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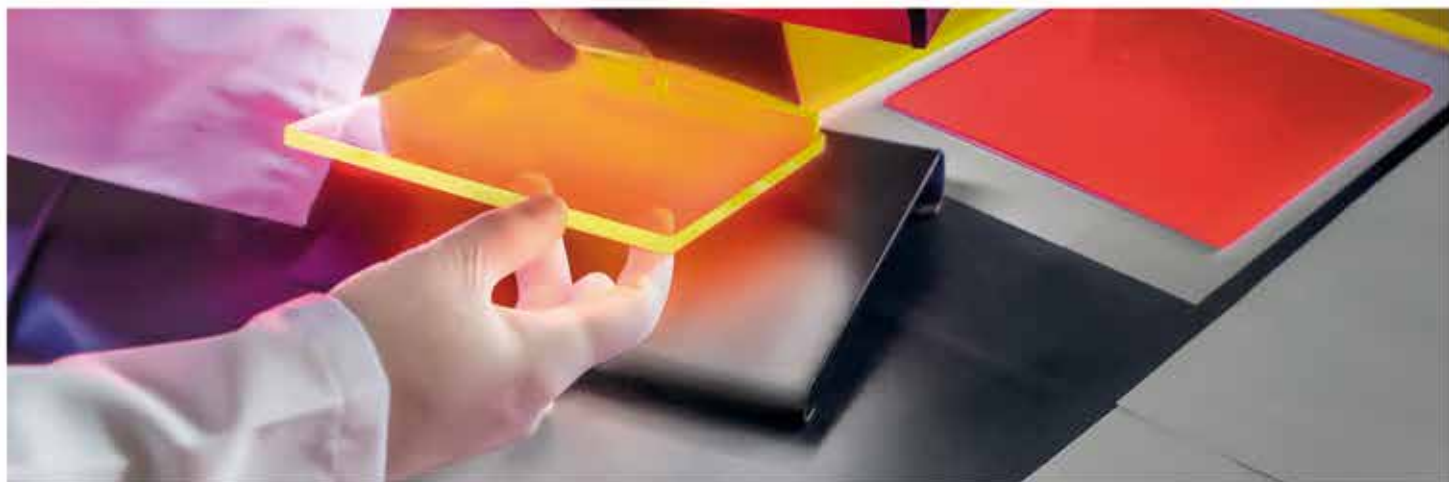
Mozambique The Energy Hub Of Southern Africa

Produced in
association with:



Hon. Ernesto Max Elias Tonela
Omar Mithá
Steve Wilson
Alessandro Nanotti

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A Bright Future On The Horizon

With stabilised growth and a low inflation rate, Mozambique has made concerted efforts to enhance the country's business environment and thus attract trade and investment to develop a diversified and prosperous economy.

O

ne of South Africa's top five African trading partners, Mozambique has been one of the 'fastest-growing economies' on the continent for the last 25 years. With peace re-established, the country's macroeconomic stability is secure and Mozambique's world-class endowments are creating attractive destinations for investment. Within the first half of 2018, Mozambique's economy grew at a rate of 3.2% with the government forecasting economic growth of 4.7% in 2019. Measured in Meticals, the local currency, economic research firm BMI forecasts that the Mozambique economy will grow on average 6.6% per annum over the next ten years. "Due to monetary and fiscal measures, we are delighted to share that economic activity has improved and its performance is increasingly more diversified," states Rogério Lucas Zandamela, the Governor of the Bank of Mozambique. With the inflation rate dropping drastically, around 5% in the last eight months and recovered

foreign exchange reserves, the country's economic prospects a positive outlook.

The UN Secretary-General has recently commended Mozambican President H.E. Mr Filipe Jacinto Nyusi, on taking the next steps towards sustainable peace. Additionally, The World Bank approved an International Development Association (IDA)* US\$150 million grant in support of Mozambique's energy sector, another example of strong and positive future outlook. "Mozambique has gone through a particular growth path," states Mr Omar Mithá, Chairman and CEO of ENH. "We are now in peace. We transformed from a planned economy with all the migraines of privatisation, depreciation of the currency and opening the banking sector for private investors. So, we have gone a long way with macroeconomic structural programmes and the future is bright."

As one of Africa's largest holders of liquefied natural gas (LNG), with reserves of around 180 trillion cubic feet, Mozambique looks to become a major exporter by 2023. ►►





“Today we have come to say, Mozambique is back as a country of prosperous economy. We intend to consolidate Mozambique’s position as a safe and strategic destiny of foreign investment in southern Africa.”

