PIÈCE EGI-2

**DIRECT TESTIMONY OF TOBY BROWN,
DATÉ DU 5 NOVEMBRE 2021**

BEFORE THE
RÉGIE DE L'ÉNERGIE DU QUÉBEC

Direct Testimony
of
Toby Brown

FOR
ÉNERGIR, L.P.
GAZIFÈRE INC.
INTRAGAZ LP

Demande conjointe relative à la fixation de taux de rendement et de structure de capital – Phase 2

5 November, 2021

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I. INTRODUCTION

Q1. Please state your name, address and position.

A1. My name is Toby Brown. I am a Principal of The Brattle Group, an economic consulting firm with offices in the U.S., Canada, Europe, Australia and China. I head Brattle's Sydney office which is located at Suite 11.03, 4-6 Bligh Street.

Q2. Please describe your background and qualifications.

A2. I have worked in economic consulting for 20 years, specialising in the regulation and economics of the gas and electricity sectors. I have consulted for utilities, regulatory agencies and large energy users across the U.S., Canada, the UK, Australia, New Zealand and Southeast Asia. I also spent four years working at Ofgem, the energy regulator in Great Britain. I have focused particularly on the application of incentive-based regulation in the energy sector, and I have testified on this and related topics in proceedings in Alberta and Hawai'i. I have analysed business risk for distribution utilities and natural gas and oil pipelines in Canada and the U.S. More broadly I have advised on many aspects of developing and improving utility regulation and energy market design, based on economic principles and by identifying good regulatory practice from experience in different jurisdictions worldwide. In addition to my regulatory work, I have also consulted on many commercial litigation matters. These matters have mostly involved disputes over the price of natural gas or liquefied natural gas, infrastructure valuation, or infrastructure access pricing.

I have a B.A. (Hons.) and a D.Phil. in chemistry from the University of Oxford. My resume is appended to this testimony as Attachment TB-1.

Q3. What assignment were you given in this proceeding?

A3. The Brattle Group has been retained by Énergir L.P., Gazifère Inc., and Intragaz LP (jointly, the "Utilities"). My colleague Dr. Bente Villadsen has been asked to provide testimony on the cost of equity and capital structures that it would be reasonable to

allow in this proceeding.[1] I have been asked to assess the business risk of the Utilities and in particular to compare the business risk of the Utilities with that of the utilities owned by the companies in the samples analyzed in Dr. Villadsen's testimony. I have been provided with information about the Utilities as well as a copy of the report prepared by Aviseo,[2] which describes a set of relevant facts regarding the Utilities and the environment in which they operate. I have relied on that report for my assessment of the Utilities' business risks.

Q4. Please summarize your assessment of the business risk of the Utilities and how this compares to the business risk of the samples described in Dr. Villadsen's testimony.

A4. Business risk relates to the operations and business environment of a company, and is therefore not influenced by the way that a company is financed (ie, financial risk, which is addressed in Dr. Villadsen's testimony). I have compared the Utilities' operations and business environment with that of the companies in Dr. Villadsen's gas LDC sample.[3] I reach three main conclusions which I summarise here and explain in more detail in the rest of my direct testimony.

First, Dr. Villadsen's gas LDC sample consists of nine companies each of which is predominantly engaged in gas distribution. Each company owns one or more gas LDCs which, as a group, mainly operate in sixteen U.S. states and are regulated on a cost-of-service basis by regulatory commissions in those states. Since the sample companies have similar operations to the Utilities, and since the regulatory framework is broadly similar, I consider the gas LDC sample to be a relevant benchmark. I consider the business risk of the Utilities to be within the range of business risk defined by the gas LDC sample.

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1 Dr. Villadsen's testimony is Exhibit EGI-1.

2 The Aviseo report is Exhibit EGI-3. All references to the Aviseo Report are made to the English translation.

3 I have not compared the Utilities to the other samples described by Dr. Villadsen because the gas LDC sample is the closest in terms of business operations. While the Canadian sample contains some gas distribution utilities, it also rather heterogeneous (See the workpapers to BV-6).

Second, the business risks of the Utilities described in the Aviseo report are primarily factors which could cause a reduction in the quantity of gas distributed by the Utilities, and/or a reduction in the number of gas distribution customers, and which thus might be described as demand risks or competition risks. I have compared these key components of the Utilities' business risk with the business risk of the utilities owned by the companies in Dr. Villadsen's gas LDC sample. I find that Quebec has developed and/or implemented policies to reduce emissions of greenhouse gases from the energy sector to a greater degree than in jurisdictions where the sample operates. Furthermore, electricity in Quebec is cheaper and is associated with lower greenhouse gas emissions than electricity in the regions relevant to the sample. As a result, I conclude that the Utilities could see a reduction in demand for their services in the future, and are therefore exposed to uncertainty in capital recovery to a greater degree than the utilities in the sample.

Third, I have considered whether each of the three Utilities has the same business risk. I conclude that the business risk of Intragaz is the same as that of Énergir since the latter is the sole customer of and integrated with the former and both are regulated on a cost-of-service basis. I consider the business risk of Gazifère to be higher than that of Énergir because Gazifère is smaller and has a customer mix more heavily weighted to households (rather than industry in Énergir's case). As a result, uncertainty in capital recovery due to the potential for electrification of gas demand is more significant for Gazifère.

Overall, therefore, I consider Énergir and Intragaz to have above-average business risk relative to Dr Villadsen's gas LDC sample, and Gazifère to have a business risk towards the top of the range of the sample.

Q5. How have you structured your direct testimony?

A5. In section II, I describe my understanding of the relationship between business risk, the cost of capital, and the allowed return. In section III, I assess the business risks of the Utilities and compare them with utilities in the U.S. owned by companies in Dr.

Villadsen's gas LDC sample. In section IV, I summarize my conclusions in relation to business risk.

II. BUSINESS RISK AND ALLOWED RETURN

Q6. What is business risk and how does it relate to the allowed return and deemed equity thickness for a regulated utility?

A6. In order to provide appropriate compensation to utility investors for bearing the risks associated with their investment, the allowed return and the deemed equity percentage (or equity thickness)[4] need to take into account an assessment of the utility's business risk. I explain my understanding of the term "business risk" in detail below, but in summary the greater is the business risk, the higher the allowed return on equity and/or the greater the deemed equity thickness needs to be in order to compensate investors for bearing the risks associated with investing in the utility, and thereby to meet the "fair return" standard.

The "fair return" standard[5] means that the regulatory framework should allow investors to expect to earn returns from investing in a regulated utility similar to the returns they would expect to earn from other investments of equivalent risk. Investors should expect to recover their investment, together with a fair return on it, from future cash flows generated by the business. The fair return standard recognizes that regulated utilities must compete with each other (and with other businesses) in the market for funds. Thus, if the business risk of a particular utility is relatively high, investors in that utility will

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[4] Equity thickness is the fraction of the utility's rate base funded with equity.

[5] For example, the National Energy Board (as was) has defined the fair return standard as follows: "Specifically, a fair or reasonable return on capital should: be comparable to the return available from the application of the invested capital to other enterprises of like risk (the comparable investment standard); enable the financial integrity of the regulated enterprise to be maintained (the financial integrity standard); and permit incremental capital to be attracted to the enterprise on reasonable terms and conditions (the capital attraction standard)." (RH-2-2004, phase II, p. 17 (April 2005)). I understand that the Régie has employed a similar approach, although it uses the term "reasonable rate of return" rather than "fair return" (for example, in Decision D-2009-156 the Régie said "The Régie accepts that the three criteria referred to by counsel for the Applicant, namely the comparable investment, financial integrity and capital attraction requirements, are fully supported by these bodies of case law. It further notes that these criteria are not being challenged by IGUA, acting as the representative of the gas users' associations. It notes that these criteria are also recognized and used by the various groups of experts testifying before it. **The Régie finds that these criteria enjoy consensus support and may be used to guide the exercise of its authority to determine a reasonable rate of return.**" (D-2009-156, paragraph 189)).

have higher return expectations in order to compensate for the increased business risk. In particular, if the business risk of a particular utility is high relative to the business risk of a second utility, investors will require a higher return from investing in the first utility than the second in order to induce them to invest. If a regulator is determining the allowed rate of return for a utility with reference to the cost of capital of a group of comparable utilities (as set out in Dr. Villadsen's testimony), an analysis of the business risk of the utility relative to that of the comparable utilities informs where the allowed return should be set relative to the cost of capital of the comparable utilities.

Investors' expectations about returns on investments in regulated utility companies depend on how the regulatory framework influences future cash flows to investors. An important (but not the only) influence of the regulatory framework on future cash flows is the allowed return on equity and the deemed equity thickness, both of which are inputs for determining regulated revenues and hence rates.

Q7. What is the relationship between the allowed return on equity (and the deemed equity thickness) and investors' expected returns?

A7. Other things equal, if the allowed return on equity increases and/or deemed equity thickness increases, then the expected return will also increase. However, other factors besides the allowed return[6] also influence expected returns. The returns investors will actually achieve in the future are uncertain, and the expected return is the average of possible future achieved return outcomes, weighted by the probability that the outcome will eventuate. For example, if a regulator were to set rates based on a target level of operating and maintenance costs ("O&M costs") that investors think will be difficult for utility management to achieve, investors may expect lower achieved returns even if the allowed return on equity and deemed equity thickness are unchanged. When investors form expectations about future returns, they consider both the level of the allowed return and the possibility that achieved returns may turn out below or above the level of the allowed return, due to "regulatory lag" (the time that typically elapses

[6] Unless I am specifically referring to the allowed return on equity or to the deemed equity thickness, when I use the term "allowed return" I am referring to the combination of the allowed return on equity and the deemed equity thickness, each of which influence the return expectations of equity investors.

between a change in the utility's costs and a corresponding change in allowed revenues and rates).[7]

Q8. Are you aware of any reasons why, currently, investors in the Utilities would expect achieved returns in the future to be systematically different from the level of the allowed return?

A8. No. Although investors understand that achieved returns are uncertain, such that the return investors achieve could well be different from the allowed return, I am not aware of any reason to expect a *systematic* difference. This is because regulatory frameworks are designed to provide utilities with a reasonable opportunity to earn the allowed return.

Regulatory frameworks in general, including that in Quebec, are not designed to guarantee that investors will achieve the allowed return: if the return were guaranteed, there would be no incentive for utility management to operate efficiently. Frameworks in different jurisdictions may have different degrees of regulatory lag and therefore different exposure to volatility in achieved returns, but it would be unusual for there to be no variance between achieved and allowed returns. There are many factors giving rise to uncertainty in both the future revenues and the future costs which together determine achieved returns (some of these factors can be influenced by utility management and some are exogenous). Thus, the return achieved in some future period is likely to turn out to be different from the allowed return. The possibility of achieving a higher return (if performance is good), and the possibility of achieving a lower return (if utility management is less successful), provides a financial incentive to perform well and helps to align the interests of investors and customers.

[7] By "regulatory lag" I mean that a change in utility costs is generally not immediately reflected in a corresponding change in utility revenues. Usually utilities would have to request a change in revenue, for example at the next rate case, resulting in a lag. I understand that the Utilities have revenues which, to a degree, may adjust to reflect *expected* changes in costs relatively quickly, but that there remains a lag before *actual* changes in costs will be reflected in rates and revenues. I discuss regulatory lag in more detail below in Q40.

Nonetheless, despite the fact that achieved returns are uncertain, the regulatory framework provides a reasonable opportunity to earn a fair return.[8] Providing a reasonable opportunity to earn a fair return is an important part of the "regulatory compact" and means that utilities have low business risk (relative to companies active in other sectors of the economy). Furthermore, this facilitates investment at relatively low cost. I am not aware of any reason to expect a *systematic* difference between the return allowed by the Régie and the return achieved by the Utilities' investors.

Q9. How does your analysis of business risk relate to Dr. Villadsen's testimony?

A9. Dr. Villadsen's testimony includes estimates of the cost of capital for various samples made up of companies comparable to the Utilities. Dr. Villadsen's estimates are in the form of ranges because there is measurement uncertainty when estimating the cost of capital. It would be reasonable to provide a utility with low business risk (relative to the range of business risks of the utilities in the sample) with an allowed return towards the low end of the range defined by the sample results, and to provide a utility with a high business risk (relative to the business risk of the utilities in the sample) with an allowed return towards the high end of the range. Dr. Villadsen recommends an allowed return from within the range based, in part, on my analysis that compares the business risk of the Utilities with the business risk of the utilities in the samples and confirms that the gas LDC sample is a relevant benchmark.

Q10. How can one structure an analysis of business risk?

A10. Business risk refers to the underlying risks inherent in a particular company's operations. An analysis of business risk could be structured in different ways, but a common approach is to examine the following components: supply risk, demand risk, competitive risk, operating risk and regulatory risk. Another distinction that is sometimes drawn is between factors that give rise to volatility in achieved returns over

[8] The Régie has said "Les tarifs fixés par le régulateur doivent donner l'opportunité à l'entité réglementée de réaliser un rendement raisonnable de l'ordre du taux autorisé." [The rates approved by the regulator must provide the regulated entity with the opportunity to earn a reasonable return approximately equal to the allowed return] (D-2012-076, paragraph 72).

time on the one hand, and factors that could give rise to uncertainty about whether invested capital will be recovered over its economic life. The latter is sometimes referred to as "capital recovery risk".

In analysing the business risk of the Utilities I have considered each of supply, demand, competitive, operating and regulatory risks, and I have identified those risks which seem to me likely to be more significant from the perspective of investors. I have also specifically identified where these risks give rise to volatility in achieved returns and where they could give rise to uncertainty about capital recovery (which could be considered regulatory risks).

Q11. What is the relevance of volatility in achieved returns?

A11. Other things equal, investors prefer returns that are less volatile. Thus, if investors expect returns to be volatile, and specifically if movements in achieved return are correlated with returns from the market generally so that the volatility cannot be diversified away, the cost of capital increases and the allowed return needs to be higher.

Q12. What is the relevance of uncertainty about capital recovery?

A12. As I explained above, the regulatory framework is designed to allow investors to recover invested capital over time and to provide a reasonable opportunity to earn the allowed return on investment not yet recovered. Given that many utility assets have long economic lives (often 30 years or more), investment is made on the understanding that the regulatory framework will continue to provide this reasonable opportunity over an extended period during which capital is being recovered. However, if circumstances are such that the regulator may need to take action in order to continue to provide that reasonable opportunity, then uncertainty about capital recovery may be created, because investors cannot be certain how the regulator will permit recovery. An example is provided by the concept of an "extraordinary retirement" as applied by the regulator in Alberta, which has created uncertainty about how utilities can recover prudent investment in undepreciated assets that are retired from service (for example, having

been destroyed in a fire).[9] Another example might be associated with the transition from traditional meters to "smart" meters, where a rapid roll out of the new metering technology might require the regulator to approve recovery of investment in the old meters that are being retired from service, either on an accelerated basis or amortized over a period when the meters are no longer in service.[10] While such recovery (absent a finding of imprudence) is consistent with the regulatory compact and thus to be expected, nonetheless it requires regulatory approval.

Q13. Is uncertainty about capital recovery relevant to an assessment of the business risk of the Utilities at this time?

A13. Yes. As I discuss in detail below, there are a number of public policy initiatives under discussion in Quebec which contribute to such uncertainty. Policies which aim to reduce emissions associated with fossil fuel use may change the way in which the Utilities operate and how capital is recovered.

Q14. Does an increase in business risk associated with uncertainty about capital recovery mean that investors are bearing stranding risk?

A14. No. A fundamental principle of the regulatory framework remains that utilities are able to recover prudent investment from customers over time, and (absent a finding of imprudence) continue to have a reasonable opportunity to earn a fair return on prudently-invested capital. This fundamental principle is one reason why the cost of capital for utilities tends to be lower than that of companies in other sectors of the

[9] For example, the Alberta Utilities Commission said "[T]he evidence on the record of the proceeding is sufficient to confirm that some amount of upward pressure on the return expectations of investors has occurred since the 2013 GCOC decision due to an increase in perceived business risk of the affected utilities. The evidence supports the view that this perception arises, in part, from investor uncertainty about how the Commission will continue to interpret and apply Stores Block principles as reviewed in the UAD decision and in particular, the parameters of an 'extraordinary retirement' to future case-by-case examples of assets unexpectedly being removed from utility service prior to the full recovery of their undepreciated capital costs…. …After reviewing the evidence, the Commission determined above that directionally, regulatory risk for investors in Alberta utilities has increased by some incremental but unquantifiable amount as a result of the Stores Block-UAD line of decisions." (Alberta Utilities Commission, *Decision 20622-D01-2016*, paragraphs 520–1).

[10] For example, I understand that the Régie approved the recovery of undepreciated investment in smart meters in Decision D-2012-127 (paragraphs 376–9).

economy. If circumstances are such that there is uncertainty about how recovery of prudent investment will be achieved in the future, then utility business risk will directionally increase, and allowed returns should also directionally increase.

If the fundamental principle of permitting the recovery of prudent investment and providing a reasonable opportunity to earn a fair return on unrecovered prudently-invested capital were to change, such that stranding risk was borne by investors,[11] the impact on business risk and the necessary allowed return would be dramatic. In that case, investing in utilities would no longer be low risk relative to investments in other sectors of the economy. This is particularly true because of the capital intensity of the utility industry, and the reliance on long-lived assets without alternative use.

Q15. Are you aware of any examples where stranding risk is giving rise to a dramatic impact on the allowed return?

A15. No. In all the jurisdictions with which I am familiar, the allowed rate of return is set equal to an estimate of the cost of capital.[12] If utilities were bearing stranding risk, the allowed return would have to be set above the cost of capital in order to provide a reasonable opportunity to earn a fair return in the presence of stranding risk.

Q16. How have you applied the framework you describe above to assessing the business risk of the Utilities?

