

# *Sasol and Gas-to-Liquids Technology*



**Mike Thomas**

President Sasol North America



# Forward-looking statements

In this document we make certain statements that are not historical facts and relate to analyses and other information which are based on forecasts of future results and estimates of amounts not yet determinable. These statements may also relate to our future prospects, developments and business strategies. Examples of such forward-looking statements include, but are not limited to, statements regarding exchange rate fluctuations, volume growth, increases in market share, total shareholder return and cost reductions. Words such as "believe", "anticipate", "expect", "intend", "seek", "will", "plan", "could", "may", "endeavour" and "project" and similar expressions are intended to identify such forward-looking statements, but are not the exclusive means of identifying such statements. By their very nature, forward-looking statements involve inherent risks and uncertainties, both general and specific, and there are risks that the predictions, forecasts, projections and other forward-looking statements will not be achieved. If one or more of these risks materialise, or should underlying assumptions prove incorrect, our actual results may differ materially from those anticipated. You should understand that a number of important factors could cause actual results to differ materially from the plans, objectives, expectations, estimates and intentions expressed in such forward-looking statements. These factors are discussed more fully in our most recent annual report under the Securities Exchange Act of 1934 on Form 20-F filed on 28 September 2010 and in other filings with the United States Securities and Exchange Commission. The list of factors discussed therein is not exhaustive; when relying on forward-looking statements to make investment decisions, you should carefully consider both these factors and other uncertainties and events. Forward-looking statements apply only as of the date on which they are made, and we do not undertake any obligation to update or revise any of them, whether as a result of new information, future events or otherwise.

**Sasol: A Technology-Driven Company**

**GTL: A Next-Generation Fuel**

**GTL: A Commercial Reality**

**Sasol: Unlocking Value in North America**

**A Bright Future...**



# Sasol at a Glance

- South Africa's leading energy and chemicals company
- The world's largest producer of synthetic fuels
- Pioneer in gas-to-liquids (GTL) and coal-to-liquids (CTL) technology
- 60 years experience in CTL, GTL and related technologies
- In-house technology development capacity (~255 engineering and science PhDs)
- Strong intellectual property portfolio (490 registered patent families)



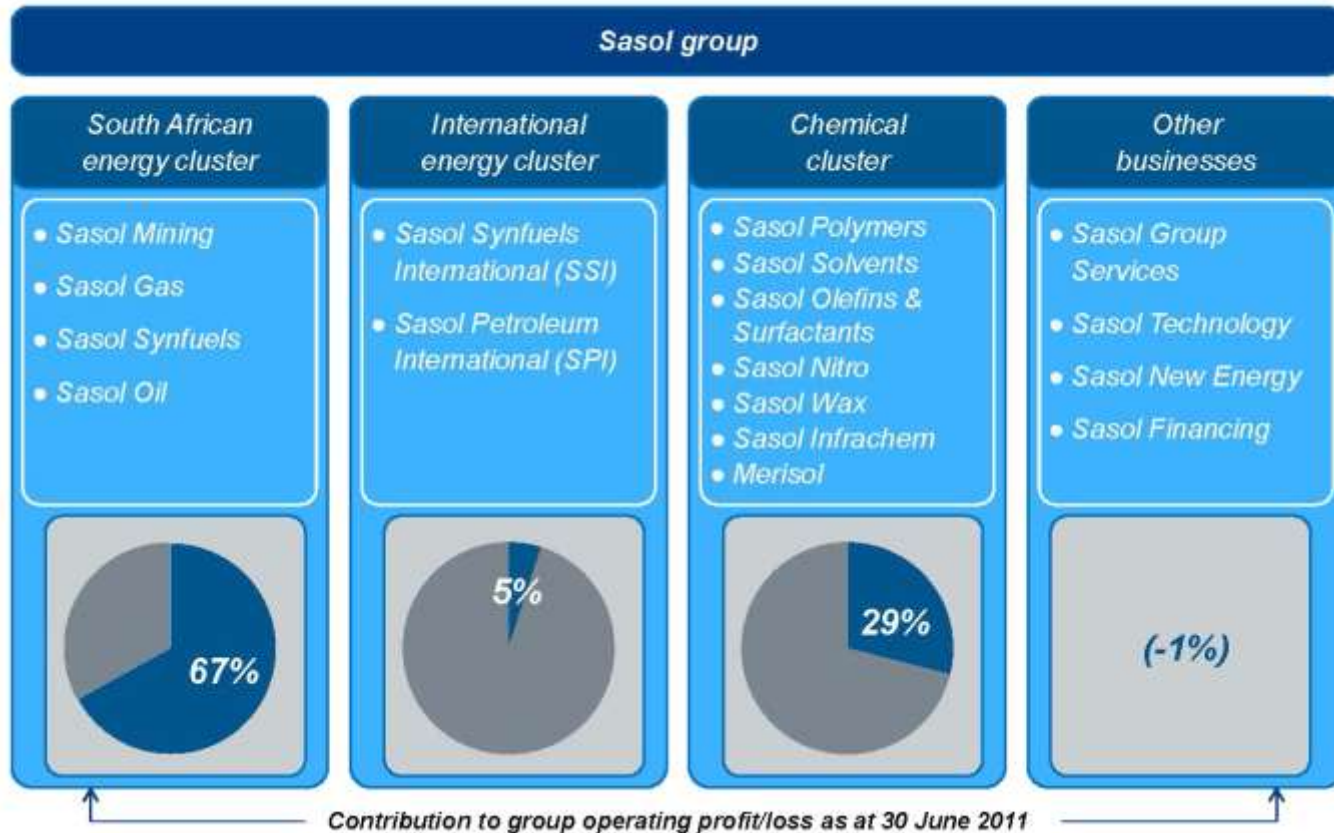
# Sasol at a Glance



- Turnover (US\$20.3bn)<sup>1</sup>
- Market cap (US\$33.4bn)<sup>2</sup>
- Listed on JSE (SOL) and NYSE (SSL)
- Exploration, development, production, marketing and sales operations in more than 35 countries
- ~34 000 employees worldwide



