

HHP INSIGHT DAILY



Natural Gas for High Horsepower Applications

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Stabilis Plant in Odessa, Texas

Stabilis Energy (Booth 913) said Monday that the second of its planned line-up of LNG plants will be in Odessa, in west Texas. The 100,000-gallon-per-day facility is to serve E&P customers in the Permian Basin, complementing a similarly sized plant in George West, south of San Antonio.

The George West plant, slated to open in January, will support oilfield customers in the Eagle Ford shale. It's being built with Chart Industries (Booth 718). Stabilis says it will begin taking orders for LNG from Odessa "immediately and production could begin in 2016."

"Stabilis is pleased to lay the groundwork for our second LNG liquefaction facility in *continued on page 3*



Stabilis is hosting an open house and workshop on LNG in San Antonio, featuring a tour of its new Chart-equipped liquefaction facility nearby at George West, Texas, on November 5-6.

50 CNG-Ready EMDs for NS

Norfolk Southern expects to take delivery of 50 natural gas-ready locomotives during this fourth quarter, locomotive engineering manager Allen Rider said here yesterday. They will be SD70AC units from EMD, and two are likely to be fitted with Caterpillar DGB dynamic gas blending dual fuel equipment next year. NS has written



a spec and requested quotes for a CNG tender and compressor system, he said. Caterpillar is at Booth 528.

Tote Gets MANs

The engine for the world's first LNG container ship was installed for Totem Ocean Trailer Express by GD Nassco late last month in San Diego. The engine was built in Korea according to a MAN Diesel and Turbo design. It too is breaking new ground: it's the world's first dual-fuel slow speed engine.—*More on Page 3*

Hexagon Lincoln Advocates CNG

Hexagon Lincoln is making the case for compressed natural gas as an alternative to cryogenic LNG at Booth 140. The company is showing a Titan tube trailer for Certarus, a unit that's to enter E&P service with Apache after this

week's show. It holds 2,650 diesel gallon equivalents of CNG in an array of four large – 42 inches by 38 feet – carbon fiber cylinders.

Hexagon Lincoln is also showing a 100% CNG-fueled Freightliner Cascadia truck operated by Florida's Saddle Creek. It's outfitted with the firm's Tuffshell brand Type IV all-composite CNG cylinders in a back-of-cab assembly by Agility Fuel Systems. The combined tanks hold 155 DGE of natural gas.



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Mubadala B5/27 in the Gulf of Thailand.

ECI for Locomotives and More

Tacoma, Wash.-based Energy Conversions, Inc. is detailing its broad experience in locomotive, mine, and offshore production engines at **Booth 228**.

ECI's rail expertise ranges from California's CNG-fueled Napa Valley Wine Train to LNG-fueled locomotives hauling freight for CN in Alberta – as well as locomotives in Brazil and Peru. The company has experience with both GE and Caterpillar/EMD engines, and has hardware for the latter with diesel substitution rates of up to 90%.

Earlier this year, with its distributor in Thailand, ECI commissioned the second dual fuel conversion of a Cummins KTA50 engine on an offshore Mubadala Petroleum oil rig. The engines run on a mix of diesel and raw gas produced by the rig itself.

Scott Jensen is ECI president. Dave Cook is senior engineer.

Cosmodyne Linex for LNG

Southern California-based Cosmodyne is promoting its Linex line of natural gas liquefaction units with Cryogenic Industries affiliate ACD at **Booth 850**.

The Linex plants employ Cosmodyne's environmentally friendly, and cost-effective nitrogen refrigeration technology to produce high quality fuel grade LNG. Linex designs deliver "great operating flexibility," the company says, "allowing the plant operator to easily increase and decrease production in response to fluctuating market demand while maintaining high efficiency.

"This unique load-following ability to turn down production without an efficiency penalty is ideal for LNG plants deployed in markets where demand volume is developing or variable," Cosmodyne says.

Cosmodyne uses proven commercial components in its Linex assemblies, reducing maintenance while assuring reliability. Nitrogen cycle technology allows the plant "to virtually run itself." The plants are U.S.-built on modular skids that are easily shipped and installed at the plant site.

Cosmodyne's new sales VP Greg Roche, formerly of Clean Energy Fuels, will moderate this morning's *Fundamentals of Natural Gas Procurement* plenary session.



Cosmodyne's Linex brand scalable liquefaction units 'are ideally designed for the new high horsepower users of LNG in the rail, marine, mining, trucking, and oilfield markets.'

