

## 26th World Gas Conference

1 – 5 June 2015, Paris, France



WOC1-4: Technologies For The Monetisation Of Gas Reserves

# FROM GAS TO LIQUIDS: HISTORY AND OPPORTUNITIES

Guy de Kort Shell Global Solutions International B.V.



## **DEFINITIONS AND CAUTIONARY NOTE**

Reserves: Our use of the term "reserves" in this presentation means SEC proved oil and gas reserves.

Resources: Our use of the term "resources" in this presentation includes quantities of oil and gas not yet classified as SEC proved oil and gas reserves. Resources are consistent with the Society of Petroleum Engineers 2P and 2C definitions.

Organic: Our use of the term Organic includes SEC proved oil and gas reserves excluding changes resulting from acquisitions, divestments and year-average pricing impact.

Resources plays: Our use of the term 'resources plays' refers to tight, shale and coal bed methane oil and gas acreage.

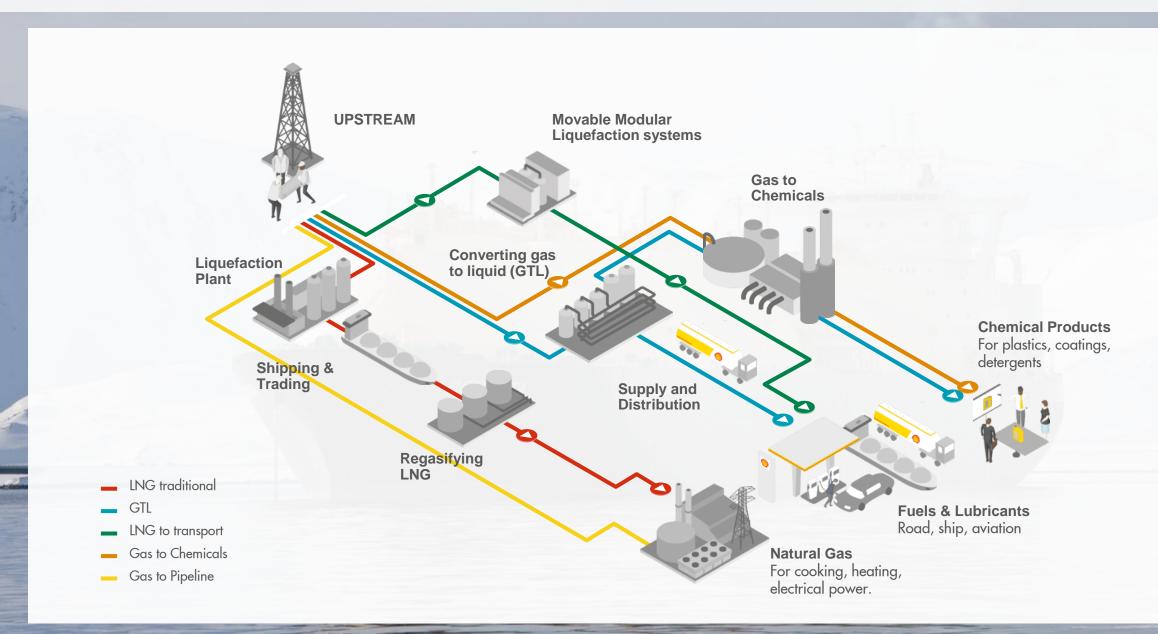
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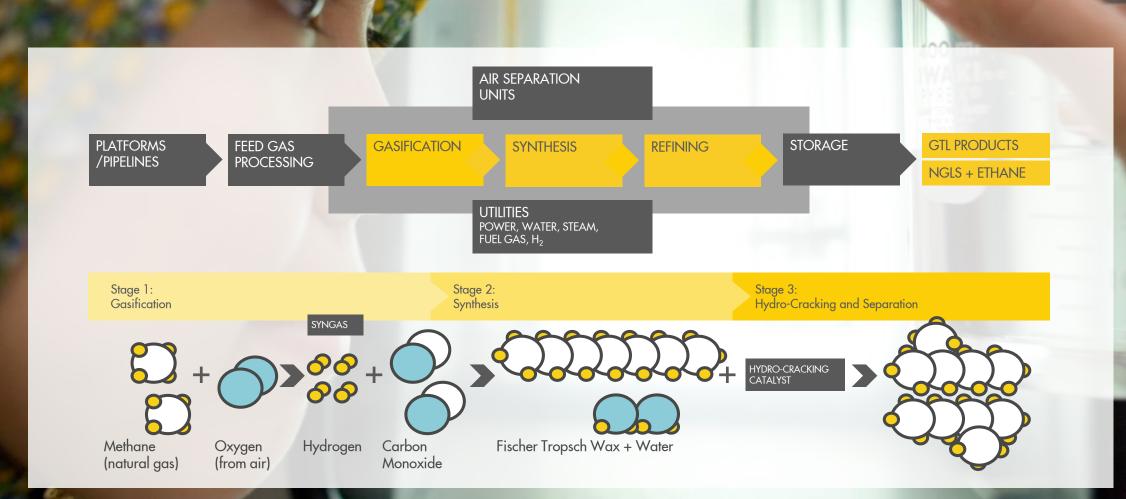
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## **GAS VALUE CHAIN**