A16. I have examined the extent to which the elements of business risk set out above are significant influences on the business risk of the Utilities, and I have compared the Utilities with the utilities in Dr. Villadsen's samples.

Q17. Have you analysed each of the Utilities separately?

A17. Yes. I first analyse Énergir, then Gazifère, and finally Intragaz.

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[11] By "stranding" I mean a circumstance in which utility investors are unable to recover all or part of their investment in an asset through rates charged to customers even though the investment was prudent.

[12] In some instances regulators have incorporated financial incentives, contingent on performance, into the regulatory framework which can be expressed as an amount added to or subtracted from the allowed rate of return. However, these incentive payments are not compensation for bearing risk.

III. BUSINESS RISK OF THE UTILITIES RELATIVE TO DR. VILLADSEN'S SAMPLES

Q18. In general, are the business risks of a utility in one jurisdiction comparable to those of utilities in a different jurisdiction?

A18. It is reasonable to compare business risks across jurisdictions if the regulatory frameworks in the different jurisdictions are similar. In particular, since the "fair return standard" underpins the framework for regulating utilities in both Canada and the U.S., I consider it reasonable to compare the business risks of the Utilities in Quebec to those of similar utilities in other North American jurisdictions. While there are differences in the way utilities are regulated across different jurisdictions in North America that can contribute to a difference in business risk, these differences are not so large that the comparison is not meaningful. In particular, I consider that comparing the Utilities to Dr. Villadsen's gas LDC sample is particularly relevant since the utilities in this sample operate gas distribution networks, and since the regulatory framework is generally similar. I consider the comparison with Dr. Villadsen's Canadian utility sample to be less relevant because the Canadian utility sample is rather heterogeneous, and most of the companies in the Canadian utility sample are not concentrated in gas distribution.[13]

Q19. What companies are in Dr. Villadsen's gas LDC sample?

A19. In Table 1 I list the companies in Dr. Villadsen's gas LDC sample, and I also indicate which are the main jurisdictions each company operates in. I do this by estimating the fraction of total gas distribution rate base belonging to each company that is regulated in each jurisdiction (with the exception of Chesapeake, for which I use the number of gas distribution customers in each jurisdiction).[14]

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[13] See the workpapers to BV-6.

[14] I was not able to find reliable rate base figures for the Chesapeake utilities.

Table 1

Company		States with Some Activity	States with Significant Activity	
			States	Fraction of Activity
		[A]	[B]	[C]
Atmos Energy Corp.	[1]	Texas, Colorado, Kansas, Kentucky, Tennessee, Virginia, Louisiana, Mississippi	Texas Louisiana Mississippi	60% 11% 9%
Chesapeake Utilities Corp.	[2]	Delaware, Florida, Maryland	Delaware Florida	44% 46%
New Jersey Natural Gas Co.	[3]	New Jersey	New Jersey	100%
Nisource	[4]	Ohio, Pennsylvania, Indiana, Virginia, Kentucky, Maryland	Ohio Pennsylvania Indiana	40% 24% 20%
Northwest Natural Gas Co.	[5]	Oregon, Washington	Oregon	88%
ONE Gas Inc.	[6]	Kansas, Oklahoma, Texas	Oklahoma Kansas Texas	43% 30% 28%
Southwest Gas Corp.	[7]	Arizona, California, Nevada	Arizona Nevada	50% 38%
South Jersey Gas	[8]	New Jersey	New Jersey	100%
Spire Inc.	[9]	Alabama, Mississippi, Missouri	Missouri Alabama	79% 20%

Source: EIA Natural Gas Annual Respondent Query System.

Notes:

[B]-[C]: To determine significant activity, each company's rate base and number of customers is ranked by state. The states with highest rate base are included to reach at least 75% of the company's total rate base and 75% of the company's customers.

[C][1], [C][3]–[C][9]: proportion of total gas distribution rate base.

[C][2]: proportion of total gas distribution customers.

I include only those jurisdictions which together account for at least 75% of the total gas LDC operations of each utility. I would not expect the smaller jurisdictions to have a measurable impact on the overall business risk of each utility. Together, therefore, the nine sample companies have significant gas LDC operations in 16 states: Alabama, Arizona, Delaware, Florida, Indiana, Kansas, Louisiana, Mississippi, Missouri, Nevada, New Jersey, Ohio, Oklahoma, Oregon, Pennsylvania, and Texas.

Q20. How have you identified significant elements of business risk for the Utilities?

A20. The Utilities provided me with a report prepared by Aviseo that describes a set of relevant facts regarding the Utilities and the environment in which they operate, and allows an assessment of the Utilities' business risks to be made. I understand that Aviseo's report is based on interviews with staff at each of the Utilities, as well as Aviseo's own research.[15] I have also developed corresponding information about the utilities in Dr. Villadsen's gas LDC sample to allow a comparison of business risk to be made for those elements of the Utilities' business risks which I assess to be more significant.

The business risks described in the Aviseo report are primarily factors which could cause a reduction in the quantity of gas distributed by the Utilities, and/or a reduction in the number of gas distribution customers, and which thus might be described as demand risks or competition risks.

In addition, I also consider the Utilities' exposure to regulatory risks.

I consider the business risks of each of the Utilities in turn in the subs-sections which follow. Those factors which are common to all three Utilities are described in the Énergir sub-section.

ÉNERGIR

Q21. What are the sources of demand (or competition) risk for Énergir?

A21. The main sources of demand risk for Énergir, as identified in the Aviseo report, are as follows.

a. There are public policy initiatives in Quebec which put downwards pressure on gas demand.[16] Some initiatives under discussion could have an impact on gas demand directly, for example by eliminating gas use

[15] Aviseo's approach is described in the Aviseo report, p. 4.

[16] Aviseo Report, Exhibit EGI-3 at pp. 6-12, 22-25.

in buildings belonging to local governments.[17] Others could indirectly impact gas demand by making gas more expensive (for example, through mandating an increasing proportion of renewable natural gas to be distributed, which is more expensive than traditional fossil-derived natural gas).

b. A relatively large fraction of Énergir's total gas demand is accounted for by industrial customers.[18] Gas use of industrial customers tends to be relatively more sensitive to the overall level of activity in the economy than gas use by households.

c. The price of electricity in Quebec is much lower than in many other locations in North America.[19] As a result, the cost of using gas for home heating is similar to the cost of using electricity, whereas in other locations gas is often much cheaper.

d. Relatedly, the share of natural gas in the fuel mix for households is small and has been constant over time, while that of electricity has been increasing (and heating oil decreasing).[20] In addition, Aviseo points out that the number of construction companies providing building services which are licensed to install and repair natural gas pipes inside buildings is trending downwards over time.[21]

I examine each of these demand risks for Dr. Villadsen's gas LDC sample below.

Q22. What sources of regulatory risk have you identified?

A22. I explained above that one type of risk relevant to this analysis is volatility in returns over time. The way in which a utility is regulated can contribute to this volatility, for example through the amount of time that typically elapses between a change in the

[17] Aviseo Report, Exhibit EGI-3 at pp. 7-9.

[18] Aviseo Report, Exhibit EGI-3at p. 13.

[19] Aviseo Report, Exhibit EGI-3 at pp. 19-20.

[20] Aviseo Report, Exhibit EGI-3 at p. 35.

[21] Aviseo Report, Exhibit EGI-3 at pp. 32-34.

utility's costs and the corresponding change in utility revenues (ie, the lag between incurring costs and being able to recover those costs in rates). I assess this risk by comparing the mechanisms available to Énergir for adjusting its rates over time with those available to the sample LDCs.

I also consider the possibility that some of the business risks facing Énergir could give rise to uncertainty in capital recovery over the longer term.

Public policy factors

Q23. What public policy factors contribute to demand risk facing Énergir?

A23. I understand that the following policies, in various stages of implementation, could directly reduce demand for Énergir's gas distribution service or could make the gas it distributes more expensive and therefore less attractive to customers, for example relative to electricity. These policies, described in the Aviseo report, include the following:

a. pricing of greenhouse gas emissions via emissions trading and related policies;[22]

b. direct restrictions on natural gas use;[23]

c. a requirement to distribute a certain percentage of renewable natural gas (RNG);[24] and

d. promoting hydrogen as a fuel.[25]

Q24. What is the significance, in the context of your business risk analysis, of policy initiatives in Quebec to price carbon emissions?

A24. A gas LDC in Quebec such as Énergir must obtain emissions permits corresponding to the emissions associated with the gas it distributes to customers (ie, corresponding both

[22] Aviseo Report, Exhibit EGI-3 at p. 6.

[23] Aviseo Report, Exhibit EGI-3 at pp. 7-9.

[24] Aviseo Report, Exhibit EGI-3 at pp. 10, 22-25.

[25] Aviseo Report, Exhibit EGI-3 at pp. 25-26.

to the "direct" emissions associated with the distributor's own activities, and the "indirect" emissions associated with its customers' activities). The cost of the permits is ultimately part of the distributor's revenue requirement and is thus recovered from customers in rates. As a result, natural gas in Quebec is more expensive than it would be without the policy on pricing emissions, and natural gas is less attractive as a fuel relative to electricity. All else equal, this tends to depress demand for natural gas and hence demand for natural gas distribution services.

Q25. Are you aware of any similar policies currently in place or proposed for any of the jurisdictions in which the companies in Dr. Villadsen's gas LDC sample operate?

A25. No, not to my knowledge. Carbon emissions from natural gas are priced in California,[26] but not in other U.S. states (and Dr. Villadsen's gas LDC sample does not have significant activity in California).

Q26. What are the policies directly restricting natural gas use in Quebec?

A26. As distinct from pricing carbon emissions which increases the cost of using natural gas and thus tends to reduce demand, other policies are under consideration that could directly restrict natural gas use. For example, the city of Montréal is considering a ban on the use of natural gas in the buildings belonging to the city,[27] and the Quebec government has also stated that it will prioritize renewable energy for heating in new and renovated government buildings.[28]

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[26] See https://www.cpuc.ca.gov/industries-and-topics/natural-gas/greenhouse-gas-cap-and-trade-program. Household customers receive a credit representing a portion of the funds generated by auctioning emissions rights. Emissions from natural gas supply will also be priced in Washington state from 2023 under recently-enacted legislation (*Washington Climate Commitment Act*).

[27] Aviseo Report, Exhibit EGI-3 at p. 8.

[28] Aviseo Report, Exhibit EGI-3 at. p. 7.

Q27. Are there such policies under consideration in other jurisdictions in North America?

A27. Yes. A recent analysis of this issue[29] shows that cities in California, Washington and Massachusetts have implemented measures which prohibit the use of natural gas in certain buildings. Cities in other jurisdictions, including Oregon, have proposed such prohibitions. However, in certain U.S. states there have been moves at the state level to prevent local jurisdictions from implementing "gas bans". Out of the 16 states represented in Dr. Villadsen's gas LDC sample, ten have passed legislation prohibiting "gas bans" and a further two are considering doing so.[30] Out of the nine companies in Dr. Villadsen's gas LDC sample, only one (Northwest Natural, active in Washington and Oregon) has put significant weight on this issue in its discussion of business risk in annual reports to shareholders.[31] The other companies are active in states where this issue has not gained similar prominence.

Q28. Besides incorporating a carbon price or directly reducing natural gas demand, what other policies are you aware of related to natural gas and emissions in Quebec?

A28. In addition to the policies discussed above, the government of Quebec has implemented regulations requiring an increasing amount of "renewable natural gas" (RNG) to be delivered by gas distribution utilities such as Énergir. The requirement began at 1% in 2020–21, rising to 5% for 2025–26.[32] The government is also seeking to develop a "hydrogen strategy", which could involve distributing hydrogen mixed with natural gas in the gas distribution network. The government is supporting various pilot projects, and various studies are underway.

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29 *The Future of Gas Utilities Series—Transitioning Gas Utilities to a Decarbonized Future*, The Brattle Group (Frank Graves *et al.*, August 2021).

30 *Ibid*., p. 10.

31 Northwest Natural Holdings, 2020 10-K, pp. 15-17, 27-28.

32 Aviseo Report, Exhibit EGI-3 at pp. 10, 24.

Q29. What is the significance of policies in Quebec concerning RNG and hydrogen?

A29. In the context of Énergir's business risk, the significance of these policies is that they are likely to make gas more expensive. Furthermore, while there is sufficient RNG in Quebec to meet the current targets for RNG distribution, the total potential supply of RNG in Quebec is smaller than the demand for natural gas.[33]

Q30. Are you aware of similar policies that could have an impact on the business risk of the utilities in Dr. Villadsen's gas LDC sample?

A30. No. Few U.S. states have legislated targets for RNG takeup by distribution utilities. I have reviewed the status of RNG activities of the companies in Dr. Villadsen's gas LDC sample and classified them into four groups: no activity; commercial (where the utility is distributing RNG without a policy requirement to do so); government-supported, where legislation facilitates cost-recovery for RNG; and targets, where the utility is required to distribute RNG as in Quebec. Of the sixteen jurisdictions where the sample has significant operations, only one has legislated targets and one has draft legislation for targets that has not yet been enacted. I summarise this activity in Table 2.

[33] Aviseo Report, Exhibit EGI-3 at p. 22.

Table 2

States [A]		Related Comparable Companies [B]	Category [C]	Notes [D]
Alabama	[1]	Spire Inc.	No Activity	RNG is not mentioned in 10-K or RNG Activity Tracker.
Arizona	[2]	Southwest Gas Corp.	Commercial	"Docket G-01551A-17-0286: approved Southwest Gas' new rate schedule to include RNG services to RNG producers. SW Gas offers services to RNG producers to upgrade and/or interconnect to SW Gas' pipelines to transport RNG." American Gas Association RNG Activity Tracker.
Delaware	[3]	Chesapeake Utilities Corp	Commercial	"Chesapeake: partnership with CleanBay Renewables to generate RNG from chicken waste at bio-refinery and distribute to CPK customers. Announced July 2020." American Gas Association RNG Activity Tracker.
Florida	[4]	Chesapeake Utilities Corp	Government Supported	"SB 896: aiming to support the growth of renewable natural gas as a renewable source of energy in the state. Adds definitions of biogas and renewable natural gas, adding the term renewable natural gas to the previously existing definition of renewable energy under state law. Allows PSC to approve cost recovery by utility for purchase of RNG where pricing exceeds NG market price but otherwise deemed reasonable and prudent." American Gas Association RNG Activity Tracker.
Indiana	[5]	Nisource	No Activity	RNG is not mentioned in 10-K or RNG Activity Tracker.
Kansas	[6]	ONE Gas Inc.	Commercial	"ONE Gas and Vanguard Renewables today announced a renewable natural gas (RNG) initiative designed to develop and expand farm-based RNG projects across Kansas, Oklahoma and Texas. This will be Vanguard Renewables' first mid-continent alliance with a local natural gas distribution company that is committed to innovating its clean energy fuel mix through RNG." One Gas Press Release April 29, 2021.
Louisiana	[7]	Atmos Energy Corp.	No Activity	RNG is not mentioned in 10-K or RNG Activity Tracker.
Mississippi	[8]	Atmos Energy Corp.	No Activity	RNG is not mentioned in 10-K or RNG Activity Tracker.
Missouri	[9]	Spire Inc.	Government Supported	"HB 734: requires PSC to adopt rules for voluntary RNG program for utilities. Directs PSC to establish reporting requirements and a process for utilities to fully recover prudently incurred costs associated with a renewable natural gas program. Passed May 2021." American Gas Association RNG Activity Tracker.
Nevada	[10]	Southwest Gas Corp.	Government Supported	"SB 154: requires the Public Utilities Commission of Nevada to adopt regulations authorizing a public utility which purchases natural gas for resale to engage in renewable natural gas activities and to recover the reasonable and prudent costs of such activities. Directs utilities to attempt to incorporate the following amounts of RNG into their supply: 1% by 2025; 2% by 2030; and 3% by 2035. Signed into law in 2019." American Gas Association RNG Activity Tracker.
New Jersey	[11]	New Jersey Resources Corp., South Jersey Gas	Commercial	"South Jersey Industries: acquired a minority interest in REV LNG, LLC - a company specializing in the development, production and transportation of renewable natural gas (RNG- along with the rights to develop anaerobic digesters at a portfolio of dairy farms to produce RNG)." American Gas Association RNG Activity Tracker.
Ohio	[12]	Nisource	Commercial	"HB 166: Allows gas utilities to treat infrastructure related to biologically derived methane gas as "useful" facilities for distribution service, thus allowing utilities to recover on this investment as part of a normal rate case. Effective July 2019." American Gas Association RNG Activity Tracker.
Oklahoma	[13]	ONE Gas Inc.	Commercial	"ONE Gas and Vanguard Renewables today announced a renewable natural gas (RNG) initiative designed to develop and expand farm-based RNG projects across Kansas, Oklahoma and Texas. This will be Vanguard Renewables' first mid-continent alliance with a local natural gas distribution company that is committed to innovating its clean energy fuel mix through RNG." One Gas Press Release April 29,2021.

Oregon	[14]	Northwest Natural Gas Co.	Targets	"SB 98: Requires the PUC to adopt by rule renewable natural gas program for natural gas utilities to recover prudently incurred qualified investments in meeting certain targets for including renewable natural gas in gas purchases for distribution to retail natural gas customers. Law supports RNG targets of 15% by 2030, 20% by 2035 and 30% by 2050. Requires commission to adopt rules no later than December 31, 2019. Became law in 2019." American Gas Association RNG Activity Tracker.
Pennsylvania	[15]	Nisource	Commercial	"PGW & PECO have partnered with The Energy Co-op to offer Philadelphia-area residents RNG come January 2020. PGW will not purchase RNG as part of its gas supply portfolio, but The Energy Co-op will offer RNG as a third-party supplier on the utilities' system." American Gas Association RNG Activity Tracker.
Texas	[16]	Atmos Energy Corp., ONE Gas Inc.	Commercial	"ONE Gas and Vanguard Renewables today announced a renewable natural gas (RNG) initiative designed to develop and expand farm-based RNG projects across Kansas, Oklahoma and Texas. This will be Vanguard Renewables' first mid-continent alliance with a local natural gas distribution company that is committed to innovating its clean energy fuel mix through RNG." One Gas Press Release April 29,2021.

