The Future of Fuel

Companies serving the LNG market are seeing increased activity as customers embrace it as an alternative to petroleum. [By Chris Petersen]

It’s hard to imagine that something created millions of years ago could represent the future of anything, but that’s exactly what’s happening in the energy sector with liquefied natural gas (LNG). Throughout North America, LNG is rapidly becoming one of the preferred alternatives to traditional fossil fuels such as diesel.

As more sectors come to embrace LNG as a viable fuel source, a wave of new and existing players in the oil and gas industry has sprung up. This issue’s special LNG Spotlight section takes a closer look at some of these emerging names who have staked their claim in the LNG frontier.

For example, Prometheus Energy recognized the potential of LNG for remote industrial applications in 2008 and since then has become a market leader. As President and CEO Jim Aivalis explains, the sky is the limit. “Prometheus envisions LNG as a fuel that will go mainstream in remote applications not only because its value to customers is so obvious, but also because so many of our established fuel supply points across the United States are equipped to deliver on demand,” he says.

One obvious area where LNG provides distinct advantages is in the booming shale oilfield sector, where remote job sites often mean little to no access to pipelines or other fuel sources. “LNG is the ideal fuel for high-horsepower engines in the oilfield because it uses America’s abundant and low-cost natural gas supplies to help fracturing and drilling operations save money and reduce their environmental footprint,” COO and CFO Jim Reddinger says.

The boom in the LNG sector is fueling major growth at one of the nation’s largest producers of LNG, as well. Applied LNG Vice President of Business Development and Strategic Relations Shaunt Hartounian says the company recently doubled its daily production capacity and has purchased additional land to accommodate more growth. “We’re seeing organic growth of the existing customers in our portfolio plus new customers who are just now adopting an alternative fuel strategy to diversify their fuel sources.”

“With the exception of long-haul trucks, I don’t think we’ve hit the tipping point in many of these markets.” // JEFF HOLYOAK

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Stepping Out

Already well-known for pressure cylinders, Worthington Industries is prepared to make a big splash in the liquid natural gas arena.

“...When someone purchases from us, they don’t just buy a tank, they buy a complete system solution.”

// JEFF HOLYOAK, BUSINESS MANAGER

With the help of a new acquisition and the construction of some new, state-of-the-art facilities, Worthington Industries has made inroads into the LNG sector. Holyoak says the company’s goal is to expand its footprint within the LNG industry in the United States as well as further expand in Europe and Asia. Even though the onboard and high horse power (HHP) LNG market is relatively young, with numerous manufacturers all jockeying for position to show...
what they are capable of, Holyoak says Worthington Industries is putting the pieces in place to carry over the solid reputation it has earned serving other areas of the industrial gas, oil and gas and alternative energy sectors into this new venture. With the numerous advantages LNG provides as an alternative to diesel fuel in HHP applications and power generation, companies that can effectively service a customer’s LNG needs stand to reap significant rewards, and Holyoak says Worthington Industries is ready.

BUILT FOR SUCCESS
Based in Columbus, Ohio, Worthington Industries has been in business since 1955, when it was created to produce custom processed flat-rolled steel. Today, Worthington Industries is a publicly traded company (NYSE:WOR) with $3 billion in annual revenue. The company is the largest independent processor of flat-rolled steel in the nation, processing steel that is used to manufacture everything from office furniture and appliances to tractors and automobiles.

Pressure and atmospheric cylinders make up another substantial portion of the company’s business where Worthington Industries provides cylinders used for gas barbecue grills, CNG-fueled vehicles and refrigerants, among other applications. Worthington’s core competency of tank manufacturing for highly technical, regulated markets extends to serve the Oil & Gas and nuclear industries, providing custom solutions for energy storage, production and transport. The company has shipped product to more than 70 countries and has manufacturing facilities in the United States, Austria, Portugal, Poland and Turkey. This global footprint makes Worthington Industries the world’s leading supplier of pressure cylinders.

