

BEFORE THE PUBLIC SERVICE COMMISSION OF MARYLAND

IN THE MATTER OF THE PETITION OF)
WASHINGTON GAS LIGHT COMPANY)
FOR APPROVAL OF REVISED TARIFF)
PROVISIONS TO FACILITATE ACCESS) CASE NO. 9433
TO NATURAL GAS IN THE)
COMPANY'S MARYLAND FRANCHISE)
AREA THAT ARE CURRENTLY)
WITHOUT NATURAL GAS SERVICE)

DIRECT TESTIMONY OF

JAMES F. WILSON

ON BEHALF OF
THE MID-ATLANTIC PROPANE GAS ASSOCIATION AND
THE MID-ATLANTIC PETROLEUM DISTRIBUTORS ASSOCIATION, INC.

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Exhibit JFW-1: James Wilson’s CV

Exhibit JFW-2: Cited Data Responses

1 **I. INTRODUCTION AND QUALIFICATIONS**

2 **Q 1: Please state your name, position and business address.**

3 A: My name is James F. Wilson. I am an economist and independent consultant doing
4 business as Wilson Energy Economics. My business address is 4800 Hampden Lane
5 Suite 200, Bethesda, Maryland 20814.

6 **Q 2: On whose behalf are you testifying in this proceeding?**

7 A: I am testifying on behalf of the Mid-Atlantic Propane Gas Association and the Mid-
8 Atlantic Petroleum Distributors Association, Inc.

9 **Q 3: Please describe your experience and qualifications.**

10 A: I have over thirty years of consulting experience, primarily in the electric power and
11 natural gas industries. Many of my assignments have pertained to the economic and
12 policy issues arising from the interplay of competition and regulation in these industries,
13 including restructuring policies, market design, market analysis and market power. Other
14 recent engagements have involved resource adequacy and capacity markets, contract
15 litigation and damages, forecasting and market evaluation, pipeline rate cases and
16 evaluating allegations of market manipulation. I also spent five years in Russia in the
17 early 1990s advising on the reform, restructuring, and development of the Russian
18 electricity and natural gas industries for the World Bank and other clients.

19 I have submitted affidavits and presented testimony in proceedings of the Federal Energy
20 Regulatory Commission (“FERC”), various state regulatory agencies, and U.S. district
21 court. I hold a B.A. in Mathematics from Oberlin College and an M.S. in Engineering-
22 Economic Systems from Stanford University. My curriculum vitae, summarizing my
23 experience and listing past testimony, is attached as Exhibit JFW-1.

1 **Q 4: Please summarize your experience testifying before state public utilities**
2 **commissions.**

3 A: I have submitted testimony in state regulatory proceedings in Alaska, California,
4 Delaware, Maryland, Michigan, Missouri, New Jersey, New Mexico, Ohio, Virginia, and
5 West Virginia. I testified before the Maryland Public Service Commission
6 (“Commission”) in 2010 in Docket No. PC 22 (re: PJM’s Reliability Pricing Model).
7 With regard to natural gas service extension issues, I have submitted testimony in recent
8 proceedings in Delaware and West Virginia.

9 **Q 5: What is the scope and purpose of your testimony in this proceeding?**

10 A: On December 7, 2016, Washington Gas Light Company (“Washington Gas”, the
11 “Company”) filed a petition (“Petition”) seeking approval of three initiatives designed to
12 facilitate increased access to natural gas in unserved and underserved areas in the
13 Company’s franchise territory. The initiatives are further described in and supported by
14 the direct testimonies of Company witness Paul S. Buckley (“Buckley Testimony”) and
15 an independent consultant, Paul H. Raab (“Raab Testimony”). My assignment was to
16 evaluate the initiatives against the economic and regulatory principles that should guide
17 the review and approval of such programs. I was also asked to comment on the Company
18 witnesses’ discussion of natural gas in comparison to other forms of energy.

19 **Q 6: How is your testimony organized?**

20 A: The next section provides a summary of my testimony and of my comments with respect
21 to the three initiatives. In Section III I discuss the economic and regulatory principles
22 that are applicable to the review of such utility initiatives. In Section IV I evaluate the
23 three initiatives and their consistency with these principles. In the final section of my
24 testimony I address the testimony comparing natural gas to other forms of energy.

1 **II. SUMMARY OF THE EVALUATION AND RECOMMENDATIONS**

2 **Q 7: Please describe the initiatives proposed in the Petition.**

3 A: The Petition proposes changes to Company’s natural gas tariff, General Service Provision
4 No. 14, Economic Evaluation of Facilities Extension (“GSP 14”), to implement the
5 following three initiatives (Petition pp. 1-2; Buckley Testimony pp. 22-40):

- 6 1. A Contribution Payment Plan (“CPP”; proposed GSP 14.j), under which potential
7 residential and commercial customers could pay the required customer contributions
8 for extension of natural gas facilities to serve them over a period of up to 20 years;
- 9 2. A Targeted Conversion Plan (“TCP”; proposed GSP 14.k), under which the Company
10 would use relaxed assumptions to perform the economic evaluations of gas mains
11 extensions and to determine the required customer contributions;
- 12 3. A Gas Access Program (“GAP”; proposed GSP 14.l), under which the Company
13 would pursue qualifying transmission and main extensions without performing the
14 economic evaluation under GSP 14 and would establish a regulatory asset to defer for
15 future collection in rates the associated property taxes, carrying costs and
16 depreciation.

17
18 **Q 8: Does the Company propose to share some of the risk associated with any of these**
19 **initiatives, if the associated line extensions ultimately prove uneconomic?**

20 A: No, the Company does not propose to bear any of the cost or risk associated with these
21 initiatives, other than the usual possibility that some cost recovery could be denied if an
22 investment is deemed imprudent.¹

23 **Q 9: Please summarize how you evaluated the three initiatives.**

24 A: The initiatives were evaluated based on well-established regulatory principles applicable
25 to such initiatives, described more fully below: That policies should ensure 1) that only
26 economic extensions are constructed; 2) that the costs of extensions are borne by the

¹ Responses to Data Requests Staff 1-14, Staff 4-6, Staff 7-15, Staff 8-1. (All cited data requests are found in Exhibit JFW-2.)

1 beneficiaries, to connect cost causation and cost responsibility; and 3) that the utility
2 should be exposed to some of the risk of uneconomic extensions, to provide proper
3 incentives.