H.E. Mr Filipe Nyusi,
President
of Mozambique



www.penresa.com
info@penresa.com

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Hydropower currently accounts about 81% of installed capacity. However, natural gas and renewable energy sources occupy a growing share of Mozambique’s energy mix. Investment opportunities around natural gas abound in areas such as the supply of equipment driven by the construction of gas plants. “There was no experience before, but now the trust between us and the government has grown, and we have responded to this trust and openness by investing heavily in this country,” states Alessandro Nannotti, General Manager Upstream of Mozambique Rovuma Venture S.p.A. Fostering synergy between Mozambique as an economic frontier and other mature economic forces will be vital to ensure that these considerable natural reserves are used as an opportunity to spur inter-regional trade and development opportunities.

Possessing commercially important deposits of graphite, iron ore, titanium, bauxite, copper, gold, and tantalum, Mozambique holds some of the world’s largest untapped coal deposits sectors. An increase in coal production is expected to result in an average growth of 10.1% in the value of its exports between 2018 and 2021. This increase will likely come from Mozambique’s coal reserves of about 1.8 billion tonnes, most of which is high-quality coking coal. In recent years, the Government of Mozambique has made concerted efforts to enhance the country’s

business environment and thus attract trade and investment, particularly into the mining sector. Current mining legislation aims to ensure greater competitiveness and transparency, defining clear obligations and protecting national interests, while also protecting the rights of mining companies. With the current investment in infrastructure in the country, and expectation that mining costs in South Africa will rise considerably over the coming years, Mozambique could easily gain a regional competitive advantage.

The most recent World Economic Forum report on competitiveness called Mozambique one of the top ten tourist destinations that’s expected to record greater growth in demand for leisure travel in the next decade. President Nyusi’s administration has chosen the tourism sector as one of the four priority sectors for investment in the current governmental cycle. Since the announcement, summer beach destinations in Maputo and a rise in cheap flights have boosted growth in international arrivals to the capital which posted more than 10% growth in 2017. Now, the government has decreed that US\$200 million amount is intended for the rehabilitation of public-private infrastructures, offering great opportunities for potential investors.

“I think today there is a golden opportunity for Mozambique to provide that confidence to the world,” states Mr Omar Mithá. “Because that opportunity is not going to be an abstract narrative any longer, but rather a narrative with concrete outcomes which will shape the vision of the country.” While the short- to mid-term economic development of Mozambique remains linked to exploration of natural resources, the development of infrastructure to exploit those resources will remain a crucial enabler of that development, economy diversification and regional integration. With a favourable trading environment offering a well-developed investor protection landscape, Mozambique offers several attractive reasons to invest. “For me, there can be no more of a visible sign of confidence than to realise that these companies are putting their money where it’s worth it,” states Anadarko’s Country Manager, Mr Steve Wilson. “Mozambique is open for business, there are numerous opportunities available, for international and domestic companies now and for decades to come.”



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at the **beginning of 2019** and will provide an insider's look
at the enormous strides undertaken by the nation's economy.

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Hon. Ernesto Max Elias Tonela

Minister of Energy / Interview

Negotiating Mozambique's Gas Fields

With 5,000 billion cubic metres of reserves in the Rovuma basin and predictions of gas reserves to double by 2030, the Ministry of Mineral Resources and Energy, presided over by Hon. Tonela, pushes the nation towards becoming the world's fourth-largest gas exporter.



“Mozambique is blessed with such natural resources that can always be utilised towards the benefit of our country and the entire region (Southern African Development Community).”

In December 2017, Mozambique's energy sector underwent significant changes and adjustments: the nation took its concluding steps towards FID on its LNG project, ExxonMobil closed its US\$28 billion acquisition of its 25% stake in Area 4 from Eni, and President Nyusi appointed Hon. Ernesto Max Elias Tonela as Minister of Mineral Resources and Energy. An economist by training, Hon. Tonela has previously served as Minister of Trade and Industry and worked as financial director of the state electricity company, EDN; he was also board member for the company responsible for Mozambique's 2,000 megawatt hydroelectric dam, Hidroelectrica de Cahora Bassa (HCB). With Mozambique's extensive untapped offshore gas reserves currently being developed by leading oil and gas companies and providing much of government revenue, Hon. Tonela's role for the nation's future economic growth and development is both crucial and pivotal as he attempts (in his own words) to move the country towards “integrated and inclusive development and a full and sustainable exploitation of the resources of the extractive industry.”