Source:

American Gas Association, https://www.aga.org/contentassets/12f84f5492c0400595b9ae54884dd2d7/rng-activity-tracker.pdf, accessed 10/13/2021.

One Gas Press Release April 29, 2021, https://www.prnewswire.com/news-releases/one-gas-and-vanguard-renewables-partner-to-develop-farm-based-renewable-natural-gas-solutions-301279763.html

Taking the sample as a whole, therefore, I consider it to be relatively unaffected by policy actions concerning RNG.

Énergir's industrial load

Q31. Why is the size of Énergir's industrial load a potential business risk?

A31. I would expect industrial customers to be relatively more risky than commercial customers or households in the sense that, for industrial customers, the cost of buying natural gas is more likely to be a significant part of their overall cost base. Thus industrial load is likely to be more sensitive to the performance of the economy generally: when the economy is doing well and industrial activity is high, industrial gas use is likely to be higher than when the economy is not doing well. I would expect commercial load and especially household load to be much less sensitive to the level of economic activity.

Q32. How does the size of Énergir's industrial load compare to that of the utilities in Dr. Villadsen's gas LDC sample?

A32. Approximately 62% of Énergir's delivery volume go to industrial customers.[34] This is high relative to the sample companies, as shown in Table 3.

Table 3: Industrial Delivery Volumes

Company		States with Significant Activity [A]	Industrial Volume [B]	Electric Power Volume [C]	Total Volume [D]	Share [E]
Atmos Energy Corp.	[1]	Texas, Louisiana, Mississippi	166,145	66,914	457,421	51.0%
Chesapeake Utilities Corp.	[2]	Delaware, Florida	6,361	0	19,600	32.5%
New Jersey Natural Gas Co.	[3]	New Jersey	1,603	38,689	104,897	38.4%
Nisource	[4]	Ohio, Pennsylvania, Indiana	352,486	873	700,644	50.4%
Northwest Natural Gas Co.	[5]	Oregon	42,010	0	105,263	39.9%
ONE Gas Inc.	[6]	Oklahoma, Kansas, Texas	158,181	4,537	379,161	42.9%
Southwest Gas Corp.	[7]	Arizona, Nevada	22,636	50,018	197,773	36.7%
South Jersey Gas	[8]	New Jersey	10,128	6,420	54,737	30.2%
Spire Inc.	[9]	Missouri, Alabama	81,904	30,424	281,567	39.9%

Source: EIA Natural Gas Annual Respondent Query System.

Notes:

[E]: ([B] + [C]) ÷ [D]

Q33. If the consumption of Énergir's industrial customers were to go down, what impact would this have on Énergir?

A33. If Énergir's industrial load was to decline going forward, this could ultimately lead to upwards pressure on rates because Énergir's costs are largely fixed. In the short term the impact would be mitigated by the fact that the rate structure for industrial customers is also largely fixed. Thus if individual customers reduce their consumption, the revenue collected by Énergir remains relatively constant. However, if industrial customers were to leave the system entirely (or re-contract for lower quantities), there would be upwards pressure on rates, making natural gas service less attractive for the remaining customers.

[34] See Workpaper 2.

Competition between gas and electricity for Énergir's customers

Q34. Does the natural gas distributed by Énergir compete with electricity?

A34. Yes. Particularly in households, electricity is a viable alternative to natural gas for customers in Énergir's service territory. While this is theoretically true for any gas LDC, competition with electricity is of particular significance because electricity in Quebec is cheaper than in almost any other location in North America. Furthermore, greenhouse gas emissions associated with electricity in Quebec are minimal, while in many parts of the US there are significant greenhouse gas emissions associated with electricity generation.[35] Thus in situations where the cost and/or the emissions of the two energy sources is an aspect of how they compete, the balance is more likely to favour electricity than natural gas in Quebec than in other locations.

In Hydro-Quebec's annual survey, electricity rates for households in Quebec are just over half the rates in the cheapest US city surveyed (Miami, Florida), and are about one fifth of the rates of the most expensive city (San Francisco, California).[36]

Q35. Is competition with electricity causing Énergir to lose customers?

A35. Énergir continues to add customers over time (see Table 4 below). Thus, on a net basis, Énergir is not currently losing customers as a result of competition with low-priced electricity. However, I consider that the existence of low-priced electricity means that the risks associated with the public policies on emissions from the energy sector discussed above are greater for Énergir than for other utilities in North America, because the option of switching to electricity is less costly for Énergir's customers than it would be for the customers of US LDCs (including those in Dr. Villadsen's gas LDC sample).

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[35] Emissions from electricity generation in Quebec are close to zero (see https://www.hydroquebec.com/data/developpement-durable/pdf/ghg-emissions.pdf, accessed 11/03/2021). In the regions of the US relevant to the companies in Dr. Villadsen's gas LDC sample, emissions from electricity generation are of the order of 0.5 to 0.8 tCO_2 per MWh, reflecting the relatively fossil-fuel intense nature of electricity generation in the US.

[36] *2020 Comparison of Electricity Prices in Major North American Cities*, Hydro-Quebec, p. 4.

Q36. Is Énergir adding customers at a rate similar to that at which the companies in Dr. Villadsen's gas LDC sample are adding customers?

A36. The rate at which Énergir is adding customers is at the low end of the range of the companies in Dr. Villadsen's gas LDC sample. Table 4 shows that the number of households for the sample companies has been growing at between 0.6% and 3.9% per year over the last four years. The figure for Énergir is 0.9%.[37]

Table 4: Residential Customers Annual Growth Rate

Company		States with Significant Activity [A]	Residential Customers Annual Growth Rate [B]
Atmos Energy Corp.	[1]	Texas, Louisiana, Mississippi	0.9%
Chesapeake Utilities Corp.	[2]	Delaware, Florida	3.9%
New Jersey Natural Gas Co.	[3]	New Jersey	2.6%
Nisource	[4]	Ohio, Pennsylvania, Indiana	1.1%
Northwest Natural Gas Co.	[5]	Oregon	1.5%
ONE Gas Inc.	[6]	Oklahoma, Kansas, Texas	0.6%
Southwest Gas Corp.	[7]	Arizona, Nevada	1.7%
South Jersey Gas	[8]	New Jersey	2.8%
Spire Inc.	[9]	Missouri, Alabama	0.9%

Source: EIA Natural Gas Annual Respondent Query System.

Notes: [B]: $(2019\ Customers \div 2015\ Customers)^{\frac{1}{4}} - 1$

Small share of gas as a fuel for home heating

Q37. Is natural gas an important part of the fuel mix for households in Quebec?

A37. No. Across the province as a whole, natural gas accounts for about 7% of the fuel mix for households. Electricity has a much larger share.[38]

[37] See Workpaper 2 (TB-3).

[38] Aviseo Report, Exhibit EGI-3 at p. 35.

Q38. What is the fuel mix in the geographies where the utilities in Dr. Villadsen's gas LDC sample are active?

A38. I have analysed data from the Energy Information Administration at the regional level.[39] By census region and sub-region, the share of natural gas in the fuel mix for households varies from about 25% (South Atlantic) to 63% (Mountain North part of the West region). Even in rural areas, the share is above 10%. I show this data in Table 5.

[39] *2015 Residential Energy Consumption Survey*.

Table 5: Household Energy Consumption

	Natural Gas [A]	Total Energy Consumption [B]	Ratio [C]
Northeast			
New England	161	547	29.4%
Middle Atlantic	760	1436	52.9%
Urban	879	1652	53.2%
Rural	42	332	12.7%
All homes	921	1984	46.4%
Midwest			
East North Central	1123	1755	64.0%
West North Central	387	731	52.9%
Urban	1331	1946	68.4%
Rural	179	540	33.1%
All homes	1510	2486	60.7%
South			
South Atlantic	391	1584	24.7%
East South Central	119	498	23.9%
West South Central	275	981	28.0%
Urban	692	2267	30.5%
Rural	93	797	11.7%
All homes	785	3064	25.6%
West			
Mountain North	224	357	62.7%
Mountain South	108	274	39.4%
Pacific	416	949	43.8%
Urban	684	1317	51.9%
Rural	65	264	24.6%
All homes	749	1581	47.4%

Sources: EIA RECS 2015 Survey Data.
Notes:
[C]: [A] ÷ [B].

Q39. To what do you attribute the relatively low gas share in Quebec?

A39. As I mentioned above, the price of electricity in Quebec is lower than in many other locations, making it more competitive with gas as a source of heat for households in Quebec than in other locations in North America. Also relatively few households in

Quebec are connected to the gas distribution network of Énergir (and Gazifère). In Table 6, I show the number of residential customers supplied by the companies in Dr. Villadsen's gas LDC sample (counting only the jurisdictions in which each company has significant activities). All but one of the companies (Chesapeake) has more customers than Énergir, and most have considerably more.[40]

Table 6: Residential Customers

Company		States with Significant Activity [A]	Residential Customers 2019 [B]
Atmos Energy Corp.	[1]	Texas, Louisiana, Mississippi	2,385,989
Chesapeake Utilities Corp.	[2]	Delaware, Florida	111,824
New Jersey Natural Gas Co.	[3]	New Jersey	489,938
Nisource	[4]	Ohio, Pennsylvania, Indiana	1,164,519
Northwest Natural Gas Co.	[5]	Oregon	606,801
ONE Gas Inc.	[6]	Oklahoma, Kansas, Texas	2,022,927
Southwest Gas Corp.	[7]	Arizona, Nevada	1,782,101
South Jersey Gas	[8]	New Jersey	351,383
Spire Inc.	[9]	Missouri, Alabama	1,494,643

Source: EIA Natural Gas Annual Respondent Query System.

Regulatory risks for Énergir

Q40. How are Énergir's distribution rates determined, and does this give rise to significant regulatory lag?

A40. I understand that Énergir's distribution rates are set on a cost-of-service basis. Rates are adjusted annually, but the annual adjustments do not cover all components of a full cost-of-service rate case. There has typically been a full rate case every three years, although the allowed return on equity component of rates is typically adjusted less frequently. The O&M component of the revenue requirement is adjusted annually by

[40] Énergir has approximately 145,000 household customers. See Workpaper 2.

means of a formula intended to capture *expected* changes in O&M costs, and there are typically adjustments to the rate-base-related component of the revenue requirement in between rate cases. Thus, in terms of regulatory lag (the length of time between when Énergir's costs change and the opportunity to reflect that change in allowed rates), the formula for O&M is reset every three years, changes to rate base can be reflected in allowed rates with a shorter lag, and changes to the cost of equity have a longer lag. In addition, there is an earnings-sharing mechanism which shares achieved returns above the allowed return on equity with customers (but not returns below the allowed return on equity).

Q41. How does the way in which Énergir's rates are determined compare to the ways in which distribution rates are determined for the utilities in Dr. Villadsen's gas LDC sample?

A41. US LDCs are also regulated on a cost-of-service basis with periodic rate cases. Thus the mechanism for determining rates for Énergir is generally similar to the way in which US LDC rates are set. The details are different from one U.S. jurisdiction to another. For example, the period between rate cases can vary, and in most states there is not a fixed length of time between rate cases. However, importantly, many of the utilities in Dr. Villadsen's gas LDC sample have mechanisms to adjust rates to incorporate changes in rate base on a timely basis (without a full rate case).[41] For example, many utilities have a "GRIP" (Gas Reliability Infrastructure Program) which permits rates to be adjusted automatically for certain categories of spending. In the case of Atmos, for example, each of its major jurisdictions has mechanisms for annual rate updates, and these annual rate updates are more significant in dollar terms than periodic rate cases.[42]

In general I consider the utilities in the sample to have similar regulatory lag to Énergir.

[41] I have summarised these mechanisms in Workpaper 1.

[42] Atmos 2020 10-K, pp. 6–11.

Q42. Do any of the demand risks you discussed above give rise to stranding risk?

A42. Not currently. I am not aware of any suggestion that Énergir will not be able to recover prudently-incurred capital nor that it will cease to have a reasonable opportunity to earn the allowed return on prudently-invested capital. However, I consider that the demand risks I described above could cause uncertainty about longer-term capital recovery, because there is the potential for some fundamental changes to take place in Énergir's business environment. In particular, public policy initiatives to reduce the emissions associated with natural gas use are further advanced in Quebec than in most other jurisdictions. These public policy initiatives are significant in Quebec, but are not significant for the jurisdictions in Dr. Villadsen's gas LDC sample taken as a whole.[43] In addition, electricity is cheaper in Quebec than in almost all other jurisdictions in North America, and has lower emissions than electricity generation in other jurisdictions, and Énergir is a relatively small utility. I therefore consider that Énergir has a relatively higher risk of demand loss due to electrification than other utilities, and a higher risk than the companies in Dr. Villadsen's gas LDC sample. If these risks were to materialise, the Régie may have to make adjustments to the regulatory framework for Énergir in order that the framework continues to provide a reasonable opportunity to earn the allowed return.

Q43. Are there other risks mentioned in the Aviseo report that you have not discussed so far?

A43. Yes. The Aviseo report discusses some operating risks which I consider apply generally to gas utilities rather than to the Utilities specifically. For example, the report mentions that climate change is giving rise to increased physical risks impacting distribution and storage facilities.[44] I am not aware of any reason to expect such risks to have a greater impact on the Utilities in Quebec than they would have on other gas utilities in other

[43] As I explained above, only one of the sample companies is active in jurisdictions (Washington and Oregon) where these policy issues are significant.

[44] Aviseo Report, Exhibit EGI-3 at pp. 11-12. In addition, Aviseo mentions the potential difficulty in attracting skilled employees (Aviseo Report, Exhibit EGI-3 at p. 30). I would not consider these operating risks to be significant in business risk terms because the Utilities are generally able to reflect operating costs in allowed rates without a significant degree of regulatory lag.

parts of North America. Provided that the regulatory framework supports the Utilities in addressing these risks (for example, through allowing a return of and on necessary investment in strengthening infrastructure, and recovery of expenditure on insurance and repairs), I would not expect these risks to have an impact on the cost of capital or the allowed return. I would also not expect these issues to have an impact on business risk for Énergir that is different from the impact on business risk for the utilities in Dr. Villadsen's gas LDC sample.

Other risks

Q44. Does Énergir face any unusual supply or operating risks?

A44. No, not that I am aware of.

GAZIFÈRE

Q45. Are the operations of Gazifère similar to those of Énergir?

A45. Yes. Gazifère's operations are similar to those of Énergir. The principal differences I have identified are that Gazifère does not have the same large industrial load that Énergir has,[45] while overall Gazifère is even smaller than Énergir: Gazifère has just over 40,000 customers whereas Énergir has 210,000.[46]

Q46. Are rates for Gazifère and Énergir set in a similar way?

A46. Yes. Both Gazifère and Énergir adjust their rates annually. There are some differences between the two utilities in terms of the way that rates are set: for example, Énergir has a formula for adjusting the O&M component of allowed revenues between rate cases, and that formula has typically been reviewed every three years; while Gazifère does not have a formulaic adjustment but has a full rate case every two years, with only some items reviewed in the alternate years. I consider that these differences are not significant in terms of business risk because neither utility has a significant lag between a change in costs and the opportunity to reflect that change in rates.

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45 Aviseo Report, Exhibit EGI-3 at pp. 13, 16-17.

46 Aviseo Report, Exhibit EGI-3 at p. 28.

Q47. Does Gazifère face demand risks associated with public policies related to energy sector emissions, as you described for Énergir?

A47. Yes. For the same reasons that I explained above for Énergir,[47] I consider that policies in Quebec already implemented or under consideration could reduce demand for natural gas distributed by both Énergir and Gazifère.[48] Since both utilities are small and face competition from relatively cheap and relatively low-emissions electricity, I consider that both utilities have elevated business risk due to uncertainty over long term capital recovery.

Q48. Overall therefore do you consider Gazifère to have the same business risk as Énergir?

A48. No. I consider that the main influence on the business risk of the Utilities relative to Dr. Villadsen's gas LDC sample is the combination of policies in relation to energy sector emissions and the availability of electricity in Quebec that is both relatively inexpensive and lower emissions than electricity in the regions where the sample companies operate. This business risk difference (relative to the sample) is present for both Énergir and Gazifère. However, comparing Énergir to Gazifère, I consider that uncertainty over long term capital recovery is greater for Gazifère than for Énergir because Gazifère is smaller than Énergir and its customer mix is more heavily weighted to households. Thus the potential impact on Gazifére from electrification of natural gas demand is greater than for Énergir.

INTRAGAZ

Q49. Are the operations of Intragaz similar to those of Énergir?

A49. Intragaz is a storage business providing storage services to Énergir. Intragaz is an unusual entity in that, although it is regulated like Énergir and Gazifère, it has only one customer (Énergir) and that customer is itself regulated.

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47 See Q23 to Q30.

48 For example, policies of the city of Gatineau are described in the Aviseo Report, Exhibit EGI-3 at pp. 8-9.

Q50. Are Intragaz storage rates set on a cost-of-service basis?

A50. Yes. Intragaz rates are set on a cost-of-service basis and then in turn services provided by Intragaz to Énergir form part of Énergir's cost of service.

Q51. Is the way in which Intragaz rates are set the same as the way in which Énergir and Gazifère rates are set?

A51. All three Utilities are regulated on a cost-of-service basis, albeit with some small differences of detail as I noted above for Énergir and Gazifère. In the case of Intragaz, I understand that rates are set for a period of ten years and that rates are generally not adjusted during that ten-year period.[49] However, the rate-setting process for Intragaz is forward-looking, with the objective that over the ten-year period as a whole, the revenue collected will be equal to the cost of service (taking into account anticipated revenue requirement changes, such as for example the impact of depreciation on the rate base).[50]

Q52. Does the fact that Intragaz rates are set only every ten years give rise to additional regulatory risk?

