

UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION

PennEast Pipeline Company, LLC                    )   Docket No. Docket No. CP15-558-000  
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  )

**AFFIDAVIT OF DAVID E. DISMUKES, PH.D.**

## **I. INTRODUCTION**

1. My name is David E. Dismukes. I am a Consulting Economist with Acadian Consulting Group (“ACG”), a research and consulting firm that specializes in the analysis of regulatory, economic, financial, accounting, and public policy issues associated with energy and infrastructure industries. I previously provided an affidavit supporting the comments of the New Jersey Division of Rate Counsel (“NJ Rate Counsel”) filed on September 12, 2016 (“September 12 Comments”) regarding the draft environmental impact statement prepared by Commission staff for the pipeline proposed by PennEast Pipeline Company, LLC (“PennEast”) and under consideration in this proceeding (“the Project”). I am providing this affidavit in response to the report prepared by Concentric Energy Advisors (“Concentric”) and filed in this proceeding on October 17, 2016, by PennEast that purports to respond to Rate Counsel’s September 12 Comments.

## **II. REVIEW OF CONCENTRIC’S ASSERTIONS REGARDING THE NEED FOR THE PENNEAST PIPELINE**

2. The PennEast application is deficient because PennEast has not shown that the Project’s capacity is needed to serve the New Jersey-regulated local distribution companies (LDCs).

3. PennEast has not identified any specific “supply security” challenges being faced by any New Jersey LDC or how those security challenges will be remedied through Project completion. Likewise, PennEast has not identified any pricing flexibility challenges that the New Jersey natural gas utility shippers/owners have faced over the past several years. Even if the Commission were to assume such challenges exist, PennEast has not shown how the Project will meet those challenges, or that it is the best solution to those challenges in light of the substantial environmental impacts associated with the Project.

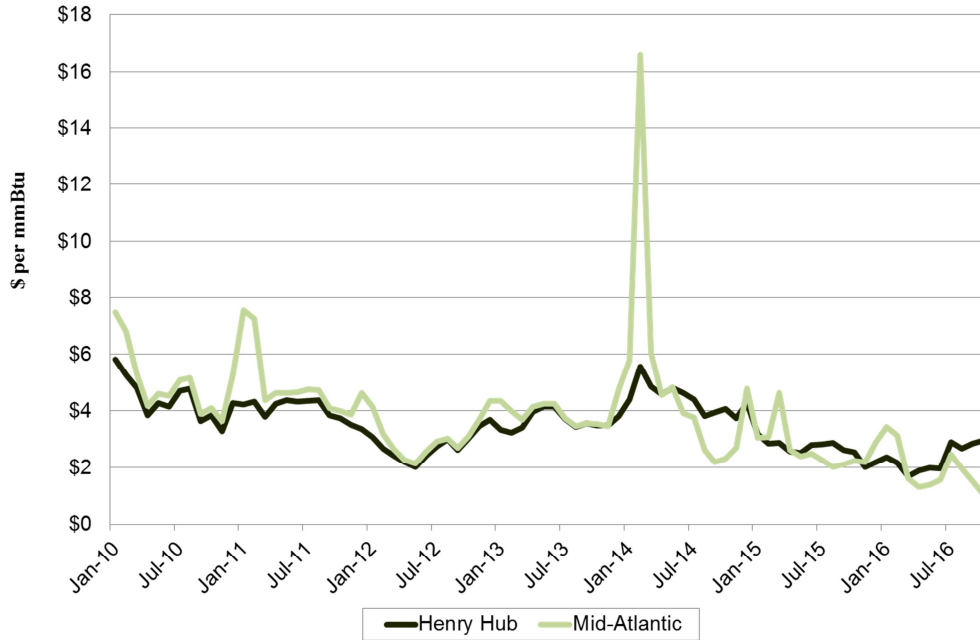
4. Rate Counsel's September 12 Comments and my affidavit accompanying those comments explained that New Jersey and Pennsylvania LDCs have shown in their filings with state regulators that they neither require capacity now nor expect demand to grow. Concentric does not answer or rebut this evidence in its report.

