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NATIONAL PROPANE GAS ASSOCIATION

October 7, 2014

Ms. Melanie Kenderdine
Director
Office of Energy Policy and Systems Analysis
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585

Re: Comments on Quadrennial Energy Review

Dear Ms. Kenderdine:

The National Propane Gas Association (NPGA) welcomes the opportunity to share its views through these comments and through participation in several of the public meetings that the Department of Energy (DOE) has convened in connection with the Quadrennial Energy Review (QER). NPGA commends DOE for this initiative aimed at shaping the nation's energy policy and for its focus on energy infrastructure, which was a key element in the difficult circumstances that the propane industry and its customers faced this past winter, which we will discuss at greater length below.

National Propane Gas Association

NPGA is the national voice for the propane gas industry. NPGA's 3,000 member companies—the majority of which are small family-owned businesses—fuel homes, businesses, farms, and vehicles in all fifty states and employ approximately 40,000 industry employees nationwide. Propane is a non-toxic gas produced from natural gas processing and crude oil refining. Approximately 75 percent of propane comes from the natural gas stream. The growth in American natural gas production over the last several years has brought with it an associated growth in propane supply. In fact, as recently as 2010 the U.S. was a net importer of propane. Today, America is a net exporter of propane. This surplus in clean American energy can, and should, be relied upon to advance America's energy security and environmental goals.

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Executive Summary

The propane consumed today in America is one hundred percent American-made. As a result, propane contributes to energy security, national security, and American jobs. Because propane is transmitted to market areas by a variety of modalities, the propane delivery system has inherent resilience. Moreover, large parts of the propane delivery infrastructure are not forever fixed in location, so they can be redeployed to meet changing market or other conditions. Additionally, large portions of the propane delivery infrastructure can be brought online in relatively short periods of time, unlike many other energy assets that take years or decades to put in place. The propane system thus has the ability to respond in relatively short order to unexpected internal or external drivers.

Propane is a low-carbon fuel, like natural gas. Propane space heating, water heating, and cooking have, on a life cycle basis, essentially one-half the carbon footprint of comparable electric applications. As a result, propane represents a tried and true technology that can readily assist in the transition to a low-carbon economy.

Propane has similar emission characteristics to natural gas. Propane, however, is more transportable than natural gas. It can provide the emission and efficiency benefits of natural gas in areas where no natural gas infrastructure exists. Propane, therefore, has an essential resilience that natural gas does not.

Moreover, fugitive propane is not a greenhouse gas and thus does not raise the panoply of issues surrounding fugitive methane. Although propane is a 20th century fuel source, it provides a reliable, secure, and low-cost pathway toward a 21st century clean-energy economy. NPGA hopes that DOE will recognize the multiplicity of benefits of propane as it formulates its recommendations.

The propane industry differs from many of the other energy industries in that propane is transported by a variety of modalities—pipeline, rail, motor carrier, ship, and barge. While these modalities give the propane industry considerable optionality compared to the other energy sectors, it also creates a more complex industry. As the challenging conditions of the winter of 2013-14 demonstrated, efficient functioning of this infrastructure is essential to serving America's propane consumers. The rapidly changing patterns of energy flow in North America are causing dramatic changes in energy infrastructure. Pipelines, the most economical and safe means of transporting propane, appear to be diminishing in significance for propane as they are being repurposed. Rail and motor carriers appear to be becoming more critical, yet each faces

challenges, as the propane industry learned this past winter. The dramatically increasing volumes of propane exports are also having a disruptive effect on propane infrastructure and propane markets. NPGA hopes that DOE will, as part of the QER process, analyze the nation's propane infrastructure by region, analyze the changes in propane flows among these regions, and assess the impact of the growing trend of exports on the national propane market and, most importantly, America's propane consumers.

A Propane Primer

Propane is a naturally occurring hydrocarbon commonly found in the production stream of oil and gas wells. With the chemical formula C_3H_8, it is one of the least complex hydrocarbons (technically an alkane). It is closely related to methane (natural gas), which, with the chemical formula CH_4, is the least complex of the hydrocarbons. Chemically, only ethane (C_2H_6) separates natural gas and propane. More complex hydrocarbons include butane, pentane, hexane, and octane. The molecular proximity of propane to methane has important real-world consequences, as will be discussed below.

Like natural gas, propane is colorless, odorless, and tasteless. Both are gaseous at normal temperatures and pressures. As a result, both are readily usable as fuels in a number of applications. While natural gas liquefies at -162 Centigrade, propane liquefies at -42 Centigrade. With pressure, propane becomes a liquid at somewhat higher temperatures—hence "liquefied petroleum gas" (LPG), another euphemism for propane. An important consequence is that propane can be stored and transported in relatively lightweight containers and with much greater ease and economy than natural gas (in either a gaseous or liquefied state). While large volumes of propane are transported by petroleum products pipelines, it is also commercially feasible to transport it by rail, truck, ship, and barge. Those modes are also physically possible for natural gas, but they are not generally economically feasible (on a retail basis) because natural gas, whether compressed or liquefied, requires much heavier storage containers and higher pressures or lower temperatures. At ordinary temperatures and pressures natural gas is lighter than air, while propane is heavier than air. For both products the smell that people associate with them is artificially added at the retail level.

