Cedigaz News Report

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by Constancio Silva

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Main news

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- Mitsubishi Heavy Industries, Ltd. recently announced they will sign an agreement with Mitsui O.S.K. Lines, Ltd. to build a "Sayaendo" series new-generation liquefied natural gas carrier

LNG: Supplies- Imports – Exports

- US government approval for the Freeport LNG Terminal to export LNG to countries with which the US does not have a Free Trade Agreement (FTA)
- Gazprom's monopoly of the LNG market may come to an end as competitors prepare to launch plants of their own
- GDF Suez wins contract to build $1.125 bln Uruguay LNG plant

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- A U.S.-Israeli group drilling in the eastern Mediterranean has discovered positive signs of another natural gas field off Israel's coast

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Natural Gas: Transportation – Distribution

- The planned Nabucco gas pipeline could be extended to supply countries across most of eastern and south-eastern Europe

Natural Gas: Supplies- Imports – Exports

- China to get gas from Turkmenistan's giant field
- Increasing competition for Texas natural gas supplies because of rising Mexican demand will tighten Southwest markets over the next five years

Natural Gas: Consumption

- Coal-fired power generation is slowly regaining market share from natural gas-fired power generation

Natural Gas: Companies

- Greece agreed to change some terms in the planned privatisation of natural gas distributor DEPA, opening the way for Russian energy giant Gazprom to bid for the firm
- Oil and gas group BG will focus on exploration, liquefied natural gas (LNG) and selling or partnering more of its discoveries

LNG

TRANSPORTATION-DISTRIBUTION

JAPAN: Planned project – Agreement - **CNR52/9/1**

O.S.K. Lines new generation LNG Carrier

Mitsubishi Heavy Industries, Ltd. (MHI) recently announced they will sign an agreement with Mitsui O.S.K. Lines, Ltd. to build a "Sayaendo" series new-generation liquefied natural gas carrier. According to MHI Sayaendo series ships feature a **unique structure that integrates the LNG tank cover with the ship hull, resulting in significantly improved fuel consumption and maintainability**. Starting in 2020 the new ship will be used mainly for transportation of LNG produced by the Ichthys LNG Project in Australia for the Osaka Gas Co., Ltd. and Kyushu Electric Power Co., Inc.

Mitsubishi Heavy Industries stated the new LNG carrier will measure 288.0m in length overall, 48.94m in width, and 11.55m in draft. The 138,000 gross tonnage (75,000 deadweight tonnage) ship will be capable of carrying up to **153,000 m3 of LNG** (cargo tank total volume: 155,000m3) in four Moss-type tanks at a service speed of 19.5 knots per hour. The ship will be built at the MHI Nagasaki Shipyard and Machinery Works.

Through downsizing, weight reduction and hull line improvement, Sayaendo ships will achieve a substantial 20% reduction in fuel consumption compared to conventional ships. In addition, CO2 emissions are reduced as a result of decreased fuel consumption, and response to environmental issues is further enhanced with installation of a ballast water treatment system, which addresses impact on the marine ecosystem. (May 23, 2013)

WORLD: Investment opportunities - **CNR52/9/2**

Shipping investment focuses on gas

Gas carriers cornered the largest chunk of global shipping investment last year since 2005, just as the profits to be made from shipping liquefied natural gas are falling to their lowest in almost two years. According to Clarkson shipbroker, ship owners spent US$9.1 billion on orders for vessels to haul LNG and liquefied petroleum gases, equal to 10% of total cash spent on building ships last year. And in the first four months of this year, $3.3bn was invested in gas ships out of $21.9bn in total.

The figures come as daily earnings for gas carriers fell 6.3% mid-May week to $89,000, the lowest since June 2011; rates have fallen 41% since a high of $150,000 last June, according to data from Fearnley LNG, the Oslo-based shipbrokers. LNG carrier rates reached a record last year as Japan, the biggest LNG importer, accelerated buying to compensate for its nuclear power plants closing after the Fukushima disaster in April 2011.

The current slump in LNG rates has been caused by cuts in production, particularly in Africa. Nigerian production cuts have freed 10 vessels, Egypt is reducing cargoes to eight this year from 70, and maintenance in Norway gas fields will remove 70 more cargoes this year, according to Herman Hildan, an Oslo-based analyst at the investment-banking unit of Norway's shipbroker, RS Platou Markets. A new facility in Angola expected to supply as many as 90 cargoes a year is delayed, with the seven vessels dedicated to the project adding to competition for spot cargoes.

Owners will probably hold off ordering more ships for now because about 40 per cent of those already scheduled to be built at yards lack charters, Clarkson says. That means there is no certainty they will secure business once they are completed. (May 19, 2013)

SUPPLIES - IMPORTS – EXPORTS

CANADA: Planned project – Approval - **CNR52/9/3**

Pacific NorthWest LNG awards FEED contracts for Canadian LNG export facility

Pacific NorthWest LNG Ltd. announced recently they have awarded Front-End Engineering and Design contracts for its proposed LNG facility in British Columbia to three international engineering contractors - Bechtel, KBR/JGC joint venture, and Technip/Samsung Engineering/China Huanqiu joint venture.

The Pacific NorthWest LNG proposed facility will comprise an initial development of **two LNG trains of 6 mtpa each, and a subsequent development of a third train of 6 mtpa**. Pacific NorthWest LNG is principally owned by PETRONAS. The facility will be on Canada's West Coast at Lelu Island in Port Edward.

"This world-class engineering and design work provides a tremendous opportunity to begin the process of creating an LNG knowledge centre in Vancouver," said Greg Kist, President of Pacific NorthWest LNG.

The FEED and Engineering, Procurement, Construction and Commissioning bid is expected to be complete by August 2014. At the end of 2014 Pacific NorthWest LNG partners PETRONAS and Japex, plan to make the final investment decision on the project. (May 21, 2013)

JAPAN: Import forecasts - **CNR52/9/4**

Exports from US Freeport LNG Terminal can supply Japan's power producers from 2017

US government approval for the Freeport LNG Terminal to export LNG to countries with which the US does not have a Free Trade Agreement (FTA) have brought Japan a step closer to realising cheaper supplies of natural gas for power generation. Osaka Gas and Chubu Electric have already signed liquefaction tolling agreements with Freeport LNG, back in July 2012, to each acquire a **2.2 mtpa** production capacity of the first train at Freeport, potentially as early as in 2017. Under the terms of the agreements, Osaka Gas and Chubu Electric will be able to secure LNG produced from US natural gas which they have procured in the country.

