# Flare Capture and Emissions Reduction in the Bakken

GTUIT, LLC (www.GTUIT.com) was started by three engineers that, like many other professionals working in the Bakken, realized that the flaring of associated gas was a waste of resources and an unnecessary source of air pollution.

However, flaring is not only a North Dakota issue, **World Bank Global Gas Flaring Reduction Forum** data shows *"147 billion cubic meters (bcm) of natural gas was estimated flared in 2015 up from 145 bcm in 2014 and 141 bcm in 2013. Russia remains the world's largest gas flaring country, flaring about 21 bcm annually, followed by Iraq (16 bcm), Iran (12 bcm), the United States (12 bcm), and Venezuela (9 bcm)."*

The founders of GTUIT didn't realize the global extent of the issue. They just wanted to give Bakken producers an economic and environmental solution to reduce flaring. Fast forward seven years and GTUIT is now one of the largest well site flare capture firms and natural gas liquids recovery company in the Bakken and one with international reach.

**Background**

The firm originally designed and built equipment to meet the needs of flare reduction in the Bakken. Equipment was built for use by the company's field operations division to provide a full service solution for many of the major Bakken producers. The field operations, even during the down-turn in oil and gas commodity prices, grew to currently processing over 32 million standard cubic feet (MMSCF) per day of well site associated gas in North Dakota. The gas is processed at many locations using one or several units.

The units have three major subsystems; proprietary flow control, compression and mechanical refrigeration. The proprietary flow control manages the ebbs and surges common to producing oil and gas wells and the gas is then compressed to 150 psi and chilled to as low as $-35^0$ F. The GTUIT process separates the associated gas into valuable natural gas liquids (NGLs) and a consistent, dry, high BTU gas stream.

**GTUIT 2MMSCFD Gas Processing and NGL Recovery, North Dakota, U.S.**

The high-quality gas stream is used as fuel for natural gas fired reciprocating engines for the well site. The clean, dry gas is being used for feed-stock for compressed natural gas (CNG) and liquefied natural gas (LNG). The CNG and LNG replace higher price and less environmentally friendly diesel fuel for powering drill rigs, frac fleets and frac water heating operations. The once discarded flare gas is now used, in the field, closest to the need for a beneficial, environmentally better purpose.

Based on the success in the Bakken, GTUIT developed engineering and fabrication to meet similar opportunities in other producing oil and gas regions around the world. As a valuable part of development, GTUIT structured quality programs to be ISO 9001:2015 certified.