5. Rather than address or rebut Rate Counsel's and my evidence, Concentric claims that the Project will allow New Jersey utility shipper/owners the ability to avoid future Gulf Coast to Marcellus price differentials of \$0.75 per dekatherm ("Dth") over the next 36 months.<sup>1</sup>

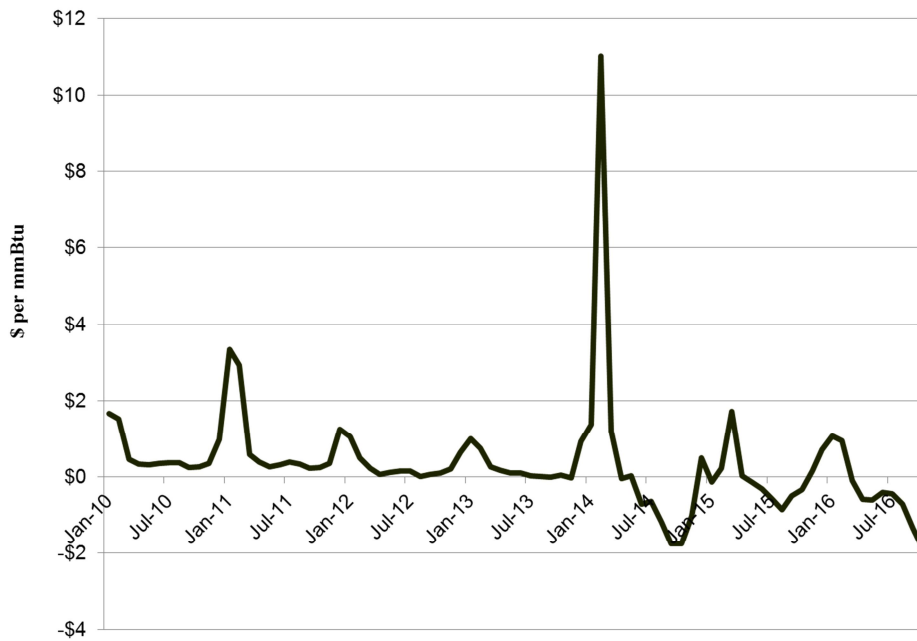
6. The information Concentric references is only for the next 36 months, however—a very limited scope of time relative to the 30 year or more operational life of the proposed pipeline. It is not realistic to believe that current natural gas price differentials will last into perpetuity and most analyses that have examined these differentials have concluded that they are likely to be short-lived. Basis differentials between Gulf Coast and Marcellus gas have proved to be very volatile and temporary. Figure 1 below presents historic monthly natural gas prices for Henry Hub along the Gulf of Mexico, and historic monthly natural gas prices in the northern mid-Atlantic served by the Project. Figure 2 presents the basis of the mid-Atlantic to Henry Hub.

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<sup>1</sup> PennEast Pipeline Co., Reply to New Jersey Division of Rate Counsel Comments, P 25 (Oct. 17, 2016), eLibrary No. 20161017-5038.



**Figure 1: Regional Natural Gas Prices**  
 Henry Hub and Transco Zone-4 non-NY (Mid-Atlantic)  
 Source: SNL Financial



**Figure 2: Regional Natural Gas Basis Spread**  
 Henry Hub to Transco Zone-4 non-NY (Mid-Atlantic)  
 Source: SNL Financial

7. Figures 1 and 2 show that, historically, natural gas in the northern mid-Atlantic region traded at a premium to natural gas at the Henry Hub. However, for the past two years, natural gas in the northern mid-Atlantic has traded mostly at a discount relative to Henry Hub. While PennEast seeks to take advantage of this temporary basis differential, that differential also indicates that the mid-Atlantic region is already being served by less expensive in-region (e.g., Marcellus) natural gas. In fact, for the period January 2010 to March 2014, the average monthly basis between natural gas prices in the northern mid-Atlantic and Henry Hub was \$0.5484 per mmBtu.<sup>2</sup> Since April 2014, however, this average monthly basis has fallen to a negative \$0.3352 per mmBtu.