Demand for gas in Japan surged post Fukushima The use of natural gas in power generation in Japan has risen by 15% between 2011 and 2012, according to information from the US EIA. Thermal power generation including gas now makes up 90% of Japan's energy mix.

As a result of the increased use of gas-fired power, Japan's electric power utilities have been using more gas, largely in the form of imported LNG. The use of LNG set a record level in January 2012 when it neared 9 billion cubic feet per day, a figure representing a 2 billion cubic feet per day increase from early 2011. Overall, Japan is the world's largest importer of LNG.

The future of gas-fired power generation depends heavily on a decision on whether or not to restart the country's shut down nuclear reactors. The restart of the reactors requires the approval of both the newly established Nuclear Regulation Authority (NRA) and the Natural Resources and Energy Agency of the Ministry of Economy, Trade and Industry. The NRA is set to announce a final series of nuclear safety regulations in July 2013, designed to prevent a repeat of the Fukushima disaster.

According to a January position paper from the Institute for Energy Economics in Japan (IEEJ), restarting twenty six of the country's nuclear power stations in 2014 would lower the electricity fuel cost by 1.8 trillion yen ($0.019) and reduce generation costs by about 2 yen/kWh. (May 20, 2013)

NIGERIA: Planned project – Delay **CNR52/9/5**

Senate decries delay over Brass LNG project

The Senate has expressed worry over the delay in the take-off of the **10 million-metric tonne per year Brass LNG project** in the country. The lawmakers have therefore, vowed to work towards ensuring that the **Final Investment Decision (FID) is taken on Brass LNG before the end of the year** despite its current setbacks. It identified political interference as one of the reasons the promoters of the Brass LNG project were yet to take the Final Investment Decision.

The Brass LNG's Final Investment Decision was supposed to have been taken in the first quarter of 2011. Construction was also expected to have started by mid 2011 and it was to be completed by 2016.

Chairman, Senate committee on Gas Resources, Senator Nkechi Nwaogu said that the committee would ensure that it contributes its quota to ensure the quick take off of the multi-billion dollar project. She said that the Senate believed that the government should provide a conducive environment for investors in the oil and gas sector, adding that there was need for infrastructural development and concession to encourage foreign direct investment and prevent investors from going to neighbouring countries to invest. (May 19, 2013)

PAPUA NEW GUINEA: Talks -**CNR52/9/6**

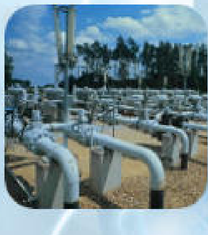
InterOil Is in final talks on 'multi-billion dollar' LNG deal

InterOil Corp. (IOC), which plans to develop a liquefied natural gas project in Papua New Guinea, is in the **final stage of talks** with major oil producers and a national oil company for a "multi-billion dollar" partnership.

Royal Dutch Shell Plc, Europe's largest oil company, said last year it had discussions with InterOil and was interested in the proposed Papua New Guinea LNG plant. Exxon Mobil Corp. is already building a $19 billion project in Papua New Guinea to export gas to Asia. The cost of Exxon's venture jumped 21% last year because of a stronger Australian dollar and construction delays.

InterOil said on March 1 it had received several partnership bids for the Papua New Guinea project and its advisers were evaluating the offers. The development will rely on natural gas from the Elk and Antelope fields in Papua New Guinea, according to the company. (May 14, 2013)

UNDERGROUND GAS STORAGE in the World



THE FIFTH EDITION OF CEDIGAZ'S REFERENCE REPORT ON "UNDERGROUND GAS STORAGE IN THE WORLD" WILL BE PUBLISHED IN JUNE 2013

Since its first publication in 1990, **"Underground Gas Storage in the World"** has been the industry's reference on underground gas storage (UGS). The updated 2013 edition includes in-depth CEDIGAZ's analyses of the latest developments and trends in the storage industry all over the world as well as extensive country analyses with complete datasets including current, under construction and planned UGS facilities for more than 40 countries. Future storage demand and its main drivers are presented at global and regional levels.

COVERED TOPICS INCLUDE:

USA: Shale Gas Spurs a New Wave of Storage Development
The massive pipeline expansion consecutive to the shale gas revolution and the growing use of gas in power generation have increased the need for storage capacities and particularly for high-deliverability storage. The working gas capacity of salt caverns has risen accordingly, almost doubling over the last three years. This trend is expected to continue with the development of new shale plays and stricter regulation on gas flaring.

Europe: Liberalization Means New Roles for UGS but Overcapacity is Painful
Market liberalization and increased trading in Europe are changing the way UGS is used, increasing the need for flexibility and adding value to salt caverns. But these developments take place against the background of a depressed gas demand and storage overcapacity that takes a toll on some major players. Future gas supply and demand trends and the deepening of market liberalization might reverse this negative situation.

CIS: Gazprom's Expansion Plans in Europe
The objective of Gazprom is to develop storage capacity closer to its markets and main export routes. The company projects to expand its working gas capacity in Europe to 5% of its annual exports. With the recent takeover of Wingas, WIEN and WIEE, Gazprom emerges as a major actor in European trading and storage.

China: the Birth of a Giant Storage Market
Irrespective of China's success in developing its huge shale gas resources, UGS will have to be developed on a large-scale to accommodate a massive increase in gas consumption. Chinese experts expect a growth in working gas capacity to 110 billion cubic meters by 2030 (up from 4 billion cubic meters in 2011) but this development needs to overcome several geological, technological and economic hurdles.

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Asia/Oceania: Australia, China, India, Japan, New Zealand, Pakistan, Taiwan
Rest of the World: Argentina, Mexico, Iran

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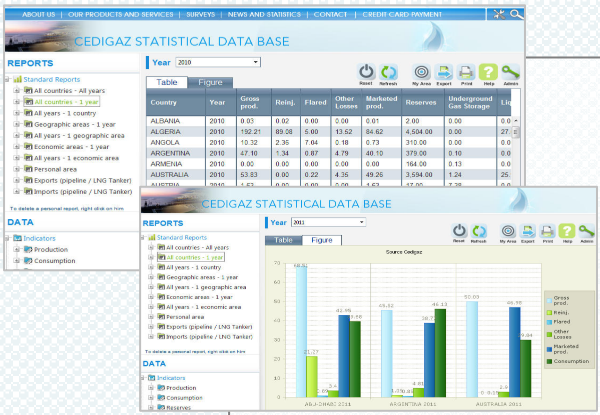

ABOUT CEDIGAZ

CEDIGAZ is an international association dedicated to natural gas information. Since its creation in 1961, CEDIGAZ has been recognised by the gas industry as one of the most reliable and independent sources of information on the whole gas chain.
CEDIGAZ products include "Natural Gas in the World", an exhaustive annual survey on gas markets published since 1983, databases and news reports. The CEDIGAZ **Underground Gas Storage Database** is the only worldwide storage database to be updated every year.

