with the allocation left open to
20 interpretation.⁶⁷

21 For new infill customers, in contrast, utilities typically charge those customers a connection
22 fee that reflects the added costs. As with the tests for similar extensions, the BCUC
23 recommends that the connection charge for new infill customers reflect the cost of

⁶⁵ BCUC Utility System Extension Test Guidelines, issued September 5, 1996, pages 3 (section 1.2) and 18-19 (section 5.1.2).

⁶⁶ Note that a profitability index of 0.8 implies that the project’s IRR would be less than its prospective cost of capital, to a degree.

⁶⁷ FEI General Terms and Conditions, first revision of page D-4, original page 12-1 (section 12.3) and original page 12-2 (sections 12.5(d) and 12.6).

1 Reinforcements “on a cost causation basis”.⁶⁸ Presumably, then, a connection charge for a
2 new infill customer of a gas utility would reflect the Development costs plus whatever
3 portion of the applicable Reinforcement costs would appear reasonable (which could be
4 0%).

5 **Q41. How does this treatment of Reinforcement and Development costs compare to what**
6 **Gaz Métro has proposed?**

7 A41. To my understanding, the treatment of Development costs mirrors Gaz Métro’s proposal.
8 Similar to Gaz Métro’s proposal, utilities in BC recover Development costs directly from
9 customers, ensuring that Development projects are profitable on their own.

10 The treatment of Reinforcement costs, however, is more open to interpretation. The BCUC
11 recommends that these be attributed to marginal customers insofar as those customers
12 cause those costs. One could interpret this to mean that marginal customers should pay for
13 all of the Reinforcements required to accommodate them on the commonly used system.
14 But, as I stated in my answer to Q23, all customers are equally responsible for common
15 system costs. It would appear, then, that the BCUC’s guidelines could be reasonably
16 interpreted to mean that all customers should pay for Reinforcement costs, as Gaz Métro
17 has proposed.

18 **Q42. Have you found any useful US precedents?**

19 A42. Yes. When planning system expansions/upgrades, US gas utilities face issues quite similar
20 to their Canadian counterparts. As a member of the American Gas Association recently
21 explained in testimony before the Michigan House Committee on Energy Technology:

22 The demand for natural gas infrastructure expansion has proliferated within
23 the last several years. Current and expected prices make it economically
24 advantageous for consumers to switch to natural gas from other sources of
25 energy. As well, switching to natural gas provides for broader public benefit

⁶⁸ BCUC Utility System Extension Test Guidelines, issued September 5, 1996, page 19 (s. 5.1.2).

1 including a cleaner environment, more reliable service and economic
2 development opportunities.

3 [S]everal states ... are looking at natural gas infrastructure expansion as a key
4 to driving economic development and reducing consumer energy costs.
5 Governors, legislators and commissioners around the country are recognizing
6 the economic and environmental benefits of this abundant fuel source and are
7 exploring policies to expand its use.

8 ... [F]or unserved areas with no existing mains, construction costs are often
9 extremely high, making expansion cost-prohibitive. When that is the case, the
10 key question becomes how best to facilitate infrastructure build-out to
11 unserved areas.

12 ... [N]ew and innovative approaches to funding expansion have been
13 approved or are presently being considered by several legislatures and
14 commissions around the country. In fact during a 2013 meeting, the National
15 Association of Regulatory Utility Commissioners passed a resolution that
16 “encourages state to fully explore, examine and implement alternative rate
17 recovery mechanisms that will accelerate the modernization, replacement and
18 expansion of the nation’s natural gas pipeline systems,” demonstrating a
19 willingness to review infrastructure expansion policies to ensure congruence
20 with current regulatory objectives and conditions in the natural gas industry.⁶⁹

21 As Mr. Rogers states, utility commissions across the U.S., and indeed the U.S.’s national
22 association of utility commissioners, are approving and endorsing novel policies to
23 facilitate the development of system expansions that may not be profitable on their own
24 but on the whole are in the public interest. Notably, I have found several examples of funds
25 or surcharges in the United States that facilitate funding upgrades similar to the one
26 proposed by Gaz Métro in its application. I describe them below, going state by state. (Note
27 that this is just a sample of such programs and not an exhaustive list.)

28 **Vermont:** The Vermont Public Service Board (“VPSB”) established in 2011 a System
29 Expansion and Reliability Fund for Vermont’s natural gas utility, Vermont Gas Systems
30 (“VGS”). The fund collects \$4.4 million each year by foregoing rate decreases on current
31 customers. The fund earns interest each year; meanwhile VGS can apply to withdraw from

⁶⁹ Testimony of Kyle Rogers before the Michigan House Committee on Energy & Technology, “Expanding the Reach of Natural Gas Infrastructure”, November 12, 2013, pages 2-3.