A52. Regulatory lag is longer for Intragaz than for Énergir and Gazifère because Intragaz rates are reviewed only after ten years, whereas Énergir and Gazifère have a full rate case every two or three years. Other things equal, increased regulatory lag would contribute to an increase in business risk. However, in the case of Intragaz any such increase is substantially mitigated, for three reasons: first, Intragaz revenues are essentially fixed and are not subject to demand risk; second, Intragaz rates are set to recover the expected cost of service over the ten year period, including anticipated changes in the cost of service over time (Intragaz rates are not set on the basis of the

[49] Intragaz recently developed an expansion project, approved by the Régie, which increased the revenue requirement but caused rates to go down (because the increase in capacity was greater than the increase in revenue requirement).

[50] D-2013-081.

current cost of service only); and third, the Intragaz cost of service is composed of fixed/predictable elements to a greater extent than is typical for a gas LDC.[51]

Q53. How do you assess the business risk of Intragaz?

A53. I noted above that the arrangement whereby Intragaz is a separate entity with its own cost-of-service rates, and with Énergir as its only customer, is unusual. In North America it is common for gas LDCs to own the storage they use in providing distribution service, and for the cost of that storage to be a component of the LDC's cost of service, rather than for the regulator to determine a separate storage rate. However, I consider that, in practice, the business risk of Intragaz is bound up with the business risk of Énergir. Intragaz is integrated with Énergir in the sense that Intragaz provides all of its storage capacity to Énergir (including through a recent expansion contracted to Énergir on a long-term basis).[52] Since, fundamentally, Intragaz provides storage services to Énergir on a cost-of-service basis and does not have any other customers, I do not see any reason to differentiate the business risk of Intragaz from that of Énergir. I therefore consider the business risk of Intragaz and Énergir to be the same.

IV. CONCLUSIONS IN RELATION TO BUSINESS RISK

Q54. What conclusions have you reached about the business risk of the Utilities relative to the business risk of the utilities in Dr. Villadsen's gas LDC sample?

A54. The most important conclusions I reach are that the gas LDC sample is a relevant benchmark for the business risk of the Utilities, and that the business risk of the Utilities is within the range of business risk defined by the gas LDC sample.

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[51] The rate-base related elements of the revenue requirement for Intragaz account for a larger percentage of the revenue requirement than I would consider to be typical for a gas LDC (see Workpaper 2 (TB-3)).

[52] See, for example, D-2018-155, paragraph 15.

I have examined the way in which the Utilities and the utilities in Dr. Villadsen's gas LDC sample are regulated, and I find no significant differences that impact the business risk of the Utilities relative to the sample.

There is, however, an important difference between the business risk of the Utilities and that of the utilities in Dr. Villadsen's gas LDC sample in relation to uncertainty about longer-term capital recovery. In my opinion, the Utilities are facing more uncertainty than the average utility in Dr. Villadsen's gas LDC sample (or, equivalently, more uncertainty than the sample as a whole). Because of this difference, I consider that the business risk of the Utilities is higher than that of the sample.

Q55. Why are the Utilities facing more uncertainty about longer-term capital recovery than the utilities in Dr. Villadsen's gas LDC sample?

A55. There are two factors which in combination mean that the Utilities are facing more uncertainty about longer-term capital recovery risk than the utilities in Dr. Villadsen's gas LDC sample as a whole. First, policymakers in Quebec have already implemented policies relating to emissions from the energy sector, and are considering further policy interventions. These policies increase the price of natural gas for consumers and/or reduce demand for natural gas directly, and thus make the Utilities' customers more likely to switch away from using natural gas. These policies are not present at all in most of the jurisdictions where the utilities in Dr. Villadsen's sample operate, or are present to a lesser degree. Second, while the policy environment is less favourable to natural gas in Quebec, electricity is cheaper in Quebec, and the Utilities are relatively small. Furthermore, electricity generation in Quebec has lower greenhouse gas emissions associated with it than electricity generation in regions relevant to the sample. These factors exacerbate the risk of substantial change to the environment in which the Utilities operate because electrification of gas loads is more feasible in Quebec than it would be in the US jurisdictions where the utilities in Dr. Villadsen's sample operate.

Q56. Does the uncertainty about long-term capital recovery mean that the Utilities are at risk of asset stranding?

A56. No. I do not believe that the Utilities are currently at risk of asset stranding in the sense of the Utilities not being able to recover prudently-invested capital or not having a reasonable opportunity to earn a fair return on prudently-invested capital. This is a fundamental principle of the "regulatory compact" underpinning utility regulation in Quebec, including how the Régie has interpreted the concept of a "reasonable rate of return".[53] However, at a time when policy-makers are considering policies to limit gas use or require the use of alternative fuels that will increase delivered prices, continuing to provide a reasonable opportunity to earn a fair return may require that the regulatory framework adapts in ways that are not yet clear. From an investor's perspective, the fact that the regulatory framework may have to adapt to provide a reasonable opportunity to earn a fair return and recover prudently-invested capital generates uncertainty and therefore increases business risk.

I am not aware of any suggestion that the regulatory compact is changing such that utilities are expected to bear stranding risk. If such a change were to take place, the allowed rate of return would have to be set significantly above the cost of capital in order to meet the fair return standard.

Q57. What sort of adaptations to the regulatory framework might be required in order to continue to provide a reasonable opportunity to earn a fair return?

A57. I am not aware of any adaptations that are needed currently—maintaining the current regulatory compact (with an allowed return set in line with the recommendations below and in Dr. Villadsen's testimony) should provide a reasonable opportunity to earn a fair return. However, in the future it may be necessary to consider measures such as accelerated depreciation if the expected economic life of utility assets is shorter than current assumptions.

[53] D-2009-156, paragraph 189.

Q58. Why did you say in A56 that if utilities were bearing stranding risk, the allowed rate of return would be set significantly above the cost of capital?

A58. Bearing stranding risk means that future circumstances can be foreseen in which the utility would not recover prudently-invested capital. If those future circumstances came to pass, the utility would by definition earn less than the allowed return. In order for investors to *expect* to earn the cost of capital in the future, they would have to be able to foresee some favourable circumstances in which they would earn more than the cost of capital, in order to balance out the unfavourable circumstances in which they earn less. If the average outcome across favourable and unfavourable circumstances is that investors expect to earn the cost of capital (as it must be in order to meet the fair return standard), then the expected return given favourable circumstances must be above the cost of capital. This would require setting the allowed return above the cost of capital.

Q59. Do you recommend that the Régie should set the allowed return for the Utilities above Dr. Villadsen's cost of capital estimates?

A59. No. As I explained above, the Utilities are not bearing stranding risk therefore the allowed return should be within the range of cost of capital estimates for the gas LDC sample.

Q60. What then is the relevance of the business risk you observe for the Utilities relative to the utilities in Dr. Villadsen's gas LDC sample?

A60. I find that Dr. Villadsen's gas LDC sample provides a relevant benchmark for determining the cost of equity for the Utilities because the business risk of the Utilities is within the range of business risks defined by the sample. Second, since the business risk of the Utilities is higher than that of the utilities in Dr. Villadsen's gas LDC sample, I consider that it would be appropriate to take the above average business risk into consideration when determining the allowed return for the Utilities.

Q61. Do you consider the business risk of each of the Utilities to be the same?

A61. No. I consider that Intragaz has the same business risk as Énergir because the latter is the former's sole customer and both are regulated in the same way. However, I consider

that uncertainty of capital recovery because of public policy on energy sector emissions is more significant for Gazifère than for Énergir because the former is smaller and has a customer mix more heavily weighted to households. Thus I consider that Gazifère's business risk is higher than that of Énergir.

Q62. Does this conclude your direct testimony?

A62. Yes.

TOBY BROWN
Principal

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Dr Toby Brown heads Brattle's Sydney office. He specializes in energy markets and infrastructure regulation, and has consulted for oil and gas producers, pipelines, utilities and regulators in Australia, New Zealand, Europe, the United States and Canada. He provides litigation support in a wide range of commercial disputes, including damages estimation, valuation and pricing.

Dr Brown's experience in utility and pipeline regulation includes testimony on performance-based regulation in several proceedings in Alberta and Hawai'i, and testimony on pipeline rate design before the Canadian Energy Regulator. He has consulted for utilities and pipelines in Canada and the US on business risk in connection with proceedings to determine an authorised return. Dr Brown has also advised utilities and regulators in New Zealand and Australia on rate design, rate of return and other aspects of utility and pipeline regulation.

Prior to joining Brattle, Dr Brown worked at the UK energy regulator, Ofgem. He holds a D.Phil. in Chemistry from the University of Oxford.

EDUCATION

- D.Phil. in Chemistry, University of Oxford, 1999
- B.A. (Hons.) in Chemistry, University of Oxford, 1995

PROFESSIONAL WORK EXPERIENCE

- Principal, The Brattle Group, 2015–present
- Associate then Senior Associate, The Brattle Group, 2006–2015
- Strategy then European teams, Ofgem, 2002–2006
- Consultant then Senior Consultant, Oxera, 1999–2002

AREAS OF EXPERTISE

- Natural gas and electricity markets
- Network regulation
- Infrastructure access and valuation

TESTIMONY

- Before the Royal Commission of Inquiry into Processes and Procedures Followed by the Government of Papua New Guinea into Obtaining the Off-shore Loan from the Union Bank of Switzerland and Related Transactions, *Brattle Report to the Commission of Inquiry into the UBS Loan—the IPIC and UBS Transactions*, July 2021; *Supplementary Brattle Report to the Commission of Inquiry into the UBS Loan*, August 2021; and *Third Brattle Report to the Commission of Inquiry into the UBS Loan—The PNG–UBS Transactions after March 2014*, August 2021 (joint testimony of Toby Brown, George Oldfield, Rand Ghayad and Alberto Vargas).
- Before the Alberta Utilities Commission, *Rebuttal evidence of Dr Toby Brown*, Proceeding 25422, September 2020.

- Before the Public Utilities Commission of Hawai'i, *PBR and Utility Capital Expenditure Needs – Approach in New Zealand*, docket number 2018-0088, June 2020.
- Before the Alberta Utilities Commission, *Written evidence of Dr Toby Brown*, Proceeding 25422, May 2020.
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- Before the Public Utilities Commission of Hawai'i, *Modifying the PBR framework in Hawai'i: Precedents for determining an annual revenue adjustment in Multi-year Rate Plans*, docket number 2018-0088, August 2019.
- Before the Public Utilities Commission of Hawai'i, *Modifying the PBR framework in Hawai'i: Comments on the PUC Staff proposal*, docket number 2018-0088, March 2019.
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- In the Supreme Court of Victoria, *Affidavit in the matter between Lochard Energy (Iona Operations Holding) Pty Ltd, and Energy Australia Investments Pty Ltd,* September 2018.
- Before the Alberta Utilities Commission, *AUC-initiated next generation performance-based regulation generic proceeding,* Proceeding ID No. 20414, March 2016.
- Before the Alberta Utilities Commission, *Enmax Power Corp.,* Proceeding ID No. 21149, December 2015.
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- Submitted to the Independent Pricing and Regulatory Tribunal of New South Wales, *Wholesale Gas Price for AGL's VPA Proposal for 2014–16*, February 2014.

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These publications are available at http://brattle.com/experts/toby-brown.

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International Experiences in Retail Electricity Markets: Consumer Issues, with Agustin J. Ros, Serena Hesmondhalgh, James D. Reitzes, and Neil Lessem, Prepared for The Australian Competition and Consumer Commission, June 2018.

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Options for Reforming the Building-Blocks Framework, with Paul Carpenter, a report to the Australian Energy Market Commission, December 16, 2009.

Review of Incentive Power and Regulatory Options in Victoria, with Paul Carpenter, a report to the Australian Energy Market Commission, December 2009.

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International Review of Transmission Planning, presentation at Transmission and Distribution 2008, Amsterdam, March 12, 2008.

International Review of Transmission Planning Arrangements, a report to the Australian Energy Market Commission, with Boaz Moselle, October 2007.

Contents

Inputs

CAD to USD conversion	[1]	0.7034

Source:
[1]: hyrdroquebec.com, Comparison of Electricity Prices in Major North American Cities 2020, https://www.hydroquebec.com/data/documents-donnees/pdf/comparison-electricity-prices-2020.pdf, accessed 10/13/2021.

RNG Activities

States [A]		Related Comparable Companies [B]	Category [C]	Notes [D]
Alabama	[1]	Spire Inc.	No Activity	RNG is not mentioned in 10-K or RNG Activity Tracker.
Arizona	[2]	Southwest Gas Corp.	Commercial	"Docket G-01551A-17-0286: approved Southwest Gas' new rate schedule to include RNG services to RNG producers. SW Gas offers services to RNG producers to upgrade and/or interconnect to SW Gas' pipelines to transport RNG." American Gas Association RNG Activity Tracker.
Delaware	[3]	Chesapeake Utilities Corp	Commercial	"Chesapeake: partnership with CleanBay Renewables to generate RNG from chicken waste at bio-refinery and distribute to CPK customers. Announced July 2020." American Gas Association RNG Activity Tracker.
Florida	[4]	Chesapeake Utilities Corp	Government Supported	"SB 896: aiming to support the growth of renewable natural gas as a renewable source of energy in the state. Adds definitions of biogas and renewable natural gas, adding the term renewable natural gas to the previously existing definition of renewable energy under state law. Allows PSC to approve cost recovery by utility for purchase of RNG where pricing exceeds NG market price but otherwise deemed reasonable and prudent." American Gas Association RNG Activity Tracker.
Indiana	[5]	Nisource	No Activity	RNG is not mentioned in 10-K or RNG Activity Tracker.
Kansas	[6]	ONE Gas Inc.	Commercial	"ONE Gas and Vanguard Renewables today announced a renewable natural gas (RNG) initiative designed to develop and expand farm-based RNG projects across Kansas, Oklahoma and Texas. This will be Vanguard Renewables' first mid-continent alliance with a local natural gas distribution company that is committed to innovating its clean energy fuel mix through RNG." One Gas Press Release April 29, 2021.
Louisiana	[7]	Atmos Energy Corp.	No Activity	RNG is not mentioned in 10-K or RNG Activity Tracker.
Mississippi	[8]	Atmos Energy Corp.	No Activity	RNG is not mentioned in 10-K or RNG Activity Tracker.
Missouri	[9]	Spire Inc.	Government Supported	"HB 734: requires PSC to adopt rules for voluntary RNG program for utilities. Directs PSC to establish reporting requirements and a process for utilities to fully recover prudently incurred costs associated with a renewable natural gas program. Passed May 2021." American Gas Association RNG Activity Tracker.
Nevada	[10]	Southwest Gas Corp.	Government Supported	"SB 154: requires the Public Utilities Commission of Nevada to adopt regulations authorizing a public utility which purchases natural gas for resale to engage in renewable natural gas activities and to recover the reasonable and prudent costs of such activities. Directs utilities to attempt to incorporate the following amounts of RNG into their supply: 1% by 2025; 2% by 2030; and 3% by 2035. Signed into law in 2019." American Gas Association RNG Activity Tracker.
New Jersey	[11]	New Jersey Resources Corp., South Jersey Gas	Commercial	"South Jersey Industries: acquired a minority interest in REV LNG, LLC - a company specializing in the development, production and transportation of renewable natural gas (RNG- along with the rights to develop anaerobic digesters at a portfolio of dairy farms to produce RNG)." American Gas Association RNG Activity Tracker.
Ohio	[12]	Nisource	Commercial	"HB 166: Allows gas utilities to treat infrastructure related to biologically derived methane gas as "useful" facilities for distribution service, thus allowing utilities to recover on this investment as part of a normal rate case. Effective July 2019." American Gas Association RNG Activity Tracker.
Oklahoma	[13]	ONE Gas Inc.	Commercial	"ONE Gas and Vanguard Renewables today announced a renewable natural gas (RNG) initiative designed to develop and expand farm-based RNG projects across Kansas, Oklahoma and Texas. This will be Vanguard Renewables' first mid-continent alliance with a local natural gas distribution company that is committed to innovating its clean energy fuel mix through RNG." One Gas Press Release April 29,2021.

RNG Activities

States [A]		Related Comparable Companies [B]	Category [C]	Notes [D]
Oregon	[14]	Northwest Natural Gas Co.	Targets	"SB 98: Requires the PUC to adopt by rule renewable natural gas program for natural gas utilities to recover prudently incurred qualified investments in meeting certain targets for including renewable natural gas in gas purchases for distribution to retail natural gas customers. Law supports RNG targets of 15% by 2030, 20% by 2035 and 30% by 2050. Requires commission to adopt rules no later than December 31, 2019. Became law in 2019." American Gas Association RNG Activity Tracker.
Pennsylvania	[15]	Nisource	Commercial	"PGW & PECO have partnered with The Energy Co-op to offer Philadelphia-area residents RNG come January 2020. PGW will not purchase RNG as part of its gas supply portfolio, but The Energy Co-op will offer RNG as a third-party supplier on the utilities' system." American Gas Association RNG Activity Tracker.
Texas	[16]	Atmos Energy Corp., ONE Gas Inc.	Commercial	"ONE Gas and Vanguard Renewables today announced a renewable natural gas (RNG) initiative designed to develop and expand farm-based RNG projects across Kansas, Oklahoma and Texas. This will be Vanguard Renewables' first mid-continent alliance with a local natural gas distribution company that is committed to innovating its clean energy fuel mix through RNG." One Gas Press Release April 29,2021.

Sources
American Gas Association, https://www.aga.org/contentassets/12f84f5492c0400595b9ae54884dd2d7/rng-activity-tracker.pdf, accessed 10/13/2021.