# Sasol – A Truly Integrated Company







# 60 Years of Operating Experience in South Africa



*More than 1.6 billion barrels of high quality fuels  
from coal and gas*

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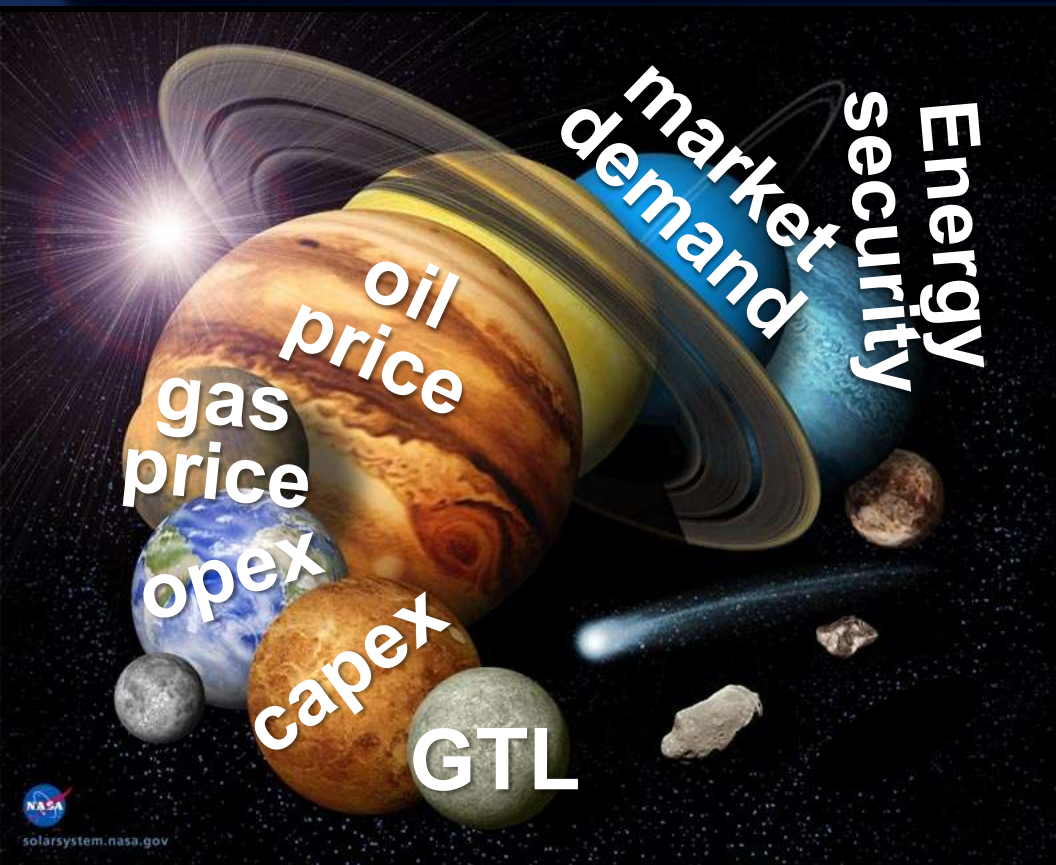
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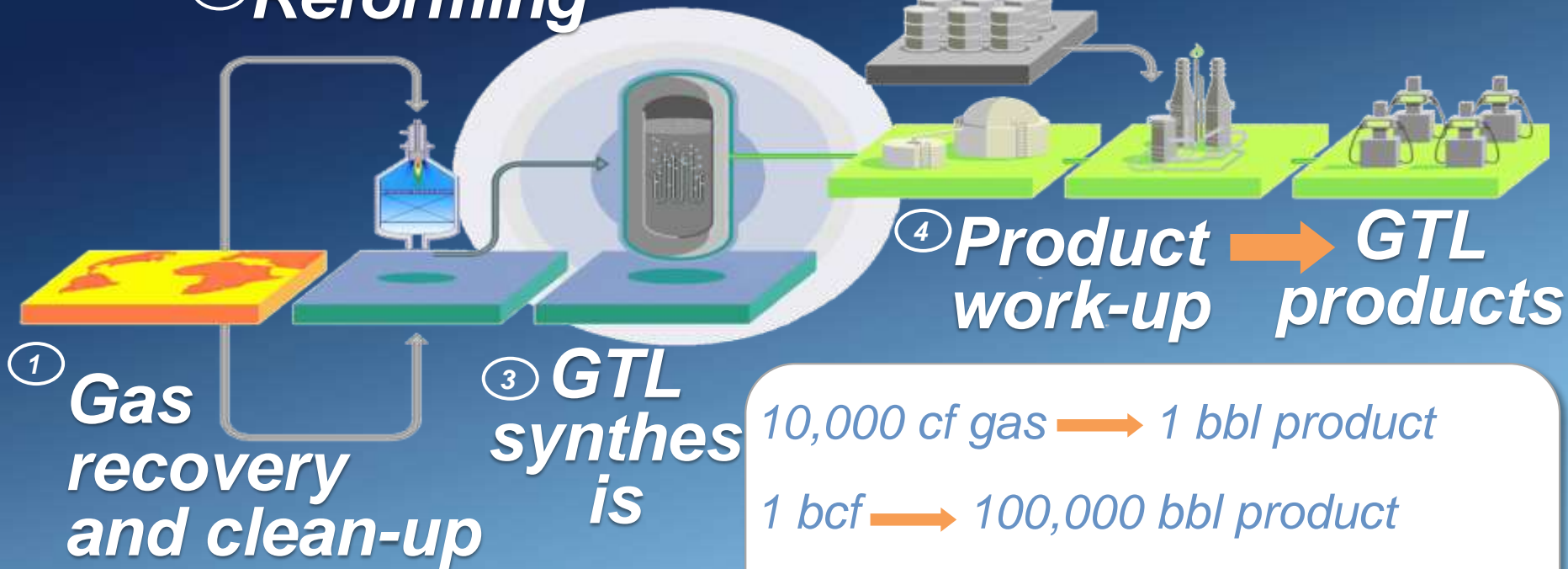
# Aligning the GTL Planets





