21 July 2018

Thank you for allowing me to provide comments on *Macroeconomic Outcomes of Market Determined Levels of U.S. LNG Exports (2018 LNG Export Study)*. I have grave concerns about several of the methodologies and assumptions that are used in this study and request that they be corrected. The following three main points document flaws in the study parameters that result in inaccurate conclusions being reached.

1. On p. 34, where the authors describe the structure of their model:

   On a practical level, there are also other important uncertainties about the ownership of LNG plants and how the LNG contracts will be formulated. These have important consequences on how much revenue can be earned by the U.S. and hence overall macroeconomic effects. (34)

   where footnote 34 states:

   In the NewERA model, it is possible to represent these variations in domestic versus foreign ownership of assets and capture export revenues to better understand the issues. However, this study does not investigate these issues.

   In this footnote they say they are ignoring the implications for the US economy of a foreign-owned pipeline exporting LNG through a foreign-owned facility. This is problematic since the proposed Jordan Cove Energy Project and associated Pacific Connector Gas Pipeline would be owned by a Canadian Corporation. This study does not provide accurate information with which to evaluate the economic impacts of this proposed infrastructure and FERC would be operating from flawed assumptions and methodologies were it to consider this report when reviewing it.

2. On page 56, they create Figure 13 that tracks the relationship between Henry Hub prices and US LNG Exports. They then go on to create Table 7, which establishes the supply and demand figures they use in conjunction with the Henry Hub prices form the basis for all subsequent macroeconomic analysis. However, when it comes to Table 7:

   To better understand the full range of activity in the natural gas market under different levels of LNG exports, we summarize the U.S. and outside of North America(48) natural gas supply and demand in 2040.

   where footnote 48 states:

   Since countries in the North American region share a single natural gas market, we compare results between U.S and outside of North America.

   This means that their macroeconomic analysis excludes Canadian gas supply as a factor; they are in fact taking the Montney Shale basin out of all equations. They shouldn't be able to have it both ways - if North America is all one gas market then the macroeconomic benefits should be applied across North America and not assumed to all go to the US. Again, FERC would be operating from flawed assumptions and methodologies were it to consider this report when reviewing LNG infrastructure proposals.

3. The above concerns that the macroeconomic analysis reaches faulty conclusions due to faulty assumptions notwithstanding, it appears that the macroeconomic analysis also assumes capacity for unbounded growth in the LNG export sector. On page 68 they state

   An important implication of this result is that if the market is allowed to determine exports, changes in global markets that bring forth increased LNG exports will also lead to an increase in overall economic activity leading to higher GDP. In addition, Figure 17 illustrates that <u>any restrictions on LNG exports</u> would forgo the additional GDP to be gained by allowing exports to respond to market conditions. (emp. added)

   However, on page 28 they summarize their export predictions thusly:

   Non-FTA exports up to 21.4 Bcf/d have already been authorized by DOE, and this level of exports falls well within the one-standard deviation interval around the mean scenario in 2040. There is a greater than 63% (100% - 37% indicated as a red arrow in the chart) probability that exports will reach this level by 2040, but there is only a 12% (100% - 88% indicated as a blue arrow in the chart) probability that they will reach this level by 2030.

   <...>

   As of February 26, 2018, DOE has received applications for a total of 55.04Bcf/d of LNG exports to Non-FTA countries. Again, there is virtually no chance that this level of LNG exports could be reached before 2040, and only a 2% chance that this level could be reached or exceeded by 2040.

   It is not clear what they mean by "restricting LNG exports?" Do they mean denying applications for LNG export facilities that have not already been approved? They seem to be saying two things – "*don't restrict exports, let the market decide*" vs "*the market will mostly likely decide we don't need to approve any more projects.*" Or do they mean *approve everything and it doesn't matter if some aren't needed because the market will sort it out.*

   And of course, the macroeconomic analysis doesn't appear to consider what will happen if the infrastructure created exceeds the bounds of what the market demands - what would the impact be of having 2 or 3 times as much export capacity constructed as needed, with the requisite outlays of capital?

   The report needs to reconcile what appears to be contradictory conclusions located in different sections – that there is a market-imposed limit on export infrastructure capacity vs the economic benefits will be greatest with no restrictions on export infrastructure.

I appreciate your taking the time to consider these problems and take the necessary steps to rectify them. Please feel free to contact me with any questions or concerns.

Cordially,

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