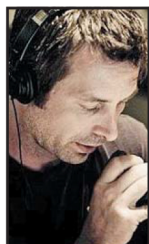


# Looking back at 2014, it was a gas

When the history books about the Bakken and North Dakota are written, no doubt 2014 will be known as the Year of Natural Gas. Record levels of investments into facilities and infrastructure



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coupled with the agricultural uses of natural gas, the future is looking bright. Now, the focus is moving into transporting the hydrocarbons and eliminating flaring. Here is a look at some of the happenings in natural gas.

**President and CEO of the American Gas Association Dave McCurdy:** “What drives us and what’s our priorities is safety first and foremost in the mission of natural gas and utilities. Safety is priority one in natural gas’ mission and utilities distribution sector and transmission as well.”

“I can tell you the leadership in this industry is without fear. They are by far in the lead and continue to work hard to improve quality of life in this country. And they are innovators and entrepreneurs and risk takers, but they are concerned about safety.”

“So we work with best practices. We work with the regulatory front, legislative front, we delve out standards. But most importantly for us, is educating and having credible data. It has to be reliable and it has to be honest.”

“And I do speak around the world with International Gas Union in other countries and they look at us with just pure envy. They don’t have the infrastructure to build on. We have this investment, and look how much we spend every single year in the multi-billions of dollars. And they have to start from scratch or they’re trying to catch up. That’s what gives Americans the competitive advantage others don’t have.”

**Robert Bryce, senior fellow, Manhattan Institute:** “Nat gas use is growing dramatically here in the U.S., particularly in the power generation sector. It has been one of the reasons why the U.S. has been leading the world in reducing its CO2 emissions. And not by a little bit, but a lot. In the last five years alone, the U.S. has reduced its CO2 emissions by about 400 million tons. That’s more than six times more than has been achieved over in Germany over that same time pe-

riod and yet Germany is continually held up as the model the U.S. is supposed to follow.”

“So we’ve seen that big push in the power generation sector where natural gas is displacing coal. But we are also seeing increased industrial use in fertilizer, in steel production, in petrochemicals and also in transportation. While it is making headway in transportation, let’s be serious about how this feeds into the broader mix. We are using roughly 70 billion cubic feet a day of gas in the U.S., transport might take a billion feet a day by 2018. So in terms of overall consumption, it is still a relatively small player, but it is going to be an increasingly important fuel in long-haul trucking, in particular as to provide an alternative to diesel.”

“When it comes to natural gas transportation, I really don’t see a big role for backyard entrepreneurs because of the capital requirements. They are just so large. Building a natural gas refueling system or station is incredibly capital-intensive. Cummins is now marketing their natural gas fuel engine, 12-liter engine, which is not suitable for every long-haul truck. It lacks the kind of power it needs in the mountains. But nevertheless, Cummins in an enormous company and able to throw the type of resources needed in developing a purpose built natural gas engine.”

**William Gilliam, CEO, Badlands NGL:** “The infrastructure in terms of building this facility we are going to have challenges, I don’t think there is any question about that, but the good news is the engineering company we are working with, TechnaEsrettas from Madrid, Spain, and also with VinMare projects, the folks who are going to be buying the polyethanol from us, they’re used to developing projects like this in more difficult and challenging environments than the United States and North Dakota. TechnaEsrettas has built major facilities in Siberia, they have \$2.5 billion of backlog in western Canada right now. VinMare is starting up a polyethylene (facility) in Egypt this year. In some ways this is going to kinda almost seem like a walk in the park for them.”

**U.S. Sen. John Hoeven:** “We are producing huge amounts of natural gas, which really is a byproduct of our drilling for oil. But the key is we have to capture it rather than flare it and get it to market. Part of that is creating a market for that natural gas.”

“We are working with Cenex Harvest States to build a multibillion-dollar fertilizer plant. Right now that fertilizer has to come from India, getting shipped across the ocean, hauled to North Da-

kota on trains. We are at the end of the line, creating costs and questions about dependability. Think about producing it here. We are just barely scratching the surface here.”

