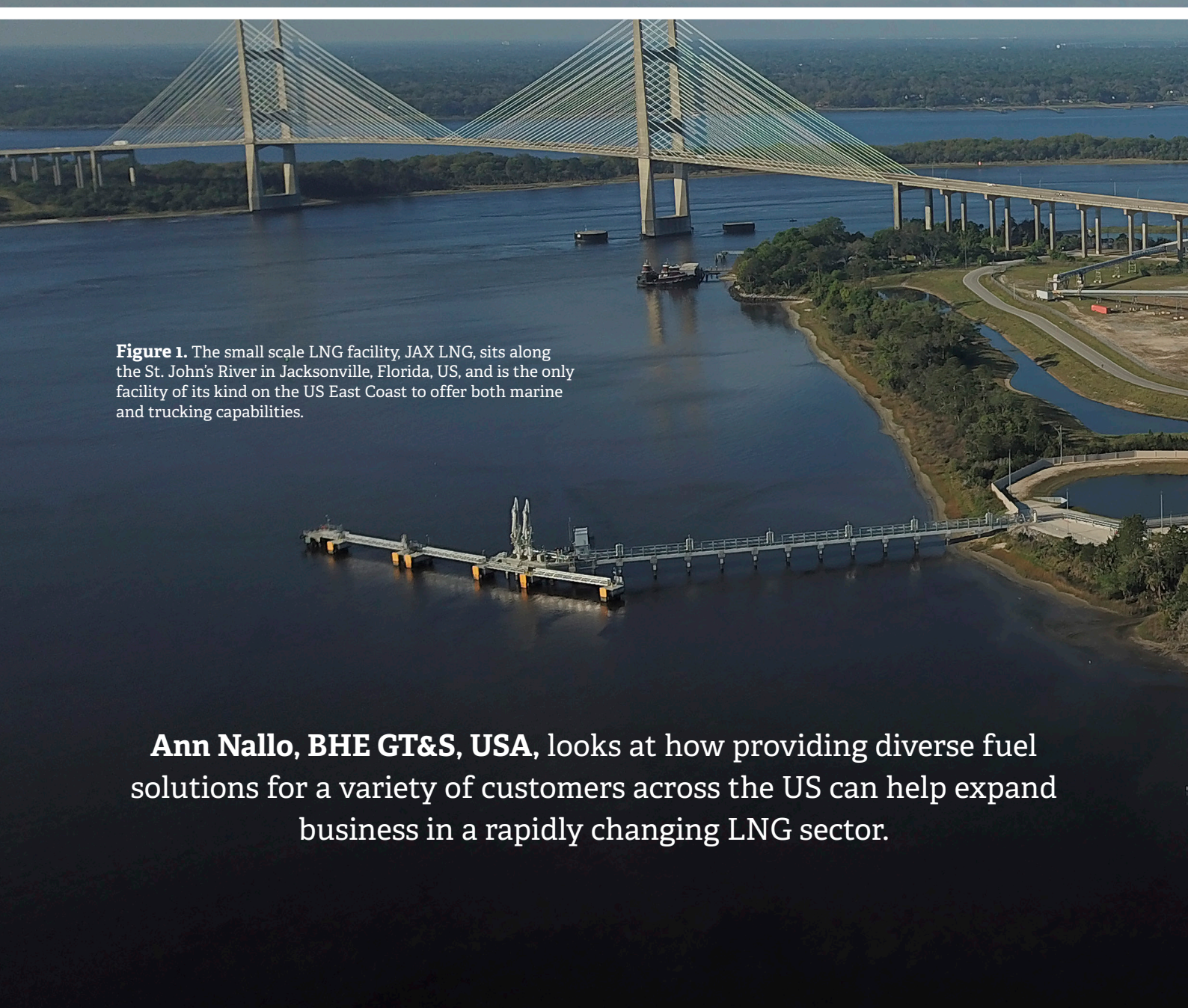


# LNG: The jack of all trades



**Figure 1.** The small scale LNG facility, JAX LNG, sits along the St. John's River in Jacksonville, Florida, US, and is the only facility of its kind on the US East Coast to offer both marine and trucking capabilities.

**Ann Nallo, BHE GT&S, USA,** looks at how providing diverse fuel solutions for a variety of customers across the US can help expand business in a rapidly changing LNG sector.



With the implementation of new International Maritime Organization (IMO) regulations in 2020 and the increasing need for a reliable and clean domestic energy supply, BHE GT&S – a Berkshire Hathaway Energy company – sees a growing trend for LNG infrastructure investments. Through the Cove Point LNG import and export facility 60 miles southeast of Washington, D.C., US, and its subsidiary Pivotal LNG, BHE GT&S has been making its name in the LNG industry for more than 15 years.

