

# Sasol beyond South Africa

## Who is Sasol?

Sasol was founded in 1950 as Suid-Afrikaanse Steenkool en Olie (South African Coal and Oil) and was the world's first coal-to-liquids refinery, now supplying 40% of South Africa's fuel. The company has technology for the conversion of low-grade coal into synthetic fuels and chemicals. The company is also involved in many other industries, such as olefins and surfactants, polymers, solvents, ammonia, wax and nitrogen (used in fertiliser and explosives), among others.



Protestors at the Global Day of Action during the UN's 17th Conference of the Parties. Photo: groundWork

## Global activities

Sasol is a global company listed on the New York and Johannesburg stock exchanges and has exploration, development, production, marketing and sales operations in thirty-eight countries across the world, including Southern Africa, the rest of Africa, the Americas, the United Kingdom, Europe, the Middle East, Northern Asia, Southeast Asia, the Far East and Australasia.

Sasol Petroleum International (SPI) is responsible for Sasol's oil and gas exploration in countries beyond South Africa, including Gabon, Nigeria, Papua New Guinea and Australia, while Sasol Synfuels International (SSI) develops gas-to-liquids (GTL) plants in places such as Latin America, Australasia, Asia-Pacific and the Middle East.



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## Africa

### Mozambique

Mozambique's current electricity generating capacity is around 2 200 MW, most of it from the Cahora Bassa hydroelectric dam. Most of that power is exported to neighbouring South Africa despite only about 18% of Mozambicans having access to electricity.

A \$2.1 billion joint venture project between Sasol and Mozambique's Empresa Nacional de Hidrocarbonetas (ENH) aims to develop a gas resource that has been 'stranded' for many years since its discovery in the 1960. The project involves extracting gas from Pande and Temane gas fields in Mozambique and transporting it through a 2118 km underground gas pipeline to Secunda, Mpumalanga, Free State, Gauteng and KwaZulu-Natal.<sup>1</sup> By mid-2014, Sasol New Energy (SNE) and Mozambican power utility Electricidade de Mocambique (EDM) will have built a \$250 million gas-to-power plant with a capacity of 175 MW to boost electricity supply to Mozambique. This power station will be supplied by gas coming from the Pande and Temane gas fields.



*Pipelines carrying gas from Mozambique to South Africa*

<http://www.un.org/africarenewal/magazine/october-2007/pipeline-benefits-mozambique-south-africa>

### Nigeria

The Escravos GTL plant in Escravos in the Niger Delta is a collaboration between Sasol Chevron (a joint venture between Sasol and Chevron), Chevron Nigeria Limited and the Nigerian National Petroleum Company. It is the second commercial-scale GTL plant outside of South Africa. The construction of the 33,000 barrel per day (b/d) facility (this is expected to be expanded to a 120,000 b/d capacity within ten years of its completion) is expected to be completed in 2012 and will be operational in 2013 at a cost of \$8.4 billion. The plant will use Sasol's Fischer-Tropsch technology and operating expertise, and Chevron's Isocracking technology.

The GTL plant will convert natural gas into fuel, diesel and GTL naphtha (a type of hydrocarbon) products and Sasol will have rights to 37.5% of the earnings.

Europe will be the primary market for all fuel products from the Nigerian plant, although some products may be sold in the US.

### Gabon

Sasol Petroleum West Africa Limited operates and produces crude oil in the Etame Oilfield off the shores of Gabon. This operation came into production in 2002. Oil is being produced at a rate of about 18 500 b/d. Sasol has a 27.75% shareholding in this field and has also discovered Ebouri and Avouma Oilfields in the Etame License area.

### Botswana

Sasol have signed a Joint Venture agreement with Origin Energy Limited, an Australian integrated energy company, for the purposes of exploring for Coal Bed Methane (CBM)<sup>2</sup> in Botswana. Sasol and Origin have signed an agreement to jointly acquire three prospecting licenses in Botswana covering an

1 Case study – Mozambique natural gas project – World Economic Forum on Africa, Tanzania 2010 [http://www.sasol.com/sasol\\_internet/downloads/WEF\\_Moz\\_case\\_study\\_1273134130298.pdf](http://www.sasol.com/sasol_internet/downloads/WEF_Moz_case_study_1273134130298.pdf)

2 Coal Bed Methane is a clean natural gas by-product of ancient plant matter, trapped in underground coal seams. CBM production is a process of desorbing natural gas from coal using wells drilled for that purpose. [http://www.sasol.com/sasol\\_internet/frontend/navigation.jsp?articleTypeID=2&articleID=31800001&navid=1&rootid=1](http://www.sasol.com/sasol_internet/frontend/navigation.jsp?articleTypeID=2&articleID=31800001&navid=1&rootid=1)

area of approximately 3,000km<sup>2</sup> in the Central province of Botswana. The joint venture partners plan to conduct a number of exploration activities in the license area during the next two years to determine the quantity of natural gas available and the feasibility for future commercial development. The project is subject to final approval by the Botswana government.