# The Process

## ② Reforming



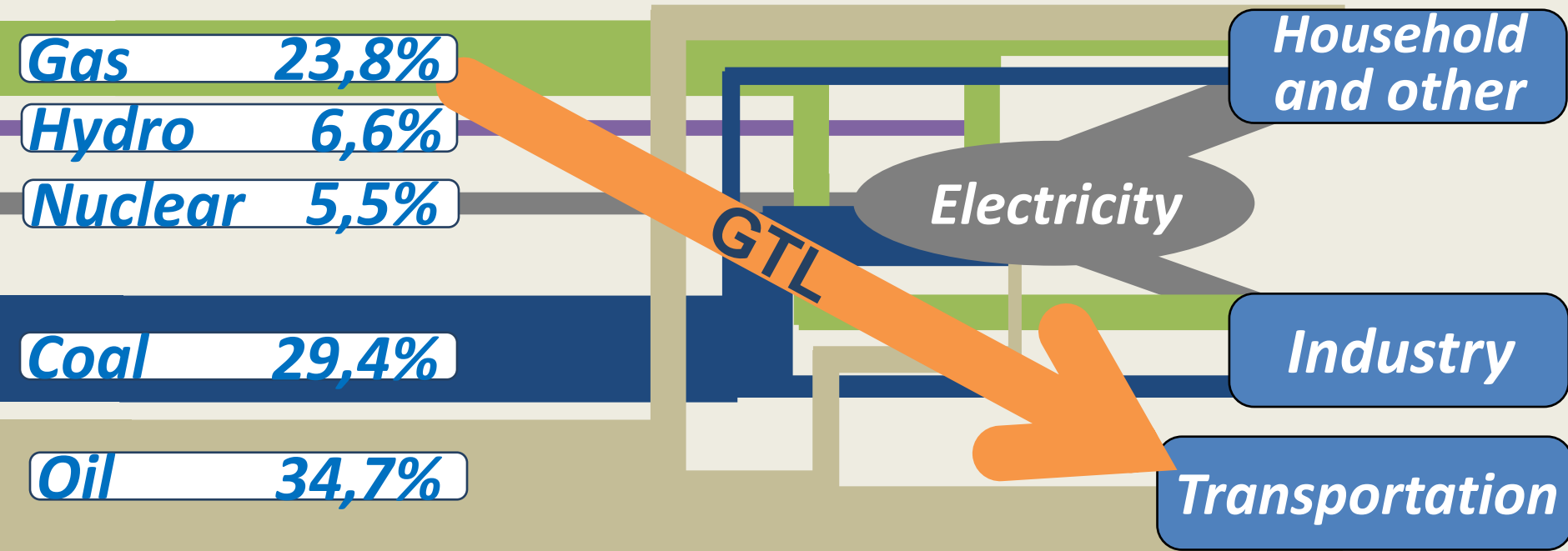
10,000 cf gas → 1 bbl product

1 bcf → 100,000 bbl product

1 tcf reserve → 10,000 bbl/d product  
30 years



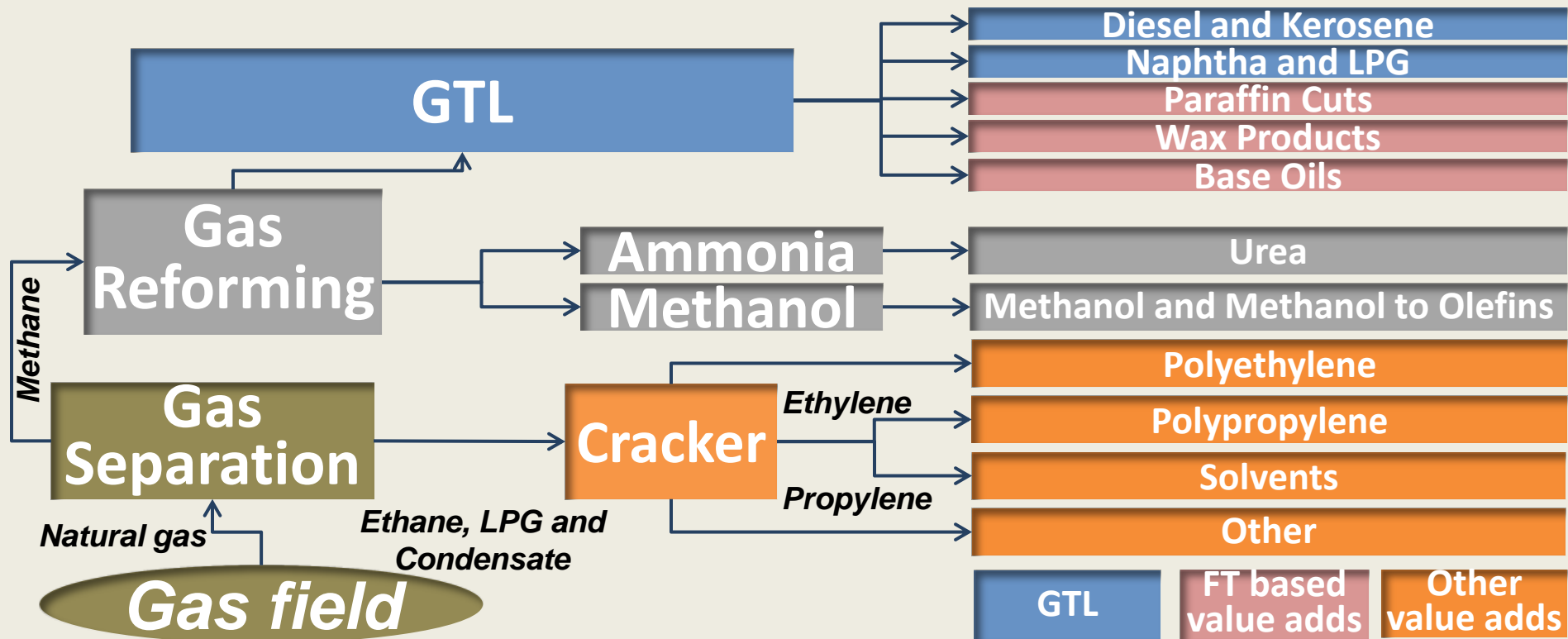
# A Pathway For Gas into the Transportation Sector



