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<u>PennEast Opinion Updated September 11, 2016</u>

In June 2015, I reviewed all relevant documents pertaining to the proposed PennEast Pipeline project including "Request for Approval of Pre-Filing Review" dated October 17, 2014 *("Request for Approval"*[1]). Based on that review I concluded[2] that there was inadequate justification for approval of PennEast's *Request for Approval*.

Following were my main conclusions:

- New Jersey's natural gas market is not growing as stated in *The Request For Approval*, and
- New Jersey already uses far more natural gas for heating than the U.S. national average and more than in adjacent states, and
- New Jersey's natural gas and electricity costs are already well below the national average, and
- New Jersey does not need to reduce reliance on fuel oil beyond present low and decreasing levels.

The chief reason for my earlier conclusions was that there was no need for the increased gas supply in the New Jersey and southeastern Pennsylvania markets specified by PennEast. In fact, those markets were and remain adequately supplied with natural gas.

I concluded that Pennsylvania was already grossly over-supplied and that the proposed additional 1 Bcf/d supply would result in an over-supply for New Jersey of approximately 53%.[3]

Another key reason for my previous conclusions was cost and competition. New Jersey's current natural gas and electricity costs are comparable to those in major gas-producing states like Texas and Louisiana. There is no evidence based on cost data from Texas and Louisiana that more gas supply resulted in lower costs to consumers.

A final reason for my conclusions last June was that New Jersey did not have meaningful heating oil substitution needs. Approximately 74% of New Jersey's space heating needs are already met

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[1] Request for Approval of Pre-Filing Review, PennEast Pipeline Company, LLC, p.2, October 7, 2014.

[2] Professional Opinion on the Proposed PennEast Pipeline Project Updated June 18, 2015.

[3] Professional Opinion on the Proposed PennEast Pipeline Project Updated June 18, 2015, p. 3.

by natural gas, far above the national average of 48% and more than the 54% usage in neighboring mid-Atlantic states.[4]

Beyond my conclusions from 2015, northeastern U.S. natural gas market conditions have changed appreciably and gas supply is now declining. That is hardly a favorable environment for adding pipeline capacity.

U.S. gas production is declining and shale gas output is down almost 2.5 Bcf per day (Figure 1).

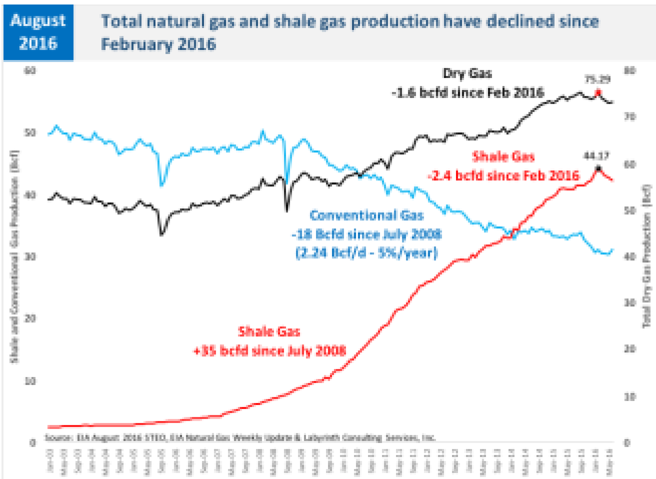

Figure 1. Total U.S. Natural Gas and Shale Gas Production Have Declined Since February 2016. Source: EIA August 2016 Short Tem Energy Outlook and Labyrinth Consulting Services, Inc.

Conventional gas has been in terminal decline since 2008, and shale gas production growth has maintained and increased U.S. supply. Now, that shale gas production is also in decline. It is unlikely that production will increase much without much higher prices. It is, furthermore, unlikely that even higher prices will offset production declines based on energy company reductions in capital budgets and the generally weak state of the U.S. economy and business investment.

All shale gas plays have declined including the Marcellus which is down -0.64 Bcfd (Figure 2). Even the relatively new Utica play has declined -0.12 Bcfd. The legacy plays have declined the most: Haynesville, -3.77 Bcfd; Barnett, -1.91 Bcfd; and Fayetteville, -0.92 Bcfd. No new horizontal wells have been drilled in either the Barnett or Fayetteville since early 2016.

PLAY	Haynesville	Barnett	Fayetteville	Eagle Ford	Marcellus	Antrim	Utica	Other	Bakken	Woodford
CHANGE FROM MAX (BCF/D)	-3.77	-1.91	-0.92	-0.79	-0.64	-0.26	-0.18	-0.12	-0.08	-0.07

Figure 2. Shale gas play declines from maximum production. Source: EIA Natural Gas Weekly Update and Labyrinth Consulting Services, Inc.

[4] Professional Opinion on the Proposed PennEast Pipeline Project Updated June 18, 2015, p. 5.

Moreover, the financial condition of the leading producing companies in the Appalachian region is weak and their commitments to pipeline volumes must be questioned. All leading companies in the Marcellus and Utica plays reported net losses for the second quarter of 2016, summarized in Figure 3.

	Q2 Net Gain/Loss ($mm)	Q2 Gain/Loss Per Share	Q2 AVG Share Price	1H Share Offering ($mm)
Antero	-$596	-$0.52	$27.24	$762
Cabot	-$63	-$0.14	$23.98	$888
Consol	-$223	-$1.02	$14.02	-
EQT	-$259	-$1.55	$71.42	-
Gulfport	-$340	-$2.71	$30.26	$371
Range	-$225	-$1.35	$40.91	-
Rice	-$139	-$0.02	$18.66	$312

Figure 3. Marcellus-Utica key operator second quarter (Q2) 2016 gains and losses and first half (1H) 2016 equity offerings. Source: Company documents and Labyrinth Consulting Services, Inc.

In summary, the compelling fact-based reasons for denying the PennEast *Request for Approval* stated in my 2015 opinion remain, and are made even stronger based on changes in U.S. and northeastern natural gas market.

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