8. The dissolution of this basis differential has also been recognized by the Energy Information Administration (“EIA”) in the U.S. Department of Energy. Figure 3 below provides natural gas prices from April 1, 2014 to October 13, 2014 for Henry Hub and many Appalachian natural gas hubs as reported by the EIA in late 2014.<sup>3</sup> As noted by the EIA, since the summer of 2012, growth in natural gas supply in the Appalachian basin has outpaced growth in regional pipeline capacity, particularly in hubs located in the central and northeastern portions of the Marcellus region. This has caused prices in that region to decline significantly compared to Henry Hub prices during 2014, and display greater volatility linked to Northeast natural gas demand.<sup>4</sup>

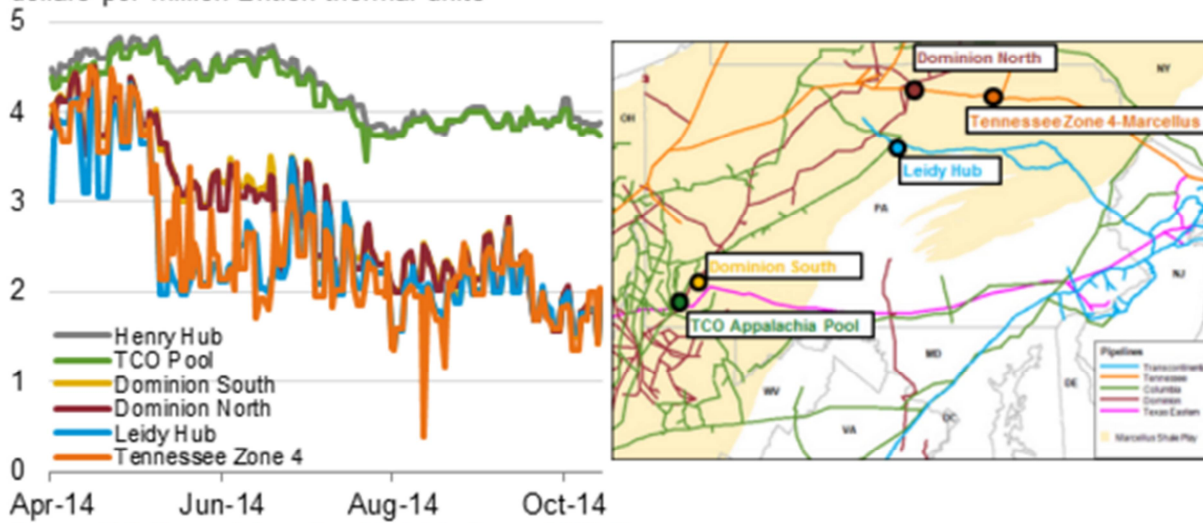
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<sup>2</sup> Note this calculation excludes the outlier event of February 2014, which saw an average monthly basis of \$11.03 per mmBtu.

<sup>3</sup> Michael Ford, U.S. Energy Information Administration, *Some Appalachian natural gas spot prices are well below the Henry Hub national benchmark*, (Oct. 15, 2014), Today in Energy, <http://www.eia.gov/todayinenergy/detail.php?id=18391>.

<sup>4</sup> *Id.*

**Marcellus region natural gas hub spot prices**  
 April 1 to October 13, 2014  
 dollars per million British thermal units



**Figure 3: Henry Hub and Marcellus Natural Gas Hub Spot Prices**  
 (April 1, 2014 – October 13, 2014)

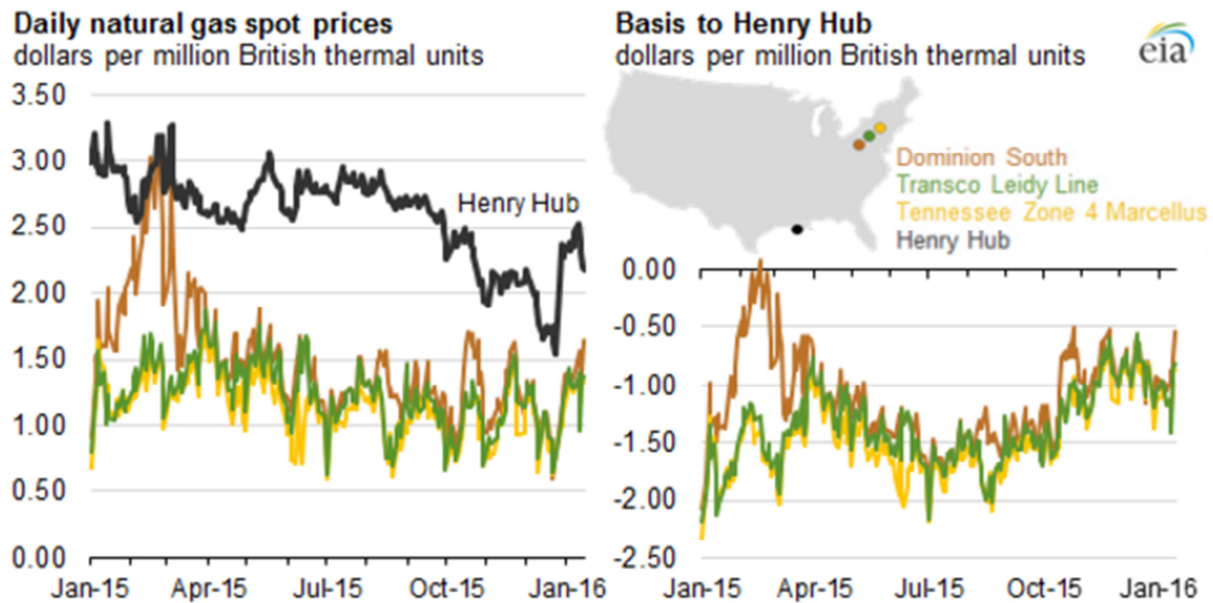
Source: U.S. Department of Energy, Energy Information Administration.