Propane is produced (as with other more complex hydrocarbons) through two processes. First, it can be extracted from natural gas streams in natural gas processing plants. Second, it can be produced by refiners as part of the crude oil cracking process. The former method of production accounts today for more than seventy percent of domestic supply. North American supplies of propane are adequate to meet the entire U.S. demand. Unlike customers of gasoline, diesel fuel,

and heating oil, propane customers are not dependent upon supplies from foreign nations. (Although some propane is imported, the volume is dramatically less than the volume that is exported.) Propane is in essence a byproduct, and, from a commercial perspective, production varies not so much with the demand for propane as the demand of the products of which it is a byproduct (natural gas and refinery products).

The nation is in the midst of a boom in natural gas production, largely involving the production of natural gas from shale formations. Because natural gas liquids draw higher prices in the market than natural gas on a British thermal unit (Btu) basis, producers are aggressively seeking shale gas that is rich in natural gas liquids such as propane. As a result, domestic supplies of propane will be plentiful for the indefinite future. This overhang of supply is also likely to bring propane prices down over time, but this is by no means certain.

Propane has applications in residential and commercial markets for heating (furnaces and gas logs), water heating, cooking, and clothes drying. It is well known across America, even among those who do not use it as a primary home fuel, as a fuel source for barbecues, outdoor stoves, heaters, and the like. More than 14 million American families use propane for these various applications. Approximately 6 million households heat with propane. Similarly, propane has wide usage as a cooking fuel in recreational vehicles and boats. Additionally, propane commands a significant market as a transportation fuel, for forklifts, buses, vans, trucks, and cars. Indeed, there are more propane vehicles on the road than either electric or natural gas, both in the United States and in the world. Propane is also used as a fuel in the industrial sector for space heating and for process applications. Propane is used on nearly one million farms for irrigation pumps, grain dryers, standby generators, and other farm equipment.

Propane is a low-carbon fuel. At the point of combustion it produces 62.3 kg of CO_2/MMBtu, compared to 53 kg for natural gas, 71 kg for gasoline, and 93 kg for bituminous coal. Factoring in upstream emissions, propane produces 74 kg of CO_2/MMBtu, compared to 65 kg for natural gas, 91 kg for gasoline, and 221 kg for electricity. (The large number for electricity reflects the significant thermal loss in generation and the thermal loss in transmission and distribution.) A key fact in regard to carbon emissions is that when propane is released (*i.e.*, fugitive) into the atmosphere, it has essentially no greenhouse gas (GHG) effect. In contrast, natural gas released into the atmosphere is approximately 25 times as potent a GHG as CO_2.

Propane accounts for approximately 2 percent of the primary energy consumed in the United States, compared to 29 percent for natural gas, 28 percent for coal, and 41 percent for petroleum products. Yet propane accounts for only 1 percent of the nation's GHG emissions.

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NPGA often refers to propane as "portable natural gas." Most propane today is produced alongside natural gas. It is used in the same applications as natural gas. Propane has an emissions profile similar to natural gas but with the added benefit of not itself being a GHG. Propane has the benefit of being easily transportable to areas where there is no natural gas infrastructure.

The fact that propane is "portable natural gas" makes it a fuel with enormous resiliency in our system. Propane can be readily stored and transported (unlike either electricity or natural gas). As a result, propane has important applications in emergency circumstances. As was amply demonstrated in Hurricane Sandy, propane-fueled electricity generators can be rapidly delivered to areas where other energy infrastructure has been rendered inoperative by natural disasters. Similarly, propane can continue to provide home heating, water heating, and cooking where natural gas and electricity systems have been rendered inoperative.

Often overlooked are vehicular applications of propane. Propane-fueled forklifts dominate the market and are well known. However, the dominant role that propane plays in the vehicle market—ahead of natural gas and electricity—is often overlooked. There is huge promise for propane cars, buses, and trucks as low-cost, low-carbon, low-emission transportation. There is equal promise in off-road applications such as construction equipment, generators, and commercial lawn mowers.

The Challenging Winter of 2013-2014

DOE is thoroughly knowledgeable of the challenges in propane markets this past winter, through its daily involvement in monitoring markets and consultation with other federal agencies and state governments. Secretary Moniz' comments on propane at the QER public session in Chicago demonstrated the depth of knowledge at DOE of the market circumstances this past winter.

NPGA formed a member task force in February 2014 to assess the winter circumstances and to identify actions that could be taken to avoid a recurrence. The task force was able, in retrospect, to identify the circumstances that led to the winter market challenges. The heating season began with national propane inventory levels almost 15% below 2012 levels and in the middle of the five-year average. Nationally consumers used 670 million gallons more propane in this past heating season than the year before, made up of 485 million gallons in the Midwest, 91 million gallons in the Northeast, and 130 million gallons in the South. Inventory levels in PADD 2 fell in October below the five-year average and then below the ten-year average for the entirety of the heating season.

Inventory levels were a predicate for what was to come. During the harvest season 13.9 billion bushels of corn were harvested—a record. Demand for propane for crop drying increased five-fold over the prior year, leaving Midwest inventory levels low at the beginning of the winter. The record corn crop was followed by an unusually cold winter. On a national basis this past winter was 7% colder than the NOAA 30-year average and 10% colder than the year before.

