

Powering the Energy Future



Happy New Year! In this issue of our newsletter we reflect on the growing use and acceptance of LNG as a clean burning fuel alternative for energy and transportation in 2019. With North American liquefaction poised to trigger the next energy wave, the continued expansion of the European and Asian fueling infrastructure, IMO2020 emissions regulations in the marine industry, the transport of LNG by railroad, and more; the prognosis for 2020 is perhaps even better.

LNG on the rails



LNG has been approved for transport by rail in Canada since 2014. In Europe Chart and VTG teamed up to develop the LNG rail car pictured above. It has a capacity equivalent to two road trailers and is designed to transport LNG long distances and support high volume energy users, such as gas fired power stations.

LNG by rail has the potential to reduce the cost of logistics and improve the environment and it is therefore encouraging that the authorities with jurisdiction, namely PHMSA and FRA, are actively assessing changes in legislation to permit moving LNG by rail in the US.

From a safety viewpoint, LNG railcars use a double wall / tank-within-a-tank design, which is common and well proven in distributing cryogenic liquids, hazardous and non-hazardous, by road, sea and rail. No other tanker car on the rails today has such an inherently safe structure.



RailPictures.net - Image Copyright Bob Pickering (RP)

In 2016, Florida East Coast Railroad, converted its entire fleet of locomotives to dual fuel, replacing 80% of the diesel fuel with natural gas. Chart's contribution to the project was the design and manufacture of 13 LNG fuel tenders. In its popular Clean Cities series, Motorweek released a short video that highlights the environmental and economic benefits of this first-of-a-kind. *The video can be viewed here* [Florida East Coast Railway's LNG Trains](#)

Chart specialist Scott Nason has more than 25 years' experience promoting the safe and efficient conveyance of LNG by rail and was invited to speak at Gastech. You can access his paper here <https://gtls.io/34DpFnI>.

LNG to Power



The country of Peru has achieved many firsts in South American LNG. It is home to the region's first liquefaction plant and now boasts a seven city LNG distribution system that enables these communities, which are off the grid, to fuel their homes and power their industries with clean burning natural gas.

To find out more about this innovative hub and spoke virtual pipeline, access our case study <https://gtls.io/34zCDCz>.

Liquefaction

Chart's IPSMR® process technology, proprietary brazed aluminum heat exchangers, and cold boxes are the key to right-sizing mid-scale LNG. The IPSMR® process provides significantly better efficiency, and, combined with Chart's brazed aluminum heat exchangers, provides superior performance over other comparable technologies and makes it possible to optimize liquefaction systems over a wide range of site conditions. IPSMR® process technology can be configured to match available gas turbine power with single cold box capacity to 3 MMTPA.



During 2019 Chart presented the technology at multiple LNG conferences and events. We have compiled the major highlights of both IPSMR® and IPSMR+® into a short video, which you can view [here](#).

LNG Vehicle Fueling is Booming in Europe....



Significant investment in the infrastructure has seen rapid growth in the availability of LNG as a truck fuel across Europe. There are more than 30 Chart built stations in operation with more in production. Our 'Compact' modular design dramatically reduces overall footprint and facilitates quick installation and commissioning. Many Chart stations incorporate an LCNG module equipping them to fuel all natural gas vehicles. We've also spent a lot of time canvassing operators to deliver an ergonomic design that they're comfortable with. Chart stations provide refueling times consistent with those for diesel fueled trucks.

Alternoil opened [Europe's largest LNG truck fueling station](#) in Germany.

Introducing Flow Instruments

Chart subsidiary Flow Instruments provides highly accurate flow metering systems, including the DynaFlow® technology that's integral to Chart's fueling stations for clean energy vehicles. To meet increased demand, particularly from the LNG and hydrogen vehicle fueling sector, Flow is moving to a new premises in Monheim, Germany. The facility more than doubles current manufacturing capacity, incorporates a state of the art cryogenic test facility and provides improved highway access. It will be officially opened on 27th March at a ceremony attended by Jill Evanko, Chart President & CEO, and invited guests from Flow's impressive customer list.



Shipping News – International Maritime Organization (IMO) Fuel Sulphur Regulation

With the IMO poised to enforce Marpol Annex VI regulation limiting bunker fuel sulphur content to 0.5%, Chart is pleased to introduce [SEA LNG SGMF](#) and the [Marine Fuel Institute](#), three organizations that bring together thought leaders and stakeholders from the marine industry to develop a global value chain for a cleaner maritime sector, promote best practice and provide a simple transition to LNG for owners, operators, and Port Authorities.

Learn more about these groups and the work they do by clicking on the links above to access their respective websites.

Join our LNG Workshop

We held the inaugural LNG 201 workshop in October at our brazed aluminum heat exchanger (BAHX) facility in La Crosse, WI. The condensed 1 day course was specially designed to provide a deeper understanding of BAHX in relation to liquefaction technologies, from why extreme tolerances are required to an analysis of simple vs complex liquefaction processes.



LNG 101 returns in May 2020 for the third year of this popular workshop with an option for an additional day for LNG 201. Contact Cathy.Dols@ChartIndustries.com to be kept informed of details.

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