CONTINUED EXPANSION AND ACQUISITION
Worthington Industries made its entrance into the bulk LNG sector through key strategic acquisitions, Holyoak says. Two-and-a-half years ago, the company began developing its own line of liquid cylinders aimed at serving the cryogenic and LNG markets. To bolster its position in that market, the company acquired Turkish cryogenic manufacturer Ar- itas, a leading producer of large cryogenic vessels used for storing and transporting LNG. The company has over 35 years cryogenic experience with a significant knowledge base in marine fueling and HHP applications as well as major brand recognition in Europe and Asia.

“Aritas has been instrumental in building the LNG mobile pipeline and onboard fueling markets throughout Europe for over a decade,” Holyoak says. This acquisition, combined with its recent acquisition of U.S.-based James Russell Engineering, a high
quality provider of cryogenic and LNG transport trailers, positions Worthington to service the global LNG marketplace. “We are a global leader in on-board marine fuel systems for fueling cargo ships, ferries, and tugs and have been actively utilizing this expertise to develop products for mine site fueling, both on-board for mine haul trucks and on-site for gensets. With more than 25,000 large haul trucks in service the opportunity to generate substantial fuel savings and Tier 4 compliance on site is driving innovation in this space and Worthington continues to invest in that development.

Through these acquisitions and internal development, Worthington Industries has built a strong foundation for its LNG offerings, but the company hasn’t stopped there. Worthington Industries is upping the ante by building and planning new, state-of-the-art cryogenics facilities in Europe and the U.S. to meet the growing needs of North American LNG fueling and distribution markets.

Worthington Industries will augment those enhanced manufacturing capabilities with the company’s well-known ability to provide full solutions for its customers. Holyoak says that when customers come to Worthington Industries for their natural gas needs, they receive more than just the product. They also receive the engineering know-how to ensure that those products integrate seamlessly into their existing operations, meet all the rigorous environmental and regulatory requirements, and perform as expected.

“With the exception of long-haul over-the-road trucks, I don’t think we’ve even hit the tipping point in many of these markets. Marine fueling is becoming more the norm in Europe and there is strong interest beginning in North America.”

JEFF HOLYOAK, BUSINESS MANAGER
safety standards, and give them nothing to worry about. “When someone purchases from us, they don’t just buy a tank, they buy a complete system solution,” Holyoak says. “That’s really what we bring to the table.”

‘BRINGING SOLUTIONS’
The biggest complication in the company’s foray into LNG is that, compared to other alternative fuels, the infrastructure and supply chain for LNG are less established. CNG remains the alternative fuel of choice for many for the simple fact that there are far more fueling stations and infrastructure in place which has limited adoption in higher volume applications like high horsepower and power generation.

Holyoak adds that the regulations in place regarding the use and distribution of LNG have not yet caught up with the technology, as the regulation becomes more stable greater investment in infrastructure will follow. LNG has been proven to be a lower cost, cleaner burning alternative than diesel for large-scale equipment such as mine trucks, marine fueling, and drilling or frac rigs, so as companies begin to understand the benefits of LNG as well as the long term price stability of the fuel, adoption will increase dramatically.

Fortunately, there is a lot of room for growth in the LNG market, and Holyoak says Worthington Industries expects continued investment in supply chain infrastructure and applications globally. “With the exception of long-haul over-the-road trucks, I don’t think we’ve even hit the tipping point in many of these markets,” he says. “Marine fueling is becoming more the norm in Europe and there is strong interest and early infrastructure investment beginning in North America. Mine truck fueling, rail tender fueling, E&P power generation are all at the early adoption stages. Mobile Pipeline infrastructure and power generation is continuing to expand in scale and scope daily.”

Worthington Industries expects a lot to happen in the LNG market over the next 12-24 months. Many of the major players in the mining, marine and energy sectors already are familiar with the company’s oil and gas equipment, industrial and alternative fuel products, and Worthington Industries looks forward to serving them in the LNG arena, as well.

“This is our launch party to the LNG world,” Holyoak says.
Natural Growth

Applied LNG is investing in its production and distribution capabilities to meet the growing needs of its diverse customer base.

Applied LNG recently changed its name to better reflect its strategic focus.

“We are truly a full-service operator.”