1 the fund when or if it decides to expand its system. If the VPSB finds that the expenditures
2 are in the public interest, it withdraws cash from the fund for VGS to help finance the
3 system expansion. If VPSB finds that the expenditures are not in the public interest, it can
4 return the fund to the customer through a rate decrease. In either case, the fund allows the
5 VPSB to smooth the rate impacts of potential system upgrades and helps ensure that system
6 expansions that are firmly in the public interest do indeed occur.⁷⁰ Indeed, the VSPB does
7 indicate such system expansions would be in the public interest:

8 We recognize some concerns with having ratepayers pay higher rates now for
9 potential benefits later, but on balance, we conclude that the potential benefits
10 to consumers in Vermont outweigh these and other concerns. These benefits
11 include a potential reduction in greenhouse gases in Vermont, which will help
12 all Vermonters, including existing VGS customers and an incentive for
13 economic development. Moreover, the MOU and Expansion Fund seek to
14 secure these consumer benefits while still maintaining reasonable overall rate
15 levels—natural gas costs now are substantially lower than they have been.

16 ...

17 Creation of the Expansion Fund increases the potential for VGS to be able to
18 extend its system significantly; under the first stage of expansion that VGS is
19 contemplating, the line would be extended to Middlebury, greatly increasing
20 the reach of the system. Such expansion could greatly benefit businesses and
21 residential customers that currently have no natural gas service available to
22 them, by introducing a new lower-cost, and lower-carbon, fuel source.⁷¹

23 **North Carolina:** North Carolina implemented a fund similar to Vermont’s in 1991. Like
24 the Vermont fund, the North Carolina fund permits gas utilities to finance infrastructure
25 investments which would be unprofitable on their own but on the whole are in the public
26 interest. The fund specifically subsidizes the construction of “natural gas facilities in
27 unserved areas ... that otherwise would not be feasible to serve” in order to make them
28 economically feasible. For instance, to my understanding, if a project was lacking \$1

⁷⁰ State of Vermont Public Service Board, Docket No. 7712, Order Amending Alternative Regulation Plan, dated September 28, 2011, pages 1-3.

⁷¹ *Ibid.*, pages 2, 12. A September 11, 2012 presentation by Vermont Gas provides more information about the public benefits of expanding access to natural gas. See http://www.northeastgas.org/pdf/d_gilbert_expansion.pdf.

1 million in revenues to cover the costs, the fund would contribute \$1 million. Money for the
2 fund comes from gas-supply refunds ordered by the FERC, surcharges on existing
3 customers, and “other sources” that the North Carolina Utilities Commission (“NCUC”)
4 approves. As of 2012, the NCUC had approved over \$114 million of expansion funds,
5 financing eight expansion projects.⁷²

6 **Georgia:** The Georgia Public Service Commission (“GPSC”) has approved surcharges (to
7 all customers) allowing Atlanta Gas Light to subsidize economically unfeasible customer
8 growth and reinforcements projects.⁷³

9 **Oregon:** In the early 2000s the Oregon Public Utilities Commission (“OPUC”) approved
10 adjustments to base rates to cover the costs of the expansion of the system into a new
11 county.⁷⁴

12 **Indiana:** In 2013, the Indiana legislature passed a law allowing utilities to establish a
13 surcharge allowing for recovery of 80 percent of reasonable capital expenditures, including
14 system improvements, extensions, and replacements.⁷⁵

15 **Mississippi:** CenterPoint Energy Resources Corp. and Atmos Energy Corporation have
16 both implemented “Supplemental Growth Riders” that allow the companies to implement
17 a surcharge to fund gas extensions for industrial projects that would otherwise be
18 uneconomical.⁷⁶

⁷² *Report of the Public Staff, North Carolina Utilities Commission to the Joint Legislative Commission on Governmental Operations: Analysis and Summary of Expansion Plans of North Carolina Natural Gas Utilities and the Status of Natural Gas Service in North Carolina*, April 24, 2012, page 3-4.

⁷³ GPSC Order filed February 8, 2010 in Dockets 8516 and 29950. See also Attachment A of said Order, sections 7 and 8, and GSPC Order Adopting Stipulation in Dockets 8516 and 29950, filed October 13, 2009.

⁷⁴ OPUC Docket UG 177 UM 1339, Order 07-480 and NW Natural’s Application in the same case dated August 31, 2007, page 1.

⁷⁵ Indiana Senate Enrolled Act No. 560, chapter 39, particularly sections 7 and 9.

