U.S. House of Representatives Subcommittee on Energy and Power:

Quadrennial Energy Review and Related Discussion Drafts

Question from the Honorable Pete Olson with reference to testimony dated June 2, 2015:

In both the QER and in the Committee's energy legislation, there has been discussion of midstream assets. Markets are changing, and we don't necessarily have the infrastructure we need in the places we need it. We all understand that oil and gas play lose value fast without a path to market that is affordable and reliable. At a time when job losses are so heavy in the oil and gas space, this worries me.

- a. Is it fair to say that regulatory delays can be a serious hindrance for energy production?
- b. What happens to our energy production and energy security if the transportation network can't keep up?

My response to the above question:

There is no question that regulatory delays can be a serious hindrance to energy production. Allow me to add more nuance to this issue however. Most damaging to energy production is uncertain regulation where the rules are not clear or subject to unpredictable delays. To put it another way, investors and other stakeholders can take into account in their planning if a given permitting process is known to take a longer period of time, whether 14 months or 20 months (as example); far more injurious is if

the process is three months one time, and 54 months the next time (as example). Predictability is critical.

Stepping back, a delay in promulgating a comprehensive set of regulations (where needed) if the longer time frame results in a clear expression of policy and rules, is more beneficial than a piecemeal offering of a new regulatory package which creates more confusion and potential for unpredictability. My experience globally is that an accompanying failure to provide for the regulatory capacity (people and resources) needed to properly enforce new regulations is just as deadly.

Reflecting over the last five to ten years regarding this issue in the United States, we have had over forty years where oil and gas infrastructure was primarily designed to import crude oil (and then in cases natural gas) and move into the interior. The last five to ten years presents a nearly complete turnaround given the dramatic changes in our oil and gas supply situation; the challenge is now to design and build oil and gas infrastructure which is more geared to export crude oil and natural gas. (Of course there are internal US challenges also as shale oil and gas represent new supply geographies with insufficient evacuation capacity given demand centers.) Naturally this requires a fundamental re-look at our associated regulatory processes and functions. A delay in the review and resulting recommendations slows down the newly discovered supply options we now have.

With respect to energy security and production, if we define energy security as achieving "reliable, affordable supplies of energy," then inadequate transportation infrastructure unquestionably impairs both security and supply. This impact is actually greater in an extended period of low to medium oil and gas prices (which from the consumers' perspective is a more desirable outcome). As example, if due to inadequate transportation infrastructure the cost to move oil from the wellhead to a refining center (or natural gas to power generating facilities) increases from \$4 per barrel to \$6 or \$8 per barrel, the relative impact of that higher cost is a larger burden on commercial viability when the price of oil is \$55 per barrel as opposed to \$90 per barrel. Less attractive economics reduce production.

An additional impact takes place where the inability (or restricted ability) to export crude oil or natural gas also creates price differentials (with lower prices in the interior of the US). Here also, less attractive economics reduce production.

Adequate political and financial investment in clear policy and even more clear regulations, and regulatory capacity and predictable processes will serve to maximize benefits and optionality which the United States has the potential to enjoy from its domestic oil and gas sector.

Chairman Upton, Ranking Member Pallone, and members of the Committee, once again, I greatly appreciate the opportunity to testify before you on competitiveness in

the exploration and production (E&P) business and its importance for national energy sectors, policies, institutional capacity and critical infrastructure. Thank you.

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