9. However, the lower price of Marcellus gas relative to Gulf Coast gas may be temporary. In a follow-up examination conducted earlier this year, EIA found that the previously observed spreads for Henry Hub and Marcellus natural gas prices had narrowed significantly.<sup>5</sup> Figure 4 below provides natural gas prices for Henry Hub and the major Appalachian natural gas hubs from January, 2015 through January, 2016. EIA noted that the historic spread between Marcellus natural gas prices and Henry Hub narrowed in late 2015 as a direct result of new pipeline projects serving the area. EIA also noted that the effect of increased pipeline capacity in the area was likely not fully observed in late 2015 due to a warm beginning to the 2015/2016 winter heating season.<sup>6</sup> In other words, the most current analysis from the EIA

<sup>5</sup> Katie Teller, U.S. Energy Information Administration, *Spread between Henry Hub, Marcellus natural gas prices narrows as pipeline capacity grows* (Jan. 27, 2016), Today in Energy, <https://www.eia.gov/todayinenergy/detail.php?id=24712>.

<sup>6</sup> *Id.*

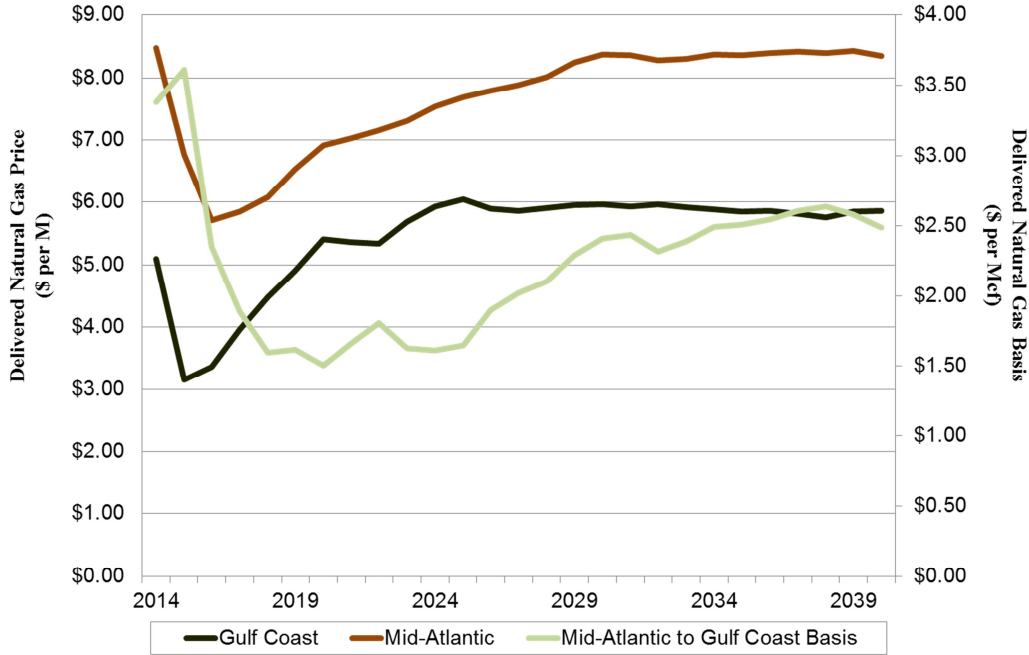
confirms Rate Counsel's and my prior evidence that New Jersey and Pennsylvania LDCs do not require additional capacity from the Project.