ABOUT THE AUTHOR

Sylvie **Cornot-Gandolphe** has a long and proven experience in global gas and energy markets and is the author of the first CEDIGAZ report on “Underground Gas Storage in the World” in 1990. A renowned expert on global energy commodities, she is the lead author of the studies on “Flexibility in natural gas supply and demand” and “Security of gas supply in open markets” published by the International Energy Agency in the 2000s. Her latest works include a recently published report on Global Coal Trade.

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RUSSIA: Planned project – Partnership - **CNR52/9/7**

Gazprom offers foreign investors half Far East LNG project

Russian energy giant Gazprom plans to offer foreign investors up to a 50 percent share in a project to build a liquefied natural (LNG) plant near Vladivostok in Russia's Far East, Gazprom Deputy CEO Vitaly Markelov said recently. In February, Gazprom completed and approved the investment plan for the LNG plant project.
According to Gazprom's website, the LNG plant will be built on the Lomonosov Peninsula at Perevoznaya Bay. The plant will have **three process lines with an annual capacity of 5 million tons of LNG each**. The first will be put onstream in 2018. Russia currently has one LNG plant in operation, on Sakhalin Island in the Pacific Ocean. Gazprom has considered a number of projects to build LNG plants at ports in the European part of the country, but so far none have been started. (May 15, 2013)

RUSSIA: Regulation - **CNR52/9/8**

Russia to cancel Gazprom's liquefied gas export monopoly

Gazprom currently owns the only liquefying plant in Russia. Gazprom's monopoly of the LNG market may come to an end as competitors prepare to launch plants of their own.
Liberalizing LNG exports will take place on a legislative level once Novatek and Rosneft reach preliminary agreements with their international partners, according to Arkady Dvorkovich, the Deputy Prime Minister in charge of fuel and energy. He predicted the changes would take place this year. "We want to be certain that we are not creating competition for Gazprom in specific markets; we will do that [cancel the monopoly] only with regard to agreements that we will see with our own eyes," Dvorkovich said. These are not legally binding contracts he was talking about, but rather **agreements between companies and customers expressing "readiness to buy gas at a given price**."
Novatek and Rosneft are engaged in active negotiations with their partners in Japan, China, South Korea and other Asia-Pacific countries, Dvorkovich said in May.
Under those conditions, the repeal of **the monopoly would only extend to individual agreements rather than to entire markets or LNG exports as a whole**, a source in the government explained. (May 24, 2013)

SOUTH KOREA: Domestic supply - **CNR52/9/9**

South Korea LNG imports climb 29% as domestic use rises

LNG imports by South Korea rose 29% in April as domestic demand increased. Shipments climbed to 3.51 million metric tons from 2.72 million a year earlier, according to Korean Customs. The total cost of last month's purchases increased to $2.61 billion from $2.15 billion in the same month a year earlier. The average price paid declined to $742.62 per ton from $790.73 a year ago.
South Korea buys most of its LNG under multiyear **contracts from suppliers including Qatar, Indonesia and Oman**. April's purchases included a spot shipment of 61,189 tons from **Equatorial Guinea** at $885.29 a ton.
State-run Korea Gas Corp. said recently that its April domestic sales of gas increased 10% to 3.21 million tons from a year earlier. Demand from electricity producers rose 5.2%, while that from local city gas providers climbed 16%, it said. (May 14, 2013)

UNITED STATES – PANAMA: Ongoing – Completed works - **CNR52/9/10**

U.S. LNG exports and Panama Canal 'in perfect synchronicity'

The burgeoning U.S. export market for liquefied natural gas may be in perfect synchronicity with the expansion of the Panama Canal, Rigzone is reporting. The convergence of the two unrelated events — the Panama Canal expansion and the unlocking of North American shale resources — will have an **extraordinarily positive impact for U.S. producers and LNG terminal owners and their counterparts in Asia who purchase the commodity**, John Hritcko Jr., Houston-based director for Wison Offshore & Marine Inc., told Rigzone.
Data produced during the last decade didn't account for the surge in U.S. LNG potential, said Silvia de Marucci, a senior market analyst for liquid bulk at the Panama Canal Authority. Consequently, LNG wasn't considered part of the target market. The expanded canal will allow more than **80% of the world's LNG carriers to travel** through it, which will enable the U.S. exports to access more markets, she said. (May 16, 2013)