// SHAUNT HARTOUNIAN, VICE PRESIDENT

[ BY JIM HARRIS ]
The nation’s second-largest producer and marketer of liquefied natural gas (LNG) is increasing its footprint even further. Westlake Village, Calif.-based Applied LNG in

June completed work on its second production train liquefier in Topock, Ariz. The new liquefier, located adjacent to an existing production facility, has a production capacity of 86,000 gallons a day, doubling the company’s total capacity to 172,000 gallons. The facility allows the company to reach customers in Arizona, California, Utah, northern Mexico and portions of Nevada.

“We ran out of capacity on our first production train because of the growth of our market in the southwest region,” says Shaunt Hartounian, the company’s vice president of business development and strategic relations. “We’re seeing organic growth of the existing customers in our portfolio plus new customers who are just now adopting an alternative fuel strategy.”

The company in early 2014 announced its purchase of 31 acres of land in Midlothian, Texas, located 35 miles south of Dallas. The site is large enough to house five liquefiers, each with a capacity of 86,000 LNG gallons per day, as well as storage for up to 1.5 million gallons of LNG. The first liquefier broke ground in June 2014 and is anticipated to open in mid-2015. The Texas plant is only one of a few midscale LNG plants announced nationwide within the past six years, Hartounian notes.

The Midlothian site will allow the company to expand its service area to include customers in Texas, Louisiana, Arkansas, Oklahoma and New Mexico. The company anticipates building to its capacity of five liquefiers as demand for LNG increases in the region, Hartounian adds.

MEETING DEMAND
Applied LNG is also making an increased investment in its equipment...
fleet, which it uses to distribute fuel to customers. The company operates 34 LNG trailers and 10 mobile fueling units from a distribution and logistics hub in Fontana, Calif.

The company in November anticipates taking delivery of 15 new trailers manufactured by Alloy Custom Products, which produced 10 of Applied LNG’s existing trailers. “Alloy’s trailers performed very well for us over the years,” says Vice President of Operations Frank Martelli. The new trailers will allow the company to transport the additional LNG it is producing in Arizona as well as its future plant in Texas.

The company attributes much of the initial demand for LNG in the California, Arizona and surrounding markets to the enactment of state and local clean air laws that mandate a reduction in vehicle emissions. “The recent growth in demand, however, is predicated on the significant cost advantage LNG has over diesel or gasoline,” President and CEO Cem Hacioglu says.

A sizable portion of Applied LNG’s sales is to municipal and other governmental agencies. The company also serves commercial customers in Southern California including United Parcel Service as well as waste disposal fleets including Waste Management and Burrtec Waste and Recycling. The company also sells to industrial customers.

In addition to processing and distributing fuel, Applied LNG also offers turnkey facility solutions to customers. “To use an analogy, we want to sell the razorblade – fuel – to customers, but to do that, we often need to sell the razor, which is the fueling station or other infrastructure needed for that fuel,” Hartounian says. “We have the ability, both internally and through our strategic partners, to design, build and operate fueling stations in the verticals we service on behalf of our customers.”

COMPETITIVE ADVANTAGES

Applied LNG’s ability to produce and distribute fuel at the lowest fuel cost in the market, as well as its ability to work with customers on consulting and facility needs, is among its greatest assets. “We are truly a full-service operator,” Hartounian says. “Our ability to site and build plants and develop the market around those plants is our core strength.”

The company’s approach to financial management is also an advantage. “We run a cost-effective organization, and our overhead expenses are much smaller than those of our competitors,” Hacioglu says. “We hire the right people with the right personal and professional attributes, and get more from each individual here than most of our competitors can.”

A NEW BEGINNING

Applied LNG formally changed its name in June from Applied Natural Gas Fuels, Inc., which the company was founded as in 1995. The new name better reflects the company’s strategic focus.

“Whether in liquid form or as a feedstock for other natural gas applications such as CNG, production, distribution and marketing of LNG has historically been the focal point of our company,” Hacioglu says. “As we increase our LNG production capabilities and expand our distribution footprint throughout the United States, we wanted our name to better reflect our business model and express our belief in the important role LNG will play in meeting America’s future energy needs.”