The Ministry of Mineral Resources and Energy is moving fast and efficiently under Tonela's guidance. On September 6, 2018, only 15 months after the Coral South Project's Final Investment Decision, Minister Tonela, Eni and its Area 4 partners gathered at Geoje Island, in South Korea for the 'First Steel Cut' ceremony; the beginning of the construction of the 210,000 tonne Coral South's Floating Liquefied Natural Gas (FLNG) vessel. Hon. Tonela has stated that companies exploring for oil and gas in Mozambique will spend at least US\$900 million and, high on the Minister's agenda, is the commercial promotion of natural gas to be extracted over the next decade in the Rovuma basin in northern Mozambique. In July 2018, Hon. Tonela visited Thailand for gas sales talks in order to negotiate the sale of 2.6 million tonnes of liquefied natural gas (LNG) with the Consortium and Anadarko.

On October 9, 2018, ENH and ExxonMobil signed an exploration agreement for oil and gas, the contracts signed grant ExxonMobil the right to undertake oil

and gas exploration development for a maximum period of eight years. Hon. Tonela claims: “The signing of the contracts is an important landmark in establishing the conditions for the concession holders to begin their operations, which will allow Mozambique to understand better the hydrocarbon resources it possesses in the areas covered.” Minister Tonela's belief in Mozambique's potential lies in the importance of making the atmosphere investor conducive, and in this respect he is intent on looking beyond the nation for guidance and assistance. In March 2018, in order to benefit from Equatorial Guinea's wide experience in the natural gas processing sector and, indeed, its OPEC membership, Hon. Tonela and Equatoguinean Minister of Mines and Hydrocarbons, Hon. Mbega Gabriel Obiang Lima, signed a Memorandum of Understanding (MoU) to promote cooperation in the gas industry. Under this agreement, 10 Mozambican students will be trained in oil and gas operations in Equatorial Guinea.

In looking at how to project growth and independence back into the nation, in May 2018, Hon. Tonela signed an MoU agreement with Great Lakes Africa Energy (GLAE) to construct a US\$400 million, 250MW gas-fired electricity generating power plant which will use natural gas for domestic use. The Minister is also intent on electrifying all 151 district capitals by the end of 2018 and is currently working on eliminating dependence on neighbouring countries in Mozambique's border towns. At present, work is underway to connect the Milange district (on the Malawi border) to the Mozambican national grid before the end of the year.

Hon. Tonela has declared: “Mozambique is blessed with such natural resources that can always be utilised towards the benefit of our country and the entire region (Southern African Development Community).” The natural gas industry is projected to create more than 700,000 jobs by 2035 and under the Minister's guidance, the nation is carefully, but swiftly, being steered towards a future whereby Mozambican welfare and livelihood are significantly upgraded and the nation's place as gas supplier to the world is secured.

Changing The Nation's Narrative

As Mozambique's large gas reserves increases production, Empresa Nacional de Hidrocarbonetos (ENH) opens its doors to a diversified and competitive marketplace.

In an exclusive interview with Penresa, Omar Mithá, Chairman and CEO of ENH since 2015, reveals the current golden opportunities Mozambique's oil and gas sector presents to the world and further elaborates upon how this will contribute dramatically to improving Mozambican livelihood.

What is ENH's role within the nation and what are your main projects?

ENH is a state-owned enterprise. So, its role is to maximise the benefits for the country with its projects and shareholders, which are all state-owned agencies. We must also ensure that there is a local knowledge about the situation of hydrocarbons in the country and that we have a labour force that can be prepared in order to be involved actively in the oil and gas sector across the entire value chain, including in research departments, so that, in the future, we have Mozambicans who are capable to deal with the complexity of these projects.

Area 1 is an integrated project, both upstream and mainstream, and is mainly export-oriented, focusing on the premium market in Asia, particularly China, Japan, South Korea and Thailand, but also Europe. The model is from upstream production to the regasification terminal of the buyer. We will appropriate the entire value chain, enabling the project to reap the price premium.

The Final Investment Decision (FID) for Area 4 took place in June 2017, and it was rare to see companies coming forward and offering help. Mozambique was the only country to FID a LNG project worldwide at that time. That was a landmark achievement for us, because even in this situation we were attractive enough to get an offtake that was credit-warming for the financial institutions and to ensure that commercial banks were interested in funding a huge part of the capital expenditure. That speaks volumes about Mozambique's growth. Our biggest advantages are the massive resources we have and the resources that let us guarantee energy security in the long-term. We were

able to underpin supply agreements for more than 20 years. Another advantage is that our processing cost is lower, because of the quality of the gas. Exxon will be key to developing the onshore project in Mamba using two concepts. The first is to build the large-scale trains in order to lower unit costs and the second concept has to do with the market and having affiliated buyers upstream which will be aggregators, so that timing is not delayed. The two large-scale projects will have a huge beneficial impact on the country.