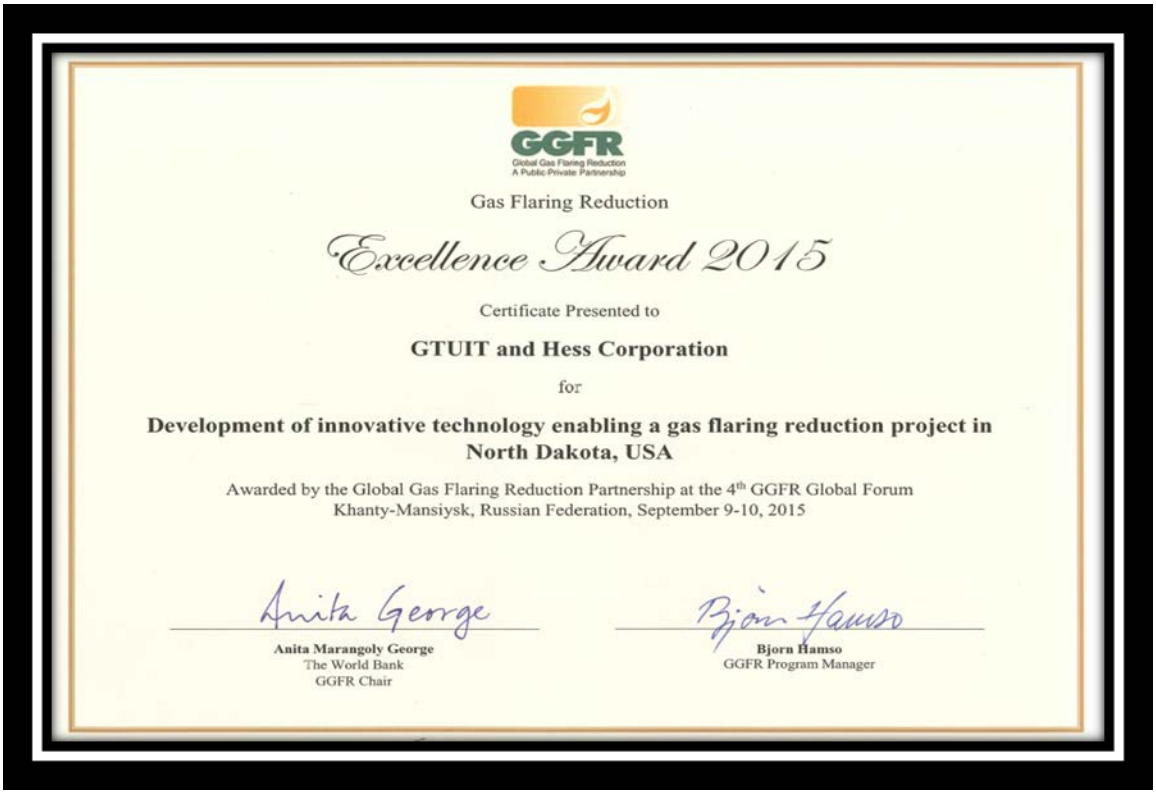
**Environmental Impacts**

GTUIT's equipment has recovered nearly 1.5 million barrels of natural gas liquids (NGL). This represents over 500,000 tons of CO2 recovered and 150,000 tons of volatile organic compounds (VOC) that were prevented from being emitted.

**Environmental Recognition**

**World Bank**

In 2015 the World Bank awarded GTUIT along with partner Hess Corporation an award of Excellence for Flaring Reduction (see below). The award was presented at the Global Gas Flaring Reduction Partnership Forum in Khanty-Mansiysk, Russia.


GGFR
Global Gas Flaring Reduction
A Public-Private Partnership

Gas Flaring Reduction

Excellence Award 2015

Certificate Presented to

**GTUIT and Hess Corporation**

for

**Development of innovative technology enabling a gas flaring reduction project in North Dakota, USA**

Awarded by the Global Gas Flaring Reduction Partnership at the 4th GGFR Global Forum
Khanty-Mansiysk, Russian Federation, September 9-10, 2015

Anita George

**Anita Marangoly George**
The World Bank
GGFR Chair

Bjorn Hamso

**Bjorn Hamso**
GGFR Program Manager

The World Bank made special note of the challenges that GTUIT faced;

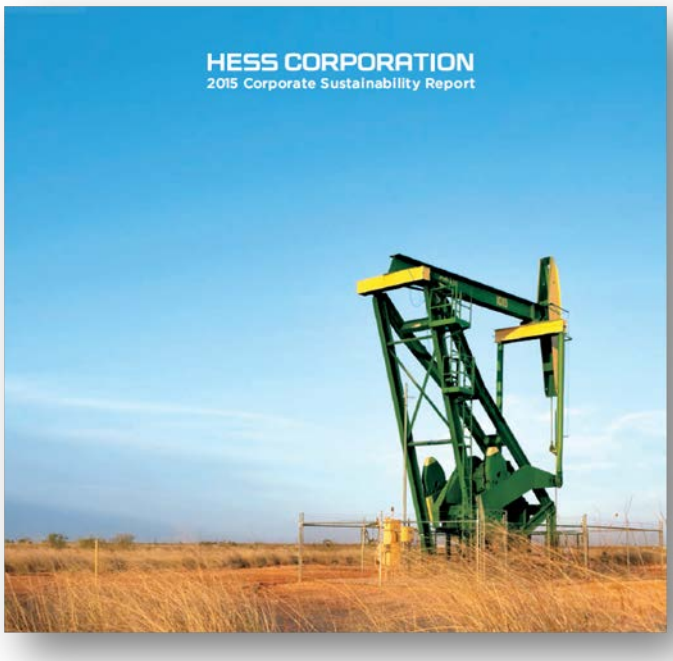
*" developing equipment that adapted to the every changing flow conditions of the well and the changing chemistry (BTU content, water content) of the associated gas, and developing unmanned, mobile and modular equipment that was reliable in oil field conditions as well as dusty and extreme environmental conditions that range from -40°F to +105°F."*

The World Bank also noted that in 2015;

"*To put these savings into perspective, the average tree in North America sequesters 911 pounds of $CO_2$ over its life (Source: U.S. EPA). Hess and GTUIT efforts resulted in saving 45,000 tons of $CO_2$ from entering the atmosphere which is the equivalent of planting nearly 100,000 trees."*

**Hess Corporation Sustainability Reports**

In Hess Corporation's 2015-2017 Corporate Sustainability Reports, they noted GTUIT's contribution to their success in environmental stewardship was due, in part, to GTUIT's recovery of 23.1 million gallons of NGL's which resulted in more than 1.5 BCF of gas not being flared, reducing GHG emissions by an estimated 143,764 tons and saving about 45,900 tons of volatile organic compounds (VOCs) from entering the atmosphere.




**Future**

GTUIT continues to grow its flare reduction services and technology, energy recovery and air emissions reduction in North Dakota and is currently expanding into other oil-producing regions of the US.

In 2016, GTUIT established an office in Dubai, UAE to bring GTUIT technology to the Middle East and Africa regions. In 2017, GTUIT installed equipment in the oil producing region of southern Colombia to condition associated gas so it could be used as fuel for both reciprocating natural gas engines and gas turbines. With the lessons learned in the Bakken, GTUIT is expanding to other oil producing regions around the world, to reduce air emissions and help energy producers recover maximum value from their resource.