UNITED STATES: Regulation - **CNR52/9/11**

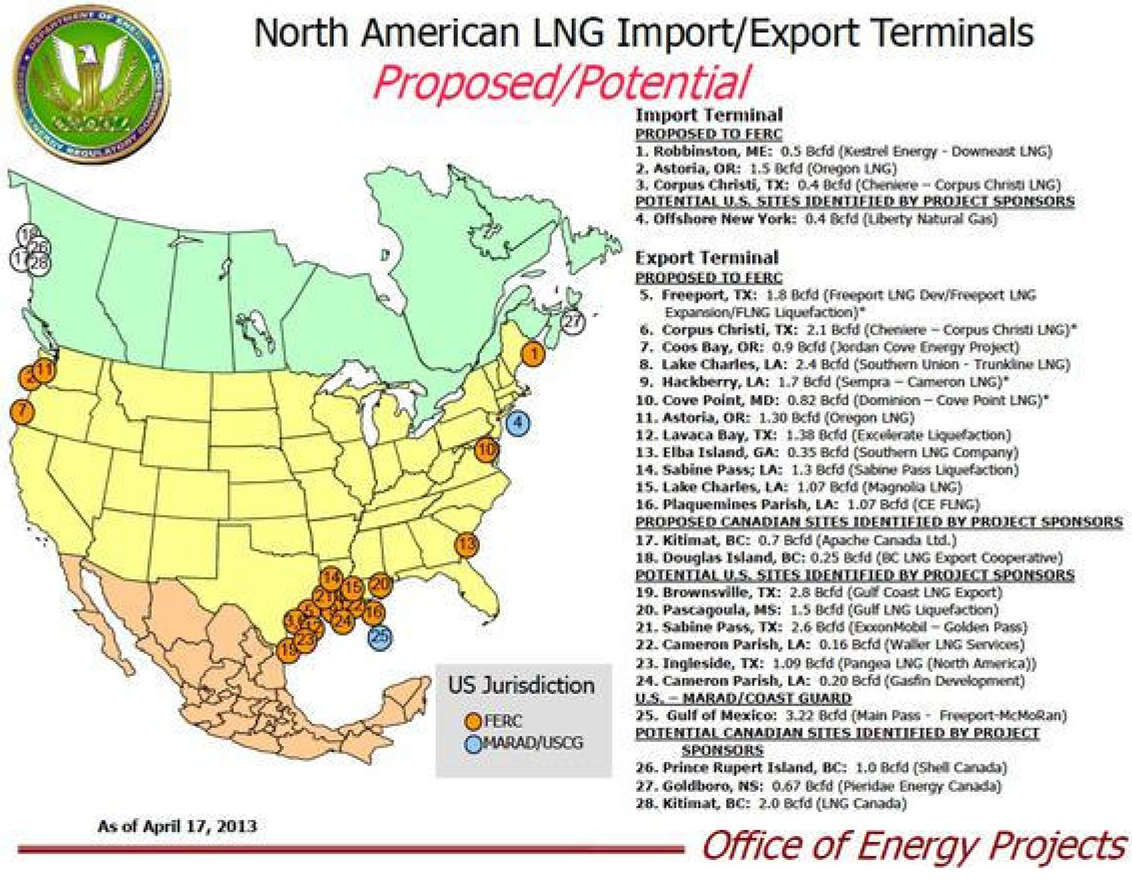
Another giant leap for natural gas exports

The Department of Energy recently **approved a second LNG export terminal for exports to non-free trade agreement counties** (FTA), the Freeport LNG terminal operated by ConocoPhillips and Michael Smith. This is the first terminal approved in two years and, hopefully, for those on the waiting list, this is the start of a trend with others being approved shortly. Export approvals are promising for natural gas producers in the medium term in that they should help put a floor under natural gas prices and demand, thus sparking drilling activity in the sector.

The Department of Energy had approved just one export terminal for exports to non-free trade agreement countries, Cheniere Energy's Sabine Pass Terminal in May 2011 (2.2 bcf/d). The DOE now has 24.94 bcf/d of potential export capacity waiting to be approved.

Producers are thus excited by the DOE's conditional approval of Freeport LNG's export terminal, which would be the start of more approvals. **The Freeport LNG terminal is approved for up to 1.4 bcf/d of exports for a period of 20 years to non-FTA countries**. (May 21, 2013).

According to Morgan Stanley, the U.S. is on track to export 3.6 billion cubic feet a day of LNG by 2018, with the first shipments sailing in late 2015 or early 2016. **By 2020, exports could reach between 6.5 bcf a day to 8.5 a day**. (May 21, 2013).



UNITED STATES: Planned project – Expansion -**CNR52/9/12**

Pascagoula's LNG import terminal wants to export natural gas

Big changes may be coming for Gulf LNG, the LNG terminal that is two huge storage tanks on the horizon south of Pascagoula. The owners want to begin exporting natural gas.

It would be quite the turnaround for the $1.1 billion terminal built more than two years ago to import the super-chilled gas from tankers, store it, then warm and distribute it throughout the U.S. upon demand.

It was the demand that never came. The market changed as U.S. gas production jumped in recent years and there has been no need for imports. Now the profit is in exporting.

So Gulf LNG, now as Gulf LNG Liquefaction Co., acquired approval in 2012 from the U.S. Department of Energy to **export 11.5 million tons of LNG a year to countries approved under the Free Trade Agreement**, such as Australia, Canada and some in South and Central America. That would allow it to export 1.5 billion cubic feet of natural gas a day for the next **25 years**. And it's trying to get approval to **export the same amount to the rest of the world**, which would include Japan and the United Kingdom. (May 19, 2013)

URUGUAY: Planned project – Approval - **CNR52/9/13**

GDF Suez wins contract to build $1.125 bln Uruguay LNG plant

Uruguay awarded GDF Suez SA a contract to build a LNG regasification plant at an estimated cost of $1.125 billion, the government said recently. The plant in the port of Montevideo will have a processing **capacity of up to 10 million cubic meters of LNG per day.** The plant is expected to be operating by the first quarter of 2015. Initially, it will receive each year eight cargos with capacity of 150,000 cubic meters of LNG each. Uruguay's state-owned energy company, Ancap, is negotiating with potential LNG suppliers.

The project will require building a breakwater and connecting the plant to the country's network of gas pipelines. The LNG regasification vessel will be rented at first but Suez will incorporate a new vessel during the project's second phase.

The terminal will have a **storage capacity of 267 million cubic meters**. Uruguay consumes just 300,000 cubic meters of natural gas per day. The country plans to export part of the LNG to neighbouring Argentina which plans to secure about 80 LNG cargos this year alone. (May 14, 2013)

USE AS AUTOMOTIVE FUEL

UNITED KINGDOM: Planned project – Start up - **CNR52/9/14**

UK's first Bio-LNG filling station opens

The UK's first open access Bio-LNG filling station was opened recently by Transport Minister Norman Baker. The facility in Daventry, built by Gasrec, is the first of its kind and it is hoped it will lead to significant cuts in pollution and fuel costs; allow gas-powered or dual-fuel trucks to use Bio-LNG; and will operate in a similar way to a traditional petrol station. Bio-LNG is Gasrec's blend of LNG and liquid biomethane (LBM).

Daventry is the first site identified by Gasrec as part of its national Bio-LNG refuelling network planned to be up and running by the end of 2015, which has the ultimate goal of wiping out nearly two-thirds of the nation's heavy goods vehicle (HGV) emissions.The firm claims that compared with pure diesel equivalents, Bio-LNG can cut fuel costs by 20 to 30% and CO2 by a minimum of 20%, while delivering a 90%t reduction in NOx and particulate matter emissions. Running the UK's HGV fleets on Bio-LNG could cut haulage emissions by up to 65%, according to a report by consultants Ricardo-AEA.