4 **Q 10: Please summarize your evaluation of the three initiatives.**

5 A: The CPP is generally consistent with the identified principles. If approved, a few
6 changes to the CPP are warranted, to give the Company stronger incentives to collect the
7 CPP and to protect existing customers from under-collection of CPP amounts.

8 The TCP and GAP initiatives should not be approved. They could lead to uneconomic
9 extensions, cost-shifting to existing customers, and distortion of fuel choices and inter-
10 fuel competition. These programs would also work at cross purposes with Maryland's
11 renewable energy goals.

12 **Q 11: Company Witnesses Buckley and Raab provide various comparisons between**
13 **natural gas and other forms of energy, suggesting that these comparisons make a**
14 **case for specifically encouraging natural gas use and natural gas line extensions.**
15 **What have you concluded in this regard?**

16 A: While natural gas prices have risen recently, a price advantage compared to some other
17 fuels remains, before considering the other costs customers would incur to convert to
18 natural gas. Natural gas has environmental advantages compared to some energy
19 sources, is inferior to others in this regard (renewables), and is comparable to propane
20 once methane leakage is considered. Overall, there is no compelling reason to
21 specifically encourage natural gas use, and such policies would work against achieving
22 Maryland's renewable energy targets, while distorting fuel choices and inter-fuel
23 competition.

1 **III. PRINCIPLES FOR REVIEW OF FACILITIES EXTENSION PROGRAMS**

2 **Q 12: What principles should guide the review and approval of new initiatives for**
3 **facilitating distribution system extensions?**

4 A: Initiatives to facilitate the expansion of the natural gas distribution system and customer
5 base can provide benefits and be in the public interest if the initiatives respect certain
6 principles:

- 7 1. The utility should undertake only extensions that are likely to be economic, according
8 to an economic test using realistic assumptions;
- 9 2. Existing utility customers should not be asked to subsidize extensions that are
10 designed to serve new customers and provide existing customers little or no benefit;
- 11 3. The utility should be exposed to some of the risk that extensions may prove to be
12 uneconomic.

13 Subsidies should be avoided to protect existing customers, and also because subsidies
14 distort inter-fuel competition and customers' fuel choices. Subsidies have a negative
15 impact on competing energy industries and their customers due to the unfair
16 competition and potential loss of economies of scale and scope in these industries.

17 Exposing the utility to some of the risk that an extension proves to be uneconomic
18 provides incentives for the utility to choose wisely, contain costs, and strive to build
19 revenues from a project, while also protecting existing customers from the cost of
20 uneconomic expansions.

1 **Q 13: How are proposed distribution system expansions evaluated under other states’**
2 **policies?**

3 A: Like Maryland, many states require an economic test for new expansions. State policies
4 were reviewed in a 2013 report by the National Regulatory Research Institute (“NRRI
5 Report”).² The NRRI Report notes that many utility tariffs obligate a utility to extend its
6 lines only when the expected revenues from new customers cover the incremental costs.³

7 **Q 14: Do other states’ policies call for the cost of pipeline expansions or extensions to be**
8 **borne by the project’s customers, not existing customers?**

9 A: Generally, yes. The NRRI Report notes that “most commissions adhere to the principle
10 that any line extensions should not burden existing customers.”⁴

11 **Q 15: What is FERC’s policy with regard to recovering the cost of a pipeline expansion or**
12 **extension?**

13 A: FERC’s policy, which was enunciated in a 1999 policy statement,⁵ requires that a
14 pipeline and its new customers “must be prepared to financially support the project
15 without relying on subsidization from its existing customers.”⁶ FERC generally finds
16 that when a pipeline proposes an incremental rate to recover the cost of an expansion
17 project, this satisfies the 1999 Policy Statement’s threshold requirement that the project
18 not be subsidized by existing shippers.⁷

² Costello, Ken, Principal Researcher, National Regulatory Research Institute, *Line Extensions for Natural Gas: Regulatory Considerations*, Report No. 13-01, February 2013, available at <http://nrri.org/download/nrri-13-01-natural-gas-line-extensions/>.

³ NRRI Report, p. 17.

⁴ NRRI Report, p. 4.

⁵ *Certification of New Interstate Natural Gas Pipeline Facilities*, 88 FERC ¶ 61,227 (1999) (“1999 Policy Statement”).

⁶ 1999 Policy Statement, p. 19.

⁷ See, for instance, Texas Gas Transmission, LLC, *Order Issuing Certificate*, 154 FERC ¶ 61,032 (2016), p. 4.

1 **Q 16: Why do state and federal policies generally require recovering the costs of an**
2 **expansion from the expansion’s customers rather than from other customers?**

3 A: The primary reason is the fundamental cost causation principle that underlies utility
4 regulation – costs should generally be borne by the parties that cause them. A pipeline
5 expansion should be paid for by the new customers that will use it, and other customers
6 should be held harmless and not be asked to provide a subsidy.

7 In addition to harming the existing customers, a subsidy also has a negative impact by
8 pricing the expansion below cost, and thereby distorting intra- and inter-fuel energy
9 markets. As expressed in the NRRI Report, “As a rule, efficient fuel switching requires
10 that those who benefit pay the full cost of converting furnaces and other equipment, plus
11 the new lines.”⁸ FERC’s 1999 Policy Statement notes that under FERC’s earlier policy
12 that could allow subsidization, “the true costs of the project are not seen by the market or
13 the new customers, leading to inefficient investment and contracting decisions” and that
14 this could “distort competition.”⁹

15 **Q 17: FERC’s concern about competition pertained to competition between pipelines. Is**
16 **there a concern about distorting competition when natural gas distribution system**
17 **extensions are at issue?**

18 A: Yes there is. The potential customers for new service extensions are currently meeting
19 their energy needs with other fuels, such as propane, fuel oil, or electricity. If offered an
20 opportunity to connect to natural gas service, these customers will have to evaluate
21 whether the potential benefits of natural gas service warrant incurring the up-front cost to

⁸ NRRI Report, p. 36.

⁹ 1999 Policy Statement, p. 17.

1 connect and to convert equipment. If line extensions are subsidized, these decisions
2 would be distorted and inefficient.