**Figure 4:** Henry Hub and Marcellus Natural Gas Hub Spot Prices  
(January 1, 2015 – January 26, 2016)

Source: U.S. Department of Energy, Energy Information Administration.

10. EIA's other analyses, particularly those provided in the 2016 Annual Energy Outlook ("AEO") also suggests that this differential is collapsing quickly. Figure 5 below examines the projected delivered natural gas prices for the Gulf Coast (West South Central Census region) and Mid-Atlantic as well as the implied basis in delivered prices between these regions. The 2016 AEO estimates that current bases in delivered natural gas of approximately \$3.50 will decline sharply in the next couple of years, falling to slightly more than \$1.50. This reduced basis will normalize after 2025 but will still be some 28.6 percent of recently observed peak differentials.



**Figure 5: Gulf Coast vs. Mid-Atlantic Delivered Natural Gas Prices**

Source: 2016 Annual Energy Outlook, U.S. Department of Energy, Energy Information Administration.

11. Concentric’s report also fails to acknowledge how New Jersey’s LDCs contracted transportation capacity will be heavily concentrated on just one interstate transportation pipeline. This excessive reliance on one, as opposed to a diversity of transportation providers, reduces supply security and diversity.

12. Figure 6 below summarizes the anticipated transportation delivery for the New Jersey and Pennsylvania LDCs given their recently-projected 2017-2018 peak-day requirements. If the Project is developed, those LDCs will rely predominantly on the PennEast pipeline to serve their peak-day demands. Elizabethtown Gas is projected to receive more than one-third (34 percent) of its projected peak-day requirement from PennEast. Likewise, over one-fifth of South Jersey Gas Company’s natural gas supply will likely come from the PennEast pipeline, post-development. Even on an average basis, including the UGI-affiliated utilities, the New Jersey and Pennsylvania utilities will be reliant upon this one pipeline to supply 16.37 percent of their estimated peak-day requirements.



Utility	2017-2018 Peak-Day Requirement ----- (Dth/day)	PennEast Transportation Quantity -----	Percent of Total -- (%) --
South Jersey Gas Company	520,555	105,000	20.17%
Elizabethtown Gas	288,440	100,000	34.67%
UGI Energy Services, LLC*	1,054,556	100,000	9.48%
<b>Total</b>	<b>1,863,551</b>	<b>305,000</b>	<b>16.37%</b>

**Figure 6: Relative Supply Dispositions of New Jersey and Pennsylvania LDCs**

Note: UGI Energy Services' 2017-2018 Peak-Day Requirement include requirements for UGI Utilities and UGI Pennsylvania.

13. Concentric also claims that the events of winter of 2013/2014 —when natural gas prices in New Jersey and eastern Pennsylvania climbed to over \$120/Dth—show that there is no “glut of underutilized capacity” in the region.<sup>7</sup>

14. The causes of the price spikes referenced by Concentric are well documented, however, and Concentric’s sole focus on gas prices is misleading when there were numerous other causes of those price spikes. Put differently, had the Project been in full operation at that time, the regions would have still seen substantial price spikes. Early 2014 saw a massive weather system referred to as a “Polar Vortex” plunge temperatures to record lows across wide swaths of the United States. Four major cold weather events occurred during the months of January and February, followed by a less extensive event in early March.<sup>8</sup> Particularly hard hit were the South and the Eastern Seaboard, which saw a major snow and ice storm hit the area from February 11 to February 13.<sup>9</sup>

<sup>7</sup> PennEast Pipeline Co., Reply to New Jersey Division of Rate Counsel Comments, P 30 (Oct. 17, 2016), eLibrary No. 20161017-5038.

<sup>8</sup> Fed. Energy Regulatory Comm’n, Winter 2013-2014 Operations and Market Performance in RTOs and ISOs 2 (Apr. 1, 2014), FERC Docket No. AD14-8-000, eLibrary No. 20140403-4009 (“Commission Staff Report”).

<sup>9</sup> Mike Ford & Chris Peterson, U.S. Energy Information Administration, *New England spot natural gas prices hit record levels this winter* (Feb. 21, 2014), Today Energy, <http://www.eia.gov/todayinenergy/detail.php?id=15111>.