One Gas Press Release April 29, 2021, https://www.prnewswire.com/news-releases/one-gas-and-vanguard-renewables-partner-to-develop-farm-based-renewable-natural-gas-solutions-301279763.html
Notes:
[C]: Government Supported indicates that the given state provides some support for utilities investments towards including Renewable Natural Gas as part of their product mix,

Commercial indicates that commercial entities are pursueing Renewable Natural Gas without any governement incentives,
Targets indicates that there are some government targets set for Renewable Natural Gas.
No Activity indicates that there was no identified Renewable Natural Gas activities.

Household Consumption

	Natural Gas [A]	Total Energy Consumption [B]	Ratio [C]
Northeast			
New England	161	547	29.4%
Middle Atlantic	760	1436	52.9%
Urban	879	1652	53.2%
Rural	42	332	12.7%
All homes	921	1984	46.4%
Midwest			
East North Central	1123	1755	64.0%
West North Central	387	731	52.9%
Urban	1331	1946	68.4%
Rural	179	540	33.1%
All homes	1510	2486	60.7%
South			
South Atlantic	391	1584	24.7%
East South Central	119	498	23.9%
West South Central	275	981	28.0%
Urban	692	2267	30.5%
Rural	93	797	11.7%
All homes	785	3064	25.6%
West			
Mountain North	224	357	62.7%
Mountain South	108	274	39.4%
Pacific	416	949	43.8%
Urban	684	1317	51.9%
Rural	65	264	24.6%
All homes	749	1581	47.4%

Sources: EIA RECS 2015 Survey Data.

Residential Electricity Prices 2020

States	Average Price (Canadian cents/kWh)
[A]	[B]
Texas	15.75
Louisiana	13.20
Mississippi	16.06
Delaware	18.80
Florida	16.72
New Jersey	23.14
Ohio	18.44
Pennsylvania	18.31
Indiana	17.89
Oregon	13.85
Oklahoma	16.73
Kansas	17.41
Arizona	16.32
Nevada	14.83
Missouri	16.06
Alabama	16.53

Source:
EIA, 2020 Utility Bundled Sales to Ultimate Customers-Residential, https://www.eia.gov/electricity/sales_revenue_price/, accessed 10/13/2021.

hyrdroquebec.com, Comparison of Electricity Prices in Major North American Cities 2020, https://www.hydroquebec.com/data/documents-donnees/pdf/comparison-electricity-prices.pdf, accessed 10/13/2021.

Notes:
[B]: Prices originally quoted in US cents, converted using an exchange rate of 1 CAD = 0.7034 USD.

Summary of US Gas LDC Sample Cost Recovery Mechanisms

Company		State	Return Adjustment	Infrastructure Cost Recovery	Gas Cost Recovery	Revenue Decoupling
[A]		[B]	[C]	[D]	[E]	[F]
Atmos Energy Co.	[1]	Texas	Rate Review Mechanism (RRM); Dallas Annual Rate Review (DARR)	Gas Reliability Infrastructure Program (GRIP)	Gas Cost Recovery/Adjustment (GCR/GCA)	Weather Normalization Adjustment (WNA); Conservation and Energy Efficiency (CEE)
	[2]	Louisiana	Rate Stabilization Clause (RSC)	System Integrity Investment Program (SIIP)	Purchased Gas Adjustment (PGA)	Weather Normalization Adjustment (WNA) Rider
	[3]	Mississippi	Stable Rate Filing (SRF)	System Integrity Rider (SIR)	Purchased Gas Adjustment (PGA)	Weather Normalization Adjustment (WNA) Rider
Chesapeake Utilities Corp.	[4]	Delaware	--	Distribution System Improvement Charge (DSIC)	Gas Sales Service Rates (GSR)	--
	[5]	Florida	--	Gas Reliability Infrastructure Program (GRIP)	Purchased Gas Cost Recovery Factor	--
New Jersey Resources Corp.	[6]	New Jersey	--	NJ RISE and SAFE II	Basic Gas Supply Service (BGSS)	Conservation Incentive Program (CIP)
Nisource	[7]	Ohio	--	Capital Expenditure Program	--	--
	[8]	Pennsylvania	--		--	--
	[9]	Indiana	--	Transmission, Distribution and Storage Improvement Charge (TDSIC) tracker.	--	--
Northwest Natural Gas Co.	[10]	Oregon	--	--	Purchased Gas Adjustment (PGA)	Weather and Energy Conservation Decoupling
ONE Gas Inc.	[11]	Oklahoma	Performance Based Rate Change Plan (PBRC)	--	Purchased Gas Adjustment (PGA)	Temperature Adjustment Clause (TAC); Energy Efficiency Programs
	[12]	Kansas	--	Gas System Reliability Surcharge (GSRS)	Cost of Gas Rider (COGR)	Weather Normalisation Adjustments (WNA)
	[13]	Texas	--	Gas Reliability Infrastructure Program (GRIP)	Cost of Gas (COG)	Weather Normalisation Adjustments (WNA); Energy Conservation Programs
Southwest Gas Corp.	[14]	Nevada	--	General Infrastructure Rate (GIR)	Purchased Gas Adjustment (PGA)	General Revenue Adjustment (GRA); Energy Conservation Programs
	[15]	Arizona	--	Customer-Owned Yard Line (COYL); Vintage Steel Pipe Replacement (VSP)	Purchased Gas Adjustment (PGA)	General Revenue Adjustment (GRA)

Summary of US Gas LDC Sample Cost Recovery Mechanisms

Company		State	Return Adjustment	Infrastructure Cost Recovery	Gas Cost Recovery	Revenue Decoupling
[A]		[B]	[C]	[D]	[E]	[F]
South Jersey Gas	[16]	New Jersey		Accelerated Infrastructure Replacement Program (AIRP II)		Storm Hardening and Reliability Program (SHARP II); Energy Efficiency Tracker (EET); Conservation Incentive Program (CIP)
	[17]	Missouri	--	Infrastructure System Replacement Surcharge (ISRS)	Purchased Gas Adjustment (PGA)	Weather Normalization Adjustment (WNA) Rider
Spire Inc.						
	[18]	Alabama	--	Rate Stabilization and Equalization (RSE)	Gas Supply Adjustment (GSA) rider	Temperature Adjustment Rider (TAR)

Sources
[1]: 2020 Company 10K, p. 9; Atmos Energy Mid-Texas and West-Texas tariffs at https://www.atmosenergy.com/company/utility-operations.
[2]: 2020 Company 10K, p. 9; Louisiana Public Order No. U-35951, Attachment A, p.3.
[3]: 2020 Company 10K, p. 9.
[4]–[5]: NARUC, Natural Gas Distribution Infrastructure Replacement and Modernization at
https://pubs.naruc.org/pub/45E90C1E-155D-0A36-31FE-A68E6BF430EE, p. 26; Chesapeake Utilities Corp.,
Delaware Division, Rules and Regulations Governing the Distribution and Sale of Gas, Rate Schedule "GSR", p.89,
available at https://chpkgas.com/wp-content/uploads/2017/01/DE_Tariff_Update_01.03.20.pdf;
Florida Public Utilities Company Gas Tariffs, Third Revised Volume No. 1, at https://fpuc.com/wp-content/uploads/FPU-Natural-Gas-Tariff-7.pdf, p. 84.
[6]: 2020 Company 10K, p. 40-45.
[7]–[9]: Nisource Q1 Article at https://www.prnewswire.com/news-releases/nisource-reports-first-quarter-2021-results-301283928.html.
[10]: 2020 Company 10K, p. 43-44.
[11]–[13]: 2020 Company 10K, p. 6–7; 2018 Company 10K, p. 7.
[14]–[15]: 2020 Company 10K, p. 48–54; 2018 Company 10K, p. 7-8
[16]: South Jersey gas AIRP Filing at https://southjerseygas.com/SJG/media/pdf/pdf-regulatory/SJG-2021-AIRP-II-Annual-Filing.pdf;
EET Annual True Up Filing at https://southjerseygas.com/SJG/media/pdf/pdf-regulatory/SJG-EET-2021-Annual-True-Up-Filing.pdf;
SHARP II Petition at https://southjerseygas.com/SJG/media/pdf/pdf-regulatory/SJG-2021-SHARP-II-12-0-Petition-7-15-21.pdf;
[17]–[18]: 2020 Company 10K, p. 15–20.
[C][13]: ONE Gas in Texas has an annual rate adjustment mechanism named Cost of Service Adjustment (COSA).
However, I exclude it from this table because COSA only applies to 19 percent of the utility's customers in Texas.

Company		State	Quote
[A]		[B]	[G]
	[1]	Texas	See Summary Table on Page 9.
Atmos Energy Co.	[2]	Louisiana	See Summary Table on Page 9.
	[3]	Mississippi	See Summary Table on Page 9.
Chesapeake Utilities Corp.	[4]	Delaware	"On May 31, 2019, both Delmarva and Chesapeake Utilities filed petitions to implement a DSIC effective July 1, 2019."
	[5]	Florida	"The GRIP for FPUC and Chesapeake was originally approved in Order No. PSC-12-0490-TRF-GU (2012 order) allowing recovery of the cost associated with accelerating the replacement of cast iron and bare steel distribution mains and services through a surcharge on customers' bills."
New Jersey Resources Corp.	[6]	New Jersey	"The CIP facilitates normalizing NJNG's utility gross margin for variances not only due to weather but also for other factors affecting customer usage, such as conservation and energy efficiency." See Summary Table on page 44.
Nisource	[7]	Ohio	"Columbia Gas of Ohio continues to execute on its Infrastructure Replacement Program, a long-term modernization program, with approval of its calendar year 2020 investment on April 21, 2021 providing $22.2 million in revenue. "
	[8]	Pennsylvania	"Columbia Gas of Pennsylvania also filed its base rate case in March 2021 requesting an annual revenue increase of $98.3 million to support its ongoing safety and modernization program."
	[9]	Indiana	"NIPSCO continues to execute on its long-term gas modernization program, which includes nearly $950 million in capital investments to be made through 2025 and recovered through semi-annual adjustments to the Gas Transmission, Distribution and Storage Improvement Charge (TDSIC) tracker."
Northwest Natural Gas Co.	[10]	Oregon	"Rate changes are established for NW Natural each year under PGA mechanisms in Oregon and Washington to reflect changes in the expected cost of natural gas commodity purchases." See Summary Table on page 43.
ONE Gas Inc.	[11]	Oklahoma	"All of our service areas utilize weather normalization mechanisms. These mechanisms are designed to reduce the delivery charge component of customers' bills for the additional volumes used when actual HDDs exceed normalized HDDs and to increase the delivery charge component of customers' bills for the reduction in volumes used when actual HDDs are less than normal HDDs." See Summary Table on page 7.
	[12]	Kansas	
	[13]	Texas	
Southwest Gas Corp.	[14]	Nevada	"The continuation of the GRA was affirmed as part of Southwest's recently concluded general rate case, effective October 2020." "The PUCN allows deferral (and later recovery) of approved conservation and energy efficiency costs, recovery rates for which are adjusted in association with ARA filings." "The request sought an ROE of 10% relative to a proposed capital structure of 50% equity and continuation of the General Revenues Adjustment ("GRA") mechanism (full revenue decoupling)...Rates became effective in October 2020."
	[15]	Arizona	"Southwest received approval, in connection with its 2010 Arizona general rate case, to implement a program to conduct leak surveys, and if leaks were present, to replace and relocate service lines and meters for Arizona customers whose meters were set off from the customer's home, representing a non-traditional configuration."

Company		State	Quote
[A]		[B]	[G]
South Jersey Gas	[16]	New Jersey	
Spire Inc.	[17]	Missouri	"The ISRS allows Spire Missouri expedited recovery for its investment to upgrade its infrastructure and enhance its safety and reliability without the necessity of a formal rate case." "The tariff rate schedules of Spire Missouri, Spire Gulf and Spire Mississippi contain Purchased Gas Adjustment (PGA) clauses and Spire Alabama's tariff rate schedule contains a Gas Supply Adjustment (GSA) rider that permit the Utilities to file for rate adjustments to recover the cost of purchased gas." "Spire Missouri and Spire Mississippi each have a Weather Normalization Adjustment rider, Spire Alabama has a Temperature Adjustment Rider, and Spire Gulf has aWeather Impact Normalization Factor."
	[18]	Alabama	"Spire Alabama's and Spire Gulf's rate setting process, Rate Stabilization and Equalization (RSE), is subject to regulation by the APSC and is implemented pursuant to APSC orders expiring September 30, 2022 and 2021, respectively." "Spire Alabama's tariff provides a temperature adjustment mechanism, also included in the GSA, that is designed to moderate the impact of departures from normal temperatures on Spire Alabama's earnings."

Residential Electricity Prices
2020

States	Average Price (US cents/kWh)	Average Price (Canadian cents/kWh)
[A]	[B]	[C]
Texas	11.08	15.75
Louisiana	9.28	13.20
Mississippi	11.30	16.06
Delaware	13.22	18.80
Florida	11.76	16.72
New Jersey	16.28	23.14
Ohio	12.97	18.44
Pennsylvania	12.88	18.31
Indiana	12.58	17.89
Oregon	9.74	13.85
Oklahoma	11.77	16.73
Kansas	12.25	17.41
Arizona	11.48	16.32
Nevada	10.43	14.83
Missouri	11.30	16.06
Alabama	11.63	16.53

Source: EIA. hyrdroquebec.com.
Notes:
[C]: [B] ÷ 0.7034.

Contents

Rate Bases Summary

Company		States with Some Activity	States with Significant Activity	
			States	Fraction of Activity
		[A]	[B]	[C]
Atmos Energy Corp.	[1]	Texas, Colorado, Kansas, Kentucky, Tennessee, Virginia, Louisiana, Mississippi	Texas Louisiana Mississippi	60% 11% 9%
Chesapeake Utilities Corp.	[2]	Delaware, Florida, Maryland	Delaware Florida	44% 46%
New Jersey Resources Corp.	[3]	New Jersey	New Jersey	100%
Nisource	[4]	Ohio, Pennsylvania, Indiana, Virginia, Kentucky, Maryland	Ohio Pennsylvania Indiana	40% 24% 20%
Northwest Natural Gas Co.	[5]	Oregon, Washington	Oregon	88%
ONE Gas Inc.	[6]	Kansas, Oklahoma, Texas	Oklahoma Kansas Texas	43% 30% 28%
Southwest Gas Corp.	[7]	Arizona, California, Nevada	Arizona Nevada	50% 38%
South Jersey Gas	[8]	New Jersey	New Jersey	100%
Spire Inc.	[9]	Alabama, Mississippi, Missouri	Missouri Alabama	79% 20%

Source: EIA Natural Gas Annual Respondent Query System.
Notes:
[B]-[C]: To determine significant activity, each company's percentage rate base is ranked by state. The states with highest percentage rate base are included to reach at least 75% of the company's rate base and 75% of the company's customers.
[C][1], [C][3]–[C][9]: proportion of total gas distribution rate base.
[C][2]: proportion of total gas distribution customers.

Industrial Deliveries

Company		States with Significant Activity [A]	Industrial Volume [B]	Electric Power Volume [C]	Total Volume [D]	Share [E]
Atmos Energy Corp.	[1]	Texas, Louisiana, Mississippi	166,145	66,914	457,421	51.0%
Chesapeake Utilities Corp.	[2]	Delaware, Florida	6,361	0	19,600	32.5%
New Jersey Resources Corp.	[3]	New Jersey	1,603	38,689	104,897	38.4%
Nisource	[4]	Ohio, Pennsylvania, Indiana	352,486	873	700,644	50.4%
Northwest Natural Gas Co.	[5]	Oregon	42,010	0	105,263	39.9%
ONE Gas Inc.	[6]	Oklahoma, Kansas, Texas	158,181	4,537	379,161	42.9%
Southwest Gas Corp.	[7]	Arizona, Nevada	22,636	50,018	197,773	36.7%
South Jersey Gas	[8]	New Jersey	10,128	6,420	54,737	30.2%
Spire Inc.	[9]	Missouri, Alabama	81,904	30,424	281,567	39.9%

Source: EIA Natural Gas Annual Respondent Query System.
Notes:
Volume amounts given in thousand cubic meters.
[E]: ([B] + [C]) ÷ [D].

Residential Customer Growth

Company		States with Significant Activity [A]	Residential Customers Annual Growth Rate [B]
Atmos Energy Corp.	[1]	Texas, Louisiana, Mississippi	0.9%
Chesapeake Utilities Corp.	[2]	Delaware, Florida	3.9%
New Jersey Resources Corp.	[3]	New Jersey	2.6%
Nisource	[4]	Ohio, Pennsylvania, Indiana	1.1%
Northwest Natural Gas Co.	[5]	Oregon	1.5%
ONE Gas Inc.	[6]	Oklahoma, Kansas, Texas	0.6%
Southwest Gas Corp.	[7]	Arizona, Nevada	1.7%
South Jersey Gas	[8]	New Jersey	2.8%
Spire Inc.	[9]	Missouri, Alabama	0.9%

Source: EIA Natural Gas Annual Respondent Query System.

Residential Customers

Company		States with Significant Activity [A]	Residential Customers 2019 [B]
Atmos Energy Corp.	[1]	Texas, Louisiana, Mississippi	2,385,989
Chesapeake Utilities Corp.	[2]	Delaware, Florida	111,824
New Jersey Resources Corp.	[3]	New Jersey	489,938
Nisource	[4]	Ohio, Pennsylvania, Indiana	1,164,519
Northwest Natural Gas Co.	[5]	Oregon	606,801
ONE Gas Inc.	[6]	Oklahoma, Kansas, Texas	2,022,927
Southwest Gas Corp.	[7]	Arizona, Nevada	1,782,101
South Jersey Gas	[8]	New Jersey	351,383
Spire Inc.	[9]	Missouri, Alabama	1,494,643

Source: EIA Natural Gas Annual Respondent Query System.