3 **Q 18: Please elaborate on how subsidizing service extensions would distort fuel choices**
4 **and inter-fuel competition.**

5 A: Potential customers will weigh the potential benefits of switching to natural gas against
6 the up-front costs, which will vary by customer and in some instances may be substantial.
7 As the Company acknowledges, only a fraction of the potential customers will switch.
8 Customers currently using, say, propane, bear all of the cost of their propane supplies,
9 including costs associated with its production, storage and delivery, through the delivered
10 prices they pay. If such customers are offered natural gas service at a subsidized price
11 less than the full cost, they may switch when it is not in fact economic for them to do so.
12 This distorts the market and leads to an inefficient result. It would amount to unfair
13 competition, harming participants in the competitive industry, who, unlike the Company,
14 are unregulated and unable to simply raise their rates to recover all costs.

15 **Q 19: Are the principles you have identified reflected in Maryland's existing policies**
16 **regarding service expansions?**

17 A: Yes they are. The Company's GSP 14 was first put in place through Order No. 78817 in
18 Case No. 8920, Phase II (December 2, 2003). In that order the Commission noted the
19 goals of connecting cost causation and cost responsibility (p. 5, p. 6), preventing cross-
20 subsidies from existing customers (p. 7), and protecting existing ratepayers from
21 uneconomic expansions (p. 5), and noted the importance of a realistic and accurate
22 economic test for evaluating proposed extensions (p. 6).

1 **Q 20: Are there circumstances under which it might be appropriate for some of the cost of**
2 **an expansion project to be imposed on existing customers or other parties?**

3 A: There can be. When an expansion project creates benefits for existing customers, it can
4 be appropriate to impose a proportionate share of the cost on those customers. When an
5 expansion project creates benefits to the public more widely, it can be appropriate for
6 some of the cost to be borne by the wider public, for instance, through local government
7 budgets or through tax reductions. These circumstances are also discussed in the NRRI
8 Report.¹⁰ However, it can be difficult to evaluate such benefits to determine how much
9 cost it might be appropriate to recover from parties other than the project's users.

10 **Q 21: Company Witnesses Buckley and Raab suggest that alleged cost, environmental and**
11 **economic development benefits of natural gas justify encouraging natural gas line**
12 **extensions. Have these witnesses made a case for subsidizing line extensions?**

13 A: No. The alleged benefits, and the issue of subsidies, are addressed in the final section of
14 my testimony.

15 **IV. COMMENTS ON THE THREE PROPOSED INITIATIVES**

16 **Q 22: Please describe the Commission's current policy with regard to facilities extensions,**
17 **as reflected in the Company's GSP 14.**

18 A: GSP 14 applies to extensions for new unserved customers or expansions for customers
19 for whom the existing facilities have inadequate capacity (hereafter, for brevity,
20 "extensions" will be used to refer to both extensions and expansions). The Company
21 performs an economic evaluation of a potential extension according to specific rules
22 described in GSP 14. If the economic test suggests that the net present value ("NPV") of
23 the revenues resulting from the extension exceeds the NPV of the associated costs, the

¹⁰ NRRI Report, pp. 35-36.

1 Company will perform the extension and bear the entire cost. If, instead, there is an
2 anticipated shortfall, the Company will proceed only if the customer or customers who
3 would be served by the extension agree to bear the shortfall through non-refundable
4 customer “contributions” that make up the anticipated shortfall.

5 **Q 23: How would the proposed CPP modify the current rules?**

6 A: The proposed CPP (proposed GSP 14.j), would give residential and commercial
7 customers the option to pay the required customer contribution through their monthly
8 bills over as long as twenty years, rather than paying it in full up front, as is currently
9 required. Customers electing the CPP would be billed \$40 per month (residential), or
10 \$100 per month (commercial), until the total required customer contribution, plus
11 carrying costs based on the Company’s authorized pre-tax cost of capital (presently
12 11.38%¹¹), is paid down.

13 **Q 24: What happens if the customer moves away from the service address?**

14 A: The Company proposes that when customers who have committed to pay the CPP then
15 move away, the obligation to pay the CPP as a condition of natural gas service would
16 remain with the service address. Thus, a new owner at the service address would have to
17 agree to the CPP obligation as a condition of receiving natural gas service. If a new
18 owner declines natural gas service, or if the service address is unoccupied, the CPP would
19 not be paid.

¹¹ Response to Data Request OPC 2-8.

1 **Q 25: Would missed CPP payments at a service address result in under-collection of the**
2 **customer contribution?**

3 A: Under the Company's proposal, yes, it would result in under-collection. However, the
4 Company acknowledges that it might be appropriate to add language to the tariff to
5 extend the CPP payment period if warranted.¹²

6 **Q 26: What would happen to any CPP amounts that ultimately remain unpaid?**

7 A: The Company proposes that any unpaid CPP amounts would remain in rate base
8 (Buckley Testimony, p. 28). Presumably the Company would attempt to recover such
9 amounts from all customers through rates.

10 **Q 27: Do you find this program consistent with the principles you have identified?**

11 A: Generally, yes. The CPP would give potential customers an option to pay the full
12 customer contribution, plus carrying costs, over time. This addresses the Company's
13 concern that the up-front customer contributions can be an impediment to extending
14 natural gas service. In addition, spreading the customer contribution over time facilitates
15 customers' efforts to compare the costs of natural gas to their other energy alternatives.
16 However, collection of the CPP may prove to be more difficult than the Company
17 envisions. The \$40 monthly charge (residential; \$100 commercial) would likely seem
18 very high to some customers, especially in those months of the year when the natural gas
19 bill otherwise would be very low. Customers may seek ways to avoid the CPP charges.
20 Under the Company's proposal, the Company has no direct incentive to ensure the CPP is
21 collected. CPP under-collection could ultimately burden existing customers with costs
22 associated with extensions.

¹² Response to Data Request Staff 9-2.

1 **Q 28: If the Commission will approve the CPP in some form, would you recommend any**
2 **changes to the Company's proposal?**

3 A: Yes, a few changes would be warranted:

4 1. When CPP payments are missed the CPP payment period should be extended, per the
5 Company's suggestion noted above.

6 2. The Company should bear the cost of at least a portion of the extension costs
7 remaining in rate base due to failure to collect the CPP.

8 **Q 29: Turning now to the proposed TCP, why did the Company propose this initiative?**

9 A: The TCP (proposed GSP 14.k) was proposed to address the situation where initially only
10 a fraction of the potential customers in an unserved area are able or willing to commit to
11 the natural gas service an extension would provide. If only a fraction of the potential
12 customers is interested in the new service, the economic test might identify that a
13 substantial customer contribution is required from those interested, and the concern is
14 that this could serve as an impediment to gaining the required customer commitments.