Source: EIA, BP Statistical Review of World Energy 2010, New Scientist-world energy use



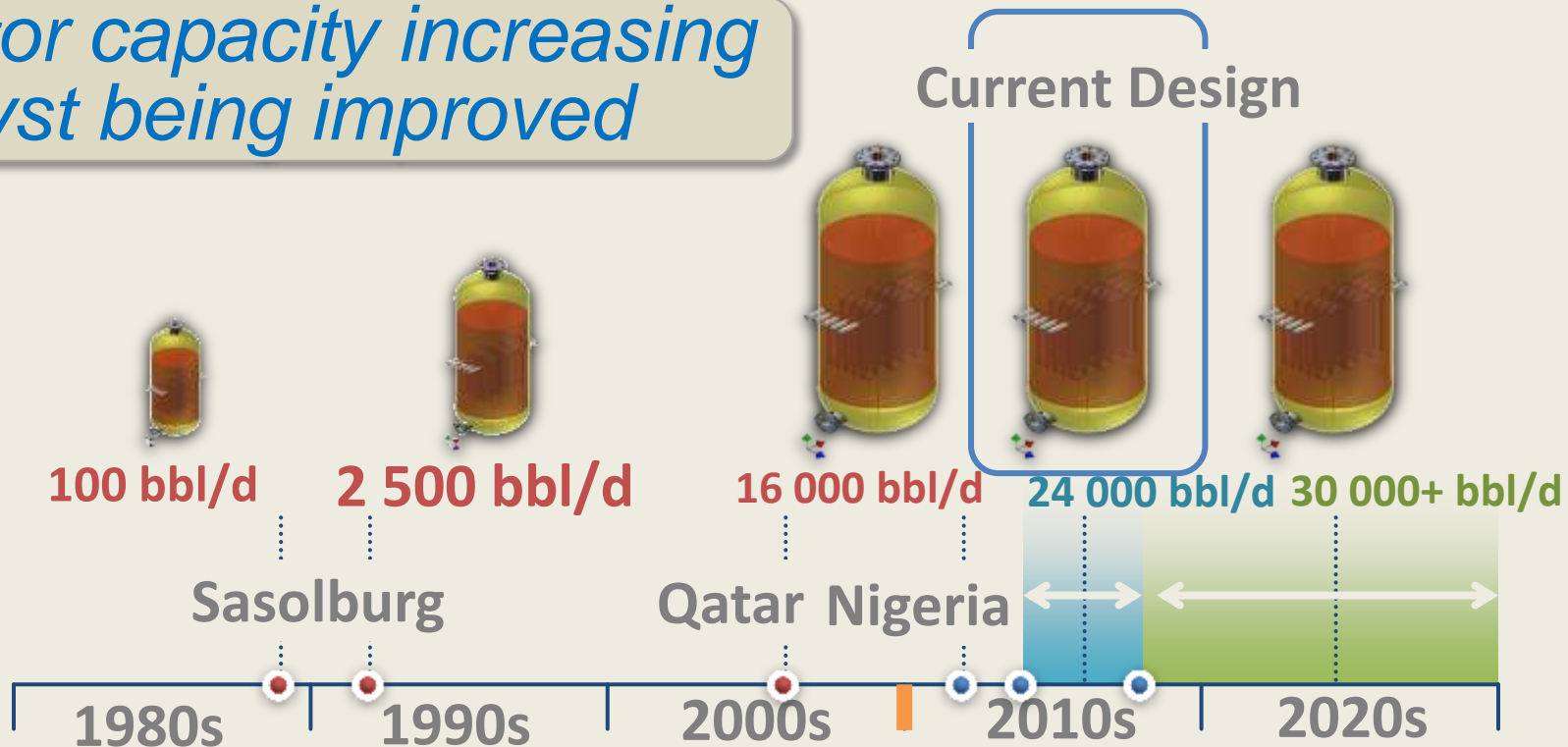
# Value Adding Expansion Potential





# Continuously Improving Technology

- *Reactor capacity increasing*
- *Catalyst being improved*







# Commercial Scale Operational Learning







# World Class Product

- Clear, clean burning fuel diesel and jet engines
- High cetane number, virtually sulphur and aromatics free
- Convenient and easy to use
- Can be used “pure” or as blend with conventional diesel/kerosene