Volumes and Customers

2020 Industrial Volume	[1]	3,627,102,346
2020 Total Volume	[2]	5,870,667,122
Industrial Percentage of Total Volume	[3]	62%
2019 Customers	[4]	144,357
2015 Customers	[5]	139,116
Annual Growth Rate	[6]	0.9%

Source: Customers and Volume data provided by Energir.

Comparable costs ('000 CAD$)

	Intragaz (10 years avg.)		Gazifère 2019		Énergir 2019	
Labour	3,036	17%	6,710	24%	164,508	28%
Other opex (incl mun. Tx)	2,505	14%	8,077	29%	56,547	10%
Total Opex	**5,541**	**31%**	**14,787**	**53%**	**221,055**	**38%**
Revenu requirement	**18,110**		**27,889**		**584,128**	

Total	2013	2014	2015	2016
Commercial	43,644	44,797	45,735	46,617
Industriel	7,978	8,000	8,020	8,029
Institutionnel	6,446	6,592	6,694	6,762
Résidentiel	136,513	138,232	139,116	140,187
Nombre d'installations	**194,581**	**197,621**	**199,565**	**201,595**
Commercial	978,035,813	1,001,106,707	994,929,739	1,000,997,988
Industriel	3,387,892,760	3,513,428,095	3,548,329,399	3,512,804,765
Institutionnel	589,207,367	587,905,177	583,770,029	577,747,671
Résidentiel	576,953,899	573,285,044	564,682,517	573,568,354
Volume normalisé	**5,532,089,839**	**5,675,725,023**	**5,691,711,684**	**5,665,118,778**
Commercial	153,209,748	180,925,477	178,026,436	175,433,056
Industriel	145,241,636	170,094,982	173,784,333	166,348,939
Institutionnel	60,154,284	70,094,715	70,394,310	70,014,107
Résidentiel	131,623,262	152,211,442	148,706,173	146,091,752
Revenu D normalisé	**490,228,930**	**573,326,617**	**570,911,252**	**557,887,853**

Montréal	2013	2014	2015	2016
Commercial	16,566	16,756	16,833	16,861
Industriel	2,729	2,689	2,653	2,622
Institutionnel	2,480	2,522	2,552	2,572
Résidentiel	76,032	75,489	74,905	74,247
Nombre d'installations	**97,807**	**97,456**	**96,943**	**96,302**
Commercial	446,465,687	446,150,545	439,637,769	438,638,983
Industriel	721,307,442	703,569,076	701,295,816	727,124,155
Institutionnel	262,382,938	265,811,563	264,186,581	261,473,067
Résidentiel	405,144,019	397,829,355	390,621,179	394,565,294
Volume normalisé	**1,835,300,086**	**1,813,360,539**	**1,795,741,345**	**1,821,801,499**
Commercial	66,812,322	77,218,389	75,188,059	73,682,322
Industriel	32,733,405	37,984,785	38,521,560	37,350,340
Institutionnel	25,938,789	30,278,627	30,556,900	30,564,291
Résidentiel	85,617,736	97,607,636	94,768,954	92,409,929
Revenu D normalisé	**211,102,251**	**243,089,436**	**239,035,473**	**234,006,882**
% Montréal	**2013**	**2014**	**2015**	**2016**
Commercial	38%	37%	37%	36%
Industriel	34%	34%	33%	33%
Institutionnel	38%	38%	38%	38%
Résidentiel	56%	55%	54%	53%
Nombre d'installations	**50%**	**49%**	**49%**	**48%**
Commercial	46%	45%	44%	44%
Industriel	21%	20%	20%	21%
Institutionnel	45%	45%	45%	45%
Résidentiel	70%	69%	69%	69%
Volume normalisé	**33%**	**32%**	**32%**	**32%**
Commercial	44%	43%	42%	42%
Industriel	23%	22%	22%	22%
Institutionnel	43%	43%	43%	44%
Résidentiel	65%	64%	64%	63%
Revenu D normalisé	**43%**	**42%**	**42%**	**42%**

Notes	
Nombre d'installations	Installation qui a consommé au moins 1m3
Revenu D normalisé	Installation qui a été facturée

Source : BW, Fichier blob (CAE, VGE)

Total	2017	2018	2019	2020
Commercial	47,474	48,435	49,143	49,506
Industriel	8,098	8,168	8,237	8,282
Institutionnel	6,828	6,767	6,725	6,775
Résidentiel	141,473	143,028	144,357	145,318
Nombre d'installations	**203,873**	**206,398**	**208,462**	**209,881**
Commercial	1,035,176,917	1,048,551,468	1,079,032,981	1,047,785,314
Industriel	3,696,285,850	3,918,971,165	3,787,292,893	3,627,102,346
Institutionnel	594,517,528	583,766,537	581,181,881	570,181,295
Résidentiel	592,133,327	594,341,652	604,954,366	625,598,167
Volume normalisé	**5,918,113,622**	**6,145,630,822**	**6,052,462,121**	**5,870,667,122**
Commercial	184,257,236	190,472,618	194,371,003	175,199,386
Industriel	172,015,247	182,337,287	182,202,637	166,015,823
Institutionnel	72,675,955	73,437,923	70,962,151	65,914,814
Résidentiel	151,256,117	156,586,505	156,974,816	149,498,683
Revenu D normalisé	**580,204,555**	**602,834,332**	**604,510,608**	**556,628,706**

Montréal	2017	2018	2019	2020
Commercial	16,966	17,051	17,058	17,004
Industriel	2,605	2,603	2,614	2,591
Institutionnel	2,582	2,507	2,422	2,431
Résidentiel	73,907	73,844	73,808	73,438
Nombre d'installations	**96,060**	**96,005**	**95,902**	**95,464**
Commercial	444,659,458	443,156,975	452,912,941	438,799,965
Industriel	763,870,623	850,740,507	830,114,378	802,007,789
Institutionnel	271,268,590	261,385,306	255,057,184	248,527,749
Résidentiel	405,093,365	403,430,418	403,953,821	415,491,955
Volume normalisé	**1,884,892,036**	**1,958,713,206**	**1,942,038,324**	**1,904,827,458**
Commercial	75,341,692	77,182,130	77,733,358	69,757,236
Industriel	39,150,967	42,311,061	42,135,690	38,197,918
Institutionnel	31,684,109	31,164,602	29,318,036	27,223,249
Résidentiel	94,719,564	97,509,441	96,814,551	91,691,477
Revenu D normalisé	**240,896,332**	**248,167,235**	**246,001,634**	**226,869,880**
% Montréal	**2017**	**2018**	**2019**	**2020**
Commercial	36%	35%	35%	34%
Industriel	32%	32%	32%	31%
Institutionnel	38%	37%	36%	36%
Résidentiel	52%	52%	51%	51%
Nombre d'installations	**47%**	**47%**	**46%**	**45%**
Commercial	43%	42%	42%	42%
Industriel	21%	22%	22%	22%
Institutionnel	46%	45%	44%	44%
Résidentiel	68%	68%	67%	66%
Volume normalisé	**32%**	**32%**	**32%**	**32%**
Commercial	41%	41%	40%	40%
Industriel	23%	23%	23%	23%
Institutionnel	44%	42%	41%	41%
Résidentiel	63%	62%	62%	61%
Revenu D normalisé	**42%**	**41%**	**41%**	**41%**

Notes

Nombre d'installations

Revenu D normalisé

Source : BW, Fichier blob (CAE, VGE)

Total	Variation	2014	2015	2016	2017	2018
Commercial		2.6%	2.1%	1.9%	1.8%	2.0%
Industriel		0.3%	0.3%	0.1%	0.9%	0.9%
Institutionnel		2.3%	1.5%	1.0%	1.0%	-0.9%
Résidentiel	100.9%	1.3%	0.6%	0.8%	0.9%	1.1%
Nombre d'installations		**1.6%**	**1.0%**	**1.0%**	**1.1%**	**1.2%**
Commercial		2.4%	-0.6%	0.6%	3.4%	1.3%
Industriel		3.7%	1.0%	-1.0%	5.2%	6.0%
Institutionnel		-0.2%	-0.7%	-1.0%	2.9%	-1.8%
Résidentiel		-0.6%	-1.5%	1.6%	3.2%	0.4%
Volume normalisé		**2.6%**	**0.3%**	**-0.5%**	**4.5%**	**3.8%**
Commercial		18.1%	-1.6%	-1.5%	5.0%	3.4%
Industriel		17.1%	2.2%	-4.3%	3.4%	6.0%
Institutionnel		16.5%	0.4%	-0.5%	3.8%	1.0%
Résidentiel		15.6%	-2.3%	-1.8%	3.5%	3.5%
Revenu D normalisé		**17.0%**	**-0.4%**	**-2.3%**	**4.0%**	**3.9%**

Montréal	Variation	2014	2015	2016	2017	2018
Commercial		1.1%	0.5%	0.2%	0.6%	0.5%
Industriel		-1.5%	-1.3%	-1.2%	-0.6%	-0.1%
Institutionnel		1.7%	1.2%	0.8%	0.4%	-2.9%
Résidentiel		-0.7%	-0.8%	-0.9%	-0.5%	-0.1%
Nombre d'installations		**-0.4%**	**-0.5%**	**-0.7%**	**-0.3%**	**-0.1%**
Commercial		-0.1%	-1.5%	-0.2%	1.4%	-0.3%
Industriel		-2.5%	-0.3%	3.7%	5.1%	11.4%
Institutionnel		1.3%	-0.6%	-1.0%	3.7%	-3.6%
Résidentiel		-1.8%	-1.8%	1.0%	2.7%	-0.4%
Volume normalisé		**-1.2%**	**-1.0%**	**1.5%**	**3.5%**	**3.9%**
Commercial		15.6%	-2.6%	-2.0%	2.3%	2.4%
Industriel		16.0%	1.4%	-3.0%	4.8%	8.1%
Institutionnel		16.7%	0.9%	0.0%	3.7%	-1.6%
Résidentiel		14.0%	-2.9%	-2.5%	2.5%	2.9%
Revenu D normalisé		**15.2%**	**-1.7%**	**-2.1%**	**2.9%**	**3.0%**

% Montréal
Commercial
Industriel
Institutionnel
Résidentiel
Nombre d'installations
Commercial
Industriel
Institutionnel
Résidentiel
Volume normalisé
Commercial
Industriel
Institutionnel
Résidentiel
Revenu D normalisé

Notes
Nombre d'installations
Revenu D normalisé

Source : BW, Fichier blob (CAE, VGE)

Total	2019	2020
Commercial	1.5%	0.7%
Industriel	0.8%	0.5%
Institutionnel	-0.6%	0.7%
Résidentiel	0.9%	0.7%
Nombre d'installations	**1.0%**	**0.7%**
Commercial	2.9%	-2.9%
Industriel	-3.4%	-4.2%
Institutionnel	-0.4%	-1.9%
Résidentiel	1.8%	3.4%
Volume normalisé	**-1.5%**	**-3.0%**
Commercial	2.0%	-9.9%
Industriel	-0.1%	-8.9%
Institutionnel	-3.4%	-7.1%
Résidentiel	0.2%	-4.8%
Revenu D normalisé	**0.3%**	**-7.9%**

Montréal	2019	2020
Commercial	0.0%	-0.3%
Industriel	0.4%	-0.9%
Institutionnel	-3.4%	0.4%
Résidentiel	0.0%	-0.5%
Nombre d'installations	**-0.1%**	**-0.5%**
Commercial	2.2%	-3.1%
Industriel	-2.4%	-3.4%
Institutionnel	-2.4%	-2.6%
Résidentiel	0.1%	2.9%
Volume normalisé	**-0.9%**	**-1.9%**
Commercial	0.7%	-10.3%
Industriel	-0.4%	-9.3%
Institutionnel	-5.9%	-7.1%
Résidentiel	-0.7%	-5.3%
Revenu D normalisé	**-0.9%**	**-7.8%**

% Montréal
Commercial
Industriel
Institutionnel
Résidentiel
Nombre d'installations
Commercial
Industriel
Institutionnel
Résidentiel
Volume normalisé
Commercial
Industriel
Institutionnel
Résidentiel
Revenu D normalisé

Notes
Nombre d'installations
Revenu D normalisé
Source : BW, Fichier blob (CAE, VGE)

Residential Customer Growth

Company		States with Significant Activity [A]	2015 Customers [B]	2019 Customers [C]	Residential Customers Annual Growth Rate [D]
Atmos Energy Corp.	[1]	Texas, Louisiana, Mississippi	2,298,294	2,385,989	0.9%
Chesapeake Utilities Corp.	[2]	Delaware, Florida	95,938	111,824	3.9%
New Jersey Resources Corp.	[3]	New Jersey	441,900	489,938	2.6%
Nisource	[4]	Ohio, Pennsylvania, Indiana	1,116,697	1,164,519	1.1%
Northwest Natural Gas Co.	[5]	Oregon	571,534	606,801	1.5%
ONE Gas Inc.	[6]	Oklahoma, Kansas, Texas	1,978,172	2,022,927	0.6%
Southwest Gas Corp.	[7]	Arizona, Nevada	1,667,999	1,782,101	1.7%
South Jersey Gas	[8]	New Jersey	314,606	351,383	2.8%
Spire Inc.	[9]	Missouri, Alabama	1,444,487	1,494,643	0.9%

Source: EIA Natural Gas Annual Respondent Query System.
Notes:
[D]: ([C] ÷ [B])^(0.25) - 1.

Delivery Loads

2019

Parent Company	Company	State	Residential Volume	Commercial Volume	Industrial Volume	Electric Power Volume	Vehicle Fuel Volume	Other Volume	Total
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]
Atmos Energy Corp.		Total	172,587,227	112,610,714	233,590,042	67,156,914	0	0	585,944,897
	ATMOS ENERGY CORPORATION	Colorado	8,439,867	5,384,241	5,826,952	242,636	0	0	19,893,696
	ATMOS ENERGY CORPORATION	Kansas	10,765,409	3,695,215	6,594,049	0	0	0	21,054,673
	ATMOS ENERGY CORPORATION	Kentucky	9,886,885	6,050,140	34,131,806	0	0	0	50,068,831
	ATMOS ENERGY CORPORATION	Louisiana	12,697,021	7,712,852	16,536,500	0	0	0	36,946,373
	ATMOS ENERGY CORPORATION	Mississippi	13,070,120	9,350,714	14,903,599	0	0	0	37,324,433
	ATMOS ENERGY CORPORATION	Tennessee	7,682,195	5,949,091	13,355,756	0	0	0	26,987,042
	ATMOS ENERGY CORPORATION	Texas	108,954,377	72,577,458	134,704,470	66,914,278	0	0	383,150,583
	ATMOS ENERGY CORPORATION	Virginia	1,091,353	1,891,003	7,536,910	0	0	0	10,519,266
Chesapeake Utilities Corp.		Total	5,124,351	9,689,077	8,162,063	0	625	0	22,976,116
	CHESAPEAKE UTILITIES CORPORATION	Delaware	3,218,685	2,477,049	3,353,802	0	625	0	9,050,161
	CHESAPEAKE UTILITIES CORPORATION	Maryland	524,747	1,049,947	1,801,012	0	0	0	3,375,706
	FLORIDA PUBLIC UTILITIES	Florida	1,380,919	6,162,081	3,007,249	0	0	0	10,550,249
New Jersey Resources Corp.		Total	45,706,528	18,898,366	1,603,216	38,689,297	0	0	104,897,407
	NEW JERSEY NATURAL GAS	New Jersey	45,706,528	18,898,366	1,603,216	38,689,297	0	0	104,897,407
Northwest Natural Gas Co.		Total	43,396,025	27,676,488	44,109,704	0	0	0	115,182,217
	NORTHWEST NATURAL GAS CO	Oregon	38,179,169	25,074,193	42,009,512	0	0	0	105,262,874
	NORTHWEST NATURAL GAS CO	Washington	5,216,856	2,602,295	2,100,192	0	0	0	9,919,343
Nisource		Total	233,512,092	166,627,305	410,084,837	80,860,894	0	0	891,085,128
	COLUMBIA GAS DIST CO	Kentucky	8,010,601	8,328,593	14,435,920	21	0	0	30,775,135
	COLUMBIA GAS DIST CO	Maryland	2,305,794	2,498,831	1,377,154	0	0	0	6,181,779
	COLUMBIA GAS OF OHIO	Ohio	109,637,026	72,612,091	84,192,245	0	0	0	266,441,362
	COLUMBIA GAS OF PENNSYLVANIA	Pennsylvania	32,729,432	23,552,427	22,757,147	29,386	0	0	79,068,392
	COLUMBIA GAS OF VIRGINIA	Virginia	14,981,536	16,729,000	41,785,364	79,988,306	0	0	153,484,206
	NORTHERN INDIANA PUBLIC SERVICE CO	Indiana	65,847,703	42,906,363	245,537,007	843,181	0	0	355,134,254
ONE Gas Inc.		Total	128,356,264	86,215,625	158,180,644	4,537,471	1,871,383	0	379,161,387
	KANSAS GAS SERVICE COMPANY	Kansas	45,627,851	21,581,801	48,239,406	915,275	404,729	0	116,769,062
	OKLAHOMA NATURAL GAS CO	Oklahoma	59,681,545	37,309,347	105,362,225	3,622,196	1,466,654	0	207,441,967
	TEXAS GAS SERVICE	Texas	23,046,868	27,324,477	4,579,013	0	0	0	54,950,358
Southwest Gas Corp.		Total	79,116,532	58,592,255	23,147,463	50,154,707	1,688,962	0	212,699,919
	SOUTHWEST GAS CORPORATION	Arizona	31,480,558	27,428,663	9,468,117	3,731,474	445,672	0	72,554,484
	SOUTHWEST GAS CORPORATION	California	10,511,824	3,694,573	511,874	137,109	71,582	0	14,926,962
	SOUTHWEST GAS CORPORATION	Nevada	37,124,150	27,469,019	13,167,472	46,286,124	1,171,708	0	125,218,473
Spire Inc.		Total	107,271,155	63,372,871	83,021,060	30,423,742	254,912	0	284,343,740
	SPIRE ENERGY	Mississippi	662,520	997,246	1,117,064	0	0	0	2,776,830
	ALABAMA GAS CORP	Alabama	17,401,038	12,801,381	49,176,527	26,308,447	3,195	0	105,690,588
	SPIRE MISSOURI INC	Missouri	89,207,597	49,574,244	32,727,469	4,115,295	251,717	0	175,876,322
South Jersey Gas		Total	25,150,791	12,894,831	10,127,601	6,419,935	143,873	0	54,737,031
	SOUTH JERSEY GAS COMPANY	New Jersey	25,150,791	12,894,831	10,127,601	6,419,935	143,873	0	54,737,031

Source: EIA Natural Gas Annual Respondent Query System.