HHP INSIGHT DAILY

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Editor

Rich Piellisch (415) 305-9050
piellisch@hhpinsight.com

Publisher

gna GLADSTEIN,
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Parker Product Launches at HHP

Multi-faceted Parker Hannifin is launching several new products here this week. Among them are SealLok Extreme, which is said to be the world's first face-seal, no-elastomer LNG fitting for trouble-free connections with specified torque values for mobile applications.

The new AFC50 (*pictured*) features advanced fuel control valves with certified electronics, full mass flow measurement and CAN Bus for enhanced control accuracy. Also new is a Veriflo brand true mass flow meter for precision natural gas engine inlet measurements.

Parker is promoting dual fuel systems with substitution up to 80% for drill rigs and power generation engines.

Parker Hannifin is at **Booth 612**.



CMR Sensors for Gas-Fueled Engines

The international CMR Group is emphasizing its state-of-the-art monitoring and instrumentation systems for high-horsepower gas engines at **Booth 130**.

CMR products on show include a new catalyst monitor for gas-fueled engines and a J1939 connect temperature sensor.

The catalyst monitor features a six-channel continuous parameter monitoring system (CPMS) and data logger for cost efficient, high quality and continual catalyst performance monitoring.

CMR's newly launched J1939 Connect CAN digital smart sensor "provides extremely reliable and accurate measurement for engines such as exhaust gas, combustion chamber and bearing temperature."

CMR is also exhibiting its range of rigid and flexible wiring systems and harnesses for primary power, marine and stationary applications.





The first of the two Marlin-class ships is to enter service in 2015.

Tote's Two LNG Container Ships

to fuel the new Marlin class ships. The two are planning a liquefaction facility at Jacksonville, Fla. – with the possibility of an LNG bunker barge to transfer the fuel.

The new Tote vessels will be “the first liquefied natural gas (LNG) powered containerships in the world and will almost double the cargo capacity available to Puerto Rico each week,” Sea Star said. They will be cleaner than existing ships, cost less to run, and “will also allow Sea Star Line more cargo flexibility to meet the ever-changing needs of Puerto Rico.”

“Improved technology and the use of LNG result in tremendous emissions reductions,” said

Tote Shipholdings project manager Ben Christian.

The first of the two ships received its engine, an LNG-diesel dual fuel 8L70ME-C8.2GI built under MAN Diesel and Turbo license by Doosan in Korea, in late August.

“Landing the world’s first low-speed, dual fuel engine on the lead Marlin Class ship signifies a shift into a new era of green ship technology,” said GD NASSCO commercial programs director Parker Larson.

Tote earlier this summer noted delivery of the engine and the vessel’s LNG fuel tank, which was also manufactured in Korea.

Separately, the U.S. Maritime Administration last month announced a \$324.6 million loan guarantee for Tote and parent Saltchuk Resources for the two Marlin-class vessels, which are to be complete in 2015 and 2016.

Operating units of Tote – Totem Ocean Trailer Express – this month formalized an agreement with their Sea Star Line affiliate for the charter of the new LNG-diesel dual fuel vessels being built by General Dynamics NASSCO in San Diego.

Tote has an agreement with Pivotal LNG (Booth 730) and WesPac Midstream (832)

Galileo Cryobox for *Francisco*

Argentina’s Galileo LNG is promoting the Cryobox at Booth 438. The \$4.5 million units have an adjustable production capacity with a maximum of 7,000 gallons of LNG per day – approximately 26.5 cubic meters.

In August Galileo celebrated the inauguration by President Cristina Fernandez de Kirchner of its facility to provide li-

quefied natural gas for *Francisco*, the GE aeroderivative turbine-powered (and Chart LNG-tanked) high-speed ferry operated by Buquebus on the Rio Plata between Buenos Aires and Montevideo, Uruguay.

The installation in San Vicente features seven of Galileo’s Cryobox units.

GE is at Booth 646. Chart is at Booth 718.



‘Stabilis’ continued from page 1

Odessa,” said CEO Casey Crenshaw.

Texas-based Stabilis comes to HHP Summit 2014 as a much larger company, having earlier this year acquired substantially all of the U.S.-based assets of Encana Natural Gas. The purchase included Encana’s LNG delivery capability for fueling the high horsepower engines used in energy exploration and production and mining, and by railroads, and ships.

Stabilis is also planning to establish LNG capacity in North Dakota, and is open to expanding to other gas-producing areas as well. Stabilis sales VP Steve Stump is to speak at the *Fuel Delivery to Frac Spreads* session in Room 261 at 10:30am today.