An important factor in the winter propane shortages and price spikes is the changing nature of North American energy infrastructure, a fact that is well known to DOE. Given the geographic locations of producing shale formations, natural gas and natural gas liquid flow patterns are in a state of flux, which has by no means concluded. This change has had important consequences for propane markets, particularly this winter. One of the two Enterprise TEPPCO lines from the Gulf Coast to the Mid-Atlantic has been reversed to flow back toward the Gulf Coast. And, in November and December of this past winter, the Cochin pipeline, which brought propane to the Midwest from Canada, was out of service for construction preparatory to its permanent reversal of flow in 2014. The result of these infrastructure changes was that significant historical capacity to bring propane to the Midwest was no longer available. In the face of record production of U.S. propane, there were shortages in the Midwest this winter. The conclusion reached by the NPGA Task Force is that conditions this winter in many American markets were not brought about by a lack of propane. Rather, infrastructure changes led to propane simply being in the wrong places.

No picture of the winter market would be complete without mentioning propane exports. The dramatic increases in production from shale formations have resulted in enormous increases in propane production. These volumes exceed any reasonable expectation of demand from domestic markets. The result has been that they have flowed toward the Gulf Coast either for petrochemical consumption or for export. In significant degree these markets explain the changes in flows of infrastructure. The dramatic increases in volumes of propane exported have certainly had an effect on domestic markets, but the system is still in transition, and it is difficult to assess at this point what the effect is. Although increases in propane production have exceeded increases in exports over the last five years, when viewed only over the last twelve months, the reverse is true. Predictions of trends in production and exports suggest that each will continue to increase, but there is a legitimate concern that exports will be at the expense of domestic supply and prices. NPGA believes that this is an issue that warrants attention from DOE.

This winter's supply shortages and price spikes were felt most dramatically in the Midwest. There were serious concerns that those events would affect New England as well. That area, however, received some supply margin as a result of seaborne imports of propane for the first

time in five or more years. But for these imports (and the warm European winter that made them possible), New England could have faced a significantly more stressful winter. Additionally, the difficult situation in the Midwest had market effects to one extent or another across the United States.

An Overview of the Propane System

Propane was historically produced largely from crude oil refining, with only about one-quarter coming from the natural gas stream. In the past five years, that relationship has entirely reversed, and now more than three-quarters comes from the natural gas stream. With the geographic diversity of production associated with shale gas, propane is now coming from many different areas of the country. Propane produced from the natural gas stream typically goes through a gas processing plant and then a fractionator. From there it can be moved in liquid form by pipeline, rail, or truck. In the midstream it can be stored at "primary" storage facilities, such as the underground salt dome storage facilities at Mt. Belvieu, Texas, Conway, Kansas, or Sarnia, Ontario. From those storage facilities it typically moves downstream by pipeline or rail, although it can also be transported by truck or by barge. Propane usually moves to a terminal where it can be transshipped by truck or rail car. Propane retailers typically acquire their supply at these terminals.

There are more than three thousand propane retailers or marketers in the United States. A handful of them are large multi-state (and even international) entities that are organized as master limited partnerships. Another relatively small group comprises regional marketing companies. But the core of the retail propane sector is a small business, often family-owned, that operates in a fairly limited geographical area. Propane retailers are not subject to economic regulation, and free enterprise is the name of the game. Many propane marketers, but not all, have storage at their "bulk plants," but the volume of this "secondary storage" is small when compared to the volume of primary storage. Propane retailers typically purchase propane at terminals under a variety of contractual arrangements, although the norm seems to be a market-based spot pricing—a "rack price." Propane retailers deliver product to residential, commercial, industrial, and agricultural customers in "tank wagons" or "bobtails."

Retailers and customers have free-market relationships. A variety of buyer-seller arrangements can be found in the marketplace. These include both "will-call" and "keep-full" arrangements. Pricing can be spot or fixed. Many retailers, like utilities, offer level-payment "budget" plans. Although there is no reliable data available, it appears that most residential customers prefer spot-market pricing for their supplies. Retailers may also lease the propane tank to a customer, or