The company’s future plans include fully developing the Topack processing platform and potentially opening additional facilities. “Our vision is to expand our production and marketing footprint as much as possible,” Hacioglu adds. “In the next three to five years we expect that we will look and feel the same in terms of what we do, but at a much larger scale.”

EMI
The Deep Freeze

GenOx Transportation provides safe industrial gas deliveries to clients across multiple industries.

GenOx Transportation is investing in the latest LNG technology, according to President Kevin Mathews.

“We transport to various industries including manufacturing, food, medical, industrial and welding.”

KEVIN MATHEWS, president

GenOx Transportation Inc.

BY JEFF BORGARDT
To understand GenOx Transportation Inc.’s business, it helps to think of astronauts working in the International Space Station.

GenOx Transportation transports bulk liquids, bulk cryogenic liquids and compressed gases to 48 states and Canada. Just as astronauts on the International Space Station work in the cold vacuum of space in temperatures of 350 below zero, so too, must GenOx Transportation work in the same temperatures.

For example, it transports liquid helium for hospital MRI equipment that must be kept at temperatures of 430 below zero. Just as astronauts are protected from extreme temperatures with spacesuits and sealed compartments, the liquid helium is protected in similar compartments as it is shipped via truck, President Kevin Mathews explains.

“At the International Space Station, an astronaut goes outside at 250 below zero, floating into space, and
there is technology to keep the astronauts comfortable in extreme temperatures,” Mathews says. “It is the same things for our trailers. We keep the trailer in cryogenic temperatures for long periods to avoid the heat of the sun and motion so it can sit for days with no loss inside the vessel. Everything we haul is well under 300 degrees below zero.” He notes that GenOx serves multiple markets and applications, including manufacturing, food, medical and welding.

GenOx Transportation operates 205 trucks with 236 drivers. Headquartered near Houston, it has terminals in Georgia, Ohio, Mississippi, Oklahoma and Utah. Its customers include Praxair, Linde Industrial Gases, Air Product & Chemicals and Airgas.

CONTROLLED GROWTH
CEO Kevin Mathews and his father, Chairman Russ Mathews, started the company in 2001. The elder Mathews had worked in the cryogenics and industrial gas industry since the 1950s for the company today known as Linde Group.

“We use a controlled growth strategy,” Mathews says. “We are very customer-focused. We are here for the customer; the customer is not here for us. I repeat that to myself many times a day to keep myself focused.” That focus makes GenOx Transportation’s customer service stand out. “There are a lot of little things that add up,” Mathews says. “We have well-maintained and clean equipment that looks good going in and out. The drivers have the equipment they need to get the job done.”

GenOx Transportation also utilizes proactive maintenance programs to avert mechanical difficulties. That includes continual investments in equipment. “We don’t keep our tractors in the fleet more than three to three-and-a-half years,” Mathews says. “That means we replace one-third of our fleet each year. The new tractors have newer technology with better safety and fuel efficiency. A new fleet is more dependable and reliable, [and] reliability is important to our customers.”

The company has the ability to respond immediately to calls. “What we specialize in is last-minute need,” Mathews explains. “We offer on-demand service, whether they need one or 30 trucks.”

GenOx Transportation’s trucks and trailers cost $400,000, so the company “offers a unique service to have all these guys and equipment ready for last-minute needs,” he says. “Not many companies allocate that many assets and support.”

The business has changed over the years with better technology and communications now available. The trucks have improved sensors and mechanical failures are easier to correct with regular service. All of this has helped the industry keep up with growth.

“Historically, our industry grows twice as fast as gross domestic product and it’s been that way for decades,” Mathews says. “So, if GDP grows 2 percent, we will grow closer to 4 percent. Even in a recession people are still going to eat, buy frozen food and drink beverages. They will still get sick and go to the hospital and there will still be cars and buildings built.

“The products are still being used. Every business segment of the economy uses them in some form or another.

Cryostar USA is a leading global supplier of cryogenic equipment for both industrial and natural gas applications. The company’s products include cryogenic pumps, pump systems, turbo-expanders, Small Scale Liquefaction Plants, LNG boil-off gas compressors, LNG Vaporizers and LNG Regasification Units. With offices around the world and three locations in the United States, Cryostar supplies most of major gas companies, gas distributors and service providers.