15. In my opinion, however, the Project would have had very limited impact on the 2013/2014 regional natural gas prices. My opinion is supported by investigations performed by the Commission's Staff ("Staff"). The Staff investigated the impacts of the Polar Vortex on operations and market performance in regional natural gas and electricity markets.<sup>10</sup> Staff found that widespread low temperatures, high winds, and snow drove U.S. natural gas demand to reach an all-time peak of 137 Bcf on January 7, 2014, a mark nearly matched weeks later when U.S. natural gas demand topped out at 132 Bcf on January 27, 2014.<sup>11</sup> During this later weather event whose impacts extended into early February, Northeast natural gas demand reached 41.5 Bcf per day, nearly matching the record set during the early January 2014 cold spell. However, Southeast natural gas demand also reached significant highs of 23.9 Bcf per day.<sup>12</sup> Natural gas pipelines serving the region issued capacity constraint warnings and operation flow orders, while many storage facilities issued restrictions on withdrawals.<sup>13</sup> Notably, low temperatures can limit the flow of natural gas in pipelines. Under these circumstances, Concentric offers no explanation as to how PennEast could have mitigated these problems and the Commission should not assume that more pipeline capacity would address these issues. For example, at least 1.5 Bcf per day of U.S. natural gas was shut-in due to well freeze-offs, with 800 MMcf per day of this capability serving the Northeast.<sup>14</sup>

16. Likewise, a review conducted by the North American Electric Reliability Corporation ("NERC") found that the extreme cold caused stored fuel (i.e. coal piles) at some

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<sup>10</sup> Commission Staff Report.

<sup>11</sup> *Id.* at 3.

<sup>12</sup> *Id.* at 4.

<sup>13</sup> PJM Interconnection L.L.C., Analysis of Operational Events and Market Impacts During the January 2014 Cold Weather Events at 56-63 (May 8, 2014), <http://www.pjm.com/~media/documents/reports/20140509-analysis-of-operational-events-and-market-impacts-during-the-jan-2014-cold-weather-events.ashx> ("PJM Winter Report").

<sup>14</sup> Commission Staff Report at 4.

coal-fired electric generation facilities to become frozen.<sup>15</sup> Indeed, NERC found that 26 percent of all electric outages during the weather event were associated with forced outages to coal-fired units.<sup>16</sup> In such situations, these electric generation units can operate to a limited degree using natural gas supplies, which would exert pressure on natural gas transmission systems. NERC's recommendation in the wake of the weather event thus included recommendations extending beyond issues related to natural gas supplies, such as reviews of utility planned outages during possible peak weather periods, and periodic site reviews of generation facilities' winter weather preparations. And as noted in a report by PJM into 2014 cold weather events, (the PJM Winter Report), storage facilities restricted withdrawals due to insufficient gas. Additional pipeline capacity cannot solve an underlying shortage of gas. Furthermore, while the PJM Winter Report recognized substantial forced outages of natural gas fired generation due to gas supply interruptions, PJM did not conclude that such interruptions could be cured by additional pipeline capacity. To the contrary, PJM concluded that policymakers must examine "the relative transparency and flexibility of the natural gas markets."<sup>17</sup> Furthermore, PJM complained that "onerous and inflexible terms and conditions, such as requiring commitments to take gas ratably throughout a three-day weekend in order to assure supplies on the first business day thereafter, were completely at odds with the more constrained day-ahead and real-time commitments in the wholesale electricity markets."<sup>18</sup> Noticeably absent from PJM's listing of concerns for policymakers was the construction of new pipeline capacity.