Also slated to speak are Travis Balaski of Ferus Natural Gas Fuels (Booth 244) and Randy Hull of Prometheus Energy (334).

PSE Sets LNG Plant Site

\$275 Million Tacoma Plant to Support Tote’s Two Ships

The Port of Tacoma has approved a lease paving the way for Puget Sound Energy to build a \$275 million dockside LNG facility south of Seattle. The 25-year lease (full rent period through 2043) covers a 33-acre site.

The planned capacity is 225,000 gallons of LNG daily. The planned storage capability is 8 million gallons (more than 30,000 cubic meters).

PSE said it expects to forge an agreement with Totem Ocean Trailer Express – Tote – to supply two large container ships that are to be converted to LNG-diesel dual fuel operation.

The first of Tote’s 839-foot Orca-class ships is slated for conversion with Wärt-

silä engines in the winter of 2015-2016 and the second the following year. The ships travel weekly between Tacoma and Anchorage, Alaska. The conversion project was announced just over two years ago.

The PSE facility, when completed, will provide enough LNG production and storage capacity to replace approximately 47 million gallons of diesel fuel a year, the utility says. Construction will entail approximately five miles of new natural gas pipeline and related infrastructure.

PSE natural gas resources director Clay Riding is to speak at the Marine Bunkering: Fueling Solutions session at 3:00pm today in Room 267.

Ferus-GE for the Bakken



GE (Booth 646) and Ferus Natural Gas Fuels (244) have launched the "Last Mile Fueling Solution" joint venture, capturing and compressing flare gas and using it to power as many as six drill rigs and a hydraulic fracturing fleet for Statoil in North Dakota's Bakken Shale. The partners are expanding a pilot project as "the first step by Statoil to move into full commercial adoption."

The Statoil Last Mile pilot project has been in place for approximately eight months near Watford City, N.D. During this time, the partners say, it has been capturing natural gas that would otherwise be flared, and putting it to work.

A GE CNG In A Box unit – a product also sold for natural gas vehicle fueling – is used to compress the captured gas, which can then be transferred via Ferus-operated tube trailers to where's it's needed. As gas-powered operations expand to more sites, more CNG In A Box compressors will be deployed, says Ferus market development manager Jed Tallman.

The commercial expansion will increase flare gas capture to "between 3 and up to 5 million standard cubic feet per day (scfd) by the end of 2014."

Westport's New 3.8L

Westport is introducing a new power unit with a 3.8-liter Hyundai engine here this week. The 3.8L Power Unit turns out 73 horsepower on natural gas or 80 horsepower on propane (continuous).

The 3.8L features Westport's WP580 electronic control unit, with injectors and regulators from Westport's OMVL and Emer subsidiaries.

Also on display at Booth 430 is Westport's existing, 36-horsepower (continuous on natural gas) 2.4L Power Unit.

Both of the industrial engines can be used in a variety of off road and stationary industrial applications, Westport says, including artificial lift for E&P operations, and power generation. They can also be used to power small vehicles.



Westport's 3.8L Power Unit



Applied Expands Its Plant at Topock

Southern California's Applied LNG is promoting turnkey availability of clean cryogenic fuel at Booth 715. Applied operates a fleet of 49 LNG tanker trailers and ten mobile fueling units for versatile fast delivery to marine, rail and E&P customers, and for off-grid power generation.

The company has an annual LNG production capability of 40 million gallons – 86,000 gallons per day at Midlothian, Texas, and 172,000 GPD at Topock, Ariz., where a second LNG train came on line this year.

THURSDAY AGENDA

7:30 a.m. - 8:30 a.m.

Continental Breakfast in the Expo Hall G
Sponsored by Air Liquide



9:00 a.m. - 10:15 a.m.

Plenary Session #3
Fundamentals of Natural Gas Procurement, Pricing Strategies, Contracts, and Risk Mitigation
La Nouvelle Orleans Ballroom

10:30 a.m. - 12:00 noon

Breakout Sessions (at right)

Breakout Session 3.1

LNG Vessels: Design to Delivery
Room 267

Breakout Session 3.2

Case Studies: Groundbreaking Drilling Operations
Room 276

Breakout Session 3.3

Fuel Delivery to Frac Spreads: Pump Up the Savings
Room 261

Breakout Session 3.4

Rail Engines & Retrofits: Crossing Over to Natural Gas
Room 279

Breakout Session 3.5

No Pipeline, No Problem: Delivering Natural Gas to Remote Locations
Room 272

12:00 noon - 1:00 p.m.

Networking in the Expo Hall G

1:00 p.m. — Expo Hall Closes