clean clear product



clean clear performance



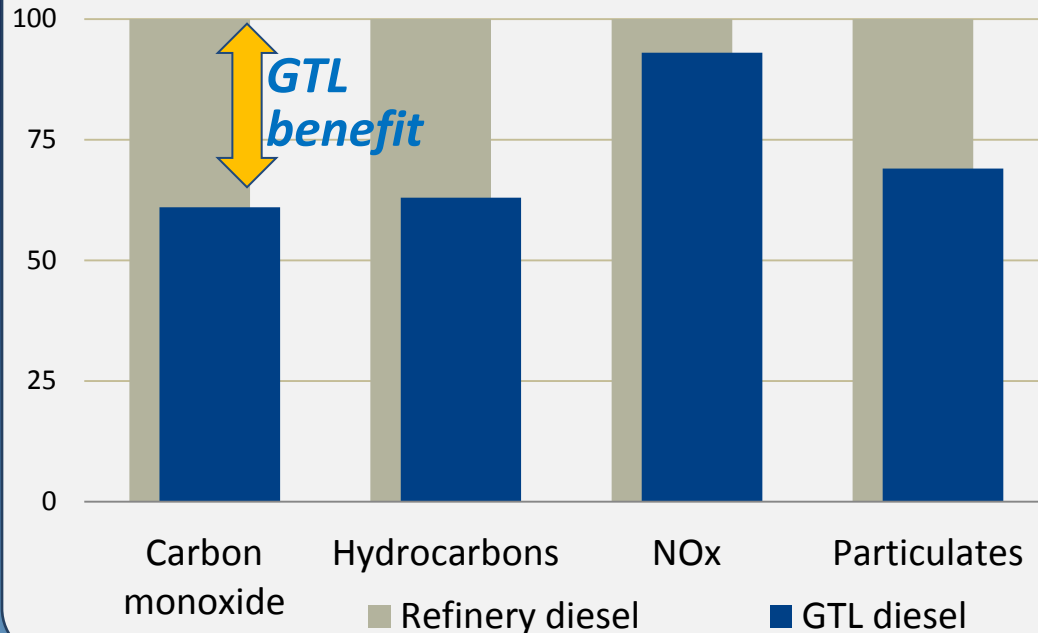
## World Class Product

- Compatible with existing engine technology and distribution infrastructure
- Enables development of new generation internal combustion engine technologies with improved engine efficiency and further reduction of tailpipe emissions
- Naphtha is an ideal cracker feedstock or diluent for oil sands



# Environmental Credibility

Emissions performance of GTL diesel



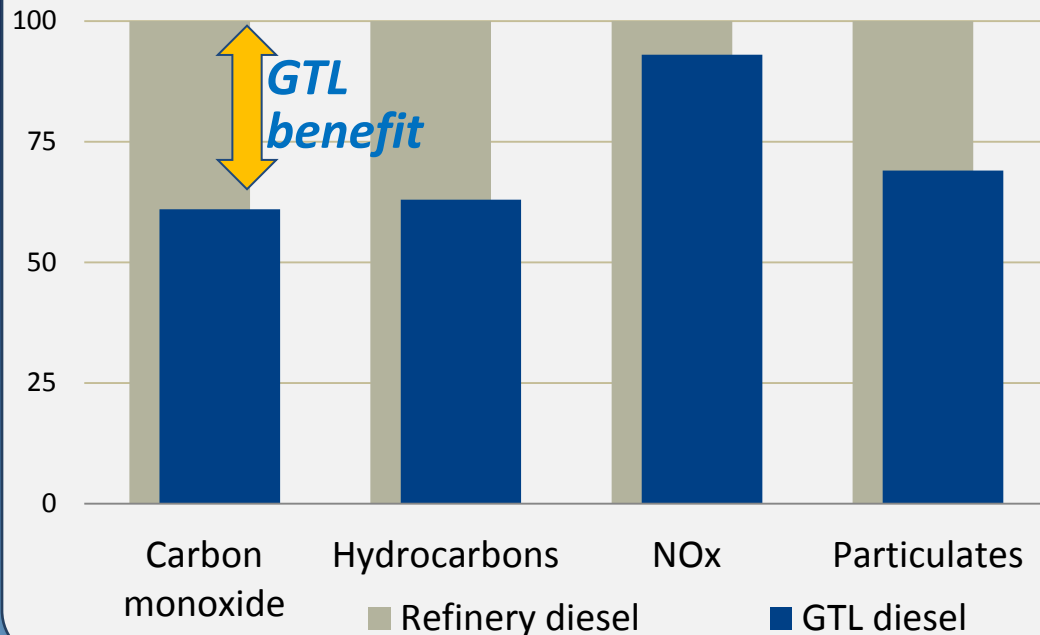
## Local air quality benefits:

High cetane number and very low levels of sulphur and aromatics ensure a more efficient and cleaner-burning combustion environment



# Environmental Credibility

Emissions performance of GTL diesel



## Comparable CO<sub>2</sub> budget:

Greenhouse gas (GHG) impact measured on a life cycle basis is lower than that of conventional diesel fuel, according to a recent peer-reviewed study published in Environmental Science and Technology.