15 **Q 30: Please describe the proposed TCP.**

16 A: Under the TCP, the Company would perform the economic test of an extension under
17 GSP 14 once approximately 20% of the potential customers for the extension express
18 interest in it. However, in performing the economic test, the Company would adopt the
19 assumption that 60% (not 20%) of the projected revenue from the entire potential
20 customer group would be realized, while only the cost to serve the interested 20% would
21 be incurred.¹³ Thus, the required customer contributions (if any) would be based on the
22 economic test using the 60% revenue/20% cost assumptions. The Company would

¹³ Responses to Data Requests Staff 1-21, Staff 7-11, Staff 7-13.

1 proceed with the extension if commitments to pay the resulting customer contributions
2 were received from the 20% of the customers interested in the extension.

3 **Q 31: What is the Company's rationale for assuming the extension would result in 60% of**
4 **the projected revenues, when only 20% of the potential customers express interest?**

5 A: Witness Buckley states (p. 31) that the Company believes once an extension is built, "a
6 significant percentage of the potential customers will eventually convert to natural gas",
7 despite not having expressed interest initially. Witness Buckley also states that the 60%
8 figure was adopted in order to reduce the amounts of the required contributions, and that
9 participation below 50% to 60% results in required customer contributions that are
10 "typically too high" for potential customers to justify converting to natural gas.

11 **Q 32: Can you give an example of the potential impact of the 60% revenue/20% cost**
12 **assumptions on the customer contributions?**

13 A: Yes. Witness Buckley gives an example of a cul de sac with ten homes, of which two
14 have expressed interest in natural gas service (p. 31). Suppose the estimated NPV
15 revenue per customer is \$5,000. Suppose further that the cost of the extension to the cul
16 de sac depends upon the number of customers connected, and is estimated to be \$30,000
17 to serve one customer plus \$4,000 per additional customer.

18 If all ten customers sign up, the TCP would not be used. The total cost ($\$30,000 + 9 *$
19 $\$4,000 = \$66,000$) would exceed the total revenues ($10 \times \$5,000 = \$50,000$), resulting in
20 a \$1,600 customer contribution from all ten customers. The Company would initially
21 bear the remainder of the cost (\$50,000), which equals the expected revenue, so the
22 extension would be expected to break even eventually. This example is shown in Table 1
23 as Case 1.

24

Table 1: Cul De Sac Example									
Extension Construction Cost:									
To serve first customer:					\$	30,000			
For each additional customer:					\$	4,000			
Anticipated Revenue/customer:					\$	5,000			
					Existing Policy:		With TCP:		
Case:					1	2	3	4	5
Initial Customers:					10	2	2	2	6
Total Construction Cost:					\$ 66,000	\$ 34,000	\$ 34,000	\$ 34,000	\$ 50,000
Total Assumed Revenues:					\$ 50,000	\$ 10,000	\$ 30,000	\$ 30,000	\$ 30,000
Total Required from Customers:					\$ 16,000	\$ 24,000	\$ 4,000	\$ 4,000	\$ 20,000
Customer Contribution:					\$ 1,600	\$ 12,000	\$ 2,000	\$ 2,000	\$ 3,333
Total Revenue minus Total Cost:					\$ -	\$ -	\$ 20,000	\$ 20,000	
Additional Customers:								4	
Additional Construction Cost:								\$ 16,000	
Total Construction Cost:								\$ 50,000	
Total Anticipated Revenue:								\$ 34,000	
Total Revenue minus Total Cost:								\$(16,000)	

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If only two customers sign up, under the current tariff the required customer contribution would be \$12,000 for each of the two customers ($\$30,000 + 1 \times \$4,000 - 2 \times \$5,000 = \$24,000$ shortfall, or \$12,000 each; Case 2 in Table 1). So the extension likely would not occur due to the very large required customer contributions.

Under the proposed TCP with the 60% assumption, only a \$2,000 customer contribution would be required ($\$30,000 + 1 \times \$4,000 - 6 \times \$5,000 = \$4,000$ total shortfall / 2 = \$2,000 each; Case 3 in Table 1), so the project would go forward if the two customers are each willing to commit to pay \$2,000. Initially, the total cost of the extension would exceed the total revenue by \$20,000.

1 **Q 33: Would potential customers that are not among the 20% initially, but express**
2 **interest in natural gas service after the extension has been built, pay the same**
3 **customer contribution as the initial customers?**

4 A: No, not under the Company's proposal. The Company proposes that a separate business
5 evaluation would be performed based only on the incremental cost to serve the additional
6 customer(s),¹⁴ which likely would result in a much lower customer contribution, if any.

7 In the example given above, the incremental cost to serve the additional customers was
8 assumed to be \$4,000 each, which is less than the assumed revenue, so there would be no
9 customer contribution required from any additional customers.

10 **Q 34: Does the Company provide any assurance or guarantee that revenues corresponding**
11 **to the assumed 60% of the potential customers of an extension will eventually be**
12 **realized?**

13 A: No. Witness Buckley states (p. 31) that the Company is developing an outreach program
14 to educate customers as regards their energy choices, however, the Company does not
15 offer any type of guarantee of the customers or revenues.

16 **Q 35: Does the TCP proposal ensure that if 60% of the customers do eventually choose**
17 **natural gas service, as would be assumed in the economic test, that the cost to build**
18 **the extension will be recovered from its customers?**

19 A: No; even if the 60% assumption proves correct, the TCP, as proposed, may result in
20 under-recovery. In the example above, the total cost to serve six customers is \$30,000 +
21 5 x \$4,000 = \$50,000, but the total revenue in the example would be 6 x \$5,000 =
22 \$30,000 plus \$4,000 for the two customer contributions, or \$34,000 total (Case 4 in Table
23 1). So under this example, even if six customers (60%) ultimately take service, the
24 extension has been built, but remains uneconomic.

¹⁴ Responses to Data Requests Staff 1-21(c), Staff 7-13(c), Staff 7-14.

1 **Q 36: Could it be the case that 20% support for an extension might be fairly easy to**
2 **achieve, while 60% is much more difficult?**

3 A: Yes, this could easily occur, especially if the potential customers are very different. To
4 use Witness Buckley's cul de sac example again: Imagine that of the ten homes, some
5 are large while others are more modest. The owners of the large homes might be eager to
6 obtain natural gas service and willing to pay for it, while the potential benefits are not
7 there, and perhaps never will be, for the more modest homes that may have more modest
8 energy needs.