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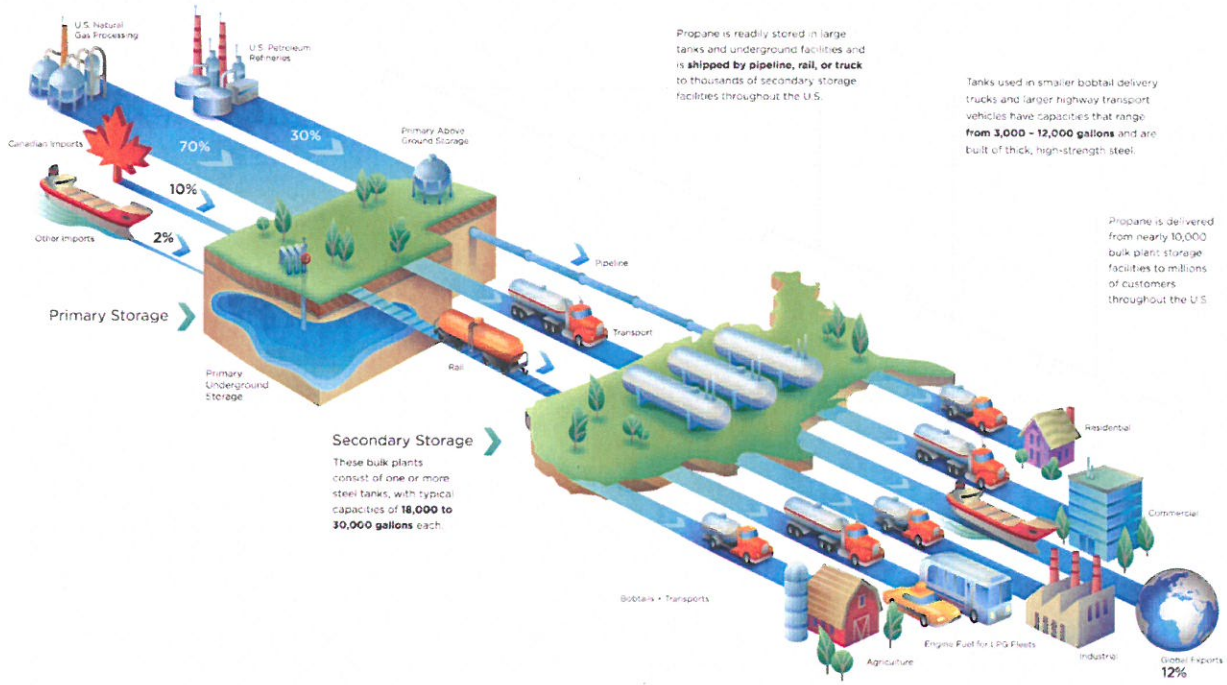
the customer can purchase a tank of its own. In the event that a retailer leases a tank, the customer may not, for safety reasons, fill it with propane acquired from another source.

A simple schematic of the propane value chain is set forth below.



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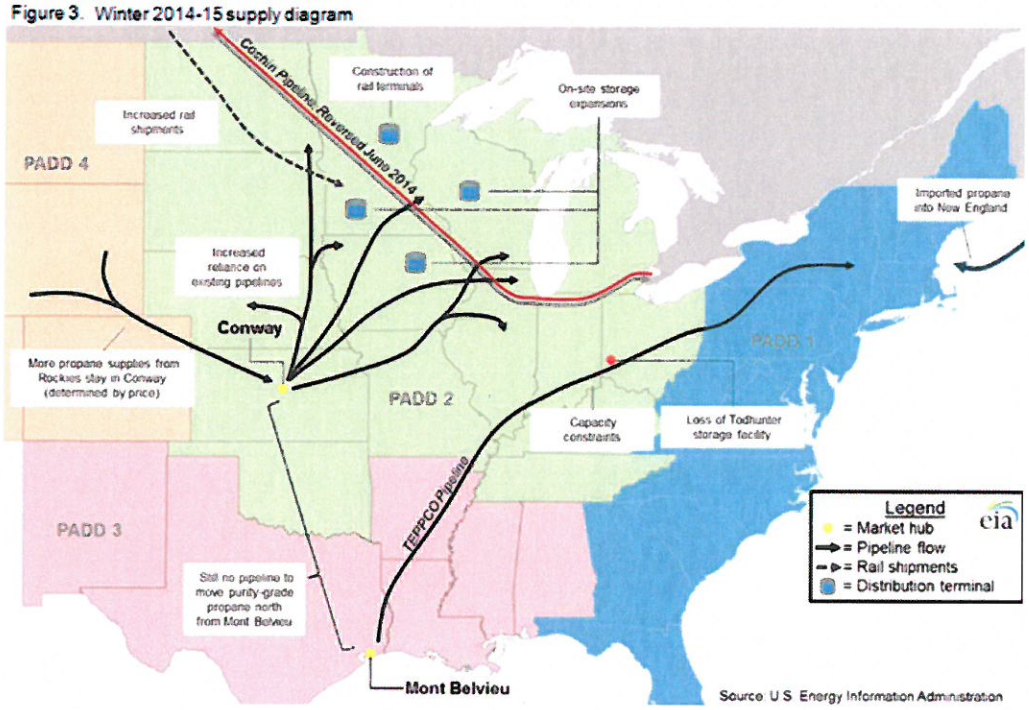
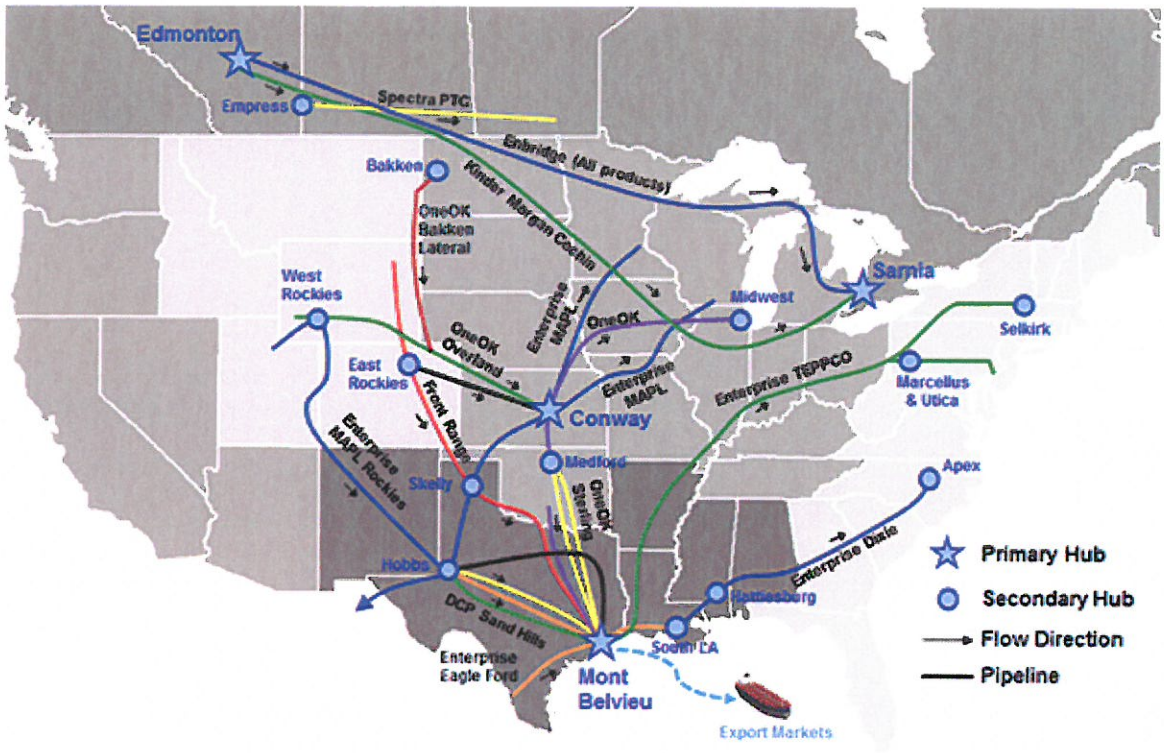
Current Issues with Propane Delivery Infrastructure

