Statement of
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Former Chairman of the National Propane Gas Association
Before the Senate Energy and Natural Resources Committee
"Short on Gas: A look into the propane shortages this winter"
May 1, 2014

Good afternoon. My name is Joe Cordill and I am the owner of Cordill Butane Propane Service located in Winnsboro, Louisiana. My company has two locations, the other in Monroe, Louisiana, from which I deliver fuel supplies to both residential and commercial customers in my surrounding area. I joined the family business in 1978 after spending 10 years in oil and gas production and processing in the Louisiana Gulf Coast and in West Africa. I was reared around the propane industry as my family has been involved since prior to WWII. I have served the industry in various volunteer capacities at the state and national level including serving as chairman of the National Propane Gas Association.

I am very pleased to be invited to present testimony to you today on topics related to the nature and sources of propane, our experiences in Louisiana this past winter, and what possibly could be done to improve the propane infrastructure so that we are better able to serve customers in the future.

A Primer on Propane

Propane is a naturally occurring hydrocarbon commonly found in the production stream of oil and natural 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,

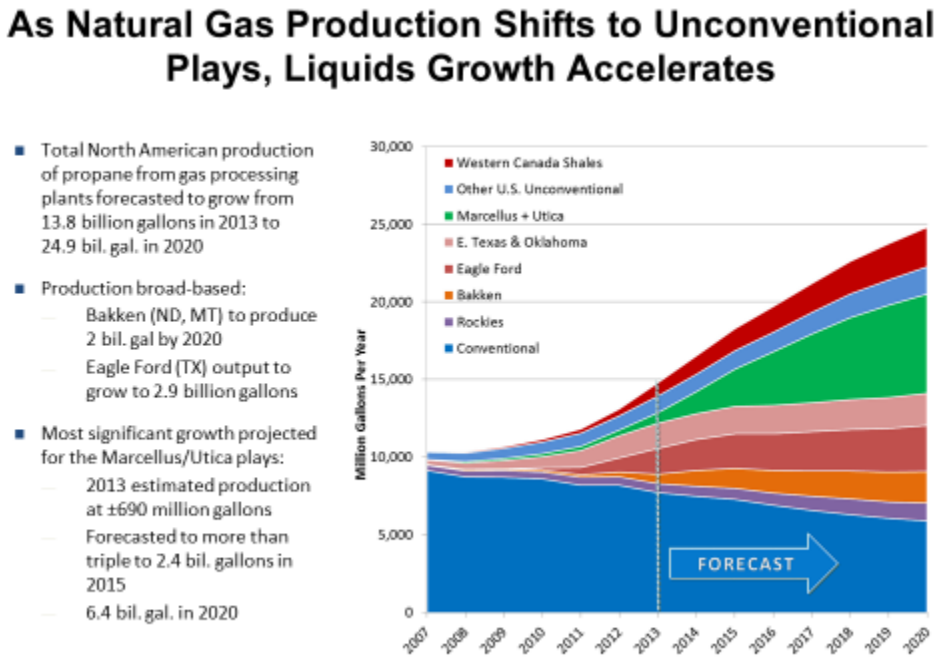
pentane and a mixture of heavier hydrocarbons referred to as Hexanes plus or natural gasoline. The molecular proximity of propane to methane has important real-world consequences.

Like natural gas, propane is colorless, odorless, and tasteless. (For both products the smell that people associate with them is artificially added at the retail level for safety purposes.) 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 (-264 Fahrenheit), propane liquefies at -42 Centigrade (-44 Fahrenheit) . With pressure, propane becomes a liquid at higher temperatures—hence "liquefied petroleum gas" (LPG), another name for propane. An important consequence of the difference in the temperatures at which the two compounds liquefy 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. Technically those modes are 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 pressure or lower temperature. At ordinary temperatures and pressures natural gas is lighter than air, while propane is heavier than air.

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. Today the former method of production accounts for more than seventy percent of domestic propane 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 of exports.) Propane is in essence a byproduct, and,

from a commercial perspective, production varies not so much with the demand for propane as the demand for 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 currently natural gas liquids draw higher prices in the market than natural gas on an energy content (Btu) basis, producers are aggressively seeking shale gas that is rich in hydrocarbon liquids. As a result, domestic supplies of propane will be plentiful for the indefinite future.



