

Major reserves of natural gas

RECENT FINDINGS of natural gas reserves in a number of southern African countries may point to a huge potential for exploitation of the resource in a region presently grappling with a crippling energy deficit.

The east coast of Africa has emerged in the past few years as one of the brightest spots on the global energy landscape, with large natural gas finds in Mozambique and the United Republic of Tanzania. Exploration has also taken place in all the other SADC Member States although the exact amounts of reserves are unknown for these countries.

Some of the major natural gas findings in the region are highlighted here, as well as the potential impact this has on the energy situation in SADC.

Mozambique

New offshore natural gas finds along the Mozambique coast are expected to be a "game changer" for the country and the southern African region.

United States-based firm Anadarko Petroleum Corporation has sharply raised its estimate for the amount of natural gas contained in a big field it has found off the coast of Mozambique.

Anadarko announced in November that it had increased the estimate of recoverable natural gas resources from the four discoveries made in its Offshore Area One block to between 15 trillion and 30 trillion cubic feet (tcf) of gas.

The Texas-based company had initially said the field contained 6 tcf of gas, a figure it later raised to 10 tcf in October, before going to 15 tcf in November.

To put the figures into context, the amount of gas discovered in the Anadarko block would be enough to meet one year's gas consumption by the US which requires about 30 tcf per annum.

Anadarko's chief executive, James Hackett, said the revised estimate increased the company's confidence that "this could be one of the most important natural-gas fields discovered in the last 10 years."

The announcement came just a month after Italian energy giant, Eni SpA, announced that it has found 22.5 tcf of gas off Mozambique's coast—the biggest such exploration discovery in the company's history.

These large findings are big enough to sustain the construction of a large Liquefied Natural Gas (LNG) plant in Mozambique, which would catapult the SADC Member State into the league of the world's largest gas exporters.

United Republic of Tanzania

The gas-rich waters offshore of the United Republic of Tanzania have recently attracted a number of big players, including Exxon Mobil, Statoil ASA of Norway and BG Group PLC.

Tanzania's current natural gas reserves have risen to more than 10 tcf from a previous estimate of 7.5 tcf following major gas discoveries in the country's deepwater offshore region.

Energy and Minerals Minister William Ngeleja announced in September that the SADC Member State had earmarked some of its gas deposits for export.



Natural gas – the future of energy

"Three offshore gas fields have been discovered in the deep waters and plans are underway to appraise the gas fields for possible development," Ngeleja said.

This brings the total number of gas fields found in the country's offshore area to seven.

Tanzania had previously discovered gas deposits in four areas - Songo Songo Island off the east coast, in nearby West Songo Songo, Mnazi Bay in southeastern Tanzania, and Mkuranga near Dar es Salaam.

"Preliminary indications show that Tanzania may have sizeable gas reserves of more than 10 trillion cubic feet which can beneficially be developed



to meet our local demand and for export," he said.

Two of the natural gas discoveries are already supplying gas to the country's commercial capital, Dar es Salaam, to produce electricity and to power industries.

South Africa

South Africa, like Tanzania, already has a gas market and is actively promoting the use of natural gas as an alternative source of energy.

According to South African Minister of Energy, Dipuo Peters, coal-bed methane was no longer regarded "as an obstacle in the coal mining sector but was instead fast becoming known as a commercially viable energy source."



in southern Africa?

"It is also increasingly important that we collaborate with our neighbours such as Mozambique (with whom we already have long term cooperation on gas supply), Namibia, Angola, Botswana and Zimbabwe," Peters told journalists on the sidelines of the 17th Conference of the Parties (COP17) to the United Nations Framework Convention on Climate Change that took place in Durban, South Africa from 28 November to 9 December.

She said regional cooperation similar to that which is well-established in Europe is essential if southern Africa is to tackle energy development successfully.

South Africa already imports a substantial amount of gas from Mozambique, which is



primarily used for gas-to-liquid plants and other industrial processes.

Peters said plans are currently underway to construct a gas-fired power plant with 140 megawatts capacity through a joint venture between Sasol and Mozambique's power utility Hidroelectrica de Cahora Bassa.

Botswana

Botswana announced in January that preliminary findings pointed to 196 tcf of coal bed methane in the Central Kalahari Karoo Basin.

A Coalbed Methane Exploration Study initiated by the country's Department of Geological Survey revealed that the coal

beds within the Kalahari Karoo Basin area contain a significant amount of gas reserves, which have potential to be further developed.

The government of Botswana is encouraging the private sector to come onboard and continue with the exploration and further development of the gas fields.

Angola

According to the state-owned Angolan natural gas exploration company, Sonagas, the exact amount of natural gas reserves in Angola is unknown but estimated at above 11 tcf. As in most SADC Member States, the lack of accurate data on natural gas reserves in Angola is due in part to the absence of dedicated investment as well as non-existence of a legal and contractual framework that promotes the exploration and development of natural gas in the country.

Conclusion

While current discourse in the SADC energy sector, and indeed globally, has focused on renewable energy sources, the recent findings of huge natural gas reserves point to a stronger case for substituting the existing coal and oil sources with natural gas.

The discoveries come at a time when the importance of natural gas in the global energy balance is rising. Concerns about climate change are pushing power companies to switch from coal and oil to cleaner-burning gas in electricity generation, and its potential as a transport fuel is also being widely explored.

According to the International Energy Outlook (IEO) of 2000, natural gas is the fastest growing component of primary global energy consumption.

Gas utilisation is projected to more than double between 1997 and 2020, reaching 167 tcf per annum.

The forecast within this period is that the share of total energy consumption will increase from 22 percent in 1997 to about 29 percent by 2020. At present, gas accounts for a very small percentage of energy usage in southern Africa.

Natural gas is not only beneficial in that it has less carbon content than coal and crude oil, but gas-fired plants require less water, have shorter construction times, and have lower capital costs per unit of capacity when compared to coal-fired plants.

The transition towards gas usage also has social benefits. It presents an excellent opportunity to reduce dependence on biomass.

More than 70 percent of the 270 million people in SADC presently depend on biomass such as woodfuel for their energy requirements.

Energy reforms in the region also provide the underpinnings of a vibrant future gas industry, as the reforms are increasingly leading to a distinction between public policies and private investment and operation.

The reforms have mainly focused on strengthening energy strategy formulation, with increased focus on environmental sustainability, involvement by local communities, and gender equality. □