Pipelines

Without question the transmission of propane by long-line pipeline is the most economical and safest way to move large volumes of the product. EIA has recently released a graphic showing pipeline infrastructure, and it is set out below, with a principal focus on the Midwest. (Importantly, the graphic does not include the Enterprise Dixie pipeline that flows from Texas to North Carolina.) Also set out below is a graphic from Natural Resources Canada that has a somewhat broader perspective.

Figure 3. Winter 2014-15 supply diagram





Source: Natural Resources Canada

Significant changes in the flows of interstate pipelines have occurred in the recent past, largely as a result of shale energy production, which have caused major challenges for the propane industry. This past winter the Cochin pipeline system, which transported propane from the Western Canadian Sedimentary Basin to the Midwest went out of service for construction for three weeks in November and December, when inventories were already low and on the eve of the Polar Vortex. This year Cochin permanently reversed its flow to carry diluents to Canada, and it will be unavailable to deliver propane to the Midwest, including to Minnesota, which had relied on Cochin for forty percent of its supply. One of the two lines of the Enterprise TEPPCO system has been reversed to flow from north to south. Although that line may never have carried propane, the result is that all products previously flowing from south to north must now compete for space in one pipe instead of two.

These changes are a result of changes in energy flows across North America, including both propane and natural gas. NPGA expects that more changes are yet to come. But, as we

discovered this winter, these changes had a major effect on propane supply, particularly in the Midwest. In short, the major infrastructure system delivering propane to the Midwest, Mid-Atlantic, and Northeast has significantly less capacity now to deliver propane to these temperature-sensitive markets than just a few years ago. NPGA is aware of no initiatives either to convert existing pipeline infrastructure to propane service or to build additional infrastructure. The propane industry, particularly in the Midwest, thus faces significant winter challenges in the future.

There are two areas where changes could be made that would assist in meeting consumer needs. First, steps could be taken to improve the efficiency of existing pipeline infrastructure. Capacity on several pipelines could be increased by adding more pumping equipment. Additionally, terminals could be expanded, and systems could be put into place to utilize them in the winter on a more 24/7 basis, avoiding the hours-long waits faced by truck drivers this past winter. Compared to building green field pipeline projects, these types of steps are relatively low cost, and they would increase winter pipeline throughput to markets.

Second, additional, and more fully utilized, propane storage in the market areas would make use of underutilized pipeline capacity available in shoulder and summer seasons. In both the natural gas and propane industries, energy production occurs on a relatively uniform daily basis year-round, while consumption is extremely temperature-sensitive and cyclical. Rationalizing these two patterns is the essential function of both industries. In each, transmission capacity and storage capacity are major mechanisms, inter-related and with different cost-benefit curves, for doing so.

Propane can be stored below ground on a large-scale basis (principally in salt dome formations), but can also be stored above ground on an economical basis. The changes in transmission infrastructure propelled by shale production can be addressed through increased propane storage in the market area. There are very limited geological formations suitable for underground propane storage, and the Midwest is largely lacking in these. The only large-scale project on the horizon is the Finger Lakes salt dome facility in New York being built by Crestwood LP. This project would provide a reserve for New England and New York and would take market pressure in the winter off the eastern portion of the Midwest. The project has been under state review for near to five years now, has passed all of its environmental reviews, and has now unfortunately been slated for another set of hearings and review. As DOE undoubtedly knows, this sort of delay is endemic in siting energy infrastructure. Finger Lakes could be in service in the very near future, and it would provide a level of security for millions of propane consumers in the Northeast and Midwest.