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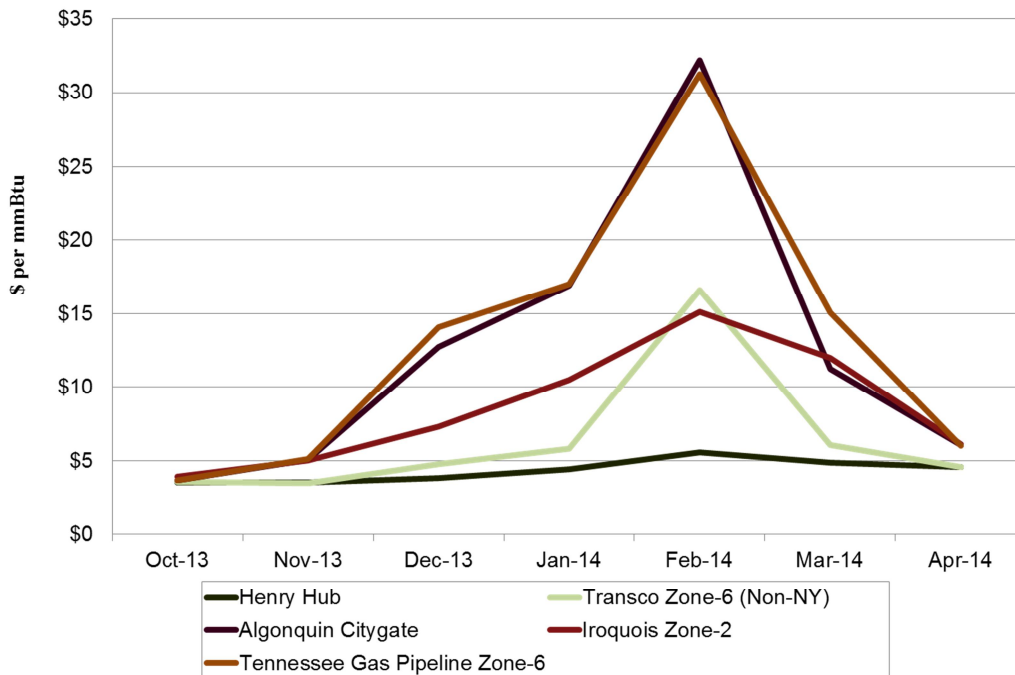
<sup>15</sup> N. Am. Elec. Reliability Corp., Polar Vortex Review at 3 (Sept. 2014), [http://www.nerc.com/pa/rrm/January%202014%20Polar%20Vortex%20Review/Polar\\_Vortex\\_Review\\_29\\_Sept\\_2014\\_Final.pdf](http://www.nerc.com/pa/rrm/January%202014%20Polar%20Vortex%20Review/Polar_Vortex_Review_29_Sept_2014_Final.pdf).

<sup>16</sup> *Id.* at 13.

<sup>17</sup> PJM Winter Report at 56.

<sup>18</sup> *Id.*

17. Figure 7 below charts natural gas future prices during the 2013/2014 winter for Transco Zone 6 (Non-NY), Henry Hub, and three natural gas hubs in the New England states, specifically hubs located in the states of Massachusetts and Connecticut. This analysis shows that the majority of transmission congestion encounter during this event occurred at the Algonquin Citygate and Tennessee Gas Pipeline Zone-6 hubs, and to a lesser extent the Iroquois Zone-2 hub. These hubs are in New England, north of proposed PennEast pipeline and furthermore downstream of the proposed pipeline. Transco Zone-6 (Non-NY), the hub most impacted by the proposed pipeline, saw prices that were generally only slightly higher than generic wholesale natural gas prices as measured at Henry Hub. The sole exception to this is prices during February 2014, yet even then, prices only reached levels that were half of those seen in the New England hubs.



**Figure 7: 2013/2014 Winter Natural Gas Prices in the North East**  
 Source: SNL Financial

18. Likewise, the event in question occurred two years ago. Since that time, a significant amount of new natural gas pipeline capacity has been developed and a large amount continues to be proposed. In fact, the pricing trends highlighted earlier in Figures 1 and 2 clearly show that natural gas in the northern mid-Atlantic began trading at prices discounted relative to the Gulf Coast after the conclusion of the 2013/2014 heating season.

19. Concentric also fails to address the substantial other factors that led to the price spikes in the 2013/2014 heating season. PJM has reported generation outages at two to three times the expected rate.<sup>19</sup> The Commission Staff's summary of problems experienced during the Polar Vortex also included issues such as equipment failures and frozen coal piles,<sup>20</sup> that a new gas pipeline cannot resolve. Concentric offers no explanation as to how PennEast, and its proposed tariff that contains provisions similar to what PJM labeled as onerous, would have mitigated any of these other factors that substantially contributed to the 2014 price spikes.

20. Furthermore, Concentric's analysis fails to recognize the significant amount of competing new natural gas transportation capacity currently being built in the mid-Atlantic region. The Concentric report provides no basis to conclude that the PennEast capacity is required or that the "no action" alternative is not preferable to the environmental damage that construction of the Project will cause.