What do the cooperation agreements you have signed with the Chinese National Petroleum Corporation (CNPC) entail?

It is a good indication that we have a diversified base of partners, each one bringing in its know-how and track record to the table to strengthen the projects. Also having different cultures and track records strengthens the transparency that is required. It also speaks to the fact that there are synergies, because we would have foundational buyers, especially from countries that are in need of energy resources in the future. Leaving aside for one second the transition energy from fossils to renewables, I would tend to believe that having the Chinese, Japanese or the Indians as partners means exploiting a huge potential market and it is a clear indication that the investments they are doing in Mozambique are also associated with the requirements to ensure the diversification of their sources of energy for the future.

A last message of confidence.

Once the market learns that you have a narrative to transform your country and boost your vision for the future, then you can bank on that prospect. It is going to be massive for our economy. I think there is a golden opportunity today for Mozambique to provide confidence to the world, because opportunity is no longer an abstract narrative, but rather a narrative with concrete outcomes which will shape the vision of the country. It is a nation full of resources.



“Our biggest advantages are the massive resources we have and the resources that let us guarantee energy security in the long-term.”

Steve Wilson

Vice President & Country Manager of Anadarko / Interview

Mozambique's New Strategic Supply Source

In making its first discovery in the Offshore Area 1 of the deepwater Rovuma Basin in 2010, Anadarko launched one of the most important natural gas discoveries in decades.



Steve Wilson is Mozambique's Vice President & Country Manager for Anadarko, the company responsible for launching Mozambique's first onshore LNG plant. Mr Wilson, who joined Anadarko in November 2017, has forty years experience, spread across six continents, in the upstream oil and gas sector. Penresa spoke to him about Anadarko's exhilarating new Mozambique LNG project, as well as his aims and ambitions for the company.

What is the importance of Anadarko's LNG sector worldwide?

This is probably the most exciting development I have been involved with throughout my career; Anadarko's Mozambique LNG project will be the largest ever investment on the African continent. It's a once-in-a-lifetime game changer for Mozambique and an opportunity to make a transformational difference to the country. The IMF recently referred to the project as being of strategic significance to the country. Anadarko will focus on an initial two train LNG project which will have an initial capacity of 12.88 million tonnes of LNG per year. However, we have discovered approximately 75 trillion cubic feet (TCF) of estimated recoverable natural gas in total, which will also support subsequent processing train expansions. To put that in the context for the layman, 75 TCF of gas is equivalent to more than twice the total remaining oil and gas reserves in the UK North Sea. These discoveries are amongst the largest in the world in recent years, making Mozambique a new strategic supply source. For the LNG sector worldwide, we expect to come on stream at a time when global demand is forecasted to exceed supply due to the lack of new projects in the 2015-2017 timeframe, during a period of low commodity prices, and strategic buyers appearing interested in seeking new diversified sources of LNG supply.

Where do you see Mozambique position itself in the LNG sector as potential investment hub for gas projects?

As a Petroleum Engineer, I believe the Rovuma

Basin is the world's next major evolving hydrocarbon basin, as reinforced by the significant international interest in these massive natural gas discoveries. Proof of that is ExxonMobil's move to buy into Area 4 in December of last year. With these massive gas deposits in world-class fields containing prolific reservoirs, Mozambique's strategic geographical location also gives it competitive and comparable advantage over its African neighbours like Angola and Nigeria, as it is capable of exporting LNG to either Asia Pacific markets or to the Atlantic basin. So the country is very well positioned to become a global future gas hub. Now, it's difficult to differentiate yourself when you are in the early stages of growth, but the volume and quantity of the discovered gas fields and the geographic location are probably natural differentiators. This appears to be recognised by both international buyers and lenders who are demonstrating great interest in the project.

Given your recent appointment as Country Director for Anadarko in Mozambique, what are your major goals you would like to achieve for the company and country in the same time?