Delivery Loads

2019

Parent Company	Company	State	Percent of Total	Rate Base %	Industrial Percent	Residential Volume	Commercial Volume	Industrial Volume	Electric Power Volume
[A]	[B]	[C]	[K]	[L]	[M]	[N]	[O]	[P]	[Q]
Atmos Energy Corp.		Total				29.5%	19.2%	39.9%	11.5%
	ATMOS ENERGY CORPORATION	Colorado	3%	3%	2%	42.4%	27.1%	29.3%	1.2%
	ATMOS ENERGY CORPORATION	Kansas	4%	4%	2%	51.1%	17.6%	31.3%	0.0%
	ATMOS ENERGY CORPORATION	Kentucky	9%	7%	11%	19.7%	12.1%	68.2%	0.0%
	ATMOS ENERGY CORPORATION	Louisiana	6%	11%	5%	34.4%	20.9%	44.8%	0.0%
	ATMOS ENERGY CORPORATION	Mississippi	6%	9%	5%	35.0%	25.1%	39.9%	0.0%
	ATMOS ENERGY CORPORATION	Tennessee	5%	6%	4%	28.5%	22.0%	49.5%	0.0%
	ATMOS ENERGY CORPORATION	Texas	65%	60%	67%	28.4%	18.9%	35.2%	17.5%
	ATMOS ENERGY CORPORATION	Virginia	2%	1%	3%	10.4%	18.0%	71.6%	0.0%
Chesapeake Utilities Corp.		Total				22.3%	42.2%	35.5%	0.0%
	CHESAPEAKE UTILITIES CORPORATION	Delaware	39%	53%	41%	35.6%	27.4%	37.1%	0.0%
	CHESAPEAKE UTILITIES CORPORATION	Maryland	15%	11%	22%	15.5%	31.1%	53.4%	0.0%
	FLORIDA PUBLIC UTILITIES	Florida	46%	36%	37%	13.1%	58.4%	28.5%	0.0%
New Jersey Resources Corp.		Total				43.6%	18.0%	1.5%	36.9%
	NEW JERSEY NATURAL GAS	New Jersey	100%	100%	100%	43.6%	18.0%	1.5%	36.9%
Northwest Natural Gas Co.		Total				37.7%	24.0%	38.3%	0.0%
	NORTHWEST NATURAL GAS CO	Oregon	91%	88%	95%	36.3%	23.8%	39.9%	0.0%
	NORTHWEST NATURAL GAS CO	Washington	9%	12%	5%	52.6%	26.2%	21.2%	0.0%
Nisource		Total							
	COLUMBIA GAS DIST CO	Kentucky	3%	4%	3%	26.0%	27.1%	46.9%	0.0%
	COLUMBIA GAS DIST CO	Maryland	1%	2%	0%	37.3%	40.4%	22.3%	0.0%
	COLUMBIA GAS OF OHIO	Ohio	30%	40%	17%	41.1%	27.3%	31.6%	0.0%
	COLUMBIA GAS OF PENNSYLVANIA	Pennsylvania	9%	24%	5%	41.4%	29.8%	28.8%	0.0%
	COLUMBIA GAS OF VIRGINIA	Virginia	17%	10%	25%	9.8%	10.9%	27.2%	52.1%
	NORTHERN INDIANA PUBLIC SERVICE CO	Indiana	40%	20%	50%	18.5%	12.1%	69.1%	0.2%
ONE Gas Inc.		Total				33.9%	22.7%	41.7%	1.2%
	KANSAS GAS SERVICE COMPANY	Kansas	31%	30%	30%	39.1%	18.5%	41.3%	0.8%
	OKLAHOMA NATURAL GAS CO	Oklahoma	55%	43%	67%	28.8%	18.0%	50.8%	1.7%
	TEXAS GAS SERVICE	Texas	14%	28%	3%	41.9%	49.7%	8.3%	0.0%
Southwest Gas Corp.		Total				37.2%	27.5%	10.9%	23.6%
	SOUTHWEST GAS CORPORATION	Arizona	34%	50%	18%	43.4%	37.8%	13.0%	5.1%
	SOUTHWEST GAS CORPORATION	California	7%	11%	1%	70.4%	24.8%	3.4%	0.9%
	SOUTHWEST GAS CORPORATION	Nevada	59%	38%	81%	29.6%	21.9%	10.5%	37.0%
Spire Inc.		Total				37.7%	22.3%	29.2%	10.7%
	SPIRE ENERGY	Mississippi	1%	1%	1%	23.9%	35.9%	40.2%	0.0%
	ALABAMA GAS CORP	Alabama	37%	20%	67%	16.5%	12.1%	46.5%	24.9%
	SPIRE MISSOURI INC	Missouri	62%	79%	32%	50.7%	28.2%	18.6%	2.3%
South Jersey Gas		Total				45.9%	23.6%	18.5%	11.7%
	SOUTH JERSEY GAS COMPANY	New Jersey	100%	100%	100%	45.9%	23.6%	18.5%	11.7%

Source: EIA Natural Gas Annual Respondent Query System.

Delivery Loads

2019

Parent Company	Company	State	Vehicle Fuel Volume	Other Volume
[A]	[B]	[C]	[R]	[S]
Atmos Energy Corp.		Total	0.0%	0.0%
	ATMOS ENERGY CORPORATION	Colorado	0.0%	0.0%
	ATMOS ENERGY CORPORATION	Kansas	0.0%	0.0%
	ATMOS ENERGY CORPORATION	Kentucky	0.0%	0.0%
	ATMOS ENERGY CORPORATION	Louisiana	0.0%	0.0%
	ATMOS ENERGY CORPORATION	Mississippi	0.0%	0.0%
	ATMOS ENERGY CORPORATION	Tennessee	0.0%	0.0%
	ATMOS ENERGY CORPORATION	Texas	0.0%	0.0%
	ATMOS ENERGY CORPORATION	Virginia	0.0%	0.0%
Chesapeake Utilities Corp.		Total	0.0%	0.0%
	CHESAPEAKE UTILITIES CORPORATION	Delaware	0.0%	0.0%
	CHESAPEAKE UTILITIES CORPORATION	Maryland	0.0%	0.0%
	FLORIDA PUBLIC UTILITIES	Florida	0.0%	0.0%
New Jersey Resources Corp.		Total	0.0%	0.0%
	NEW JERSEY NATURAL GAS	New Jersey	0.0%	0.0%
Northwest Natural Gas Co.		Total	0.0%	0.0%
	NORTHWEST NATURAL GAS CO	Oregon	0.0%	0.0%
	NORTHWEST NATURAL GAS CO	Washington	0.0%	0.0%
Nisource		Total		
	COLUMBIA GAS DIST CO	Kentucky	0.0%	0.0%
	COLUMBIA GAS DIST CO	Maryland	0.0%	0.0%
	COLUMBIA GAS OF OHIO	Ohio	0.0%	0.0%
	COLUMBIA GAS OF PENNSYLVANIA	Pennsylvania	0.0%	0.0%
	COLUMBIA GAS OF VIRGINIA	Virginia	0.0%	0.0%
	NORTHERN INDIANA PUBLIC SERVICE CO	Indiana	0.0%	0.0%
ONE Gas Inc.		Total	0.5%	0.0%
	KANSAS GAS SERVICE COMPANY	Kansas	0.3%	0.0%
	OKLAHOMA NATURAL GAS CO	Oklahoma	0.7%	0.0%
	TEXAS GAS SERVICE	Texas	0.0%	0.0%
Southwest Gas Corp.		Total	0.8%	0.0%
	SOUTHWEST GAS CORPORATION	Arizona	0.6%	0.0%
	SOUTHWEST GAS CORPORATION	California	0.5%	0.0%
	SOUTHWEST GAS CORPORATION	Nevada	0.9%	0.0%
Spire Inc.		Total	0.1%	0.0%
	SPIRE ENERGY	Mississippi	0.0%	0.0%
	ALABAMA GAS CORP	Alabama	0.0%	0.0%
	SPIRE MISSOURI INC	Missouri	0.1%	0.0%
South Jersey Gas		Total	0.3%	0.0%
	SOUTH JERSEY GAS COMPANY	New Jersey	0.3%	0.0%

Source: EIA Natural Gas Annual Respondent Query System.

Customers

2019

Parent Company	Company	State	Residential Sales Consumers	Commercial Sales Consumers	Industrial Sales Consumers	Electric Power Sales Consumers	Vehicle Fuel Sales Consumers
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
Atmos Energy Corp.		Total	2929852	258428	1907	0	0
	ATMOS ENERGY CORPORATION	Colorado	110228	12245	12	0	0
	ATMOS ENERGY CORPORATION	Kansas	125414	9921	348	0	0
	ATMOS ENERGY CORPORATION	Kentucky	158011	19256	222	0	0
	ATMOS ENERGY CORPORATION	Louisiana	331423	21297	262	0	0
	ATMOS ENERGY CORPORATION	Mississippi	225883	21689	300	0	0
	ATMOS ENERGY CORPORATION	Tennessee	131624	17562	350	0	0
	ATMOS ENERGY CORPORATION	Texas	1828683	151670	351	0	0
	ATMOS ENERGY CORPORATION	Virginia	18586	4788	62	0	0
Chesapeake Utilities Corp.		Total	123204	9577	49	0	5
	CHESAPEAKE UTILITIES CORPORATION	Delaware	54885	3861	34	0	5
	CHESAPEAKE UTILITIES CORPORATION	Maryland	11380	1822	9	0	0
	FLORIDA PUBLIC UTILITIES	Florida	56939	3894	6	0	0
New Jersey Resources Corp.		Total	489938	29952	22	1	0
	NEW JERSEY NATURAL GAS	New Jersey	489938	29952	22	1	0
Northwest Natural Gas Co.		Total	685565	69267	791	0	0
	NORTHWEST NATURAL GAS CO	Oregon	606801	62024	732	0	0
	NORTHWEST NATURAL GAS CO	Washington	78764	7243	59	0	0
Nisource		Total	1529715	114473	2310	3	0
	COLUMBIA GAS DIST CO	Kentucky	105929	11052	54	2	0
	COLUMBIA GAS DIST CO	Maryland	29875	3532	9	0	0
	COLUMBIA GAS OF OHIO	Ohio	124428	2976	43	0	0
	COLUMBIA GAS OF PENNSYLVANIA	Pennsylvania	337268	24782	62	0	0
	COLUMBIA GAS OF VIRGINIA	Virginia	229392	19460	84	1	0
	NORTHERN INDIANA PUBLIC SERVICE CO	Indiana	702823	52671	2058	0	0
ONE Gas Inc.		Total	2022927	161604	1133	7	12
	KANSAS GAS SERVICE COMPANY	Kansas	584157	49617	66	7	1
	OKLAHOMA NATURAL GAS CO	Oklahoma	808115	73954	813	0	11
	TEXAS GAS SERVICE	Texas	630655	38033	254	0	0
Southwest Gas Corp.		Total	1968869	81371	319	36	78
	SOUTHWEST GAS CORPORATION	Arizona	1051069	40199	194	19	63
	SOUTHWEST GAS CORPORATION	California	186768	9414	35	13	7
	SOUTHWEST GAS CORPORATION	Nevada	731032	31758	90	4	8
Spire Inc.		Total	1510123	105468	2762	2	98
	SPIRE ENERGY	Mississippi	15480	2926	32	0	0
	ALABAMA GAS CORP	Alabama	393265	29513	1203	0	90
	SPIRE MISSOURI INC	Missouri	1101378	73029	1527	2	8
South Jersey Gas		Total	351383	19812	274	8	3
	SOUTH JERSEY GAS COMPANY	New Jersey	351383	19812	274	8	3

Source: EIA Natural Gas Annual Respondent Query System.

Customers

2019

Parent Company	Company	State	Other Sales Consumers	Total	Percent of Total	Rate Base %	Residential Sales Consumers	Commercial Sales Consumers
[A]	[B]	[C]	[I]	[J]	[K]	[L]	[M]	[N]
Atmos Energy Corp.		Total	0	3190187			91.8%	8.1%
	ATMOS ENERGY CORPORATION	Colorado	0	122485	4%	3%	90.0%	10.0%
	ATMOS ENERGY CORPORATION	Kansas	0	135683	4%	4%	92.4%	7.3%
	ATMOS ENERGY CORPORATION	Kentucky	0	177489	6%	7%	89.0%	10.8%
	ATMOS ENERGY CORPORATION	Louisiana	0	352982	11%	11%	93.9%	6.0%
	ATMOS ENERGY CORPORATION	Mississippi	0	247872	8%	9%	91.1%	8.8%
	ATMOS ENERGY CORPORATION	Tennessee	0	149536	5%	6%	88.0%	11.7%
	ATMOS ENERGY CORPORATION	Texas	0	1980704	62%	60%	92.3%	7.7%
	ATMOS ENERGY CORPORATION	Virginia	0	23436	1%	1%	79.3%	20.4%
Chesapeake Utilities Corp.		Total	0	132835			92.7%	7.2%
	CHESAPEAKE UTILITIES CORPORATION	Delaware	0	58785	44%	53%	93.4%	6.6%
	CHESAPEAKE UTILITIES CORPORATION	Maryland	0	13211	10%	11%	86.1%	13.8%
	FLORIDA PUBLIC UTILITIES	Florida	0	60839	46%	36%	93.6%	6.4%
New Jersey Resources Corp.		Total	0	519913			94.2%	5.8%
	NEW JERSEY NATURAL GAS	New Jersey	0	519913	100%	100%	94.2%	5.8%
Northwest Natural Gas Co.		Total	0	755623			90.7%	9.2%
	NORTHWEST NATURAL GAS CO	Oregon	0	669557	89%	88%	90.6%	9.3%
	NORTHWEST NATURAL GAS CO	Washington	0	86066	11%	12%	91.5%	8.4%
Nisource		Total	0	1646501				
	COLUMBIA GAS DIST CO	Kentucky	0	117037	7%	4%	90.5%	9.4%
	COLUMBIA GAS DIST CO	Maryland	0	33416	2%	2%	89.4%	10.6%
	COLUMBIA GAS OF OHIO	Ohio	0	127447	8%	40%	97.6%	2.3%
	COLUMBIA GAS OF PENNSYLVANIA	Pennsylvania	0	362112	22%	24%	93.1%	6.8%
	COLUMBIA GAS OF VIRGINIA	Virginia	0	248937	15%	10%	92.1%	7.8%
	NORTHERN INDIANA PUBLIC SERVICE CO	Indiana	0	757552	46%	20%	92.8%	7.0%
ONE Gas Inc.		Total	0	2185683			92.6%	7.4%
	KANSAS GAS SERVICE COMPANY	Kansas	0	633848	29%	30%	92.2%	7.8%
	OKLAHOMA NATURAL GAS CO	Oklahoma	0	882893	40%	43%	91.5%	8.4%
	TEXAS GAS SERVICE	Texas	0	668942	31%	28%	94.3%	5.7%
Southwest Gas Corp.		Total	0	2050673			96.0%	4.0%
	SOUTHWEST GAS CORPORATION	Arizona	0	1091544	53%	50%	96.3%	3.7%
	SOUTHWEST GAS CORPORATION	California	0	196237	10%	11%	95.2%	4.8%
	SOUTHWEST GAS CORPORATION	Nevada	0	762892	37%	38%	95.8%	4.2%
Spire Inc.		Total	0	1618453			93.3%	6.5%
	SPIRE ENERGY	Mississippi	0	18438	1%	1%	84.0%	15.9%
	ALABAMA GAS CORP	Alabama	0	424071	26%	20%	92.7%	7.0%
	SPIRE MISSOURI INC	Missouri	0	1175944	73%	79%	93.7%	6.2%
South Jersey Gas		Total	0	371480			94.6%	5.3%
	SOUTH JERSEY GAS COMPANY	New Jersey	0	371480	100%	100%	94.6%	5.3%

Source: EIA Natural Gas Annual Respondent Query System.