The firms planned network of stations will be located near motorway junctions so that 85% of the UK's HGV population will have at least one location within four hours' drive and the entire system will be monitored from a control centre in Daventry. The Daventry site is capable of fuelling up to 250 HGVs a day in the first phase from three Bio-LNG dispensers. Eventually each station will store enough fuel to fill 700 HGVs a day and will be equipped with five refuelling lanes and ten dispensers using "fast-fill"

technology accessed by drivers carrying smart key controls.

Fuel is stored at -160 degrees Centigrade and is pumped through vacuum-insulated pipework all the way to the dispenser nozzles. Gasrec's liquefied biomethane production plant in Albury, Surrey, is capable of producing more than six million litres of diesel equivalent a year.

The plant is located next to a large municipal landfill site and the gases from the decomposition of organic waste are cleaned and liquefied. The fuel produced is guaranteed to be at least 96% biomethane and no more than four per cent nitrogen. (May 23, 2013)

NATURAL GAS

EXPLORATION – DISCOVERY

BOLIVIA: Investment opportunities - **CNR52/9/15**

Gas-rich Bolivia to double oil and gas spending

Natural gas-rich Bolivia plans to double its spending on oil and gas exploration to $500 million next year, and woo private energy companies back to the South American country. Bolivia sits on **11 trillion cubic feet of natural gas**, according to government figures.

Vice President Alvaro Linera said a new **package of incentives** will be issued in the next days, designed to give companies interested in Bolivia "**a swift return on investment**," according to The Wall Street Journal.

Natural-gas exports to Brazil and Argentina are Bolivia's main sources of hard currency. Nearly half of Bolivia has potential for hydrocarbons, but only 35% of its territory has been explored, Linera added. (May 24, 2013)

INDIA: Discovery - **CNR52/9/16**

BP-Reliance make new gas discovery offshore India

BP, Indian conglomerate, Reliance Industries Limited (RIL) and their partner Niko Resources, have announced a significant gas and condensate discovery in the KG D6 block off the eastern coast of India. BP said that a formation evaluation indicates a gross gas and condensate column in the well of about 155 metres in the Mesozoic reservoirs. **In the drill stem test, the well flowed 30.6 mmscf/d** and a liquid rate of 2,121 bpd with a 36/64 inch choke with a flowing bottom hole pressure of 8,461 psia suggesting **good flow potential**.

The discovery, named 'D-55', has been notified to the Indian government and the management committee of the block. This discovery is expected to add to the hydrocarbon resources in the KG D6 block. Appraisal will now commence to better define the scale and quality of the field.

RIL is the operator of KG D6 with 60% equity. BP has a 30% share and Niko Resources the remaining 10%. (May 26, 2013)

ISRAEL: Discovery - **CNR52/9/17**

Group finds signs of another gas field off Israeli coast

A U.S.-Israeli group drilling in the eastern Mediterranean has discovered positive signs of another natural gas field off Israel's coast, potentially boosting the country's reserves as it drafts its export policy. Texas-based Noble Energy and its Israeli partners, Avner Oil Exploration and Delek Drilling, said recently they found "significant signs" of gas at an exploratory well at the Karish prospect, about 75 km (46 miles) from the coastal port of Haifa.

Karish could hold **2 tcf of gas**, Delek Drilling said, citing a preliminary estimate, making it **much smaller than the two massive Tamar (10 tcf) and Leviathan (19 tcf) fields** recently discovered in Israeli waters. But it is still a commercial quantity and, if proven, strengthens the case for energy companies who are lobbying the government to allow large levels of exports.

The Karish partners will publish a more detailed analysis of the data in about two months, Delek Drilling said. (May 16, 2013)

PRODUCTION

AUSTRALIA: Production costs - **CNR52/9/18**

Rising costs pose threat to gas projects

The rising cost of doing business in Australia could **cost the economy more than $100 billion of new investment in LNG projects**, the oil and gas industry's peak body has warned. Chief executive of the Australian Petroleum Production and Exploration Association David Byers said recently that both sides of politics needed to tackle the industry's global cost competitiveness, where the high dollar, green tape, labour and construction costs were all making Australia a **less attractive destination than for projects in North America and East Africa**. "Our industry is today building almost $200 billion worth of projects in Australia, and in the days ahead we will discuss the prospects of $100 billion more," Mr Byers said.

Australia is expected to overtake Qatar as the world's biggest LNG exporter by 2030, with the increased gas output from the eastern seaboard expected to triple because of new Gladstone sites. (May 27, 2013)

RESERVES

QATAR: Reserves estimates - **CNR52/9/19**

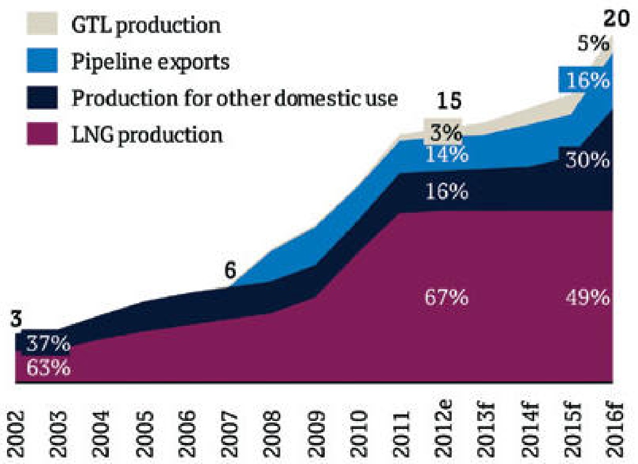
Qatar's proven gas reserves to last around 160 years

Qatar's proven gas reserves estimated at **885 tcf** will last around 160 years at the 2011 production rates, a new study has shown. Qatar had the third largest gas reserves in the world as of 2011, QNB said in its soon-to-be-published 'Qatar Economic Insight 2013'.

Qatar's vast gas reserves are located in the offshore North Field, which is the single largest non-associated gas field in the world. The government has placed a moratorium on further project developments in the North Field until the completion of a study into reservoir management and sustainable development are finalised.

However, the Barzan domestic gas development project and Block 4 North (a new gas field discovered in March 2013 with an estimated 2.5 tcf of recoverable gas) are not subject to the moratorium. Block 4 North is the first gas find in 42 years and suggests **potential for further discoveries in the future**, Qatar National Bank said.