There has also been discussion about national or regional propane reserves. A national reserve would not have significant utility because propane moves slowly through pipelines, and releasing propane from a national reserve could take weeks to provide market relief. Regional reserves have more potential, but NPGA is not yet ready to endorse regional reserves. As mentioned previously, energy markets are currently in transition, and assessing the utility of regional reserves would not be prudent until this transition is further along. This transition, together with the experiences of this past winter, may incentivize free market solutions to the current storage problems.

At the secondary and tertiary storage levels, there are also possible solutions. The amount of secondary storage, at retailer facilities, is relatively small. Nevertheless, after this past winter a number of marketers have increased their storage capacity. They are, however, encountering two barriers. The market for storage tanks is relatively tight at the moment. Additionally, marketers in many areas of the country are encountering local opposition and attenuated local permitting processes. Storage siting is largely controlled by state and local laws and ordinances, with the result that opponents of propane infrastructure are not lacking for venues to challenge storage siting.

Tertiary—customer—storage facilities can make a significant contribution to meeting winter market demand and with little investment outlay. Agricultural consumers are already increasing their storage capacity and filling their tanks to be prepared for grain-drying loads this fall and space heating loads (poultry sheds, cattle barns, etc.) this winter. By and large residential propane consumers do not need to increase their storage capacity. But they can serve themselves—and the market as a whole—by filling their tanks long before winter arrives. Storage at the tertiary level is quite significant, and having that volume of propane already in the market area before winter arrives can play a major part in meeting winter consumer needs and reducing winter strain on delivery infrastructure.

Currently a number of state propane associations are urging their agricultural and residential customers to fill their tanks before winter approaches. Similarly, several Midwestern states and governors are making the same kinds of push with their citizens. Past patterns suggest that summer propane prices will usually be lower than winter propane prices, and consumers will be in much better circumstances, in terms of security and price, as winter approaches if they fill their tanks early. Anecdotal evidence this fall points to more agricultural and residential propane consumers filling their tanks early in anticipation of the 2014-2015 winter.

Programs to encourage agricultural, commercial, and residential consumers to fill their tanks in advance of the winter heating season may be the most cost-effective means to avert winter stress on the propane delivery infrastructure. Increasing market area storage and the utilization of that storage, at any level of the propane value chain, acts as a substitute for additional winter pipeline capacity. Encouraging early consumer fills of storage amounts to utilizing the entire propane infrastructure more efficiently.

A significant issue with regard to the propane pipeline network is a lack of transparency in operations. As a result of several provisions of the Interstate Commerce Act, which established the system of federal regulation for pipeline rates and terms and conditions of service, it is a crime for the pipeline to divulge information concerning shipments. As a result, the nation's propane pipelines are essentially black boxes, with no publicly available information as to what products are moving in them and in what amounts. These provisions of the Interstate Commerce Act have long outlived their vitality, and they should be changed. During this past challenging winter the market was entirely in the dark with regard to what products were moving in pipelines and on behalf of whom. This only made the winter difficulties the more challenging. This "dark pool" structure increased the difficulties faced by market participants in addressing changing market circumstances, including changing pipeline operations. This system is dramatically different from either the natural gas system or the electric system, each of which have a significant amount of transparency. Propane infrastructure will operate more efficiently with operational transparency.

A related issue is that propane pipelines, with their control over the monopoly transmission function, have the ability to move markets. NPGA is particularly concerned about this ability in situations where the pipeline operator is also a market participant, such as a propane marketer, propane trader, or propane exporter. The Federal Energy Regulatory Commission has adopted rules, found at 18 C.F.R. §358.1 *et seq.*, governing interstate electricity and gas transmission systems that prevent the monopoly infrastructure from being used to benefit affiliated market entities. NPGA believes that adoption of similar rules for propane pipeline infrastructure would prevent abuses and increase confidence that markets are operating properly.

As the propane industry discovered this winter, there is no mechanism by which shippers on a pipeline with low-value or low-priority shipments can release their capacity to shippers with high-value or high-priority shipments. As a result, commodities such as propane, which are largely used to meet essential human needs, may be transported behind other commodities, in situations where both shippers might well be amenable to trading places. Furthermore, as a result

of the current opacity of the pipeline system, neither shipper at present is even likely to know of the other. All in all, this is a very inefficient system from an economic point of view.

NPGA has a number of other policy recommendations with regard to the propane pipelines that transmit a large portion of the propane consumed in the United States. They are set forth in the Appendix.

On a related topic, EIA collects data on regional propane inventories and state propane prices. One lesson that NPGA learned in the winter of 2013-2014 is that this information was neither timely enough nor granular enough to inform decision-making in the challenging market conditions faced. NPGA has been working with EIA over the last several months to achieve better and more timely and disaggregated inventory data and more granular and wide-spread pricing data. NPGA and other stakeholders strongly endorse these EIA initiatives. EIA has already launched some of these improvements as winter approaches this year.

Motor Carriers

Trucks have always been an essential link in the propane value chain. "Bobtail" trucks deliver virtually all of the propane consumed in the United States. Larger trucks are utilized for transporting propane from distant rail or pipeline terminals to the "bulk plants" of propane retailers. And this past winter trucks moved propane extraordinarily long distances, for example, from the Gulf Coast to the Midwest and from the Carolinas all across the East Coast. With various parts of the pipeline infrastructure going out of service, motor carriers will be increasingly important in serving winter consumer needs.