Customers

2019							2014
Parent Company	Company	State	Industrial Sales Consumers	Electric Power Sales Consumers	Vehicle Fuel Sales Consumers	Other Sales Consumers	Residential Sales Consumers
[A]	[B]	[C]	[O]	[P]	[Q]	[R]	[S]
Atmos Energy Corp.		Total	0.1%	0.0%	0.0%	0.0%	2816833
	ATMOS ENERGY CORPORATION	Colorado	0.0%	0.0%	0.0%	0.0%	103231
	ATMOS ENERGY CORPORATION	Kansas	0.3%	0.0%	0.0%	0.0%	121306
	ATMOS ENERGY CORPORATION	Kentucky	0.1%	0.0%	0.0%	0.0%	155597
	ATMOS ENERGY CORPORATION	Louisiana	0.1%	0.0%	0.0%	0.0%	326423
	ATMOS ENERGY CORPORATION	Mississippi	0.1%	0.0%	0.0%	0.0%	224601
	ATMOS ENERGY CORPORATION	Tennessee	0.2%	0.0%	0.0%	0.0%	120372
	ATMOS ENERGY CORPORATION	Texas	0.0%	0.0%	0.0%	0.0%	1747270
	ATMOS ENERGY CORPORATION	Virginia	0.3%	0.0%	0.0%	0.0%	18033
Chesapeake Utilities Corp.		Total	0.0%	0.0%	0.0%	0.0%	106905
	CHESAPEAKE UTILITIES CORPORATION	Delaware	0.1%	0.0%	0.0%	0.0%	43285
	CHESAPEAKE UTILITIES CORPORATION	Maryland	0.1%	0.0%	0.0%	0.0%	10967
	FLORIDA PUBLIC UTILITIES	Florida	0.0%	0.0%	0.0%	0.0%	52653
New Jersey Resources Corp.		Total	0.0%	0.0%	0.0%	0.0%	441900
	NEW JERSEY NATURAL GAS	New Jersey	0.0%	0.0%	0.0%	0.0%	441900
Northwest Natural Gas Co.		Total	0.1%	0.0%	0.0%	0.0%	641095
	NORTHWEST NATURAL GAS CO	Oregon	0.1%	0.0%	0.0%	0.0%	571534
	NORTHWEST NATURAL GAS CO	Washington	0.1%	0.0%	0.0%	0.0%	69561
Nisource		Total					1456984
	COLUMBIA GAS DIST CO	Kentucky	0.0%	0.0%	0.0%	0.0%	97855
	COLUMBIA GAS DIST CO	Maryland	0.0%	0.0%	0.0%	0.0%	29242
	COLUMBIA GAS OF OHIO	Ohio	0.0%	0.0%	0.0%	0.0%	158691
	COLUMBIA GAS OF PENNSYLVANIA	Pennsylvania	0.0%	0.0%	0.0%	0.0%	287713
	COLUMBIA GAS OF VIRGINIA	Virginia	0.0%	0.0%	0.0%	0.0%	213190
	NORTHERN INDIANA PUBLIC SERVICE CO	Indiana	0.3%	0.0%	0.0%	0.0%	670293
ONE Gas Inc.		Total	0.1%	0.0%	0.0%	0.0%	1978172
	KANSAS GAS SERVICE COMPANY	Kansas	0.0%	0.0%	0.0%	0.0%	579151
	OKLAHOMA NATURAL GAS CO	Oklahoma	0.1%	0.0%	0.0%	0.0%	792550
	TEXAS GAS SERVICE	Texas	0.0%	0.0%	0.0%	0.0%	606471
Southwest Gas Corp.		Total	0.0%	0.0%	0.0%	0.0%	1847575
	SOUTHWEST GAS CORPORATION	Arizona	0.0%	0.0%	0.0%	0.0%	989044
	SOUTHWEST GAS CORPORATION	California	0.0%	0.0%	0.0%	0.0%	179576
	SOUTHWEST GAS CORPORATION	Nevada	0.0%	0.0%	0.0%	0.0%	678955
Spire Inc.		Total	0.2%	0.0%	0.0%	0.0%	1460511
	SPIRE ENERGY	Mississippi	0.2%	0.0%	0.0%	0.0%	16024
	ALABAMA GAS CORP	Alabama	0.3%	0.0%	0.0%	0.0%	391823
	SPIRE MISSOURI INC	Missouri	0.1%	0.0%	0.0%	0.0%	1052664
South Jersey Gas		Total	0.1%	0.0%	0.0%	0.0%	314606
	SOUTH JERSEY GAS COMPANY	New Jersey	0.1%	0.0%	0.0%	0.0%	314606

Source: EIA Natural Gas Annual Respondent Query System.

Revenues

2019

Parent Company	Company	State	Residential Sales Revenue	Commercial Sales Revenue	Industrial Sales Revenue	Electric Power Sales Revenue	Vehicle Fuel Sales Revenue
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
Atmos Energy Corp.		Total	$1,739,559,473	$744,177,758	$114,784,538	$0	$0
	ATMOS ENERGY CORPORATION	Colorado	$71,511,408	$35,453,941	$27,693	$0	$0
	ATMOS ENERGY CORPORATION	Kansas	$85,690,535	$24,912,782	$2,866,838	$0	$0
	ATMOS ENERGY CORPORATION	Kentucky	$98,624,946	$49,273,554	$9,607,791	$0	$0
	ATMOS ENERGY CORPORATION	Louisiana	$162,255,252	$80,710,945	$55,886,996	$0	$0
	ATMOS ENERGY CORPORATION	Mississippi	$137,660,336	$75,027,783	$20,973,835	$0	$0
	ATMOS ENERGY CORPORATION	Tennessee	$70,179,077	$44,694,998	$8,967,961	$0	$0
	ATMOS ENERGY CORPORATION	Texas	$1,104,385,893	$421,592,467	$14,493,533	$0	$0
	ATMOS ENERGY CORPORATION	Virginia	$9,252,026	$12,511,288	$1,959,891	$0	$0
Chesapeake Utilities Corp.		Total	$85,616,519	$45,126,745	$1,684,603	$0	$11,716
	CHESAPEAKE UTILITIES CORPORATION	Delaware	$47,162,537	$13,138,171	$690,463	$0	$11,716
	CHESAPEAKE UTILITIES CORPORATION	Maryland	$9,506,991	$7,770,231	$404,565	$0	$0
	FLORIDA PUBLIC UTILITIES	Florida	$28,946,991	$24,218,343	$589,575	$0	$0
New Jersey Resources Corp.		Total	$493,395,662	$98,646,055	$1,775,846	$234,444	$0
	NEW JERSEY NATURAL GAS	New Jersey	$493,395,662	$98,646,055	$1,775,846	$234,444	$0
Northwest Natural Gas Co.		Total	$430,299,551	$210,332,242	$37,177,439	$0	$0
	NORTHWEST NATURAL GAS CO	Oregon	$382,106,977	$191,508,738	$34,867,212	$0	$0
	NORTHWEST NATURAL GAS CO	Washington	$48,192,574	$18,823,504	$2,310,227	$0	$0
Nisource		Total	$1,285,138,752	$369,487,882	$36,118,102	$1,200	$0
	COLUMBIA GAS DIST CO	Kentucky	$77,004,175	$32,256,150	$2,059,736	$836	$0
	COLUMBIA GAS DIST CO	Maryland	$29,930,113	$15,813,297	$571,957	$0	$0
	COLUMBIA GAS OF OHIO	Ohio	$101,780,546	$14,164,654	$3,030,789	$0	$0
	COLUMBIA GAS OF PENNSYLVANIA	Pennsylvania	$383,281,012	$81,665,183	$1,527,363	$0	$0
	COLUMBIA GAS OF VIRGINIA	Virginia	$195,771,828	$64,474,459	$2,707,861	$364	$0
	NORTHERN INDIANA PUBLIC SERVICE CO	Indiana	$497,371,078	$161,114,139	$26,220,396	$0	$0
ONE Gas Inc.		Total	$1,256,432,906	$317,654,230	$7,007,836	$18,484	$348,558
	KANSAS GAS SERVICE COMPANY	Kansas	$439,036,534	$101,271,683	$406,715	$18,484	$149,619
	OKLAHOMA NATURAL GAS CO	Oklahoma	$544,056,000	$114,034,144	$2,913,837	$0	$198,939
	TEXAS GAS SERVICE	Texas	$273,340,372	$102,348,403	$3,687,284	$0	$0
Southwest Gas Corp.		Total	$992,439,052	$299,433,688	$17,680,991	$2,786,938	$7,746,873
	SOUTHWEST GAS CORPORATION	Arizona	$457,315,550	$156,213,527	$8,584,276	$2,061,082	$1,727,151
	SOUTHWEST GAS CORPORATION	California	$155,969,992	$35,613,776	$1,398,596	$672,947	$546,314
	SOUTHWEST GAS CORPORATION	Nevada	$379,153,510	$107,606,385	$7,698,119	$52,909	$5,473,408
Spire Inc.		Total	$1,211,084,565	$377,432,970	$46,784,786	$242,207	$1,527,833
	SPIRE ENERGY	Mississippi	$7,128,073	$8,906,518	$5,430,474	$0	$0
	ALABAMA GAS CORP	Alabama	$269,747,885	$97,726,183	$16,534,634	$0	$9,775
	SPIRE MISSOURI INC	Missouri	$934,208,607	$270,800,269	$24,819,678	$242,207	$1,518,058
South Jersey Gas		Total	$346,726,885	$72,664,100	$3,570,689	$3,618,898	$224,723
	SOUTH JERSEY GAS COMPANY	New Jersey	$346,726,885	$72,664,100	$3,570,689	$3,618,898	$224,723

Source: EIA Natural Gas Annual Respondent Query System.

Revenues

2019

Parent Company	Company	State	Other Sales Revenue	Total	Percent of Total	Rate Base ($M)	Rate Base %	Residential Sales Revenue
[A]	[B]	[C]	[I]	[J]	[K]	[L]	[M]	[N]
Atmos Energy Corp.		Total	$0	$2,598,521,769		6,910		66.9%
	ATMOS ENERGY CORPORATION	Colorado	$0	$106,993,042	4%	191	3%	66.8%
	ATMOS ENERGY CORPORATION	Kansas	$0	$113,470,155	4%	269	4%	75.5%
	ATMOS ENERGY CORPORATION	Kentucky	$0	$157,506,291	6%	452	7%	62.6%
	ATMOS ENERGY CORPORATION	Louisiana	$0	$298,853,193	12%	747	11%	54.3%
	ATMOS ENERGY CORPORATION	Mississippi	$0	$233,661,954	9%	634	9%	58.9%
	ATMOS ENERGY CORPORATION	Tennessee	$0	$123,842,036	5%	389	6%	56.7%
	ATMOS ENERGY CORPORATION	Texas	$0	$1,540,471,893	59%	4,179	60%	71.7%
	ATMOS ENERGY CORPORATION	Virginia	$0	$23,723,205	1%	49	1%	39.0%
Chesapeake Utilities Corp.		Total	$0	$132,439,583		131		64.6%
	CHESAPEAKE UTILITIES CORPORATION	Delaware	$0	$61,002,887	46%	69	53%	77.3%
	CHESAPEAKE UTILITIES CORPORATION	Maryland	$0	$17,681,787	13%	15	11%	53.8%
	FLORIDA PUBLIC UTILITIES	Florida	$0	$53,754,909	41%	47	36%	53.8%
New Jersey Resources Corp.		Total	$0	$594,052,007		1,760		83.1%
	NEW JERSEY NATURAL GAS	New Jersey	$0	$594,052,007	100%	1,760	100%	83.1%
Northwest Natural Gas Co.		Total	$0	$677,809,232		1,635		63.5%
	NORTHWEST NATURAL GAS CO	Oregon	$0	$608,482,927	90%	1,440	88%	62.8%
	NORTHWEST NATURAL GAS CO	Washington	$0	$69,326,305	10%	195	12%	69.5%
Nisource		Total	$0	$1,690,745,936		8,850		
	COLUMBIA GAS DIST CO	Kentucky	$0	$111,320,897	7%	372	4%	69.2%
	COLUMBIA GAS DIST CO	Maryland	$0	$46,315,367	3%	173	2%	64.6%
	COLUMBIA GAS OF OHIO	Ohio	$0	$118,975,989	7%	3,500	40%	85.5%
	COLUMBIA GAS OF PENNSYLVANIA	Pennsylvania	$0	$466,473,558	28%	2,100	24%	82.2%
	COLUMBIA GAS OF VIRGINIA	Virginia	$0	$262,954,512	16%	905	10%	74.5%
	NORTHERN INDIANA PUBLIC SERVICE CO	Indiana	$0	$684,705,613	40%	1,800	20%	72.6%
ONE Gas Inc.		Total	$0	$1,581,462,014		3,796		79.4%
	KANSAS GAS SERVICE COMPANY	Kansas	$0	$540,883,035	34%	1,133	30%	81.2%
	OKLAHOMA NATURAL GAS CO	Oklahoma	$0	$661,202,920	42%	1,616	43%	82.3%
	TEXAS GAS SERVICE	Texas	$0	$379,376,059	24%	1,047	28%	72.0%
Southwest Gas Corp.		Total	$0	$1,320,087,542		3,846		75.2%
	SOUTHWEST GAS CORPORATION	Arizona	$0	$625,901,586	47%	1,931	50%	73.1%
	SOUTHWEST GAS CORPORATION	California	$0	$194,201,625	15%	435	11%	80.3%
	SOUTHWEST GAS CORPORATION	Nevada	$0	$499,984,331	38%	1,480	38%	75.8%
Spire Inc.		Total	$0	$1,637,072,361		3,514		74.0%
	SPIRE ENERGY	Mississippi	$0	$21,465,065	1%	38	1%	33.2%
	ALABAMA GAS CORP	Alabama	$0	$384,018,477	23%	696	20%	70.2%
	SPIRE MISSOURI INC	Missouri	$0	$1,231,588,819	75%	2,780	79%	75.9%
South Jersey Gas		Total	$0	$426,805,295		1,600		81.2%
	SOUTH JERSEY GAS COMPANY	New Jersey	$0	$426,805,295	100%	1,600	100%	81.2%

Source: EIA Natural Gas Annual Respondent Query System.

Revenues

2019

Parent Company	Company	State	Commercial Sales Revenue	Industrial Sales Revenue	Electric Power Sales Revenue	Vehicle Fuel Sales Revenue	Other Sales Revenue
[A]	[B]	[C]	[O]	[P]	[Q]	[R]	[S]
Atmos Energy Corp.		Total	28.6%	4.4%	0.0%	0.0%	0.0%
	ATMOS ENERGY CORPORATION	Colorado	33.1%	0.0%	0.0%	0.0%	0.0%
	ATMOS ENERGY CORPORATION	Kansas	22.0%	2.5%	0.0%	0.0%	0.0%
	ATMOS ENERGY CORPORATION	Kentucky	31.3%	6.1%	0.0%	0.0%	0.0%
	ATMOS ENERGY CORPORATION	Louisiana	27.0%	18.7%	0.0%	0.0%	0.0%
	ATMOS ENERGY CORPORATION	Mississippi	32.1%	9.0%	0.0%	0.0%	0.0%
	ATMOS ENERGY CORPORATION	Tennessee	36.1%	7.2%	0.0%	0.0%	0.0%
	ATMOS ENERGY CORPORATION	Texas	27.4%	0.9%	0.0%	0.0%	0.0%
	ATMOS ENERGY CORPORATION	Virginia	52.7%	8.3%	0.0%	0.0%	0.0%
Chesapeake Utilities Corp.		Total	34.1%	1.3%	0.0%	0.0%	0.0%
	CHESAPEAKE UTILITIES CORPORATION	Delaware	21.5%	1.1%	0.0%	0.0%	0.0%
	CHESAPEAKE UTILITIES CORPORATION	Maryland	43.9%	2.3%	0.0%	0.0%	0.0%
	FLORIDA PUBLIC UTILITIES	Florida	45.1%	1.1%	0.0%	0.0%	0.0%
New Jersey Resources Corp.		Total	16.6%	0.3%	0.0%	0.0%	0.0%
	NEW JERSEY NATURAL GAS	New Jersey	16.6%	0.3%	0.0%	0.0%	0.0%
Northwest Natural Gas Co.		Total	31.0%	5.5%	0.0%	0.0%	0.0%
	NORTHWEST NATURAL GAS CO	Oregon	31.5%	5.7%	0.0%	0.0%	0.0%
	NORTHWEST NATURAL GAS CO	Washington	27.2%	3.3%	0.0%	0.0%	0.0%
Nisource		Total					
	COLUMBIA GAS DIST CO	Kentucky	29.0%	1.9%	0.0%	0.0%	0.0%
	COLUMBIA GAS DIST CO	Maryland	34.1%	1.2%	0.0%	0.0%	0.0%
	COLUMBIA GAS OF OHIO	Ohio	11.9%	2.5%	0.0%	0.0%	0.0%
	COLUMBIA GAS OF PENNSYLVANIA	Pennsylvania	17.5%	0.3%	0.0%	0.0%	0.0%
	COLUMBIA GAS OF VIRGINIA	Virginia	24.5%	1.0%	0.0%	0.0%	0.0%
	NORTHERN INDIANA PUBLIC SERVICE CO	Indiana	23.5%	3.8%	0.0%	0.0%	0.0%
ONE Gas Inc.		Total	20.1%	0.4%	0.0%	0.0%	0.0%
	KANSAS GAS SERVICE COMPANY	Kansas	18.7%	0.1%	0.0%	0.0%	0.0%
	OKLAHOMA NATURAL GAS CO	Oklahoma	17.2%	0.4%	0.0%	0.0%	0.0%
	TEXAS GAS SERVICE	Texas	27.0%	1.0%	0.0%	0.0%	0.0%
Southwest Gas Corp.		Total	22.7%	1.3%	0.2%	0.6%	0.0%
	SOUTHWEST GAS CORPORATION	Arizona	25.0%	1.4%	0.3%	0.3%	0.0%
	SOUTHWEST GAS CORPORATION	California	18.3%	0.7%	0.3%	0.3%	0.0%
	SOUTHWEST GAS CORPORATION	Nevada	21.5%	1.5%	0.0%	1.1%	0.0%
Spire Inc.		Total	23.1%	2.9%	0.0%	0.1%	0.0%
	SPIRE ENERGY	Mississippi	41.5%	25.3%	0.0%	0.0%	0.0%
	ALABAMA GAS CORP	Alabama	25.4%	4.3%	0.0%	0.0%	0.0%
	SPIRE MISSOURI INC	Missouri	22.0%	2.0%	0.0%	0.1%	0.0%
South Jersey Gas		Total	17.0%	0.8%	0.8%	0.1%	0.0%
	SOUTH JERSEY GAS COMPANY	New Jersey	17.0%	0.8%	0.8%	0.1%	0.0%

Source: EIA Natural Gas Annual Respondent Query System.