Gas production has increased from 6bn cf/d in 2007 to around 15bn cf/d in 2012. Production has witnessed an upsurge over the past few years in order to supply new LNG and GTL facilities; industrial projects, particularly in the petrochemicals sector; and power generation plants. Qatar has been the world's largest LNG exporter since 2006, with export volumes nearly reaching its production capacity of 77mn tpy in 2012.
Qatar's main export market has historically been Asia, but it has expanded into new markets in Europe and the Americas and now covers some 23 countries across the globe. According to QNB, Qatar accelerated its expansion by strategically investing in regasification terminals abroad to facilitate the distribution and storage of LNG. It currently manages three LNG regasification plants (South Hook in the UK, Golden Pass in the US, and Adriatic in Italy).
The future expansion of gas production will be driven by the Barzan project that is estimated to bring on-stream an additional 1.5bn cf/d and new discoveries that are likely to add a further 0.7bn cf/d by 2016. (May 28, 2013)



Source: QP, QSA and QNB Group estimates and analysis

TRANSPORTATION-DISTRIBUTION

EUROPE: Ongoing project – Expansion - **CNR52/9/20**

Nabucco countries plan gas link extension to southeast, eastern Europe

The planned Nabucco gas pipeline could be extended to supply countries across most of eastern and south-eastern Europe, the governments of the consortium countries agreed recently, as the group continues its lobbying efforts to become the Southern Corridor gas link of choice.
The governments of Austria, Hungary, Romania, Bulgaria and Turkey adopted a joint **declaration that stressed the potential of Nabucco to supply the energy markets of the Western Balkans** (Serbia, Croatia, Bosnia and Herzegovina, Montenegro, Macedonia and Albania) and the Visegrad group countries (Poland, Slovakia, the Czech Republic and Hungary).
The governments, in a statement issued after a Nabucco Committee meeting in Bucharest, said they were committed to developing the necessary gas interconnections "to ensure that Nabucco can also supply the countries in the southern and central-north dimension of Europe."
The main Nabucco pipeline -- or Nabucco West as it is now called after being shortened to start at the Turkey-Bulgaria border -- would bring gas from Azerbaijan and other sources in the Middle East and Central Asia through Bulgaria, Romania and Hungary to Austria. Nabucco West is competing with a rival project -- the Trans Adriatic Pipeline (TAP) -- to bring gas from the second phase of the BP-led Shah Deniz gas field in Azerbaijan to Europe. A decision on which link will carry the Shah Deniz gas is expected this summer.
Despite a continued lack of certainty as to whether it will actually be built, **Nabucco earlier this month launched an open season** to determine interest in using the line. Last week, it said that just one week after launch "shipper interest in registration and capacity booking in the Nabucco West pipeline has already exceeded expectations." Nabucco said it has received "**strong interest**" from a variety of shippers, including potential shippers not part of Nabucco, the Shah Deniz consortium or its buyers. (May 21, 2013)

SERBIA: Planned project – Agreement - **CNR52/9/21**

Russia pledges 1.7 Bln euros for Serbian South Stream

Russia will provide 1.7 billion euros to finance the construction of Serbia's stretch of the South Stream gas pipeline that will carry Russian natural gas through the Black Sea to Bulgaria and then on to Greece, Italy and Austria, President Vladimir Putin said recently. Alexei Miller, head of Russia's gas monopoly Gazprom, previously confirmed plans to bear full construction costs of the Serbian section.

It intends to recover the costs through transit fees later. On February 21, Serbia passed legislation giving its section of South Stream the status of a national project. (May 24, 2013)

SUPPLIES - IMPORTS – EXPORTS

GEORGIA: Regulation - **CNR52/9/22**

No plans to import more Russian gas

The Georgian energy ministry Kakha Kaladze has sidestepped claims that it was ready to buy gas from Russia after a seven year hiatus. While analysts maintain having multiple suppliers is a sound policy, purchasing natural gas from Gazprom appears to carry too much political baggage to be worth the cost. He announced recently that the **country should diversify its energy partners, noting that there is still a need for more suppliers – including Russia**.

Reaction to his comment, however was swift: Georgian President Mikheil Saakashvili stated the idea of "**considering Russia as a serious alternative for energy supplies means fundamentally reviewing Georgia's independence**." Tbilisi's ability to free itself from Russian gas has long been viewed as a major victory for the country and its quest to carve out a future outside of Moscow's orbit.

Georgia switched to Azerbaijani gas in 2006, after Gazprom increased prices and a series of blasts halted gas shipments from Russia at the height of one of the country's coldest winters in memory. Today, Georgia receives most of its gas from Azerbaijan, both from the Shah Deniz pipeline as in-kind payments for transit, and from SOCAR, the Azerbaijani government energy giant. SOCAR is also heading up gasification in Georgian rural communities. Reportedly ten percent of the country's gas needs are met by Russian gas, but the government does not pay for it; the gas is part of Georgia's transit fee for Moscow to use the country's North-South Pipeline to ship natural gas to Armenia.

Kaladze appeared motivated to diverse Georgia's dependency on Azerbaijani energy, not revert to the days before the Shah Deniz pipeline, when Georgia depended on Russia for nearly all of its gas needs. (May 21, 2013)

ISRAEL: Regulation - **CNR52/9/23**

Natural gas exports to be capped at 40%

Energy and Water Minister Silvan Shalom intends to set the maximum natural gas export allocation at 40% rather than the expected 53% figure. As companies continue to explore and drill through Israel's eastern Mediterranean waters, **export allowances have become a topic of contention across the country**. The 282-billion cubic meter Tamar reservoir is already flowing into Israel, and its neighbouring approximately 535-bcm basin Leviathan is slated to come online within the next few years. Although the Zemach Committee – headed by Energy and Water Ministry Director-General Shaul Zemach – recommended a maximum export allocation of 500 b. cu. m. this fall, the government has yet to officially approve any export policy.

The Zemach Committee's conclusions, which also called for a minimum of 450 bcm. of gas to be allotted for domestic use, have been under constant criticism from environmentalists across the board, who say that much more of the resource is needed at home. Gas explorers and producers, on the other hand, say contend that a stable export policy will attract additional entrepreneurs to enter the region and thereby discover more resources – bringing a benefit to Israel's citizens as well. (May 22, 2013)

PAPUA NEW GUINEA: Investment opportunities - **CNR52/9/24**

Japan steps up interest in Papua New Guinea's gas riches

Japan Inc. has raised its bets on Papua New Guinea as an **emerging source of natural gas supply**. In the latest deal **Osaka Gas Co. Ltd.** has agreed to pay US$204 million to acquire stakes in natural gas assets in Papua New Guinea owned by Australia's Horizon Oil Ltd. , which has made a string of discoveries and is considering a new gas-export facility on the coast. LNG in Asia has traditionally been sold via long-term contracts, with prices linked to relatively expensive crude oil, even as a natural-gas production boom in North America has driven prices there sharply lower.