At both the state and federal levels hours-of-service regulations restrict the number of hours that commercial drivers can be on duty. This past winter drivers were called upon to drive longer-than-normal distances to obtain propane for their markets. They were often required to wait in line for hours at terminals that were overwhelmed with trucks waiting to load propane. Fortunately, state governors and the U.S. Department of Transportation issued state and federal regional waivers of hours-of-service requirements in these circumstances to ensure that the maximum amount of propane could be delivered to consumer markets. Additionally, Congress enacted the Home Heating Emergency Assistance through Transportation Act of 2014, P.L. 113-90, extending Federal waivers until May 15, 2014, and the Reliable Home Heating Act, P.L. 113-125, requiring the U.S. Department of Transportation in the future to honor state-issued waivers of hours-of-service requirements. The latter act will be particularly helpful in expediting hours-of-service waivers in the event of home heating fuel emergencies.

An issue this winter that remains unresolved is federal highway weight limits. Many propane trucks were compelled to leave propane terminals with less-than-full loads because full loads would exceed highway weight limits. Some state governors waived highway weight limits in their states in order to expedite propane deliveries. These waivers did not extend, however, to interstate highways. This past winter NPGA pursued a federal waiver of highway weight limits, only to learn that the U.S. Department of Transportation had no authority to suspend these limits. Indeed, the only federal path for a waiver is pursuant to the Stafford Act, P.L. 93-288. Under the Stafford Act, the President can declare an emergency upon the request of a governor. However, the Stafford Act essentially requires mobilizing a vast emergency preparedness network and also requires states to shoulder part of the cost of this action. Even in the face of the challenging conditions faced this winter, there was no appetite at either the state or the federal level to invoke the Stafford Act. In short, the Stafford Act mechanism requires actions that are far out of proportion to what is needed in the event of a winter fuel emergency in order to waive highway weight limits.

A further dimension to the motor carrier issue is a nationwide shortage of truck drivers. Drivers of all motor carriers are currently in relatively short supply. NPGA has heard a number of anecdotes this winter of drivers desiring to work only regular daytime hours and not the hours that may have been necessary to utilize propane infrastructure—particularly terminals—most efficiently. While on some days and at some hours terminals were inundated with trucks, at other times there were few or none loading propane. In significant measure NPGA members have attributed this anomaly to a shortage of drivers and the attendant leverage that such a shortage gives them. The result this winter was that the delivery infrastructure was not utilized to its full potential in difficult winter conditions. This situation is not unique to the propane industry. Recent articles in both *The Wall Street Journal* and *The New York Times* have discussed the growing shortage of commercial truck drivers. According to these reports, the nation is currently short 20,000 drivers, according to estimates, and this shortage will grow to several hundred thousand in the years ahead.

Railroads

Railroads are also an essential part of the propane delivery infrastructure. Although pipelines are the safest and most economical means to transmit propane, the propane pipeline network is in fact fairly limited geographically when compared to the propane market, and many parts of the country are not reached by it. Railroads are the next most economical means to transport propane over long distances. Railroads experienced difficulties, however, in making propane deliveries this past winter. Extreme cold slowed trains. Severe weather inhibited railroad operations. The

absence of crude oil pipelines in areas such as the Bakken has required large volumes of crude to be delivered by rail. These "virtual pipelines" have caused rail congestion that has degraded propane rail deliveries. As QER staff heard at the Chicago public session, propane is certainly not the only commodity to experience this problem. Coal for electricity generation has experienced similar difficulties, and press reports suggest that grain shippers are also experiencing difficulties.

With the Cochin pipeline (and others) going out of service for the propane industry, rail transport is becoming increasingly important, particularly in the Midwest. Yet congestion and unreliable deliveries are increasing problems. NPGA supports the build-out of crude oil pipeline infrastructure in order to decrease the number of crude oil trains. Additionally, NPGA supports the building of additional rail infrastructure so that rail can play a reliable part in the propane infrastructure and in growing America's economy.

Many participants in the propane industry are entirely aware of the growing importance of rail to the business. A number of NPGA members, particularly in the Midwest, are increasing their rail delivery capacity with new and expanded rail propane terminals.

Export Infrastructure

As noted previously, production of natural gas from shale formations has also caused a dramatic increase in the production of propane, such that propane production reached record levels in 2013. In part because domestic markets cannot absorb this surge in production, there has also been a dramatic increase in propane export infrastructure. Only several years ago the United States was a propane-importing nation. In stark contrast, twenty percent of domestic propane production in December 2013 and twenty-five percent in January 2014 was exported. In significant part this dramatic increase in exports is the result of the fact that there is no federal review of exports of the commodity or siting and operation of the export terminals themselves. In contrast, exports of natural gas require approval from DOE, and construction and operation of export facilities require approval from the Federal Energy Regulatory Commission. Moreover, propane export terminals can be constructed for a fraction of the cost of natural gas export facilities. Thus, the relative ease of putting propane export infrastructure into operation has been a factor in the skyrocketing level of exports.