⁷⁶ Atmos Energy Corporation Tariffs, last updated September 5, 2014 and Supplemental Growth Rider Tariff (Sheet 403) for CenterPoint Energy Resources Corp.

1 **Q43. What do you conclude from the examples you have just provided?**

2 A43. The above examples show that a number of US regulators are using relatively innovative
3 methods to allow gas utilities to essentially spread the costs of system expansions
4 (including reinforcement costs) across all customers by requiring all customers to pay
5 surcharges in order to make up for the “uneconomic” portion of those expansions. This
6 policy is generally consistent with the cost recovery methods that Gaz Métro has proposed
7 for the Upgrades.

8

1 **VI. Analysis of Gaz Métro’s Proposed Project**

2 **Q44. How does Gaz Métro’s proposed project fit in to the recent trends in the gas industry**
3 **and market in Québec?**

4 A44. Québec’s population has grown at a steady rate and will continue to grow.⁷⁷ At the same
5 time, gas has become the premium low-cost growth fuel in North America with the advance
6 of technology in unconventional gas production.

7 Indeed, the president of the American Gas Association, Dave McCurdy, stated in 2012 that,
8 due to its low price, gas “provides an opportunity to make the investment [in distribution
9 infrastructure] without seeing price spikes or major increases in rates.”⁷⁸ Gas use is up,
10 throughout the continent, for all gas users (industrial customers, traditional residential and
11 commercial uses, and power generation); and gas use is expected to continue to grow in all
12 areas over the next decade, due to its newfound affordability and price stability.⁷⁹ In
13 addition, after 2008 gas competition in North America has finally, and seemingly
14 irreversibly, broken the link with oil equivalent prices—a link that continues to hold up
15 consumer commodity gas prices in Europe, for example.⁸⁰

16 **Q45. Given the increased demand for gas in northeastern Québec and the regulatory goals**
17 **and precedents cited above, how do you view the appropriateness of Gaz Métro’s**
18 **proposed upgrade?**

19 A45. Based on my conversations with company management, it appears to me that Gaz Métro
20 has done a reasonable job of assessing alternative solutions to meeting increased demand

⁷⁷ See Statistics Canada, CANSIM, table 051-0001, accessed from <http://www.statcan.gc.ca/tables-tableaux/sum-som/101/cst01/demo02a-eng.htm>.

⁷⁸ “AGA’s McCurdy discusses impact of low natural gas prices on infrastructure development,” September 13, 2012 interview on E&E TV, accessed from http://www.eenews.net/tv/video_guide/1571.

⁷⁹ American Gas Association, *Rethinking Natural Gas: A Future for Natural Gas in the U.S. Economy*, October 17, 2012, pages 14 and 23, accessed <https://www.aga.org/sites/default/files/legacy-assets/our-issues/promise/Documents/Rethinking%20Natural%20Gas%20Version%202.pdf>.

⁸⁰ For the five years from 2009 through 2013, European gas consumers paid a staggering \$425 billion more for their gas than their US counterparts. See: Makhholm, J.D., “Regulation of Natural Gas in the United States and Europe: Prospects for a Low Carbon Fuel,” *The Review of Environmental Economics and Policy*, 2014 [forthcoming].

1 and, as the monopoly gas distributor in Québec, planning to serve its customers using the
2 most prudent and reasonable option. Gaz Métro has no option but to complete the project
3 in order to support its end of the regulatory compact—providing all comers with service at
4 fair and reasonable regulated rates. Gaz Métro has prudently evaluated the alternatives and
5 found that the one presented in the application most economically meets these capacity
6 needs. The project also advances the public interest by:

- 7 • increasing network security;
- 8 • meeting customers' energy needs with the lowest cost fossil fuel;
- 9 • meeting customers' needs with a stable-cost fossil fuel;⁸¹
- 10 • allowing new customers to access natural gas at rates similar to those faced by
11 current customers;
- 12 • protecting the environment by reducing greenhouse gas emissions (natural gas has
13 a lower carbon content per joule than other fossil fuels); and
- 14 • conserving resources by using one of the most abundant fuels available (natural
15 gas).

16 **Q46. Is it appropriate for all customers to share the costs for Improvements and**
17 **Reinforcements?**

18 A46. Yes. Improvements projects benefit all customers since their sole purpose is to improve
19 system integrity and reliability. As they benefit all customers, it is also appropriate that all
20 customers should share in the costs. Reinforcement costs should be shared among all
21 customers for the simple reason that they also benefit all customers. Reinforcements benefit
22 the whole system by increasing capacity.