The initial goal is very simple; to achieve a Final Investment decision (FID) in the first half of next year, which is when the project will really get going. With the commitment to safety being our absolute top priority, our major goal is then to construct both the offshore developments and the two onshore LNG processing trains and associated facilities safely, on time and on budget, to then start gas production and ship the first LNG cargoes five years after FID. At the same time, we would like to aid the promotion of Local Industries through the Domestic Gas component of this initial project and follow-on expansions, to ultimately lead to the industrialization of Cabo Delgado, Northern Mozambique, and eventually the whole country. It is our vision that while this, and follow on expansions, will bring success for Anadarko and Area 1 participants, they will also bring prosperity for the country, the nation's population and all future generations of Mozambicans.

"Anadarko's Mozambique LNG project will be the largest ever investment on the African continent. It's a once-in-a-lifetime game changer for Mozambique and an opportunity to make a transformational difference to the country."

Game Changing The Nation

The first project to be sanctioned by the Area 4 partners, the Coral Sul FLNG warrants the development and production of superabundant gas resources discovered by Eni S.p.A in Rovuma Basin.

Alessandro Nanotti joined Eni over 10 years ago and has been involved in the company's oil and gas projects across the world ever since. He was recently appointed as General Manager Upstream of Mozambique Rovuma Venture S.p.A. (a joint venture company between Eni, ExxonMobil and CNPC). Penresa had the immense pleasure to sit down with him to discuss Eni's Coral South Project.

What is the importance of the Coral South Project for Mozambique and the LNG sector worldwide?

It's a very important project for the country and for Eni. Back in 2013, we immediately recognised the importance of the discoveries that were made here in Mozambique: we are talking about more than 85 TCF of gas in place only in Area 4, similar to the Area 1 side. We also recognised the need to develop and monetise these gas resources to LNG sales in a timely manner. These resources will dramatically change Mozambique and will help the transition from a country relying on agriculture, coal and mining to an industrialised country. This is the largest gas discovery in the last 30 years: that's 2,400 billion cubic metres. Italy consumes around 70 billion cubic metres of gas per year: which means more than 35 years of Italian gas consumption are contained in these reserves. This is an amazing discovery, the largest for Eni as an Operator, and at the same time a great challenge and responsibility.

Can you elaborate upon the development of your current projects in Mozambique?

The first of the projects in the Offshore Rovuma Basin, which is the area in the EEZ of Mozambique on the border with Tanzania, has two main blocks, Area 4 and Area 1. Through the Coral South Project, partners in Area 4 intend to develop around five TCF out of the 85 TCF using a floating LNG plant. LNG plants are very large and it's where the gas is processed, liquefied, stored and then offloaded onto LNG ships. So, this floating LNG platform is, at the same time, a processing plant, a liquefaction unit, storage unit and offloading terminal. The

construction of the hull of the ship started on September 6 this year in Korea, in Samsung Heavy Industries shipyards, only 15 months after the project had been sanctioned. The first gas is planned to happen mid 2022; in a very short time Mozambique will go from having a very small production to having the first floating LNG unit in East Africa, the first floating LNG in deep waters, the first floating LNG newly built for this ocean and from this distance to the shore in Africa. More importantly, thanks to an innovative commercial structure we managed to project finance this floating LNG: it's the first time something like this has happened, whereby a new commercial model has been established, enabled through the strong cooperation with the government. This is a both a game changer and record setting project; even insurance on this project is the largest ever done on the whole value of the vessel, in which partners will invest, for an amount up to seven billion dollars. The project-financing is the largest ever ensured in Africa and we believe that we will contribute to the economic recovery of the country by accelerating investments and trust in Mozambique.

As one of the major international investors in the country, could you give us a message of confidence about Mozambique and its investment and partnership opportunities?

In my five years on the Mozambique Programme, I have seen this country grow, modernise, open up to foreign investment, not only in the traditional fields of agriculture and mining, but also in oil and gas. We have invested heavily in this country, in the exploration phase, in the Coral South Project and in defining an even larger and new project that is now in the hands of the government for approval. And it's not just Eni that is doing this, that has trust in this country: it's Eni and its partners, including major oil companies, banks, lenders, international financial institutions, LNG buyers and construction companies. All have invested in something they believe in, and this faith starts with the country itself.



“These resources will dramatically change Mozambique and will help the transition from a country relying on agriculture, coal and mining to an industrialised country.”

Closing Article

Development of LNG Projects in Mozambique's Rovuma Basin

The Future LNG Powerhouse

With the worldwide request for cleaner and cost effective energy ever-increasing, Mozambique finds itself in the extraordinary position to meet world demands through leading LNG projects that focus on enhancing local content.