**Tom Petrie, president and chairman, Petrie Partners:** “We are in the early stages of the railroads testing their LNG as a product for their engines. They are under a lot of pressure because they have to run ultra low sulfur diesel. One thing we learned about ultra low sulfur diesel is it is a lot easier for Congress to pass a law, or the EPA to pass rules mandating it than it is to do it.”

“Natural gas is selling for about \$24 an equivalent barrel, versus \$104 a barrel. That’s a huge spread to work with. Now the question becomes will the performance be up to the standards of BNSF’s needs for their engines; they’re doing the tests on them right now.”

**Steven Mueller, CEO, chairman and president, SouthWest Energy Co.:** “Natural gas is happening. It’s big and it’s happening fast.”

**Ron Jibson, past chairman of American Gas Association and current CEO, Questar Corp.:** “We can now look at natural gas beyond just space heating and water heating. We can look at it for enhanced power generation, continue building more and more plants on natural gas; it’s a backup to all renewable energy and at the same time we can use it as natural gas transportation. We can do all this and even look at exporting natural gas. Six years ago we were considered an importer — now we are looked at as an exporter of natural gas.”

**Patrick Hughes, president, North Dakota LNG:** “It’s up and running. We are delivering on what we said we would do, now making LNG and look forward to 10,000-a-day.”

“Transportation is the opportunity for natural gas. Find places where the current demand is huge. It becomes a question of timing. Five years from now natural gas trucks will be much more common, but, the sweet spot is the niche products in natural gas.”

“I think it is huge. Gov. (Jack) Dalrymple says it best, value-added agriculture is a big part of North Dakota’s pas, and a big part of today, and I think it will be a big part of tomorrow.”

“I think when you look at what is going on in the Bakken, the idea of using value-added natural gas products inside the ag business and to compliment the ag business, I think there is a remarkable opportunity. I think it is important to the viability of both businesses. And I think the sky’s the limit.”

“I’m a big believer in value-added natural gas products and the use of them in the Bakken is the key to continuing the development of this great resource. When you have value-added natural gas products you are going to have a use-based industry here, not just a production-based industry. And that inevitably leads to the end we are all looking for.”

**Doug Goehring, North Dakota agriculture commissioner:** “Yeah, we have a lot of natural gas in North Dakota. The discussions with CNG, the investment that is being made in North Dakota, we are pushing numbers and looking at \$6 billion.”

“Well, I think we are always going to have some (flaring) based on the fact that when you have new wells come on line, right away you have some flaring. We have some remote locations that are so far away from any infrastructure or even the ability to put lines into some places that might have environmental impacts and can be real challenging to deal with. So I think we are always going to have a little bit because we do notice other oil and gas producing states do have flaring.”

**Matthew D. Cabell, president of Seneca Resources Corp. and senior vice president of National Fuel Gas Co.:** “Education is what we need, but we also need a receptive audience. The Marcellus Shale is arguably the most important natural gas accumulation ever discovered. Along with several other shales, it completely transformed the energy landscape in this country.”

**Lee Tillman, president and CEO, Marathon Oil:** “I think the gas market globally is certainly getting more liquid than it ever has been. LNG does have the ability to connect. It used to be pipeline gas was very much a domestic local market play. Now with the advent of LNG technologies, the scale that’s been generated in some of the projects like in the Middle East, you know those molecules can be competitive around the world.”

“What I will tell you though is it is still very expensive to land that molecule in Southeast Asia. When you look the cost of basically the wellhead, the upstream cost, you look at the cost of liquefaction, transportation and regasification, you can very quickly get into a cost of supply that is in the \$10 to \$11 mark.”

**Don Bari, vice president, Technology and Analytics Groups, IHS Chemical:** “The Bakken has a high liquids content, around 30 percent. And if you think about the global petrochemicals market, currently about 25 percent of those total

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