23 We have to remember what is at stake with such a recommendation: to adequately serve
24 all who can reasonably claim access to a benefit fuel in the province while at the same time
25 supporting a tariff regime that is tractable, reasonably efficient, and fair to all consumers.

⁸¹ See footnote 79.

1 Of course, it is reasonable to have a test as to whether it is broadly worthwhile to expand
2 and extend gas distribution service to different communities in Quebec; it would be
3 unreasonable to devote capital facilities to extend service to simply anyone. But if the cost-
4 reasonableness test is met for an upgrade or extension, either quantitatively (by reference
5 to a cost/benefit test), or qualitatively (through the reasoned judgment of the company and
6 the Régie, if a strictly quantitative test does not take account of all important criteria), then
7 tariff design should mirror accepted practice throughout North America. That is, common
8 facilities, which cannot be objectively tied to particular users, should receive common cost
9 treatment in making consumers prices. Such accepted practice appeals to both fairness and
10 strong economic principles (where the opportunity cost of continuing service to an existing
11 user is indistinguishable from the added cost to serve his/her neighbor with new service
12 from common facilities).

13 That is to say, there is widespread agreement, evident from many jurisdictions in North
14 America dealing with the regulation of local service utility natural monopolies that provide
15 service to a common class of customers drawing from common facilities should have a
16 common tariff and schedule of prices. Whatever means permit these local service
17 companies, like Gaz Métro, have to judge the efficacy of additions and extensions, the
18 result simply changes the common cost of service and sum total of billing determinants—
19 not the tariff model. The roll-in of such costs is, as such, part and parcel of providing
20 reasonable and economical service to communities that share service on common facilities.

21 **Q47. Is it appropriate, by contrast, to assign Development projects to specific customers?**

22 A47. Yes, as these are not common costs like Improvements and Reinforcements. Gaz Métro's
23 proposed policy for Development projects is, to my understanding, the same as the Régie's.
24 I think the Régie's policy on this issue of only approving projects that pay for themselves—
25 that is, projects that have an IRR greater than their prospective capital cost—makes sense
26 and is reasonable. I therefore also think directly assigning costs to customers for
27 Development projects is appropriate.

1 **Q48. Have you reviewed any other issues that are potentially relevant to the Gaz Métro’s**
2 **application?**

3 A48. Yes. My discussions with Gaz Métro also included potentially assessing the implications
4 of “roll-in” as opposed to “incremental” treatment of these costs. However, the issue of
5 “roll-in” versus “incremental” is one for contract-based pipelines, not for distributors. I
6 have written widely on the subject and was personally involved in the debate over that
7 subject in the US (as one of the most vocal proponents of incremental ratemaking as an
8 essential element of the competitive market in capacity that developed in the US). But those
9 issues don’t concern shared gas distribution systems, particularly those that by statute
10 require distributors to charge equally situated customers equivalent prices under an
11 overarching “obligation to serve” (an obligation that upstream contract-based gas pipelines
12 do not have).

13 **Q49. You have said, and shown, that it is common across North America for local service**
14 **utility natural monopolies to roll-in additions to common facilities for the purpose of**
15 **tariffs and price schedules. Do you have anything else to add on that subject?**

16 A49. Yes. The basic tariff making principles of such local service utility monopolies has evolved
17 over many decades. During that time, there have been advances in particular costing
18 methods (like marginal-cost pricing) and rate designs (including block rates, time-of-day
19 rates and other innovations). But the basic method of tying the costs of common facilities
20 to similarly-situated customers, whether new or old, has not changed. Once the decision is
21 made to expand or extend services to regions, then the support of those services (other than
22 to the last non-common link to customers) is held by North American regulators to be a
23 common expense, rolled into the rate base. To do anything else would be to make a
24 customer-specific classification unsupported by economic principles or practical aspects
25 of tariff making.

1 **VII. Conclusion**

2 **Q50. What do you conclude?**

3 A50. I conclude that Gaz Métro’s proposed ratemaking for the Upgrades warrants approval by
4 the Régie. Socializing the Improvement and Reinforcement costs across all customers, as
5 Gaz Métro has proposed, respects widely-accepted ratemaking principles and is consistent
6 with ratemaking practices in other North American jurisdictions. Completing the project
7 specified in Gaz Métro’s application would allow Gaz Métro to maintain security of supply
8 on the Saguenay and Eastern Township networks and fulfill its part of the regulatory
9 compact by expanding the system to meet the growing demand—for North America’s
10 increasingly abundant and low-cost gas—of current and future customers.

11 **Q51. Does this conclude your testimony at this time?**

12 A51. Yes.