# A Proven Pathway to Meet Growing Global Demand for Energy and Chemical Products

Abundant gas  
and coal  
resources

Resource  
monetization  
and  
diversification



GTL  
technology  
and  
operating  
experience



Need for  
energy  
security

Global drive  
for cleaner  
transportation  
fuels

In-country  
win-win  
solution

Transportation  
fuels security

Job creation

Forex savings

GDP growth



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# Up and Running in Qatar... Oryx GTL



- Operating since 2007
- Joint venture  
(Qatar Petroleum 51% and Sasol 49%)
- Design capacity = 32,400 bbl/d
- Product slate = ultra-low sulphur diesel, naphtha, and LPG



# Oryx GTL



- Stable operation at 80-90% capacity utilization
- Instantaneous production of 36,860 bbl/d achieved
- Investigating the possibility of an expansion

*Highly profitable venture  
with handsome returns to shareholders*



# Not Far Behind... Escravos GTL, Nigeria

- Under construction (completion expected in 2013)
- Sasol, Chevron Nigeria Limited and Nigerian National Petroleum Company
- Design capacity = 32,400 bbl/d







# Escravos GTL, Nigeria

- Product slate = ultra-low sulphur diesel, naphtha and LPG
- Oryx design
- Sasol technology and cobalt catalyst employed





# Uzbekistan GTL

- Uzbekneftegaz, Sasol and PETRONAS established a joint venture – December 2009
- Executing joint front end engineering and design (FEED) study
- Targeting nominal plant capacity similar to ORYX





# Uzbekistan GTL

- Product slate target = GTL diesel, GTL kerosene and GTL naphtha
- The plant will be located near the town of Karshi in the southern part of Uzbekistan
- Gas feedstock from adjacent Shurtan Gas Chemical Complex







# Developing Opportunities Elsewhere on the Global Stage...

*New focus on North America*



- ★ *GTL project under development*
- ★ *CTL project under development*
- ★ *Sasol affiliated plant operating or under construction*

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# Shale Gas: A Game Changer

*“A renewed U.S. ethane advantage has lifted the fortunes of North American petrochemical makers. A surge in supply from unconventional gas sources has increased the availability and reduced the cost of ethane and other natural gas liquid (NGL) feedstocks.”*

*--Chemical Week [Cover Story](#)*



# Shale Gas: A Game Changer

*“Some believe the potentially tremendous economic impact of the Marcellus shale will be a ‘game-changer’ for a state long dependent on the coal industry.*

*--Times-Herald, Charleston, WV*



# Shale Gas: A Game Changer

*“Cheap U.S. shale gas production could deliver massive spill-over benefits to the U.S. chemicals industry. ... Cheap natural gas will make U.S. chemicals companies cost competitive against just about everyone except the Middle East.”*

*--Citi, “Shale Gas: [A Game Changer](#) for the Chemical Industry?,” P.J. Juvekar*



# Shale Gas Boosts US Petrochemical Investment

- ACC report analyzed impact of a 25% increase in US petrochemicals supply
- Using IMPLAN model report measured:
  - New U.S. chemistry output and jobs generated by increased chemistry investment (“direct impacts”)
  - New production and jobs created in chemistry’s supplier sectors (“indirect impacts”)
  - Increase in output and jobs in broader U.S. economy as a result of spending by new employees (“induced impacts”)





# ACC Report Findings

- A 25 percent increase in petrochemicals supply generates:
  - 17,000 new jobs in the U.S. chemical industry
  - \$32 billion increase in U.S. chemical production
  - \$16.2 billion in new capital investment by the chemical industry