### **III. REVIEW OF CONCENTRIC'S REPLY COMMENTS REGARDING PENNEAST'S PROPOSED ROE**

21. Concentric's reply comments imply that the proposed PennEast pipeline, being a new, large diameter, greenfield pipeline, is more risky compared to existing pipelines.<sup>21</sup>

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<sup>19</sup> PJM Winter Report at 4.

<sup>20</sup> Commission Staff Report at 5.

<sup>21</sup> PennEast Pipeline Co., Reply to New Jersey Division of Rate Counsel comments, p 45 (Oct. 17, 2016), eLibrary No. 20161017-5038.

22. In reviewing the results of the Project's Open Season, however, seven entities executed long-term (i.e. 15-year), binding agreements with the pipeline in the course of the Open Season, six of which are affiliated companies to an entity with ownership stake in the pipeline. In all, these seven entities reserved 835,000 dekatherms per day worth of transportation capacity on the proposed pipeline, representing over 75 percent of the total transmission capabilities of the Project.<sup>22</sup> In my opinion, having 75 percent of a pipeline's transportation capabilities reserved for 15 years prior to the completion of a proposed pipeline does not translate to a significantly risky project for investors.

#### **IV. CONCLUSIONS**

23. In conclusion, the Concentric Report, which has been offered as a reply to Rate Counsel's comments in this proceeding, makes a number of assertions that are either incorrect, not relevant to the PennEast Application, or highlight what, in fact, are important filing deficiencies associated with the PennEast Application:

- While Concentric offers a number of peripheral observations about the proposed PennEast project and mid-Atlantic natural gas markets, it fails to address a fundamental shortcoming in the Company's Application: the PennEast Application is deficient because it fails to clearly show that New Jersey's natural gas utilities need the additional capacity associated with this proposed project.
- Concentric does not contest Rate Counsel's positions that New Jersey's regulated natural gas utilities have ample contracted natural gas supplies. Instead, Concentric attempts to change the debate to one that focuses "other factors" that should be considered in evaluating a pipeline's need without addressing, on a

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<sup>22</sup> PennEast Pipeline Co., Application of PennEast for Certificates of Public Convenience and Necessity and Related Authorizations at 10 (Sept. 24, 2015), eLibrary No. 20150925-5028.

detailed, point-by-point basis, how each of these “other factors” are resolved by the proposed project.

- The basis differential benefits asserted in the Concentric Report assumes that those differentials will persist over the long-term when they are, in fact, simply shorter-term cyclical variations in regional natural gas markets. Other publicly-available analyses, including those conducted by the Energy Information Administration clearly show declining basis differentials that contradict Concentric’s assertions.
- The supply security and diversity benefits that are asserted in the Concentric Report are undermined by the fact that, if this proposal is approved, New Jersey’s regulated gas utilities will see their gas supplies become more concentrated on one interstate transportation pipeline system. If approved, New Jersey’s regulated natural gas utilities will see their natural gas supplies become concentrated, not more diverse.
- Concentric’s references to the 2013/2014 Polar Vortex are misplaced and are irrelevant to the proposed project. It is unlikely that the proposed pipeline would have benefited local markets to any substantive degree due to the particulars associated with that unique weather event. Furthermore, Concentric fails to recognize the significant amount of competing new natural gas transportation capacity currently being built in the mid-Atlantic region, as well as other actions that have been taken in regional power markets, that will resolve the problems observed during the past Polar Vortex.

- Concentric's ROE analysis fails to appropriately assess the reduced risk associated with the fact that the revenues tied to 75 percent of the capacity of this pipeline will be securitized through long-term, 15 year contracts with high credit-worthy regulated natural gas utilities. Furthermore, Concentric fails to acknowledge that six of these seven shippers offering to sign long-term service contracts are also owners of the proposed PennEast pipeline. The fact that the shippers and owners are affiliates with the same corporate entity should also reduce the earnings risk associated with this proposed project relative to a standard greenfield pipeline project proposal.



UNITED STATES OF AMERICA  
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PennEast Pipeline Company, LLC

Docket No. CP15-558-000

State of Louisiana  
Parish of East Baton Rouge

**AFFIDAVIT OF DAVID E. DISMUKES, PH.D.**

I, David E. Dismukes, being duly sworn, depose and state that the content of the foregoing Affidavit on behalf of the New Jersey Division of Rate Counsel, are true, correct, accurate and complete, to the best of my knowledge, information and belief.

  
David E. Dismukes, Ph.D.