9 **Q 37: Is the TCP proposal vulnerable to gaming by the potential customers, to minimize**
10 **the required customer contributions?**

11 A: Yes it is. Returning again to our cul de sac example, suppose in fact six customers are
12 initially interested in service. If all six express interest and enter into commitments, the
13 required customer contributions would be $\$30,000 + 5 \times \$4,000 - 6 * \$5,000 = \$20,000$, /
14 $6 = \$3,333$ each (Case 5 in Table 1). But if only two of the customers initially commit to
15 service, only the two would pay, and only \$2,000 each, as calculated above. So it could
16 be very easy for the neighbors to agree among themselves that only two of them should
17 sign up.

18 **Q 38: Under the Company's TCP proposal, would it share some of the risk associated with**
19 **extensions that ultimately do not attract sufficient customers and revenues and**
20 **prove uneconomic?**

21 A: No. The Company proposes that the unrecovered cost of the extension would remain in
22 rate base, and the Company would ultimately attempt to recover it from all customers.

23 The Company does not propose to bear any of the cost or risk associated with

1 uneconomic extensions, other than the usual possibility that some cost recovery could be
2 denied if the investment is deemed imprudent.¹⁵

3 **Q 39: Do you find the TCP initiative consistent with the principles you have identified?**

4 A: No. Assuming 60% of the potential revenues associated with an extension will be
5 realized, when only 20% of the potential customers have expressed interest in it, is
6 speculative. And performing the economic test assuming 60% of the potential revenues
7 associated with an extension will be realized, but only the cost to serve 20% will be
8 incurred, makes no economic sense.

9 As the above examples above showed, the TCP could result in construction of
10 uneconomic extensions, for which the revenues would not cover the costs even if all
11 customers eventually sign up. It could also lead to gaming by potential customers to
12 minimize their customer contributions and shift costs to existing customers. The
13 Company would have no direct incentive to sign up additional customers beyond the
14 20%, and customers would also have strong incentives to decline service initially, once
15 the 20% threshold was met, to avoid the customer contribution.

16 The proposal would expose the Company's existing customers to a portion of the cost of
17 extensions, essentially calling upon them to subsidize extensions to serve new customers,
18 while the Company faces no risk unless the Commission finds the extensions imprudent
19 in a rate case. The subsidies provided through the TCP would also distort customers' fuel
20 choices, by pricing the incremental service below cost. This would distort inter-fuel
21 competition, because there are no comparable programs or subsidies for competing fuels.

¹⁵ Responses to Data Requests Staff 1-14, Staff 4-6, Staff 7-15.

1 **Q 40: What do you recommend, with regard to the TCP?**

2 A: I recommend that the Commission reject the TCP. The CPP initiative, which would
3 allow customers to spread the customer contributions over time, would make it easier to
4 sign up new customers, obviating the need for the TCP. The Company's TCP proposal
5 would result in uneconomic extensions, without putting the Company at risk for these
6 decisions other than through a rate case proceeding. The proposal would result in
7 subsidized and distorted fuel choices and distortion of inter-fuel competition, By
8 subsidizing natural gas use, the TCP proposal would also work against achieving the
9 Commission's renewable energy targets.

10 **Q 41: Turning now to the last of the three initiatives, why did the Company propose the**
11 **GAP initiative?**

12 A: Witness Buckley states that the GAP (proposed GSP 14.1) is designed to address the high
13 cost of laying higher capacity transmission and mains that would serve as a backbone for
14 larger numbers of potential new customers (p. 33).

15 **Q 42: Please describe the GAP proposal.**

16 A: The GAP initiative would change the criteria and provide a funding source for the
17 expansion of the natural gas distribution system to certain existing communities. Under
18 the GAP, the Company would be allowed to establish a regulatory asset to provide
19 deferred accounting treatment for the property taxes, carrying costs and depreciation
20 associated with "qualifying" transmission and main expenditures. The amounts so
21 deferred would be capped, and would be recovered in base rates subject to Commission
22 review in a base rate proceeding.

1 **Q 43: Would expansions under the GAP initiative still be subject to the economic test**
2 **required under GSP 14?**

3 A: No. The Company states that the GAP proposal would eliminate the application of the
4 economic test for qualifying line extensions.¹⁶

5 **Q 44: What cap would apply to the amounts deferred under the GAP?**

6 A: The cap would be one half of one percent of the Company's rate base, or approximately
7 \$23.2 million per year (Buckley Testimony p. 34).

8 **Q 45: What transmission and mains projects would qualify for the GAP?**

9 A: Witness Buckley states that the program would be limited to areas that state and local
10 planning officials "have targeted for promoted, planned growth" (p. 34), and asserts that
11 the GAP proposal would facilitate natural gas expansion in a way that ties into "local
12 public determinations of where growth is not only permitted but encouraged" (p. 38).

13 **Q 46: How exactly are the qualifying projects determined, according to the proposed tariff**
14 **language?**

15 A: The proposed tariff language (GSP 14.1) in one place states as follows, consistent with the
16 testimony:

17 "Qualifying transmission and main expenditures are transmission and main pipeline installed to
18 existing communities in its Maryland service territory **that have been identified** by State or local
19 planning officials or county executives **for promoted growth.**" [emphasis added]

20 However, the same proposed tariff section also states as follows:

21 "If a local jurisdiction has adopted growth tiers under Title 1, Subtitle 5 of the Maryland Land
22 Use Article, an expansion project may be deemed to qualify for deferred accounting if it
23 **terminates in a Tier I or Tier II area.**" [emphasis added]

¹⁶ Response to Data Request Staff 4-11.

1 **Q 47: Are Tier I and Tier II areas designated for promoted growth?**

2 A: No, not necessarily. The Tier I and Tier II designations are based on public sewerage,
3 and do not necessarily indicate areas identified for “promoted growth.” While Tier III
4 and Tier IV areas are protected from growth, Tier I and Tier II areas are not necessarily
5 targeted for promoted growth.

6 **Q 48: Please explain the Tier I and Tier II designations referenced in the proposed tariff**
7 **language.**

8 A: The reference is to the Land Use Article of the Maryland Code Ann. § 1-508, which is
9 the codification of *The Sustainable Growth & Agricultural Preservation Act of 2012*.