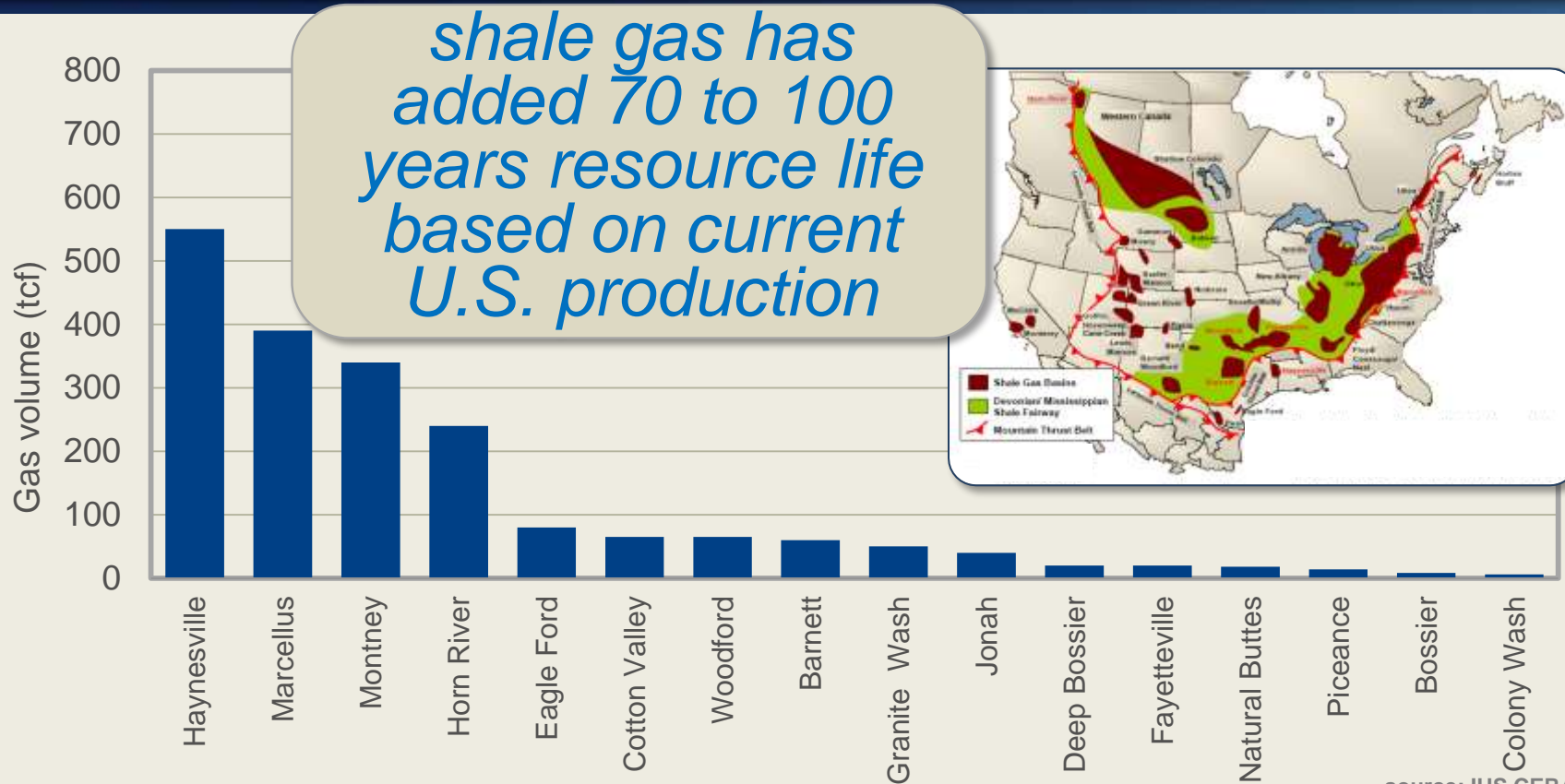


# ACC Report Findings

- 395,000 new jobs outside the chemical industry, including:
  - 165,000 jobs in supplier industries, as a result of increase in U.S. chemical production
  - 230,000 jobs from new capital investment by the chemical industry



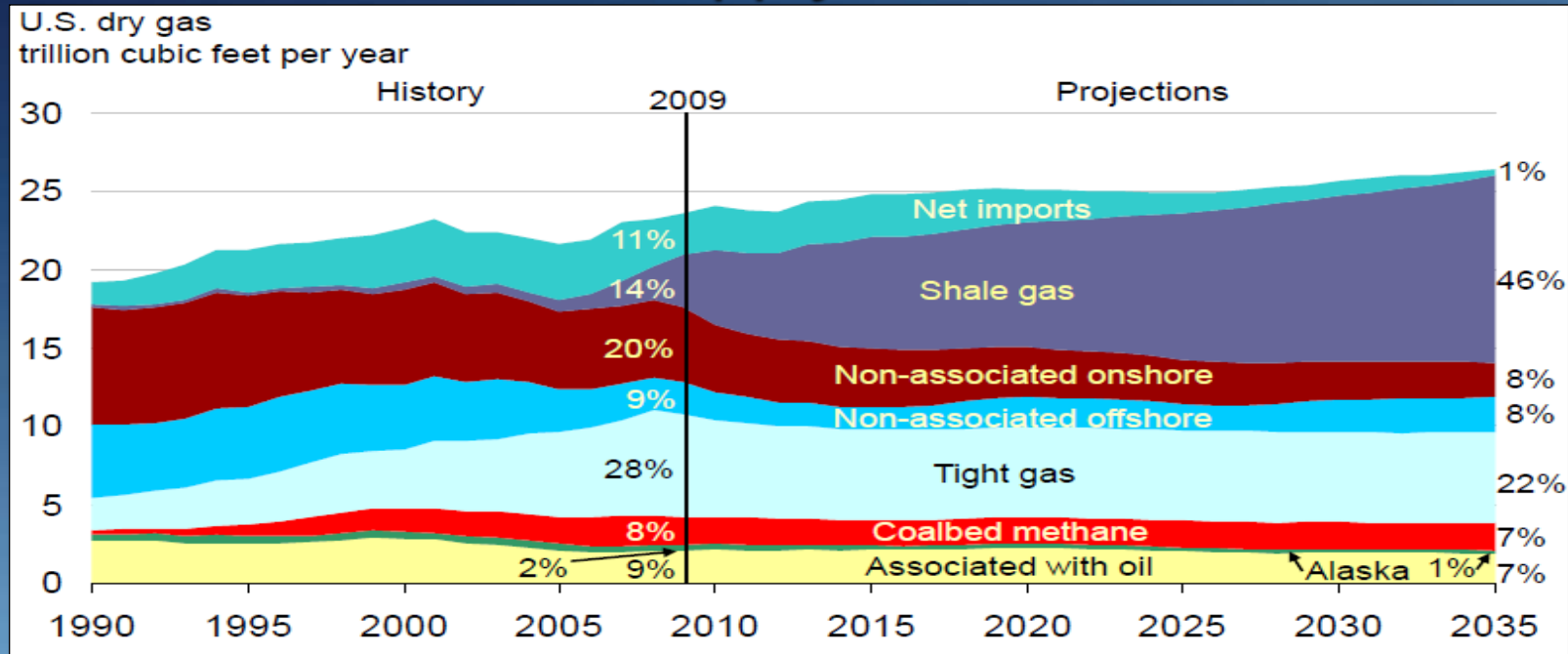
# A New Natural Gas Outlook for North America