Cryostar USA is providing equipment and solutions for LNG and LCNG refueling stations, LNG bunkering stations and equipment, peak shaving systems. GenOx Transportation has put its trust in Cryostar equipment and today around 150 GenOx Transportation trailers are delivering liquid using Cryostar centrifugal pumps. Cryostar is offering standard equipment, which is modular, easy to install, reducing overall installation and maintenance costs.

For more information, visit www.cryostar.com
The company transports more than 60,000 tons of industrial gases per month. This makes GenOx one of the largest transporters of industrial gases across the U.S. It is now seeing an increase in customer demand for alternative energies growing in popularity.

LNG LEADER
GenOx Transportation provides safe, reliable, on-time transportation services to the industrial gas industry at a competitive rate. GenOx exclusively serves the industrial gas industry with one of the largest modern and up-to-date fleets in the industry. This ensures safe, on-time deliveries.

GenOx is a leader in liquefied natural gas (LNG) transport. It operates 30 LNG trailers with more to come. Nationwide, about 5 percent of new trucks produced run on LNG, up from 1 percent last year.

“Our LNG transport customers save up to 40 percent over traditional diesel-fueled transport on fuel costs through higher efficiency and increased transport capabilities,” Mathews says. “Lower emissions, quieter operations and myriad environmental benefits are also benefits of LNG-fueled transportation. Best of all, LNG is abundant and produced right here in America.”

DRIVING EXPERIENCE
Although many in the trucking business are contending with driver shortages, GenOx Transportation’s niche provides for successful recruitment and retention with little turnover. Many drivers are military veterans and its average driver age is 45. “We take pride that despite a high industry-average driver turnover rate, GenOx has a turnover rate of about 10 percent,” Mathews says. “We know how to attract and retain the best drivers. They are well rewarded for their professionalism and consider themselves partners in making sure the client’s needs are met with the highest standards of safety and service.”

GenOx Transportation efforts have been well received by trucking industry as it frequently wins a litany of awards and recognitions. For example, GenOx Transportation has just received the Compressed Gas Associations prestigious Fleet Safety Excellence Award, sponsored by Praxair.
Leading the Way

Stabilis Energy is working to bring liquefied natural gas production facilities into the heart of shale plays nationwide.

Opening its first production facility in George West, Texas. “We are proud to announce that our Eagle Ford LNG production facility is on schedule to begin producing 100,000 gallons per day in January 2015,” COO and CFO Jim Reddinger says.

The Beaumont, Texas-based company says it offers customers a complete LNG solution, handling everything from fuel production and supply to cryogenic equipment rental and ongoing field service. “We have a cradle-to-grave offering,” Reddinger says. In addition to its own production facility, Stabilis Energy sources fuel from third-party sources nationally and offers its services in all of the major North American shale plays.

Operating its own cryogenic transportation fleet, Stabilis Energy ensures that its oilfield, mining, marine, rail and industrial customers have LNG delivered on time for their high-horsepower engine fueling needs. The company delivers and installs LNG equipment to its customers’ sites and then trains the customer on how to operate it safely and efficiently.

“The technology is available today to make LNG fueling programs work in the oilfield.” // JIM REDDINGER, COO AND CFO

ADAPTING MARKET

Many oilfield companies already understand the benefits of LNG fuel and have begun pilot programs to test the fuel for system-wide rollouts. “Conversion from diesel to LNG offers sig-
significant economic and environmental advantages,” Reddinger says. “LNG is the ideal fuel for high-horsepower engines in the oilfield because it uses America’s abundant and low-cost natural gas supplies to help frac-turing and drilling operations save money and reduce their environmental footprint.”

The use of LNG is accelerating in the oilfield despite transportation costs being relatively high due to the distance from existing LNG supply sources. “By building LNG production facilities in close proximity to major oilfield operations, Stabilis Energy can reduce transportation costs and make LNG a more attractive fuel option,” Reddinger says. “Our investment in LNG production in the Eagle Ford shale has encouraged oilfield operators and contractors in the region to invest in their own LNG equipment and resources to get their dual fuel and dedicated natural gas fuel programs started.”