Anadarko and Eni have been making numerous and considerable gas discoveries in deep water in Mozambique since 2010, causing the country to find itself centre stage in its role in the production and distribution of Liquefied Natural Gas. At present two large-scale projects are happening simultaneously, and in the same region, with billions of dollars being invested in partnership with the nation's government in order to develop infrastructure and resources and ensure its beneficial impact upon the country.

MOZAMBIQUE LNG PROJECT

The Mozambique LNG Project, led by Anadarko (26.5%) and partners (including ENH 15%) was given official approval from Mozambique's government for the development of Golfinho/Atum field in March 2018. Located within Area 1, the project is Mozambique's first ever onshore LNG development and is, according to Omar Mithá, Chairman and CEO of ENH: "an integrated project: upstream and mainstream, two trains, with a 5.6 million capacity each to produce 12 million tonnes per annum." The Project will also initially supply volumes of approximately 100 million cubic feet per day of natural gas for domestic use in Mozambique, and is expected to have a future expansion of up to 50 million tonnes per annum. Dedicated to values such as sustainability, local content, training opportunities and safeguarding the environment, the Project is also committed to safety. "Our major goal is then to construct both the offshore developments and the two onshore LNG processing trains and associated facilities safely, on time and on budget," explains Steve Wilson, Anadarko's Vice



President & Country Manager. The project is expected to be in the position to take FID (Final Investment Decision) in the first half of 2019, with LNG production expected to commence in 2024.

SOUTH CORAL PROJECT AND THE ROVUMA LNG PROJECT

Discovered in 2012 by Eni, the Coral South field is the first project in the development of the (approximately) 450 billion cubic metres of gas in Rovuma Basin's Area 4. The Plan of Development foresees the drilling and completion of six subsea wells and the construction of the FLNG. The Coral FLNG, which weighs in at 210,000 tonnes, will be operating at a depth of 2,000 metres and 80 kilometres from the shore, and will have a capacity of 3.4 million tonnes per annum. With a multi-sourced financing agreement that has been subscribed by 15 major international banks and guaranteed by five Export Credit Agencies, it is also the first Project Finance ever arranged in the world for a liquefaction floater. Alessandro Nanotti, General Manager Upstream of Mozambique Rovuma Venture S.p.A., explains; "The insurance on the project is the largest ever done on the whole value of the vessel, in which partners will invest seven billion dollars. The project-financing is the largest ever ensured in Africa and we believe that we will contribute to the economic recovery of the country."

Rovuma LNG is operated by Mozambique Rovuma Venture. In July 2018, it submitted the first phase of their LNG project in the Mamba fields in Area 4 to the government. The plan consists of constructing two liquefied natural gas trains, each producing 7.6 million tonnes of LNG per year, with ExxonMobil leading the construction and operation of natural gas liquefaction and Eni leading the construction and operation of upstream facilities. A Final Investment Decision is due in 2019, with production expected to begin in 2024.

Both Eni and Anadarko have displayed a deep commitment to increasing local content through employment and the use of local goods and services. "We have invested more than half of our budget in Africa, as well as on improving domestic and local development and use of resources," discloses Mr Nanotti. In the city of Pemba, in Cabo Delgado this August, Mozambique's Ministry of Mineral Resources and Energy and Anadarko hosted a groundbreaking initiative with a seminar on Local Opportunities, the aim of which was to inform Mozambican companies about the business opportunities accompanying the implementation of LNG projects in the country. "We are strongly committed to ensure that our presence in Mozambique brings lasting benefits to the communities neighbouring our project," affirms Mr Wilson. "Some of these benefits will come from local content; contracts for local businesses and employment opportunities on the project."

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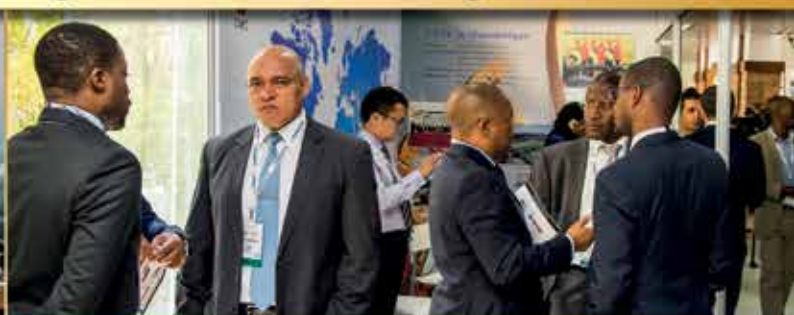
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