Businesses across the US today are focused on decarbonisation and BHE GT&S is actively supporting those efforts in a number of sectors, including transportation, space travel, and heavy industry. LNG, in particular, is a much cleaner fuel than the diesel or fuel oil that maritime shipping, long-haul trucking, and manufacturing have traditionally relied upon. At the same time, LNG is helping to alleviate constraints in regions where natural gas supply or infrastructure is inadequate to furnish energy needs during peak days.

Pivotal LNG owns and operates the Trussville LNG facility in Alabama, US, and the Towanda LNG facility in Pennsylvania, US, and holds a 50% ownership of the JAX LNG facility in

Jacksonville, Florida, US (the other 50% belonging to partner NorthStar Midstream). Together, the facilities currently have the capacity to produce 230 000 gal/d of LNG and to store approximately 7 million gal. of LNG.

“BHE GT&S is committed to doing our part to help transform the energy industry and make supply chains more sustainable,” said Roger Williams, VP of Commercial LNG and Gas Development at BHE GT&S. “We think our investments in LNG will go a long way to provide cleaner and lower cost solutions to our customers, such as marine shipping, that have historically had very limited fuel alternatives.”

## **Jacksonville, Florida – the cradle of US LNG marine bunkering**

Pivotal LNG has access to several LNG supply sources in the southeast, including both Trussville and JAX LNG, that provide a well-integrated supply platform for customers using LNG for trucking fuel, pipeline outages, and a range of industrial applications. This network, and the use of Pivotal’s large storage tanks, ensures customers receive the LNG that they depend on for critical operations when and where they need it,



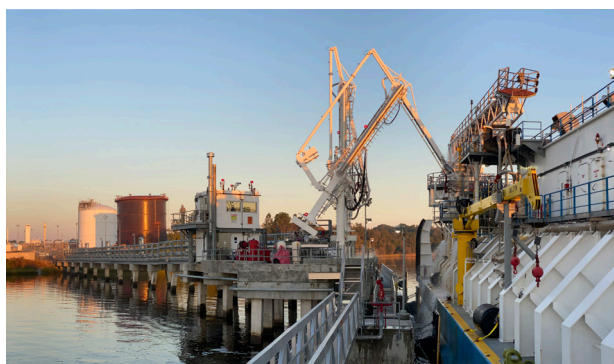


even if one of the facilities temporarily halts production due to a scheduled or unscheduled outage.

JAX LNG overlooks the St. John's River in Jacksonville, Florida, just a short distance from the Atlantic Ocean, and is the only facility of its kind on the East Coast to offer both marine and truck loading capabilities on-site. The JAX LNG facility is in a particularly ideal location to deliver LNG to maritime customers due to its proximity to JAXPORT, one of the largest cargo ports on the East Coast, and Port Canaveral, one of the largest cruise ports in the US. Within its 37-acre footprint, the state-of-the-art small scale facility connects to a firm gas supply and currently contains a liquefier, a storage tank, truck loading bay, on-site power generation, and marine loading dock.

Due to the new IMO 2020 regulations requiring a reduction in emissions from ships in international waters, ship owners are now altering their fuel sources, installing scrubbers, or constructing new LNG-fuelled ships to meet these standards. BHE GT&S sees this as an opportunity to provide its expertise and capital to further develop the required infrastructure and ensure reliable LNG supply to its customers.

JAX LNG is the LNG supplier to the world's first LNG dual-fuel container vessels – *Isla Bella* and *Perla del Caribe* – which are operated by TOTE Maritime and provide weekly shipping services to Puerto Rico. TOTE Maritime's *Clean*



**Figure 2.** Owned by TOTE Maritime, the *Clean Jacksonville* is the first LNG bunker barge built in the US. It receives LNG from the JAX LNG facility to fuel two dual-container cargo ships that service Puerto Rico.



**Figure 3.** Pivotal LNG's Trussville, Alabama, US, facility provides LNG for trucking, industrial, and aerospace companies.

*Jacksonville*, the first LNG bunker barge built in the US, receives LNG at the JAX LNG dock and then delivers it to the TOTE ships, which are berthed at nearby JAXPORT.