Propane has applications in residential and commercial markets for heating (furnaces, boilers, and gas logs), water heating, cooking, and clothes drying. It is well known across America as a fuel source for barbecues, outdoor stoves, heaters, and the like. About 50 million Americans use propane for these various applications, and approximately 6 million households use propane as their primary source of heat. 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, school buses, lawnmowers, vans, trucks, and cars. Indeed, there are more propane vehicles on the road than either electric or natural gas vehicles. Propane is also used as a fuel in the industrial sector both for space heating and process applications. Propane is used on nearly one million farms for irrigation pumps, grain dryers, standby generators, and other farm equipment. In addition, propane is a vital feedstock in the petrochemical industry.

Propane is a low-carbon fuel. At the point of combustion it produces 62 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 no greenhouse gas (GHG) effect because it deteriorates rapidly. In contrast, natural gas released into the atmosphere is approximately 25 times more potent than CO_2 as a GHG.

Propane accounts for approximately two 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 one percent of the nation's GHG emissions. Propane is essentially "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 being a GHG itself. Propane has the important benefit of being easily transportable to areas where there is no natural gas infrastructure.

The Propane Delivery Infrastructure is Undergoing a Dramatic Transition

The delivery infrastructure for fossil fuels — petroleum, natural gas, and natural gas liquids like propane — is in the midst of an historic transition. This exacerbated propane supply and delivery challenges this winter heating season. Historically, propane has been produced in the Gulf Coast and the Mid-continent and then transported to consuming regions to the North and East, primarily by pipeline. During the summer, when propane demand is typically low, propane inventories built up and were placed into seasonal storage, primarily in the storage facilities in the Gulf Coast and Kansas. During the winter, propane was withdrawn from storage and shipped by pipeline, rail, and truck to consumer markets. In addition, the Northeast previously imported significant volumes of propane from Canada and by marine tanker, particularly during the winter.

Over the last six years, the nation's exploration and production community has devoted enormous resources to finding and extracting fossil fuels from shale formations, all of which had previously been beyond both technical and economic reach. The result has been the production of previously unimaginable amounts of domestic fuels, including propane. One of the challenges, however, has been that this production has occurred in different areas from those where the nation has previously produced its energy supplies. These include, for example, the Marcellus and Utica formations (Pennsylvania, West Virginia and Ohio), the Bakken formation (North Dakota), and the Fayetteville formation (Arkansas).

The result has been a change in the historical flow of fuels. The nation's energy infrastructure was built to deliver petroleum, natural gas, and natural gas liquids from Texas, Louisiana and Oklahoma to markets throughout the country. With the influx of energy from shale formations, the nation's energy delivery system has had to make significant adjustments. New infrastructure is being built to bring Bakken crude to market. Natural gas and natural gas liquids are now flowing from the Marcellus both toward Northeast markets and the traditional energy-producing markets of the Gulf Coast. Several petroleum products pipelines are being

reversed to transport product toward areas that have traditionally been energy-producing. Natural gas pipelines are being converted to carry petroleum. Propane pipelines that have been underutilized in the past, or used primarily to meet winter demand, are being converted to carry production from the new producing regions to the processing facilities in the Gulf Coast or Canada. Rail carriers and motor carriers are being enlisted to transport products to make up for pipeline infrastructure that has not yet been built.

Additionally, as shipments of heavy crude oil from Canada have increased, demand for diluent, a substance necessary for the processing and pipeline shipment of heavy crude, has increased. Northbound pipelines are increasingly targeting this demand, offering priority service and incentive rates to diluent producers in the Gulf Coast for shipments north to Canadian producing regions. As diluent shipments have increased, the available capacity for northbound shipments of traditional products, including propane, has been reduced.

These events have been disruptive to energy infrastructure and energy markets. The transition is, however, nowhere near complete but in time facilities will be constructed to eliminate these issues. The challenges that have occurred for propane markets during the 2013/2014 winter have been exacerbated by this transformation of the energy delivery infrastructure.