Papua New Guinea is poised to become the world's newest significant energy exporter next year when the US$19 billion PNG LNG project operated by ExxonMobil Corp. starts up. Unlike rival LNG suppliers in the Middle East, shipments to Asia from Papua New Guinea won't pass through the Malacca Strait choke point near Singapore. Shipping costs are also lower.

Much of the country is also lightly explored, increasing its appeal to overseas investors. Japan's **Mitsubishi Corp**. was among international companies to acquire stakes in natural gas discoveries and exploration blocks last year. Wood Mackenzie, estimates Papua New Guinea has **26 trillion cubic feet of natural gas**—roughly equivalent to U.S. consumption of the clean-burning fuel in a year. (May 23, 2013)

PERU: Production forecast - **CNR52/9/25**

Peru upbeat about boosting natural gas exports

The fastest growing economy in Latin America, is hoping its natural gas development projects will transform its economy. Peru is a net oil importer and natural gas exporter but rising exploration and development may lead to increased production and exports of both oil and gas in the next few years, U.S. EIA says. Peru remains self-sufficient in gas despite recent increases in domestic demand and the beginning of liquefied natural gas exports in 2010.

Despite a decline in crude oil production, Peru's total oil liquids output has increased in recent years as a result of increased production of natural gas liquids, EIA says. **The country's natural gas sector is expected to benefit from strong energy demand** as national earnings rise and there's more infrastructural investment. An electricity demand growth rate of 5.6% to 7.4% per year is predicted through 2015.

Fitch rating agency estimates Peru's "massive, highly concentrated gas reserves" are estimated **between 12 trillion-25 trillion cubic feet**, with a total reserve life of 40-50 years. Nine fields are producing gas and 59 other oil and gas fields are under exploration. The Camisea fields contain most of Peru's gas reserves – 89% of proven reserves, 95% of the current production volume and 98 % of natural gas liquids reserves. (May 13, 2013)

TURKMENISTAN: Planned project – Agreement - **CNR52/9/26**

China to get gas from Turkmenistan's giant field

Gas from Turkmenistan's largest gas condensate field will flow to China, national gas company Turkmengaz CEO Kakageldy Abdullayev said recently. The Galkynysh field, the world's second largest by gas reserves, will be used to build up Turkmen gas exports to China. The field is expected to produce **25 billion cubic meters of natural gas per year for China**, with Turkmenistan's **total gas exports to China planned to reach 65 billion cubic meters annually** after the field's launch, Abdullayev said at the fourth international gas congress held by Turkmenistan.

The Galkynysh field, formerly known as the South Yolotan-Osman field, has **reserves of over 26.2 trillion cubic meters of gas**, ranking second after the South Pars deposit shared between Iran and Qatar, according to data by Gaffney, Cline & Associates petroleum consulting company. The gas field is expected to be launched this summer. (May 22, 2013)

UKRAINE: Supply contract - **CNR52/9/27**

Ukraine sees 2013 gas imports at 27.3 Bcm, lower than 2012

Ukraine plans to reduce imports of natural gas to 27.3 billion cubic meters in 2013 from 32.9 billion cu m in 2012, according to a forecast recently approved by the Ukrainian government. Ukraine gas imports come primarily from Russia and Europe, with **Russian imports declining rapidly because the two counties have failed to agree on lower prices**.

Ukraine's national energy company Naftogaz Ukrayiny plans to import **18 Bcm** of gas from Gazprom of Russia in 2013, down from 24.9 Bcm imported in 2012, while RWE of Germany is forecast to supply **1.3 Bcm** in 2013. Ostchem, a trader owned by Ukrainian billionaire Dmytro Firtash, is forecast to import **8 Bcm** of gas in 2013, unchanged from 2012.

A contract signed between Gazprom and Naftogaz Ukrayiny in January 2009 calls for Ukraine to import 52 Bcm of Russian gas annually through 2019. Naftogaz reduced imports to 24.9 Bcm of Russian gas in 2012, down from 40 Bcm in 2011, prompting the Russian company to impose a $7 billion penalty on Ukraine last year. Ukraine refused to pay the penalty and argued the price of the Russian gas was too high to afford massive imports. (May 24, 2013)

UNITED STATES - MEXICO: Gas supply - **CNR52/9/28**

Mexican competition gas to tighten Southwest markets

Increasing competition for Texas natural gas supplies because of rising Mexican demand will tighten Southwest markets over the next five years, according to a report from Bentek Energy. This is because **both Mexico and the Southwest are expected to use the same gas pipelines**, with any remaining Southwest capacity ultimately going to serve the growing Mexican demand. "Competition for this available pipeline space is expected **to put upward pressure on Southwest region gas prices**, which will signal the need for additional pipeline capacity into the region," the report said...., "many of the Southwest's major supply pipelines already run at high utilization rates, and the pipelines that have extra space available will serve Mexican export growth," Bentek added.

Demand in the Southwest is expected to grow, but its production is not, thus pushing up its dependency on imports from other states and effectively putting it in direct competition with the Mexico market. Exports to Mexico are expected to "average 7 Bcf/d out of a total capacity of 8.3 Bcf/d [by 2018]" and "at times during the year in 2018, gas flows into the Southwest are likely to approach capacity, leading to tight supply conditions and potential price spikes." Demand in the Southwest peaked near 8.9 Bcf/d in 2008, for the next five years, it is expected to grow by about 1 Bcf/d, Bentek projected. The increase in demand is spurred by coal plant retirements, gas-fired generation increases and the San Onofre nuclear outage, while production is expected to remain flat. "Total regional production is projected to remain flat at about 4.1 Bcf/d from 2013 through 2018," the report said.

Mexico Aims to Triple Natural Gas Imports from US

The construction of a natural gas pipeline from southern Texas to central Mexico will allow for a tripling of imports from the U.S. to meet increasing demand from industry. Alejandro Martinez Sibaja, the director of the state-owned company's gas division, said that Mexican industry is currently hampered by its reliance on more expensive fuels because of the lack of pipeline capacity for natural gas to come across the border. The gas supply problem is expected to be alleviated with the Los Ramones project, a pipeline that Mr. Martinez said will carry around 3 **billion cubic feet of natural gas per day by 2015** from southern Texas to the central Mexican state of Guanajuato, which is a hub for the Mexican auto industry.