10 The referenced section reads as follows:

11 “§ 1-508. Designation

12 (a) Required criteria. -- The growth tiers adopted by a local jurisdiction shall meet the following
13 criteria:

14 (1) Tier I areas are areas that are:

15 (i) served by public sewerage systems and mapped locally designated growth areas; or

16 (ii) a municipal corporation that is a priority funding area that is served by public sewerage
17 systems;

18 (2) Tier II areas are areas that are:

19 (i) 1. planned to be served by public sewerage systems and in the municipal growth element;
20 or

21 2. mapped locally designated growth areas; and

22 (ii) needed to satisfy demand for development at densities consistent with the long-term
23 development policy after consideration of the capacity of land areas available for development,
24 including in-fill and redevelopment, within the local jurisdiction; ...”

25 The Maryland Department of Planning has further clarified the Tier I and Tier II
26 designations, as follows:

27 “Intent of Tiers I and II

28 Development within Tier I areas will be served by public sewerage systems, which is the best
29 method for supporting long-term, planned development. Correspondingly, the intent in mapping
30 Tier I areas is to identify areas for which public sewerage service is currently available. Also,
31 public systems serving Tier I areas should be able to accommodate existing and planned future
32 growth.

1 Within Tier II areas, community, shared and individual on-site sewage disposal systems are
2 permitted for residential minor subdivisions. However, these systems shall be considered interim
3 systems until public sewerage service is made available. Correspondingly, the intent in mapping
4 Tier II areas is to identify growth areas that are planned for public sewerage service.”

5 Maryland Department of Planning, *Implementation Guidance for The Sustainable*
6 *Growth and Agricultural Preservation Act of 2012 Senate Bill 236*, August 1, 2012
7 Version 2.0, p. 9.

8 This document further states (p. 12) that existing or planned sewer areas that are not
9 designated growth areas (as mapped within the local comprehensive plan) can
10 nevertheless be designated as Tier I or Tier II areas.

11 **Q 49: In light of these definitions, does the tariff language limit the use of the GAP to**
12 **areas in which growth is encouraged or promoted, as Witness Buckley claims?**

13 A: No.

14 **Q 50: Would recovery of the property taxes, carrying costs and depreciation associated**
15 **with these projects through base rates constitute a subsidy?**

16 A: Yes, this would result in existing customers bearing some of the cost of the expansion
17 project, which would amount to a subsidy.

18 **Q 51: As the Company connects individual customers to a project constructed under the**
19 **GAP initiative, how would the costs of the GAP infrastructure be accounted?**

20 A: The Company proposes that in applying the economic test under GSP 14 to determine
21 customer contributions, the cost of the GAP infrastructure would not be included, only
22 the incremental cost to connect the customer.¹⁷

23 **Q 52: Witness Buckley states that the GAP is designed to address the “ever-increasing**
24 **cost” of installing higher capacity pipe, and suggests that these costs have risen from**

¹⁷ Response to Data Request Staff 5-5.

1 **\$1 million per mile in 2000 to from \$3 to \$10 million per mile today (p. 33). If these**
2 **costs have risen sharply, is this a rationale for the GAP?**

3 A: No. Witness Buckley laments the increasing cost of laying pipe, which is of course a
4 large component of the delivered cost of natural gas for customers, in contradiction of his
5 own testimony arguing the cost benefits of natural gas (p. 4). If the cost of laying pipe
6 has increased sharply in recent years, this makes extensions less economic than they
7 otherwise would be, other things equal, which should make them less likely to be built.

8 **Q 53: Do you find the GAP initiative consistent with the principles you have identified?**

9 A: No. This initiative would allow construction of uneconomic extensions, and provide a
10 subsidy for such projects, imposing costs on existing customers who do not benefit from
11 them, and also distorting fuel choices and inter-fuel competition.

12 **Q 54: What do you recommend with regard to the GAP proposal?**

13 A: I recommend that the Commission reject the GAP proposal, as it would lead to
14 uneconomic extensions subsidized by existing customers. Even if the projects are
15 economic, the proposed treatment of the property taxes, carrying costs and depreciation
16 would constitutes a subsidy. These subsidies would appear to be contrary to Commission
17 policy and not justified by any special circumstances.

18 Furthermore, contrary to the Company's claims, the GAP as proposed would apparently
19 not be limited to just areas where growth is encouraged.

20 To the extent a subsidy will be provided for development of infrastructure to serve a town
21 or area, it would be more appropriate for the subsidy to be provided from local, state, or
22 federal government budgets and programs, not from other natural gas customers.

1 The proposed CPP, allowing customers to spread their required contributions over time,
2 would make it easier to sign up new customers for a proposed extension, obviating the
3 need for the TCP or the GAP.

4 **V. COMPARISONS OF NATURAL GAS TO OTHER FORMS OF ENERGY**

5 **Q 55: What topics are addressed in this section of your testimony?**

6 A: The Buckley Testimony alleges various advantages of natural gas over other forms of
7 energy, primarily focusing on electricity, suggesting this provides a rationale for the
8 Company's proposals to relax the existing line extension policies. This section will
9 provide updated price information and respond to some of the statements comparing
10 natural gas to other forms of energy.

11 **Q 56: What advantages does witness Buckley claim for natural gas?**

12 A: Witness Buckley mainly discusses costs (pp. 5-9) and environmental characteristics (pp.
13 19-20). Witness Buckley also suggests benefits related to economic development, citing
14 to a Towson University study (pp 6-7).

15 **Q 57: What is the connection between these inter-fuel comparisons and the initiatives**
16 **proposed in this proceeding, according to Witness Buckley?**

17 A: Noting the alleged benefits, Witness Buckley asserts (p. 15) that "public interest
18 considerations lean heavily toward finding effective methods to expand the access to
19 natural gas in Maryland."

20 **Q 58: Witness Buckley states that the TCP initiative would "allow Maryland citizens**
21 **energy choice where it does not effectively exist now." Do you agree?**

22 A: No. Maryland citizens have access to electricity, propane, fuel oil, and other energy
23 sources at present. For electricity, they are increasingly choosing renewable sources such
24 as solar and wind.

1 In fact, once a customer commits to incurring the cost of acquiring or converting
2 appliances, and perhaps a customer contribution, to obtain natural gas service, the
3 customer may become rather financially committed to that fuel choice. In particular, a
4 customer that incurs substantial cost to obtain natural gas service may be less likely to
5 subsequently make investments in solar or other renewable energy sources.