Cochin Pipeline Reversal

One of the pipelines undergoing transition that most significantly affects Midwest propane delivery is the Cochin Pipeline. The Cochin pipeline system consists of an approximately 1,900-mile, 12-inch diameter multi-product pipeline operating between Fort Saskatchewan, Alberta, and Windsor, Ontario, including five terminals in the U.S. located at Carrington, N.D.; Benson and Mankato, Minnesota; New Hampton, Iowa; and Milford, Indiana. Last year, the pipeline was capable of transporting 78,000 barrels of propane a day from

Alberta into the U.S. Midwest and Ontario. This was reduced to 50,000 barrels per day last summer.

Historically, the Cochin pipeline has been a major source of propane into the upper Midwest, and about 40 percent of propane in Minnesota came via the Cochin pipeline. However, for approximately three weeks starting in late November 2013, the Cochin pipeline was not in operation. This unfortunate situation made it nearly impossible for propane storage levels in the region to be replenished after the crop drying season that saw a nearly six-fold increase in demand for propane. The Cochin pipeline permanently halted all propane transportation into the U.S. in April of this year. The owner of the Cochin Pipeline, Kinder Morgan, is converting the Cochin Pipeline to carry diluent from the U.S. shale plays to the oil sands producers in Canada.

ATEX Pipeline Reversal

The Appalachian-Texas Pipeline (ATEX) is a new provider of ethane service from the Marcellus region to the Gulf Coast. The pipeline itself is not new, however; rather it is one of two parallel pipelines that run from Mt. Belvieu, Texas to Todhunter, Ohio. What is new is that the 16 inch pipe that was converted to be the ATEX pipeline used to deliver product batches northward as part of the Enterprise TEPPCO system. The decision to reverse this pipeline to take ethane southward reflects the economics associated with taking the huge increases in shale production of natural gas liquids to market. Unfortunately, this reversal has caused all northbound product flowing on the Enterprise TEPPCO pipeline to be squeezed onto the remaining northbound pipeline. The elimination of this northbound capacity, along with the introduction of priority diluent service on the remaining northbound line to assist in the processing of Canadian heavy crude oil, has caused congestion and delays for shipments of propane to the Midwest and Northeast.

Southern Hills Pipeline

The initiation of NGL transportation on the Southern Hills Pipeline was announced in June, 2013. This pipeline will ramp up to move up to 175,000 barrels per day of natural gas liquids from the mid-continent (Southern Kansas) to the Gulf coast for processing.

The changes in the operation of both the pipeline infrastructure and the rail infrastructure have disrupted the historical patterns of flow of propane. As we saw during the winter of 2013/2014, the changes caused significant challenges for the propane industry in meeting the needs of their weather-sensitive customers, most dramatically in the Midwest and New England, but felt throughout the entire eastern half of the United States.

Rail Transportation

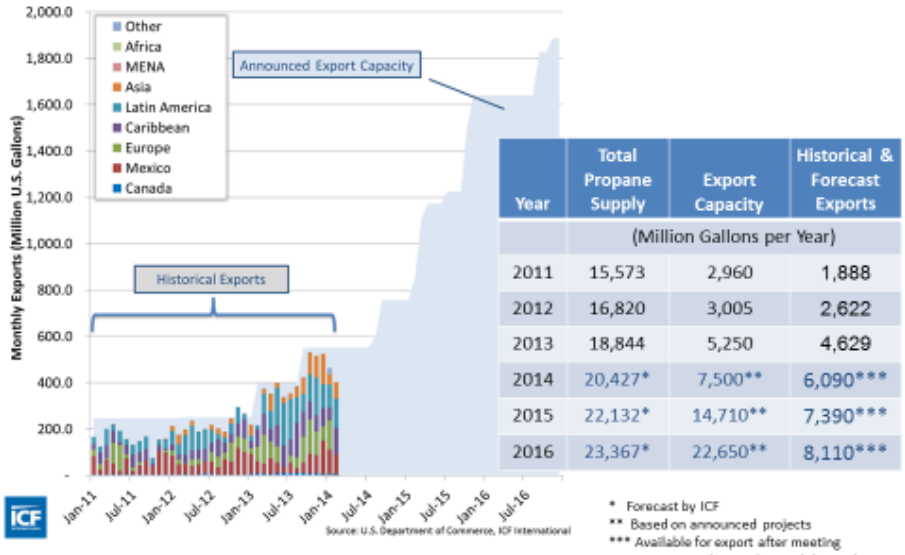
Significant volumes of propane are shipped via rail, and the propane industry is increasingly reliant upon this transportation mode. Here too, however, competition from other substances for transportation is intense and growing. Many facilities producing natural gas liquids, crude oil, or any of a variety of other products have yet to have access to reliable pipeline service to take their products to market, so they rely on railroads. Some of these products use the same kind of railcars as propane, which places additional demands on the existing pressurized railcar fleet. For those products that don't use the same kind of railcars, additional usage of the railroad infrastructure increases congestion making service less reliable even when railroads desire to prioritize propane shipments. In addition, rail transport becomes more unreliable during cold weather conditions when reliable propane delivery is needed the most.

