

# World Bank Zero Flaring Initiative Aims May Be Closer Than We Think

*CNG is dispensed and controlled through an on-site pressure reduction unit to fuel drilling rigs, hydraulic fracturing crews or other oilfield power applications – providing a cleaner, cheaper fuelling alternative to diesel and putting flare gas to work in the oilfield*

*(photos: GE Oil & Gas)*

Gas flaring has been a hot topic in oil and gas in recent years, in no small part because of the World Bank initiative to end all routine flaring by 2030.

BY HASAN DANDASHLEY

According to the World Bank, “140 billion cubic meters of natural gas annually causes more than 300 million tons of CO<sub>2</sub> to be emitted to the atmosphere. If this amount of gas was used for power generation, it could provide around 750 billion kWh of electricity, more than the African continent’s current annual electricity consumption.” [1]

## Shifting Tide

Flaring has been a common practice in the past, but the tide has been shifting against it. Statistics about how much total flared gas equates to and images from space showing gas being flared present a challenge for operators when they take into account the operating environment and social license.

The trend of operators around the world are for more efficient production techniques, both in terms of cost and emissions. Particularly in the current cost environment, the priority is on operational efficiency and saving of precious resources.

## New Technologies

Approximately 15% of gas associated with production is actually



**Small-scale LNG modular plants offer reduced commissioning time and costs**

flared or vented – the vast majority is reused or re-injected. Tackling that final 15%, not all of which is routine flaring, is a technological challenge. That is why GE Oil & Gas is leading the charge to bring new technologies to operators in all of their geographies.

GE Oil & Gas delivers technology solutions designed to drive long-term sustainability through its proven ability to innovate. Through this, it has been pioneering options to capture and convert flared or wasted gas to use within exploration and production operations as cleaner and cheaper fuel. Through global initiatives focus-

ing on both economic and sustainable benefits, the company has created some innovative ways to address flare gas.

Several of GE Oil & Gas’s convening technologies such as Last Mile Fueling, CNG in a Box, Jetty Boil Off Gas Recovery, Virtual Pipeline and Small-Scale LNG represent a suite of products that drive efficiency and begin to tackle flaring across varied operations across the oil and gas value chain.

## The Initiative

Bringing together GE’s natural gas fuelling technologies and expertise with maintenance and logistics

services from Ferus Natural Gas Fuels, the JV partnership called Ferus Natural Gas Fuels (CNG) works hand-in-hand with E&P customers to provide a full-service Last Mile Fueling solution (visit [www.ge.com/stories/last-mile-fueling-solution](http://www.ge.com/stories/last-mile-fueling-solution)).

The Last Mile Fueling initiative is used in North American onshore fields. A fully integrated technology and logistics system, it takes previously uneconomic natural gas directly from a flare stack, oilfield production site or remote pipeline and compresses it to deliver the final distance, or “Last Mile,” to make cleaner, cheaper fuelling economic in remote E&P areas. Utilising its CNG in a Box product platform, GE provides a modular and re-deployable system to compress natural gas to make it ready for transportation to the point of end use to fuel drilling rigs, hydraulic fracturing crews or other field power applications. It provides a cleaner, cheaper fuelling alternative to diesel and puts flare gas to work in the oilfield.

## Ambitious Collaboration

In January 2015, GE and Statoil launched an ambitious new



**The gas is then compressed on site using GE's modular, re-deployable CNG In A Box system – the compressed natural gas (CNG) is loaded into Ferus Natural Gas Fuels' specialised trailers for transportation the final distance, or the "Last Mile," to the point of end-use**

collaboration to accelerate the development of more environmentally and economically sustainable energy solutions. This joint technology-focused program will be looking at issues around flaring, with a particular emphasis in North America where gas flaring is on the rise.

Statoil is using this solution and working with GE to capture natural gas from oil wells, compressing it and using it as fuel for powering oilfield equipment instead of more expensive diesel fuel. Thanks to GE's technology, Statoil has been able to capture associated gas in the Bakken Shale Play of North Dakota and its rigs now use captured gas instead of diesel for about 50% of their fuel.

The CNG program puts the fuel to work powering rigs and equipment. Compressed natural gas (CNG) can reduce carbon emissions by 25% per vehicle and fuel costs by as much as 40%, compared with gasoline. [2] Using locally sourced CNG also displaces more expensive diesel that is

typically brought in by truck, pipeline, or rail from a considerable distance.

In the Middle East too, GE Oil & Gas technology advanced compressor technology is being used in the Jetty Boil-off Gas Recovery (JBOG) facility in Qatar. Operating the JBOG Facility will result in a 90% reduction in flaring at the six LNG loading berths at Ras Laffan Port. This recovered gas is subsequently compressed for fuel or LNG. The facility will save nearly 1 trillion cubic feet of gas for the State of Qatar over a period of 30 years, significantly reducing the Country's carbon footprint and having the capacity to power 300,000 homes per year. [3]

### Small-Scale Solutions

Where operations are particularly remote or infrastructure is particularly lacking, small localised issues to monetise associated gas require a distributed gas network approach. GE Oil & Gas can help customers with its scalable and modular Virtual Pipeline solutions. Virtual Pipeline is an alternative to

physical pipelines that can distribute gas via land or sea, replicating the continuous flow of energy via transportation logistics. Gas is processed and compressed or liquefied at its source location, transported to another location and made readily available for diesel replacement and other fuelling needs of applications ranging from industrial power generation to NGV fuelling.

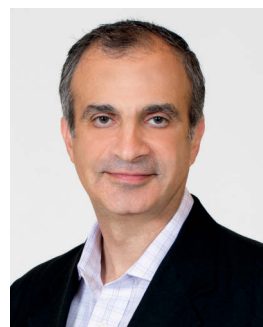
Small-scale LNG modular plants offer reduced commissioning time and costs. From design to engineering and manufacturing, the skid-mounted small-scale solutions provide a cleaner, abundant fuel source. Available with four distinct refrigeration cycles, the plant's design and equipment selection can be customised to meet production requirements. Plant commissioning time and installation and maintenance costs are reduced by fully modular designs which apply standardised components and a simplified, proprietary plant control system. Plant operability and efficiency are also enhanced. This sustainable approach is "ecomagination" certified and has demonstrated operating benefits for customers.

### Delivering Productivity

The convergence of innovations such as GE's Last Mile Fueling, CNG in a Box, Jetty Boil Off Gas

Recovery, Virtual Pipeline and Small-scale LNG are opening up multiple monetisation possibilities for gas that would have been otherwise flared. The result is savings not just in monetary terms, but also in emissions. It is providing much needed energy in upstream, midstream, and distributed power generation settings, helping to deliver the productivity needs required by oil and gas operators in the current industry environment. ■

### The Author:



Hasan Dandashly was appointed President & CEO, Downstream Technology Solutions in July 2013. He leads GE Oil & Gas' newest business providing products and services in the traditional downstream and evolving distributed gas segments. Prior to this role, Hasan led the Oil & Gas Global Services business since May 2012, based in Florence, Italy. Mr Dandashly is a graduate of the Lebanese American University in Beirut where he obtained a Bachelor's degree in Computer Science, and of the University of Minnesota, in the United States, where he received a Masters in the same subject.



**A Small-Scale LNG plant in Australia**