6 **Q 59: What evidence does Witness Buckley provide regarding the claimed cost advantages**
7 **of natural gas compared to other forms of energy?**

8 A: Witness Buckley cites to a table prepared by the Company comparing operating costs for
9 various fuels (p. 5, footnote 4; also Response to Data Request Staff 5-1). He also
10 provides historical Maryland residential natural gas, electricity, propane and fuel oil
11 prices (pp. 9-10).

12 **Q 60: Please comment on the Company's comparison of operating costs cited by Witness**
13 **Buckley.**

14 A: The table does not provide a reliable comparison of operating costs; the fine print in the
15 footnotes to the table reveals the following:

- 16 1. The Company's table is based on outdated information (from the 2014-2015 period,
17 when extreme weather caused fuel prices to rise sharply). Forward prices, discussed
18 below, provide a more reliable indicator of likely future fuel cost differences, and
19 show smaller advantages to natural gas.
- 20 2. The Company's table compares annual average natural gas prices to winter period
21 propane and fuel oil prices. This is of course a biased comparison, because natural
22 gas prices tend to be considerably higher during winter and lower during the
23 remaining months of the year, while the prices for other fuels are less seasonal.

1 In addition, the Company's table compares delivered costs for propane and fuel oil to
2 natural gas costs applicable to a customer already connected to the natural gas system.

3 This comparison is not applicable to a potential new customer, who would incur various
4 additional costs to switch to natural gas service.

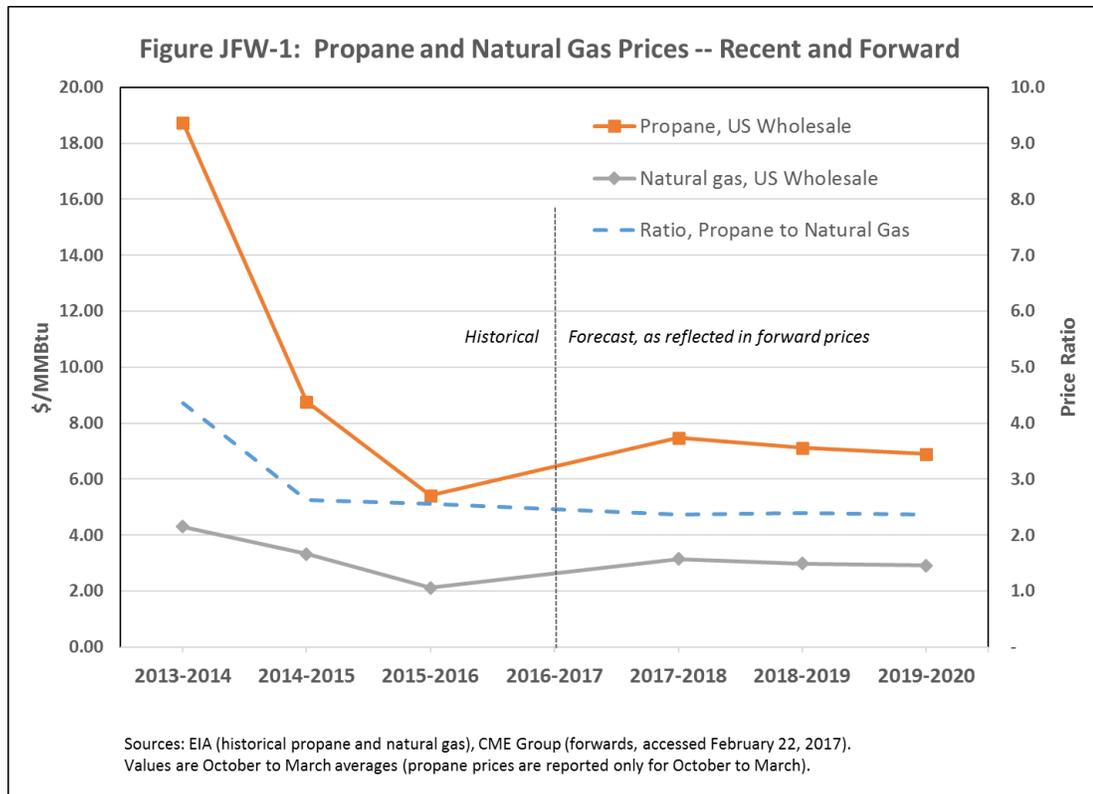
5 **Q 61: Please comment on the historical price comparisons presented by Witness Buckley.**

6 A: This historical information is not very useful for understanding the potential benefits of
7 natural gas service extensions going forward, because the markets have changed
8 substantially in recent years. Forward prices are much more useful for understanding the
9 potential benefits to customers of switching to natural gas.

10 **Q 62: What are the recent trends and forward expectations for natural gas and propane**
11 **prices?**

12 A: The price advantage of natural gas over propane has declined recently, and is expected to
13 remain at relatively modest levels. Figure JFW-1 shows recent wholesale propane and
14 natural gas prices for winter periods (October through March), based on data from the
15 U.S. Energy Information Administration, and also based on forward prices for these
16 fuels. The figure also shows the ratio of wholesale propane to natural gas prices on a
17 consistent \$/MMBtu basis, which had spiked to over 4 in the polar vortex period of 2013-
18 2014, but is closer to 2 in current forward prices.

19 Propane is now largely sourced from the natural gas supply chain. The rapid increase in
20 natural gas production from the Marcellus shale region (in Pennsylvania and surrounding
21 states) has resulted in a large increase in regional propane production, of which much is
22 now exported. This results in expectations of relatively low and stable propane prices
23 over the coming years.



1 **Q 63: What costs must a potential customer incur to switch to natural gas service?**

2 A: In addition to any customer contribution under GSP 14, a customer would also need to
 3 install the on-site piping and venting to use natural gas service. For existing facilities
 4 currently using other fuels, the customer would also need to replace or convert the fuel-
 5 using equipment.

6 **Q 64: How might a potential customer evaluate whether switching to natural gas from,
 7 say, propane would reduce their energy costs?**

8 A: A potential customer might estimate the annual energy cost savings that would result
 9 from conversion, and compare the cumulative savings over time to the up-front costs to
 10 convert to natural gas service. A potential customer might choose to switch if energy
 11 cost is the only or primary consideration, and if the energy savings result in recouping the
 12 various up-front costs over an acceptable period of time.