Dramatically Increased Propane Exports Have Changed Market Dynamics

The fact that America is now considering revising its energy policies to foster exports of natural gas and crude oil shows just how dramatically the shale revolution has turned the supply situation on its head. Unlike crude and natural gas, propane is not subject to any existing export prohibitions or licensing requirements, so exports have increased as fast as contracts could be signed and export capacity developed. Moreover, the capital costs of propane export facilities are a fraction of the costs of natural gas liquefaction facilities.

In 2013, U.S. propane production increased by 1.6 billion gallons. However, propane exports increased by 2.0 billion gallons, from 2.6 billion gallons in 2012 to 4.6 billion gallons in 2013. Last year, exports grew to over 25 percent of total U.S. propane production, and they are still increasing. There is no question that exports in such significant volumes were a significant factor during the winter of 2013/2014. There are a number of factors driving propane exports. Propane is a global commodity, and it is easily shipped. High production levels of natural gas and natural gas liquids depressed prices in the U.S., creating a differential making international shipments attractive. Strong demand from buyers in Central and Latin America, as well as Europe and Asia, looking for relatively cheap propane and willing to sign long-term contracts – up to 10 years in duration -- provided an incentive to ship propane overseas. The contracts for these export facilities are designed to ensure a very high utilization rate, with penalty payments incurred if export shipments are cancelled. American companies looking to serve this market invested heavily in constructing or upgrading export facilities. The trend of increasing exports shows no sign of easing. Announced plans to construct additional propane export capacity would triple propane export capacity in the next three years.

Growth in Export Capacity will Exceed Growth in Propane Production



Year	Total Propane Supply	Export Capacity	Historical & Forecast Exports
	(Million Gallons per Year)		
2011	15,573	2,960	1,888
2012	16,820	3,005	2,622
2013	18,844	5,250	4,629
2014	20,427*	7,500**	6,090***
2015	22,132*	14,710**	7,390***
2016	23,367*	22,650**	8,110***

* Forecast by ICF
** Based on announced projects
*** Available for export after meeting consumer and petrochemical demand

Impacts of Winter 2013/2014 on Louisiana marketers and consumers

Louisiana is largely a propane producing state. In 2009, approximately 1.1 billion gallons of odorized propane were produced in Louisiana, which is more than 14% of the U.S. total, while 45 million gallons were sold to the consumer market in 2011. We calculate that nearly 50,000 homes are heated by propane in the state, nearly 3 percent of the total. The production, processing and sale of consumer grade propane contributed over $2 billion to the Louisiana economy. Louisiana's petrochemical industry is the second largest consumer of propane as a feedstock. Louisiana is well-supplied from a propane standpoint. Not only do two of the three major interstate propane pipelines run through Louisiana, but the world's largest underground storage facility at Mt. Belvieu is only a little more than 80 miles from the Louisiana-Texas border.

This winter affected Louisiana in many similar ways as the rest of the nation, although perhaps not to the same degree. It was a colder than normal winter, with heating degree days

nearly 30% higher in the state than last year. In addition, due largely to the higher demand in other parts of the country, spot prices of propane increased in Louisiana as well. We became very familiar with trucks with out-of-state plates who were travelling to Louisiana and Texas to obtain supplies for their operations elsewhere. This in turn increased the wait times and demurrage costs for our trucks that were supplying our own bulk plants in Monroe and Winnsboro.