Pemex plans to release bidding rules soon for the longest part of the pipeline, a 740-kilometer (460-mile) stretch from Nuevo León to Guanajuato. Mr. Martinez said the estimated cost of section of the pipeline being tendered is about $1.8 billion. The first two sections of the pipeline have already been assigned. (May 23, 2013)

STORAGE

UNITED STATES: Ongoing project – Completion - **CNR52/9/29**

Cardinal Gas Storage Partners announces completion of two new natural gas storage facilities serving the Perryville/Delhi Hub

Cardinal Gas Storage Partners LLC announced recently that two of its wholly-owned interstate natural gas storage subsidiaries, Cadeville Gas Storage LLC and Perryville Gas Storage LLC have commenced service as of May 1, 2013. Cadeville, a **depleted reservoir** storage facility, provides approximately **17 billion cubic feet of working gas capacity**. Additionally, Perryville is expected to initially provide approximately **8.5 billion cubic feet of working gas capacity** from its first **salt dome cavern**.

Cardinal is a joint venture between Redbird Gas Storage LLC and funds controlled by Energy Capital Partners, LLC. Since its inception in 2008, Cardinal has been focused on the development, construction, operation and management of natural gas storage facilities throughout North America. Cardinal also owns Arcadia Gas Storage LLC and Monroe Gas Storage Company LLC. (May 17, 2013)

CONSUMPTION

UNITED STATES: Investment opportunities - **CNR52/9/30**

Coal-fired generation continuing to regain market share

Coal-fired power generation is slowly regaining market share from natural gas-fired power generation, according to a report from the U.S. EIA. Coal-fired generation produced 40% or more of that nation's electricity from November of last year until March of this year, rising from a low of producing 32% in April of last year. In that month, coal and natural gas both produced about 32% of the U.S.'s electricity. Natural gas has since dropped to produce about 25% of the generation in the period between November 2012 and last March.

"Since May 2012, a combination of higher prices for natural gas and increased demand for electricity during the summer months led electric systems across much of the country to increase their use of coal-fired units," the EIA stated. "In March 2013, coal-fired units generated a little over 130,000 MWh of electricity, while natural gas units produced nearly 85,000 MWh."
The EIA noted, however, that the market share for coal-fired power is still well below its typical range prior to 2009. Coal-powered generation ranged for 48 to 51% of total generation between 2001 and 2008. Coal last achieved a 50% share and is expected to have a 40% share in 2013. (May 23, 2013)

USE AS AUTOMOTIVE FUEL

UNITED STATES: Market trends - **CNR52/9/31**

Natural gas vehicles are getting international attention

The idea of natural gas vehicles has been kicked around for years in the United States. With the recent surge in domestic natural gas production, though, natural gas cars are becoming an even more possible scenario. The idea is gathering enough steam that the **International Energy Agency believes that natural gas vehicles will almost double their market share within the next five years**. Granted, a doubling of a 1.4% market share isn't much, but for companies in the business of natural gas transportation, it's a big jump. Though considering the effort required to build out a fueling infrastructure for natural gas vehicles, a five-year time horizon is pretty short, and not much should be expected during that time. (May 19, 2013)

COMPANIES

GREECE: Planned project – Tender - **CNR52/9/32**

Greece changes term of gas privatization to accommodate Gazprom

Greece agreed to change some terms in the planned privatisation of natural gas distributor DEPA, opening the way for Russian energy giant Gazprom to bid for the firm, a senior official directly involved in the sale talks said. Privatisation agency HRADF finalised the terms of the sale contract recently, lowering the amount that DEPA's buyer will have to deposit as a guarantee before the deal gets regulatory approval. Gazprom has been lobbying hard to wring these concessions from Athens, **leveraging its position as the only major energy company interested in buying DEPA**.
Cash-strapped Greece needs the DEPA sale to go through to hit the privatisation revenue targets set in its EU/IMF bailout. Gazprom last year made a preliminary bid of 900 million euros for DEPA. But the **Russian firm's role as DEPA's main supplier has raised concerns that the EU**, already trying to loosen Gazprom's grip on Europe's energy market, might block or impose stringent conditions on the deal. Under the final terms of the DEPA sale, Gazprom will not lose any of its deposit if the EU blocks the DEPA acquisition, the official said.
Gazprom's only rival for DEPA is M&M Gas, a joint venture by Greek energy firms Motor Oil and Mytilineos. But M&M's initial bid of about 550 million euros was far below Gazprom's and its parent firms owe money to DEPA and compete with it in the wholesale gas market. (May 27, 2013)

WORLD: Investment opportunities - **CNR52/9/33**

BG tightens focus on exploration, LNG, dealmaking

Oil and gas group BG will focus on exploration, liquefied natural gas (LNG) and selling or partnering more of its discoveries as part of a new emphasis on profitability after being forced to cut ambitious output targets. The British company, whose main growth assets are in Australia and Brazil, said the **proportion of its production with a profit margin of more than $50 per barrel of oil equivalent (boe) would triple over the next five years**, and that its heavy capital spending budget would peak in 2015, allowing it to return surplus cash to shareholders from then.
In a keenly-awaited strategy statement under new management and after a crisis of investor confidence in the final quarter of 2012, the company said it would "**manage its portfolio more actively**" in future, partly through asset sales, and partly by bringing in partners to ramp up output more quickly. The aim is for 50% of its discovered resources to be either sold or produced in the next 10 years. (May 14, 2013)

GENERAL INFORMATION

TANZANIA: Regulation - **CNR52/9/34**

Tanzania drafts terms to tame the gas boom

Tanzania has drafted policies aimed at channelling the benefits of a gas boom to its own people, in the face of a fatal riot over plans for a new pipeline. Mtwara, one of two regions in southern Tanzania picked for LNG plants, saw its residents riot recently, protesting that a budget presentation to parliament failed to show how the construction of a 532 km (330 mile) pipeline through their region would benefit them. The 2013 draft natural gas policy plans to "ensure that **the domestic market is given first priority over the export market in gas supply**."

The draft policy paper proposes gas companies list on the local stock exchange, creating a gas revenue fund and a national oil and gas company, and locating plants onshore to liquefy the gas from the offshore fields.

Tanzania Energy and Minerals Minister Sospeter Muhongo said the government would also put in place an upstream oil policy and natural gas laws by next year. (May 23, 2013)

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