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To: Interested Parties
From: Sonia Wang and Spencer Phillips, Ph.D.
Date: 3/11/2015
Subject: Review of INGAA Foundation Report, "Pipeline Impact to Property Value and Property Insurability"

The Interstate Natural Gas Association of America (INGAA) Foundation, Inc., has released another report on the impacts of pipelines on property values and property insurability.¹ Like a previous report using the same methods, the report claims that pipelines have no measurable impact on property values of homes of any type, regardless of the age or size of the transmission line. The report quantitatively analyzes two pipelines in Ohio, plus one each in Virginia, New Jersey, Pennsylvania, and Mississippi.

Like its similar 2001 study,² this new study has many flaws in methods and uses the same, incorrect assumptions.³ The authors attempt to compare prices for properties "adjacent to" a pipeline with the price of properties "off" the pipeline. The trouble in each of their case studies, however, is that the definition of "adjacent to" ignores the potential impact of health and safety risks that may be depressing property values for a majority (and in some cases, all) of the properties considered. Specifically, and for most of the properties, the authors fail to account for the fact that many of the "off" properties analyzed are in fact included in the evacuation zone of the pipeline, which would mean the study is not truly distinguishing between properties potentially affected by the pipeline and those beyond the danger zone.

- For the Texas Gas Transmission in Ohio, based on the lowest estimated pressure (PSI) for a 26" pipeline, 25 of the 31 (81%) "off" properties are actually located in the evacuation zone (615.5 feet).^{4,5}

¹Integra Realty Resources. 2016. "Pipeline Impact to Property Value and Property Insurability." 2016.01. Interstate Natural Gas Association of America (INGAA) Foundation, Inc. <http://www.ingaa.org/PropertyValues.aspx>.

² Allen, Williford & Seale Inc. 2001. "Natural Gas Pipeline Impact Study." F-2001-02. Interstate Natural Gas Association of America (INGAA) Foundation, Inc.

³ The flaws in the 2001 study are described in Phillips, Bottorff and Wang, 2016, Economic Costs of the Atlantic Coast Pipeline: Effects on Property Value, Ecosystem Services, and Economic Development in Western and Central Virginia, Charlottesville, VA: Key-Log Economics available at keylogeconomics.com.

⁴ In most cases, we were able to estimate the evacuation zone based on the diameter and operating pressure given for the pipeline. The Pipeline Association for Public Awareness provides a lookup table with these evacuation zones. For pipelines that fall between the sizes or pressures given, we interpolated the evacuation zone from the available information. (See Appendix C of "Pipeline Emergency Response Guidelines," Pipeline Association for Public Awareness, 2007, www.pipelineawareness.org.)

⁵ For this pipeline, we used the lowest estimated pressure because the exact PSI was not noted in the study or available from other sources. This estimate is the most conservative and it is likely the evacuation is actually larger, meaning even more of the "off" properties listed are, in effect, near the pipeline.

- For the REX-EAST pipeline in Ohio, based on a max operating PSI of 1480 for a 42" pipeline, 5 of the 9 (56%) "off" properties are actually located in the EVAC zone (3683.8 feet).
- For the Transcontinental Gas Pipeline in New Jersey, based on the max operating PSI of 1480 for a 42" pipeline, ALL "off" properties are actually located in the EVAC zone (3683.8 ft).
- For the Gulf South Transmission Pipeline in Mississippi, based on the lowest estimated operating PSI of 100 for a 30" pipeline, 9 out of the 17 (53%) "off" properties are actually located in the EVAC zone (684 ft).⁴
- For the Transco (Williams) Pipeline in Virginia and the Williams Natural Gas Pipelines in Pennsylvania, the authors do not report the distance away from the pipeline, rather there is just a yes or no regarding whether or not the property is abutting the right of way. Assuming the authors methods, while flawed, are at least consistent from one case study to the next within the paper, it is likely that 50% or more of the comparison properties (those not abutting the right-of way) are in fact within the evacuation zone and, therefore, are not materially different from those abutting the right-of-way from the perspective of health and safety effects on property value.

In summary, while any econometric evaluation of differences in market prices requires comparing observed prices of things that are different in some way, the INGAA study is merely reporting that there is little difference in the price of things that are not materially different. The authors should be comparing apples to oranges, but instead they compare oranges to oranges.

In addition, the INGAA study suffers from a more serious flaw in that the authors do not state whether or not the purchasers of any of the properties analyzed were aware of the properties' proximity to a pipeline. If a market price is to be taken as a signal of economic value, then the price must arise from a transaction in which both buyers and sellers have full information about the property being sold. But proximity to natural gas pipelines is not typically something that sellers and realtors are required to disclose. If buyers in the study were unaware that they were buying a property near a natural gas pipeline, then one cannot legitimately conclude that their offer prices reflect the effect of the presence or absence of a pipeline on property value.

As a result of these flaws, it is impossible to conclude from INGAA's study that a property value effect does not exist. Other, more appropriate/robust studies, like the study by Hansen, Benson, and Hagen (2006)⁶ actually reinforce the conclusion that when buyers do know about a nearby pipeline, market prices drop. These authors found that property values fell after a deadly 1999 liquid petroleum pipeline explosion in Bellingham, Washington. They also found that the negative effect on prices diminished over time. This makes perfect sense if, as is likely, information about the explosion dissipated once the explosion and its aftermath left the evening news and the physical damage from the explosion had been repaired.

Similarly, Kielisch (2015) concludes that when buyers are aware that a property is near a pipeline, their willingness to buy the property and their average offer prices drop significantly.⁷ In his systematic

⁶ Hansen, Julia L., Earl D. Benson, and Daniel A. Hagen. 2006. "Environmental Hazards and Residential Property Values: Evidence from a Major Pipeline Event." *Land Economics* 82 (4): 529-41.

⁷ Kielisch, Kurt. 2015. "Study on the Impact of Natural Gas Transmission Pipelines." Forensic Appraisal Group, Ltd.

review of studies were buyers, Realtors, or appraisers were aware of properties' proximity to natural gas pipelines, He found, in brief, that

- 68% of Realtors believe the presence of a pipeline would decrease residential property value, with 56% of Realtors estimating a decrease in value between 5% and 10%.
- 70% of Realtors believe a pipeline would cause an increase in the time it takes to sell a home.
- 62.2% of buyers in a different study stated that they would no longer buy a property with/on a pipeline ROW at any price. Of the remainder, half (18.9%) stated that they would still buy the property, but only at a price 21% below what would otherwise be the market price. The other 18.9% said the pipeline would have no effect on the price they would offer. Not incidentally, the survey participants were informed that the risks of "accidental explosions, terrorist threats, tampering, and the inability to detect leaks" were "extremely rare" (2015, p. 7).

This translates into a reduction in expected value of 10.5% for those who proceed to buy the home. If you consider that the 62% of buyers who drop out are effectively reducing their offer prices by 100%, the expected reduction in offer price for all potential buyers 66.2%.

- Based on five "impact studies" in which appraisals of smaller properties with and without pipelines were compared, "the average impact [on value] due to the presence of a gas transmission pipeline is -11.6%" (p. 11).

Clearly when one considers property transactions in which one's eyes are open to the presence or or proximity to a pipeline, market prices fall because the properties are less attractive and valuable to their would-be or actual new owners.

In conclusion, the recent INGAA study does not provide conceptually or empirically valid results regarding the effect of natural gas pipelines on property value. Citizens local government officials and FERC should be looking to the best available information from studies such as those referenced here.