# Monetizing Shale Gas is Key to the U.S. Energy Equation

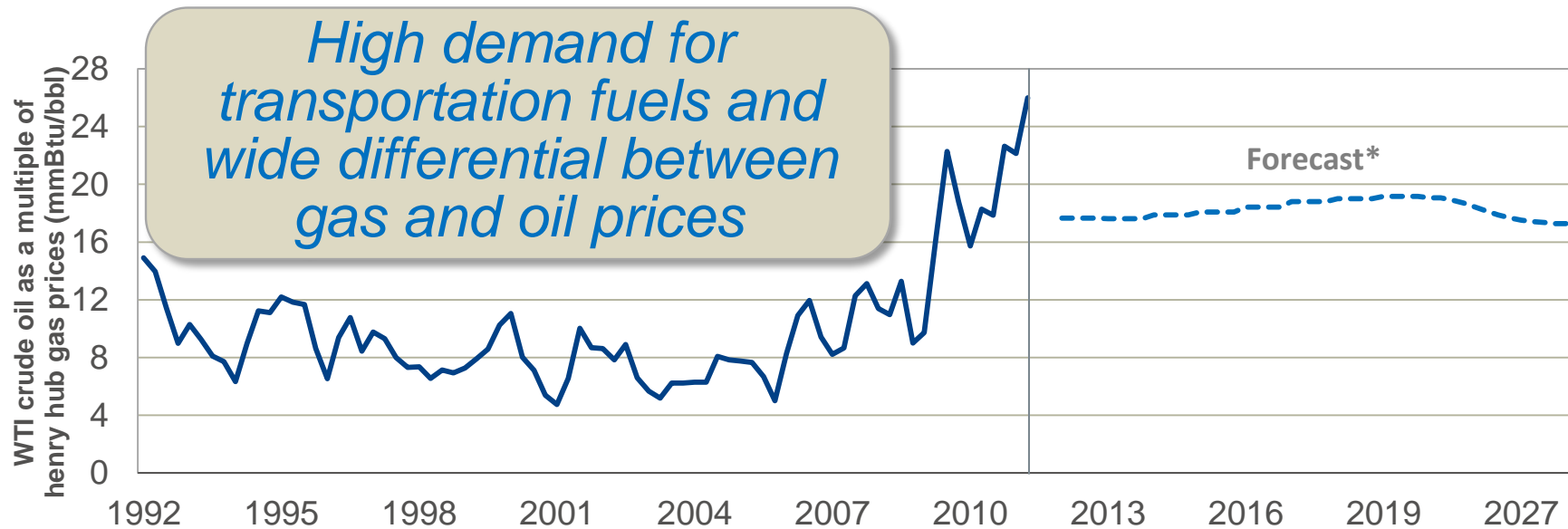
Shale gas growth offsets decline in other U.S. supply sources





# Robust Feed and Product Drivers for GTL

Crude oil prices expressed as a multiple of natural gas prices







# Unlocking Natural Gas Resources

- Sasol commenced a feasibility study on a U.S. GTL project early in 2011
- This first-of-a-kind project in the U.S. will
- Take advantage of competitively priced natural gas in North America





# Unlocking Natural Gas Resources



- Include integrated value chain opportunities and synergies (upstream and chemicals)
- Be co-located with Sasol's existing facility in Lake Charles, Louisiana
- Be 100% Sasol-owned



# A GTL Partnership - Sasol and the State of Louisiana



*Governor Bobby Jindal,  
Governor of Louisiana  
Joint GTL Announcement  
(September 13, 2011)*

- Sasol's GTL value proposition could unlock economic growth for both partners
- Production of ~ 2 or 4 mtpa
- Direct capital investment of up to \$10 billion over 3 – 4 years



# A GTL Partnership - Sasol and the State of Louisiana

- Average annual Louisiana employment of 17,150
- \$3.5 billion in annual state GDP contribution
- Personal income of about \$1.5 billion per year
- \$335 million in annual state tax receipts





# Economic Growth for All Stakeholders



A GTL facility in the US (~ 4 mtpa) has the potential to create significant macroeconomic benefits in the form of:



- Average annual direct and indirect U.S. employment of 57,000
- Average U.S. personal income contribution of about \$3.5 billion per year





# Economic Growth for All Stakeholders



- Annual U.S. GDP contribution of \$ 8.9 billion
- \$4 billion in annual U.S. exports
- \$600 million in annual U.S. tax receipts
- Increase in foreign exchange savings and improvement in balance of payment





# 60 Years + Of Technology Innovation

- Tetramerization – another example of a breakthrough Sasol process
- Construction underway in Southwest Louisiana
- Start up expected in second half of CY 2013





# 60 Years + Of Technology Innovation



Ethylene feedstock



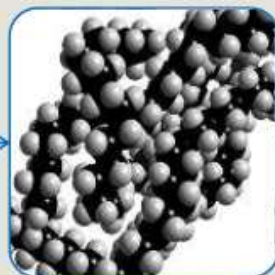
Patented catalyst



Pressure reactor



1-Octene  
1-Hexene



Liner low-density  
polyethylene (LLDPE)  
High-density  
polyethylene (HDPE)



Applications



# Ethylene Cracker Projects

- Feasibility study for a world-scale ethylene cracker and derivatives complex announced in November 2011
- “Strategic growth to take full advantage of the natural gas opportunities along the U.S. Gulf Coast and the anticipated growth will strengthen Sasol’s overall portfolio” – David Constable, Sasol CEO
- Study expected to be complete during first half of CY 2013







# Sasol in Southwest Louisiana



## Current Operations

- 6 processing units, 7 product lines
- Commodity and specialty chemicals
- Production – Approx. 3 billion
- 400 employees
- Includes R&D facility





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# A GTL Industry in North America....

- The technology is ready and Sasol has the experience to implement
- The GTL value proposition for North America is robust
- Sasol is working hard to develop a value adding GTL industry in North America





**Thank You**

**Mike Thomas, President Sasol North  
America (mike.thomas@sasol.com)**