International maritime customers that utilise JAXPORT are increasingly looking for LNG supply. In February, JAX LNG and TOTE Maritime collaborated to provide LNG to the *Siem Confucius*, part of the newest generation of car carriers that was put into service in late 2020. The 7500 car capacity *Siem Confucius* and its sister ship, *Siem Aristotle*, are Liberian-registered and regularly call on JAXPORT to unload factory-new Volkswagen Group of America cars and SUVs. Eric Green, JAXPORT CEO, recently said, "Some of the world's most eco-friendly ships call at JAXPORT thanks to the innovation and vision of our customers and port partners. Jacksonville is a global leader in the use of LNG and we are proud to help support the continued growth of LNG in the maritime industry and beyond."

Another customer, Crowley, loads LNG onto ISO containers at JAX LNG and transports them by ship to Puerto Rico for use by its customers. In Puerto Rico, many companies have turned to LNG-fuelled electric generators to ensure they have access to around-the-clock power during periods of intermittent electric supply.

To prepare for growing LNG demand, JAX LNG is tripling its LNG production capacity to 360 000 gal/d and doubling its storage capacity to 4 million gal. – a project planned for completion in early 2022. Along with the facility expansion, NorthStar's subsidiary, Polaris, is constructing a 5400 m<sup>3</sup> LNG barge to better serve the marine industry, using LNG sourced from JAX LNG. The barge is set to be in service by late 2021. In addition, the JAX LNG facility sits next to a railway and has the capacity for further infrastructure development to serve that market when the time is right.

## Supplying the aerospace industry

Situated within a two-hour drive from the NASA Marshall Space Flight Center in Huntsville, Alabama, US, the Trussville LNG facility is helping support aerospace endeavours. For a number of years, Trussville has been providing LNG to the Flight Center towards the testing of materials and equipment. The use of LNG in the aerospace industry – and specifically near 'Rocket City' (Huntsville) – is expected to grow substantially over the next several years as the commercial aerospace industry advances LNG-powered rocket engine technology.

Last year, Pivotal LNG was awarded a NASA agency-wide supply of LNG to multiple centres to support additional testing and launches from the Kennedy Space Center in Florida. The recent indefinite delivery requirements contract will be supported by all of Pivotal's facilities.

"It is exciting to see NASA and a number of private companies looking to LNG as a rocket fuel," said Tim Delay, Vice President of Pivotal LNG. "LNG is already having a positive effect on industries and on our environment. We expect that will continue for the foreseeable future."

## Expanding into the northeastern US

Located in the heart of the Marcellus shale gas production region, the Towanda LNG facility entered service in January 2021 and offers on-site truck loading capabilities and customised LNG solutions, such as temporary tanks with vaporisers that companies can rent or buy to help meet their

energy needs. The facility is well situated to meet the needs of customers in the northeastern US who are increasingly experiencing a lack of access to natural gas, especially during periods of low temperatures.

"LNG is a low-cost and easily transportable fuel that does not compromise on reliability and is not as susceptible to price volatility as other fuels," said Lyle Henry, Director of Gas Partnership Business Development at BHE GT&S. "In the northeast especially, where you see cold winters, there is still a strong reliance on fuel oil, propane, and coal for many homes and businesses. LNG is a great option because it has a lower carbon footprint and can help solve pipeline constraints using infrastructure that is already there."

Additionally, the facility is opening doors to new markets for LNG in the northeast US. Just ahead of official in-service, LNG from the facility refuelled a marine vessel at the Port of Hamilton by Lake Ontario, Canada. It was the first ever LNG fuelling of a vessel on the Great Lakes, a major milestone in the evolution of the regional shipping industry.

## Building out a broad business

For BHE GT&S, the key to success for a growing LNG business is providing diverse solutions for commercial and industrial customers of all sizes. With LNG operations in Pennsylvania, Maryland, Alabama, and Florida, the company has already built up a strong presence across most of the eastern US and plans to continue supporting broad decarbonisation, with Cove Point and JAX LNG being well-positioned to serve as anchor points in a coastal marine strategy.



**Figure 4.** Pivotal LNG's Towanda, Pennsylvania, US, facility provides LNG for northeast utilities in a constrained market.

"I've been in the energy industry for nearly 20 years and have never seen more rapid change than I do today," said Williams. "We're working hard to do what's best for the environment and listening to customers to make sure they have the energy that supports their needs. From global trade of LNG that supports international markets to our small scale solutions for domestic customers, I'm confident LNG will continue to grow in our core markets of marine, trucking, aerospace, and constrained gas utilities. It all comes back to the fact that LNG is a cleaner, lower-carbon fuel choice and, thanks to its low-cost and abundant supply, it shows great promise for the future." **LNG**