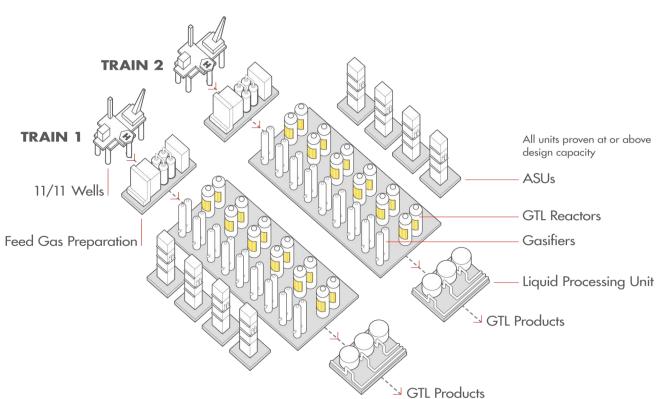
## **GAS-TO-LIQUIDS TECHNOLOGY**

#### **CATALYTIC PROCESS TO CONVERT GAS TO OIL PRODUCTS**



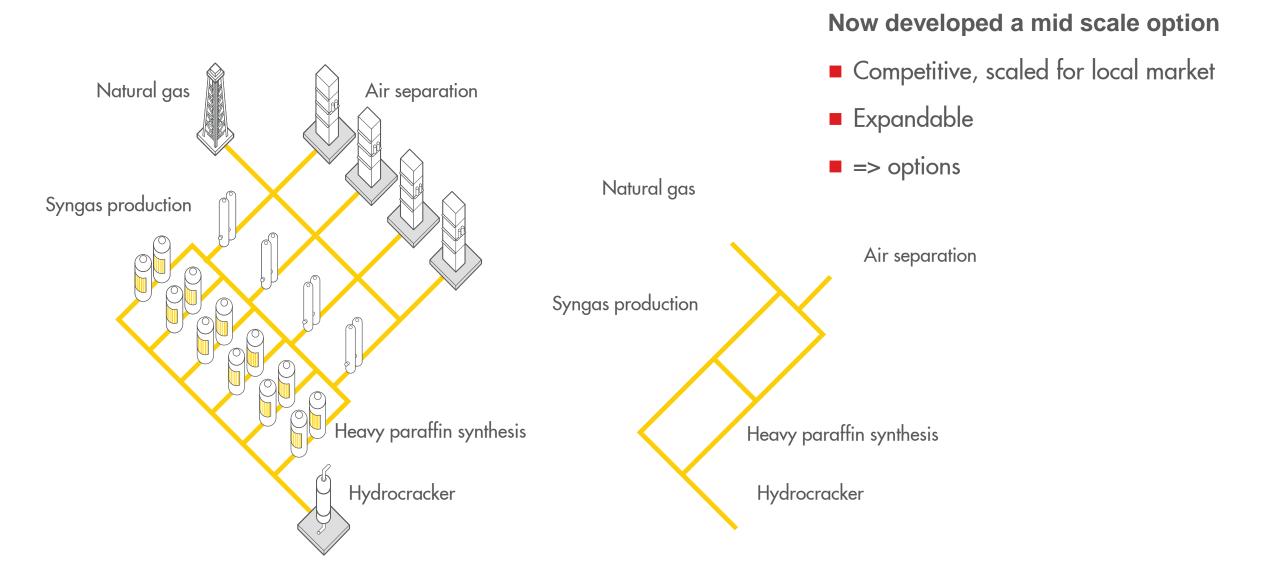






- 1.6 Bcf/d of Wet Gas
- 140 kbbl/d GTL products
- 120 kbbl/d NGLs/Ethane
- Full integration from offshore to refined products
- In production since 2011

## A SMALLER TRAIN FROM THE LARGEST BLOCKS

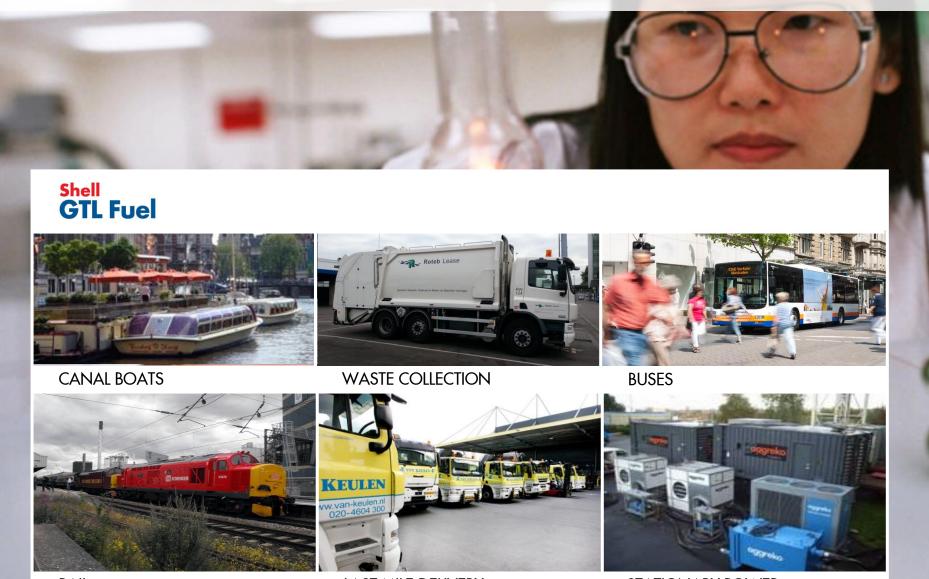


## **SHELL GTL PRODUCTS**



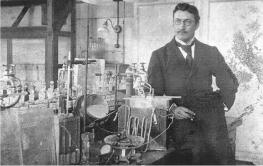
- Reduced environmental impact
- High-purity, clear & water white
- Low odor
- Synthetic, stable & consistent composition

## SECTORS WHERE SHELL GTL FUEL IS SUCCESSFULLY APPLIED

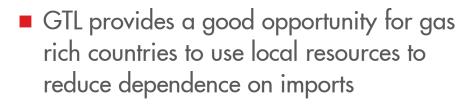


RAIL LAST MILE DELIVERY STATIONARY POWER









- GTL is a key component of Shell's suite of integrated gas solutions
- GTL plants can be designed at a variety of scales to suit the local gas resource and market

















## THE NEW ENERGY FUTURE BY 2050

#### RISING ENERGY DEMAND, SUPPLY PRESSURE, CLIMATE CHANGE



#### **Population**

9 billion people, 75% living in cities (2 billion more than today)



#### **Vehicles**

2 billion vehicles (currently 800 million)



#### **Rising standards**

Many millions of people will rise out of energy poverty; with higher living standards energy use rises



#### Demand

Energy demand could double from its level in 2000...but CO<sub>2</sub> emissions must be half today's to avoid serious climate change



### **Efficiency**

Twice as efficient, using half the energy to produce each dollar of wealth



#### Renewables

3 times more energy from renewable sources