As propane supplies became tight this winter in areas such as the Midwest and New England, stakeholders became increasingly concerned that exports contributed to these supply woes and concomitant price spikes. These concerns were not limited to the winter of 2013-2014 but in fact

have been building over the last several years. There is no question that the relationships among production, consumption, and exports are both complex and dynamic. NPGA urges DOE to analyze this issue, in the same fashion as it has done with similar issues involving natural gas exports. DOE has the breadth and depth of experience, the resources, and the impartiality to undertake a review to determine the effect of exports on America's energy consumers. Within the propane industry this is an exceedingly important and heated debate, and analysis by DOE would shed light on an extremely important topic.

Propane markets would also be served by access to timely, accurate data on propane exports. Presently this is not readily available. NPGA urges DOE to investigate whether either DOE or the Department of Commerce can provide this important information on a timely basis.

On a related note, the propane industry this past winter watched as ships took propane from the Gulf Coast to Europe while other ships brought propane from Europe to New England to meet demand spawned by the severe winter weather. Yet no ships could bring the ample quantities of propane stored in the Gulf Coast to New England. The simple reason is that there are no U.S.-flagged propane carriers, and the Jones Act requires that ships in the coastwise trade—between U.S. ports—be U.S. flagged. Similarly, Florida propane marketers drove to Georgia to obtain propane rather than having it sent by ship or barge across the Gulf of Mexico. Although there are procedures for seeking a waiver of the Jones Act, NPGA learned this winter that they are cumbersome and unlikely to be sufficiently expeditious in the event of a winter fuels heating emergency to have any effect on the market.

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Conclusion

America's propane infrastructure is complex, utilizing a variety of delivery modalities. The transformations spawned by production from shale formations have disrupted traditional flows of energy, including propane. A confluence of events this past winter strained this infrastructure, which is still in transition, to the detriment of American consumers. It became evident that, notwithstanding record levels of propane production, regional shortages and significant price spikes occurred. The bottom line was that the infrastructure did not operate efficiently to deliver propane from where it was produced to where it was consumed. NPGA applauds DOE for its efforts to assess America's energy infrastructure and stands ready to assist DOE in any way it can in encouraging a more efficient infrastructure system.

NPGA wishes to reiterate that propane has many overlooked benefits. It is clean, American-made energy. It plays a significant role—and can play a bigger role—in achieving the nation's goals with respect to criteria pollutants and greenhouse gases. Propane infrastructure can be redeployed in ways that neither natural gas nor electricity infrastructure can. Because it is a clean, portable fuel, propane brings resilience to the nation's energy infrastructure that other energy sources do not.

Please contact us if we can provide further information for the QER process. Thank you for your consideration of the views of NPGA and its members.

Very truly yours,

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APPENDIX

NPGA Policy Recommendations With Regard to Propane Pipelines

- Amend Sections 15(13) and 15(14) of the Interstate Commerce Act so that propane pipelines can reveal the identities of shippers and details of batches moving through the pipeline and implement electronic bulletin boards displaying system operations, improving transparency of propane infrastructure and propane flows
- Amend the Interstate Commerce Act to require petroleum pipelines to obtain abandonment authorization from the Federal Energy Regulatory Commission before abandoning facilities or services to customers so that a public interest finding is necessary before infrastructure is taken out of service without consideration of essential human needs
- The Federal Energy Regulatory Commission should adopt "codes of conduct" or "affiliate rules" similar to those that apply to natural gas pipelines or electric transmission utilities (see 18 C.F.R. §358.1 *et seq.*) so that a pipeline cannot utilize its monopoly transmission function to the benefit of its merchant, trading, and exporting functions
- The Federal Energy Regulatory Commission should revamp its ratemaking processes for petroleum pipelines to impose the burden upon pipelines to justify their rate increases so

that consumers are not required to bear transmission costs that may not be incurred by the monopoly pipeline

- The Federal Energy Regulatory Commission should issue "show cause" orders to petroleum pipelines to justify their cost of service and existing rates so that consumers need not bear costs that are not just and reasonable
- The Federal Energy Regulatory Commission should adopt rules requiring petroleum pipelines to justify their cost of service periodically so that consumers only pay for pipeline costs that have actually been incurred
- The Federal Energy Regulatory Commission should adopt rules requiring annual reporting by petroleum pipelines similar to that now required of natural gas pipelines so that transparency of pipeline revenues and costs is improved
- The Federal Energy Regulatory Commission should adopt "capacity release" rules for petroleum pipelines similar to those that apply to natural gas pipelines so that shippers can release their entitlements to others who may value it more

NPGA Recommendations with Regard to Motor Carriers

- Congress should authorize the U.S. Department of Transportation to waive highway weight limits in the event of a winter fuel emergency without invoking the Stafford Act

- DOT should revise the Motor Carrier Safety Administration regulations on "34-hour restart" so that it no longer further requires that two 1:00 a.m. to 5:00 a.m. periods be included in the 34-hour period

NPGA Recommendations with Regard to Railroads

- Federal and state governments should encourage construction and operation of crude oil pipelines in order to ameliorate the congestion caused by virtual pipelines and to improve the safety of the nation's energy delivery infrastructure
- Federal and state governments should encourage construction and operation of additional mainline rail capacity to meet the needs of energy and other shippers and to serve the needs that will be created by a growing nation

NPGA Recommendations with Regard to Propane Exports

- Given the dramatic increase in propane export infrastructure, DOE should undertake an analysis of propane production, consumption, and exports to determine whether current and anticipated levels of exports are harming U.S. consumers or U.S. industry