Dual fuel (diesel and LNG) engine and dedicated natural gas engine technology has improved significantly over the past decade. Stabilis Energy maintains close relationships with engine manufacturers and dual fuel engine conversion kit providers to help its customers optimize their natural gas fuel usage.

“In addition to sourcing the LNG and providing the equipment and service required to run an LNG program, helping our customers optimize their natural gas engines and engine conversion kits is a critical part of our value proposition,” Reddinger explains. “In the oilfield, the optimization of LNG fuel requires finding the right engine/conversion technology for your application; fine-tuning the engine/conversion kit settings for your application; and implementing a power management strategy that will maximize engine performance and LNG fuel consumption. The technology is available today to make LNG programs work in the oilfield.”

**LNG PRODUCTION**

Stabilis’ LNG production facility will produce 100,000 gallons per day beginning in January 2015. Its location in George West, Texas is central to oilfield operations in the Eagle Ford Shale, making it convenient and cost-effective for customers across the basin. Stabilis is installing a standard C100N liquefaction plant from Chart Industries and OnQuest is providing turnkey engineering, procurement and construction services.

Stabilis announced a partnership with Flint Hills Resources in October 2013 to build up to five LNG production facilities that target domestic oilfield customers. Flint Hills is a leading refining, chemicals and biofuels company based in Wichita, Kan., and subsidiary of Koch Industries Inc.

The partnership has reserved production slots with Chart for an additional four LNG liquefaction facilities to allow for rapid development. The George West facility is the first under construction with two additional facilities being planned for in the Permian Basin (West Texas) and the Bakken Shale (North Dakota). Future facilities will be able to produce either 100,000 or 250,000 LNG gallons per day.

In the future, Stabilis Energy plans to be the leading provider of LNG for domestic consumption in high-horsepower engines, including oilfield applications and mining, rail, marine and industrial activities, Reddinger says. “Our plan is to demonstrate we can build, operate and sell the production of one plant and then move on to building others rapidly over the next several years,” he adds.
Lead the Way

Trinity Cryogenics breaks into the energy equipment industry with two established manufacturers.

[ BY JAMIE MORGAN ]

Trinity Industries enters each market with the goal of earning a leading position in that field. The publicly traded company is the parent organization encompassing five major industrial product and service entities: a rail group, a railcar leasing and management services group, an inland barge group, a construction products group and its recently expanded energy equipment group. Under its energy equipment division, the company created Trinity Cryogenics and followed up with two acquisitions that broke Trinity Industries into the market as a leader.

“Trinity Cryogenics LLC is the parent company over WesMor Cryogenics and Alloy Custom Products,” says Jesse Collins, president of Trinity Cryogenics. “We bought the businesses in early 2013, not simultaneously, but one right after the other. They are very different companies that make somewhat similar products.”

Collins explains that although both companies are in the business of manufacturing cryogenic vessels, each has its own brand identity and Trinity Cryogenics seeks to keep it that way. Alloy Custom Products, for instance, is known for its longevity as a leading atmospheric trailer manufacturer. Some of the attributes that attracted Trinity were Alloy Custom Product’s refined development of stock and specialty cryogenic trailers, its delivery record, quality record and seasoned management team.

WesMor Cryogenics, which hasn’t been around quite as long as Alloy Custom Products, has more of an entrepreneurial spirit, Collins says. “WesMor came up as a repair operation that grew rapidly,” Collins explains. “As the company grew, they started to think, ‘We can repair these...
vessels, but what better way to really learn how they work then to get into new product manufacturing.”

Once WesMor got into manufacturing, it quickly found its sweet spot in new product innovations for liquid natural gas (LNG) tanks, mobile fueling tanks and other products, such as bobtail truck mounts and oilfield skid tanks, while continuing as a leader in repair and rehabilitation work For Alloy Custom Products, however, Collins says its product development strengths lie in the atmospheric and industrial gases market as well as repair and rehabilitation.

“We look at cryogenics in three market verticals,” he explains. “The first is atmospheric and industrial gases, like oxygen. The second is the LNG market, which is a big, emerging growth platform. Then there’s the repair and rehabilitation of trailers.