1 **Q 65: When consumers currently using propane or fuel oil are approached and offered an**
2 **opportunity to switch to natural gas service, how would you expect their current**
3 **energy providers to respond?**

4 A: The propane and fuel oil delivery industries are competitive, with multiple retailers
5 serving any region. Given the modest price differential and substantial conversion costs,
6 I would expect propane and fuel oil retailers would strive to retain their customers,
7 perhaps offering to lock in prices for multiple years. Propane and fuel oil prices have
8 fallen over the past few years and the forward curve is flat, so retailers may be able to
9 offer prices that their customers would find very attractive compared to what they have
10 paid at times in recent years. It should be expected that providers of propane and fuel oil
11 would actively pursue customer retention, which could result in customer conversions to
12 natural gas at less than expected rates.

13 **Q 66: Turning now to the alleged environmental advantages, what evidence does Witness**
14 **Buckley provide in support of this claim?**

15 A: Witness Buckley provides a table showing CO₂ emissions per MMBtu for various fuel
16 sources (p. 19), based on data from the U.S. Energy Information Administration,
17 indicating that emissions from natural gas use are lower than for other traditional fuels
18 (coal, oil, and propane).

19 **Q 67: Is this table an accurate indication of the relative environmental impacts of these**
20 **fuels?**

21 A: No. As the Raab Testimony argues in detail, comparisons should be based on the full
22 cycle associated with each energy source, not just emissions at the burnertip. For
23 example, natural gas leakage into the atmosphere substantially increases the CO₂ impact
24 of natural gas use; when this impact is considered, the CO₂ impacts of natural gas and
25 propane are comparable. And, of course, this table does not include renewable sources of
26 energy such as wind and solar, which have no CO₂ emissions.

1 **Q 68: Does Maryland state policy encourage the use of renewable resources?**

2 A: Yes; and these policies have recently been strengthened. Maryland SB 921, the Clean
3 Energy Jobs Act of 2016, was recently approved, which increases the targets for
4 renewable resources.¹⁸ The costs of renewable sources of energy, in particular wind and
5 solar, have fallen and continue to fall.¹⁹ As zero-emission, zero-fuel-cost sources of
6 energy, renewables are also encouraged by federal policies, and are expected to meet an
7 increasing share of incremental energy demands in the coming years.

8 **Q 69: How would policies that encourage natural gas line extensions affect Maryland's**
9 **renewable resource goals?**

10 A: Policies to encourage natural gas line extensions and policies to encourage renewable
11 resources work at cross purposes.

12 New natural gas service would reduce a consumer's total energy cost and use of
13 electricity, and this would reduce the consumer's incentive to use more renewable
14 resources. Once a consumer makes the substantial investment to convert appliances to
15 natural gas, the consumer will be less likely to make an investment in rooftop solar or
16 other renewable resources.

17 And greater use of renewable resources would reduce the potential value to the consumer
18 of a natural gas connection. For a consumer not presently connected to the natural gas
19 system, planning to use more renewable energy would reduce the customer's potential

¹⁸ Senate Bill 921 is available here: <http://mgaleg.maryland.gov/2016RS/bills/sb/sb0921T.pdf>.

¹⁹ See, for instance, Lazard, *Lazard's Levelized Cost Of Energy Analysis — Version 10.0*, December 2016, p. 3 (comparing the unsubsidized levelized cost of energy for various conventional and alternative sources, and showing wind and solar to be competitive with natural gas and other resources), available at <https://www.lazard.com/media/438038/levelized-cost-of-energy-v100.pdf>.

1 use of natural gas. This would render the economics of the new natural gas service less
2 attractive.

3 **Q 70: Witness Buckley states that the development of renewable electricity sources is “not**
4 **inconsistent” with the proposed revision of natural gas line extension policies (p. 20).**
5 **Does Witness Buckley provide any reasons to believe promoting natural gas use**
6 **would not have a negative impact on renewable resource development?**

7 A: No, he does not. He notes, correctly, that both renewables and natural gas are likely to
8 increase in the coming years. But he provides no argument that promoting natural gas
9 won't have a negative impact on the development of renewables. Once customers
10 convert to be able to use natural gas, investments in renewable resources become less
11 attractive.

12 **Q 71: Company Witness Raab cites to the “relative efficiencies” of natural gas and**
13 **electricity, and suggests that this is one of the important factors that “justifies**
14 **expanding access to natural gas” (Raab Testimony, p. 3). First, what exactly does**
15 **Mr. Raab mean by relative efficiency?**

16 A: The Raab testimony focuses on “full fuel cycle efficiency”, which takes into account the
17 losses involved in transporting electricity and in converting various fuels to electricity.
18 His testimony emphasizes that such losses are greater for electricity than for natural gas.

19 **Q 72: Do Mr. Raab’s various efficiency measures provide additional information relevant**
20 **to an economic comparison of different types of energy?**

21 A: No, the efficiency measures are not different or additional information. These facts are
22 already reflected in any economic comparison of different types of energy. The delivered
23 cost of energy takes the conversion efficiency into account. When combined with the
24 economic impact of any externalities such as emissions resulting from the full cycle,
25 there is no need to separately consider conversion efficiency. The efficiencies Mr. Raab
26 discusses as length are just an input to the economic analysis, as are prices.

1 **Q 73: Finally, Witness Buckley claims various economic development benefits to extending**
2 **natural gas use, based on a Towson University study. What comments do you have**
3 **on this claim?**

4 A: Evaluating the claims in the Towson University Study (Buckley Testimony pp. 6-7) is
5 outside the scope of my assignment and expertise. However, to the extent the rationale
6 for a project is based on broad public benefits in addition to the benefits to new
7 customers, it would be appropriate for any subsidy to come from local government
8 budgets, not from a utility's other customers who are not beneficiaries of the project. For
9 example, a payment in lieu of tax ("PILOT") arrangement could be used.

10 **Q 74: Please summarize your testimony with regard to the alleged benefits of natural gas**
11 **over other sources of energy.**

12 A: While natural gas prices have risen recently, a price advantage compared to some other
13 fuels remains before considering the other costs customers would incur to convert to
14 natural gas. Natural gas has environmental advantages compared to some energy
15 sources, is inferior to others in this regard (renewables), and is comparable to propane
16 once methane leakage is considered. Overall, there is no compelling reason to
17 specifically encourage natural gas use, and such policies would work against achieving
18 Maryland's renewable energy targets, while distorting fuel choices and inter-fuel
19 competition. In particular, a case for deviating from well-established regulatory
20 principles and subsidizing natural gas line extensions has not been made.

21 **Q 75: Does this complete your direct testimony?**

22 A: Yes it does.