## Asia

### China

Sasol has withdrawn the proposed US\$5 billion, 94 000 b/d coal-to-liquids (CTL) joint venture project with Shenhua Ningxia Coal Industry Group in China. The two companies wanted to build the CTL plant at the Ningdong Energy and Chemical Base in the autonomous region of Ningxia Hui. The withdrawal is due to delays in having it approved by the Chinese government.

### India

Sasol and Tata are finalising a pre-feasibility study for the first CTL project in India.

## Middle East

### Qatar

Sasol Synfuel International (SSI), in partnership with Qatar Petroleum, brought the first international GTL plant, Oryx GTL, into operation at Ras Laffan, Qatar in 2007. The \$950 million Oryx plant was the first GTL plant outside South Africa to feature Sasol's Fischer-Tropsch conversion technology. The plant produces a combination of GTL diesel, GTL naphtha and liquid petroleum gas.



*The first GTL plant established by part-owner Sasol in Qatar*  
[http://www.nytimes.com/2012/12/18/business/energy-environment/sasol-betting-big-on-gas-to-liquid-plant-in-us.html?pagewanted=all&\\_r=0](http://www.nytimes.com/2012/12/18/business/energy-environment/sasol-betting-big-on-gas-to-liquid-plant-in-us.html?pagewanted=all&_r=0)

### Iran

Sasol is a 50% owner in Arya Sasol Polymer with Iran's state-owned National Petrochemical Company. The Iran plant, in the Bushehr province on the Persian Gulf, was built in 2002 and started producing ethylene in February 2009.

Sasol is under pressure from the US to divest from Iran due to the imposed sanctions. Sasol is in talks with potential buyers for its Arya Sasol Polymers plant.

### Uzbekistan

Infrastructure development has begun on the site of a planned GTL plant in Uzbekistan. The partners in the project are state-owned oil and gas firm Uzbekneftegaz, Sasol, and Malaysia's Petronas. The 38 000 b/d GTL facility will use some of Uzbekistan's gas reserves to produce a combination of GTL diesel, GTL naphtha, GTL fuels and GTL kerosene for the aviation sector. The GTL project will reduce Uzbekistan's dependence on imported crude oil and transportation fuels while aiming to improve the quality of the fuel by reducing emissions. The plant is planned to be larger in size and output than both ORYX GTL and GTL in Qatar and Nigeria.

## North America

### Louisiana

Sasol projects in North America include a facility in Westlake, Louisiana, that will turn natural gas into chemicals, diesel and other fuels and will be the biggest project of its kind in the US, and the second-biggest GTL plant in the world, producing 96,000 b/d of diesel and other liquids. The facility is projected to cost Sasol about \$21 billion. Sasol's estimated cost has risen recently by nearly \$6 billion because it went ahead without a partner to expand the number of chemicals and other products the facility can make. The chemical plant will begin operation in 2017, and the diesel plant will come on line in two stages beginning in 2018 and 2019. This plant is one of the largest foreign investment manufacturing projects in US history.

### Canada

In December 2010, in partnership with Canada's Talisman energy, Sasol acquired a 50% interest in two shale gas fields in British Columbia and is pursuing the opportunity to build the country's first GTL facility to convert natural gas into transportation fuels. The company plans to capitalise on North America's abundant gas reserves, and to benefit from the significant price differential between oil and gas.

## Europe

### Germany

Sasol-Huntsman is one of the leading suppliers of maleic anhydride<sup>3</sup> in Europe. It is a Joint Venture (50:50) between Sasol and Huntsman (US). The current production capacity of maleic anhydride is 105,000 tonnes per annum. The joint venture produces and markets maleic anhydride in Central, Western and Eastern Europe, Scandinavia, Turkey, Northern Africa, Northern America and on the Iberian Peninsula.

## Latest developments in South Africa

In South Africa, Sasol New Energy is in the final stages of constructing of a 140MW gas to power facility in Sasolburg, which is expected to be commissioned in the first quarter of the 2013. Sasol claims that it will improve air quality through reductions in nitrogen oxide, sulphur oxide and particulate emissions.

The 80 000-barrels-a-day CTL Project, Mafutha, has been suspended because it lacks a carbon capture and storage solution, which requires government financial support and which it has not committed to.

## Impacts of Sasol operations

Sasol has a history of high emissions of toxic pollutants in South Africa, in both Sasolburg, Free State, and Secunda, Mpumalanga, and it is also the second-largest emitter of green house gases in South Africa after power utility Eskom.

<sup>3</sup> Maleic anhydride is used primarily in the formation of unsaturated polyester resins for use in boats, autos, trucks, buildings, piping, and electrical goods. Lube oil adhesives synthesized from maleic anhydride are used to prolong oil-change intervals and improve engine efficiency. Maleic anhydride is also used to make copolymers, pesticides, and other organic compounds, and in Diels-Alder syntheses. <http://www.epa.gov/ttnatw01/hlthef/maleican.html>



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