On the atmospheric side, that is something we associate with Alloy Custom because they are already known as a premier manufacturer in that market. That’s Alloy Custom’s sweet spot. With WesMor, their niche is really in LNG. They’ve built transport trailers, mobile fueling products and ISO containers, which are more LNG related.”

PLAYING TO STRENGTHS
Through Alloy Custom Products, Trinity Cryogenics has a firm grasp on the well-established atmospheric and industrial gases market, which Collins says is growing steadily due to the demands of an increasing population and the pressure pumping occurring in natural gas shales across the country.

When it comes to the emerging LNG market, WesMor’s early presence puts Trinity Cryogenics at the forefront as it waits for the market to mature. WesMor has the capacity to handle current market demand, but Collins says a number of natural gas liquefaction facilities have been announced and are scheduled to come online at various stages over the next three years. Once those facilities are in place, the demand for WesMor’s products will grow.

“We see the LNG market as a very large growth market for us, but it’s a timing issue, it’s just not here yet,” Collins says. “So we are really trying to position ourselves for growth.”

One of the ways Trinity Cryogenics is readying itself for market growth is through consolidating the two operations where it makes sense and sharing best practices across its subsidiaries while letting each maintain its brand identity.

“For now we plan to continue to operate as two separate companies,” Collins says. “They have different identities and do a number of things well without much overlap. However, the sales and engineering and support are slowly moving to a centralized group. We are sharing best practices and consolidating things on the purchasing end, which are natural things you do as you integrate and try to get a common support platform. But overall, we are down the path with integration and keeping our eye on growing in the cryogenics space.”

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Clean Business

Plum Energy helps clients produce an environmentally friendly alternative to diesel.

[BY ALAN DORICH]

Not many can say they started as “pioneers” in their industry, but Kirt W. Montague can. An 11-year veteran of the liquefied natural gas (LNG) industry, he founded his first firm, Prometheus Energy Group, in 2003, which he left in late 2010 after the Shell Technology Venture Fund acquired a majority interest in the company.

During his time at Prometheus, “We really helped develop this whole LNG value chain market,” he recalls, adding that managing it was an education. “There are a lot of scars and learning experiences that proved to be essential.”

Now, he is bringing those lessons to Plum Energy as its chairman and CEO. Based in Seattle, the company helps its clients design, build, install, operate and maintain small-scale LNG production facilities, as well as transport the fuel.

Plum Energy’s customers often choose LNG over diesel not only because it costs less, but also because of its environmental advantages, which include fewer emissions. “We’re talking about using a domestic fuel that’s clean [and produced at] a lower cost,” Montague says. “That’s appealing to people.”

SPREADING AWARENESS

Although LNG provides many advantages, Plum Energy still copes with a lack of awareness among the public, Montague says. “A lot of people are hearing about the natural gas glut, but there is a low level of understanding of what LNG is,” he states.

“We are seeing some sectors, such as mining, start to embrace LNG,” he reports. “[But] the challenge is edu-
cating your customer on what LNG actually is, how do you store it [and] how do you use it.”

That is why the company has taken a proactive approach as it has developed a facility in Tioga, N.D., for North Dakota LNG LLC, Montague says. “We went to see their fire department and county commissioners, and we put a high emphasis on educating them on LNG,” he recalls.

This included bringing experts from Texas A&M University to teach on how to handle a LNG fire. “We’re being quite proactive in educating and doing it beforehand and not after the fact,” Montague says.

IN THE MIX
Plum Energy broke ground on the Tioga project in April and expects to have the plant in operation later this summer. “We’ll produce 10,000 gallons a day,” he says, noting that the company expects to stay busy even after it finishes a “phase two plant” for North Dakota LNG in December. The second phase will produce at least an additional 66,000 gallons per day, perhaps more, especially in the cold winter months.

“We have several projects currently in the mix,” he says. “Within the next three to five years, we’ll have another 300,000 to 500,000 gallons of LNG production in play regionally, as well as overseas.”