While this phenomenon is not unheard of, it had significantly more of an impact this year than previously. Seeing all of these out-of-state trucks made it clear that the storage levels and infrastructure in regions to our north were not adequate for the 2013/2014 winter demand. I am a strong believer in preparing for each winter, whether it be supply contracts, physical storage in the underground storage caverns we have available or otherwise ensuring that my customers will be served. So I am similarly supportive of the approval of the Finger Lakes storage facility in upstate New York. Having such a robust facility close to the New England demand area would have made trips down south much less likely and would have reduced the demand for Canadian product that would have been available for the upper mid-west. In addition, I fear that had Europe experienced a colder winter than they did, some of the ships that supplied New England would not have come here. The Finger Lakes facility would have been a solid insurance policy against such a circumstance.

Although we were able to maintain adequate supply for our customers, I was not able to respond to the numerous requests that I received from retailers whom I know in other states that were requesting additional supplies to supplement their normal distribution channels.

Recommendations for the future

There are a number of things that federal policymakers can do to improve the propane infrastructure and ensure deliverability of fuel to customers.

Increase transparency of the pipeline infrastructure, including rules for pipeline affiliates and a requirement to request permission to abandon service. The three main interstate propane pipelines are owned or controlled by a single company that also ships propane; markets propane; trades propane contracts and futures; and exports propane. However, comparable regulations regarding affiliates that exist in the natural gas and electric sectors do not exist for propane pipelines. FERC should require pipelines to justify all rate increases rather than permit them to become effective without significant review. FERC should require pipelines to file annual reports that contain data showing whether they are over-recovering their actual costs of operating and whether some rates subsidize others. When such data shows that the pipelines are over-charging, FERC should investigate and take remedial action to protect consumers. Pipelines should also be required to justify their rates periodically.

Some pipelines charge "market-based" rates. FERC should regularly examine whether these are appropriate and whether the pipeline has acquired monopoly power in those markets. FERC should also examine whether pipelines have transferred essential facilities to unregulated entities that can charge unchecked prices for services that are essential to customers' utilizing the pipeline. Finally, Congress should amend the Interstate Commerce Act to require pipelines to demonstrate that the public interest is served before they discontinue service.

Eliminate Department of Commerce restriction on the Propane Education and Research Council. There are many programs that propane marketers offer to their customers to help them manage their supply and heating bills in the winter. Fixed price contracts, pre-buys, annual budget plans, and others are all viable options for consumers to consider. However, the Propane Education and Research Council is unable to undertake a public communications program in this area because such activities have been restricted by the U.S Department of Commerce.

Section 9 of the Propane Education and Research Act of 1996 (PERA) provides for periodic consumer grade propane price analyses compared with residential natural gas, residential electricity, and refiner price to end users of heating oil. The Commerce Department has for years interpreted the PERA law as a residential-only law, and so has performed these price analyses using EIA residential only propane price data. This was not the intention of Congress in enacting PERA, which specifically covers other propane sectors in the law's many provisions. Congress should insist that the Commerce Department acknowledge that PERA covers all sectors of propane usage, so that the existing data collected and reported by the EIA that reflects propane prices to all propane market segments is used to perform the DOC analysis required by Section 9 of PERA. Doing this would allow the propane industry to use its own resources to communicate broadly with customers on matters related to winter heating season preparation.

Support EIA collection and publication of better data. The Energy Information Administration should collect more finely tuned propane storage data so that market participants have more reliable information to guide decisions in each region. Similarly, the Energy Information Administration should collect more detailed data on propane markets including real time export data. As market circumstances became more critical this winter, market participants realized they often had woefully insufficient information.

Encourage additional primary storage, such as the Finger Lakes facility in New York. As a Louisiana propane marketer, I am very fortunate to be situated close to some of the largest propane supplies in the world. However, there are many marketers who are not as fortunate. For them, storage is important, both at large primary storage facilities and at their own locations. I don't think many in the industry would have a different opinion. One of the best options for our industry to increase storage close to high demand is the Finger Lakes storage facility in New York. Private investment is ready to go, and millions of dollars of equipment are awaiting Governor Cuomo's decision to approve the expansion. This would put over 88 million gallons of propane in the heart of a high winter demand area. It would allow Americans to efficiently utilize American propane, rather than paying a premium for imported propane.

Closing Statement

Madam Chair, this concludes my written statement. I appreciate this opportunity to provide testimony before the Committee and look forward to answering any questions you may have. Thank you.