Plum Energy will target areas where it can build and operate small LNG plants and meet local demands, Montague says. “In the regions where we play, we really want to have a significant footprint,” he says.

The company also will cope with the challenge of increased competition, Montague says. As an LNG pioneer, “It’s heartwarming, in many respects, to see the bigger companies like GE and Shell come into this [space],” he says.

“We’ll continue to try to stay on the forefront of that to provide tailor-made solutions for LNG customers,” Montague says.
Building Demand

Participating in the growth of the LNG market is a key component for LNG Merchants’ long-term success.

[ BY ERIC SLACK ]

LNG Merchants started its journey with the intent to become an infrastructure development company focused on small-scale LNG liquefaction projects. But as the company evaluated opportunities, it found that the market lacked proven demand.

“There was a need to prove that this model works and people will convert to LNG,” according to CEO Mike McCall.

POWER OF CREATION

Although the company remains focused on LNG infrastructure development in the long-term, it decided to create a merchant arm that is looking to target customers and provide them with turnkey LNG supply solutions. By so doing, the company is participating in the demand-creation sector of the market. “We are working to build demand and support that can lead to the development of future infrastructure,” McCall says.

Having now been in business for about two years, LNG Merchants is a small company with fewer than five people. Its expertise is on the business development side of the business, and it is looking to drive demand for LNG in the Eagleford Shale play, as well as in north Texas and Nevada. “We are at the early stages of developing the merchant business, and it will take several years to develop the market,” McCall says. “Our participation in this stage is critical.”

The approach is to look for potential customers with the prospective need for high-volume, high-load LNG solutions. LNG Merchants understands that there is a cost to convert the customer to LNG, so it is looking for those companies that require a
great deal of fuel usage with their capital equipment. “We look at industrial applications like asphalt and mining, as well as the oilfields in the development, fracking and drill rig markets,” McCall says.

One area where LNG Merchants is focused is customer education. Customers need to know that investing in LNG conversions and equipment is a financially viable option. By looking for customers with sufficient fuel demand and putting together detailed information on supply chain, equipment and conversion costs, LNG Merchants can point out where savings can be found.

“As a merchant, we provide access to LNG supply through transactions with customers, showing them how to get access and how to convert,” McCall says. “Demand has to be created, and most customers won’t convert 100 percent of their fleet at the outset. The may do a pilot test, and once we prove that LNG works in their equipment and for their specific need, that can build demand and help support growth of the regional LNG supply.”

KEY TOOLS
LNG Merchants understand that the more efficient it can be in the provision and finance of equipment, the more savings it can provide to customers and the more opportunities that will arise for conversion. That is why its staff is built up of individuals with a strong merchant background in natural gas.

“That background is mostly in selling natural gas by pipeline to utilities and power plants,” McCall says. “Our business opportunities here are similar. We don’t see or touch the product. We put the turnkey transaction together and work with our partners to provide the pieces.”

Therefore, selecting the right partners is as critical as selecting the right staff and the right customers. LNG Merchants is actively courting and developing partners. In the Eagleford Shale, it identified a fuel distribution solutions company that is a large seller of diesel and active in 16 states.

“We met with them and explained that LNG is an up-and-coming fuel option,” McCall says. “We showed them how to get into the market and helped them capture and service customers. The idea is to work with them to originate transactions, and then they provide logistics and service capabilities. Other relationships are more commercial and price-based, such as with transportation partners.”

As the company continues to have a hand in building the LNG market, its operations will require capital for two purposes. As volume increases, it will need capital to provide credit support and working capital. In addition, it will need to invest in equipment to service and convert customers, such as transportation, storage and vaporization.

“Those are big investments that need to made in the market to create demand,” McCall says. “When we started, we saw that investment at the customer level was more vital at this point.”

Currently, LNG Merchants is looking to take advantage of opportunities in the market, working on several potentially substantial transactions. The regional availability of LNG remains limited at this time, and the market has a long sales cycle of up to a year from introduction to decision. But by opportunistically finding the right transactions, LNG Merchants can develop the market and increase demand.

“Then we can work with infrastructure developers and target our own LNG liquefaction development opportunities,” McCall says. “Right now, this is a market that is still in the early stage of development.”