

Israel Builds World's Largest Solar Power Tower



The Ashdod solar and thermal electric power plant in Israel's Negev Desert is up and running. The state-of-the-art facility is equipped with more than 50,000 computer-controlled heliostats or mirrors, which can track the sun in two dimensions and reflect the sunlight onto a boiler placed on top of a tower measuring 240 m-high (787.4 ft). That's higher than some of the tallest sky scrapers in the world and by far the tallest solar tower ever built.

How does it work? All those tens of thousands of mirrors are hooked up to a computer operated tracking system so that they all move precisely with the orbit of the earth around the sun throughout the day and direct the heat from the sunlight to a spot on the boiler on top of the tower to within 0.0015499969 of an inch. The super hot water in the boiler produces superheated steam, which is then conveyed through pipes down below with enough pressure to spin a steam turbine-generator at astronomical speeds needed to produce electricity. The solar run generator can put out 300 megawatts of clean

electricity every day, or enough to power about 150,000 homes.

Another feature of the Ashalim project is the use of solar thermal technology that can store energy for use at night in order to provide consistent and reliable output of electricity. This is one of the largest renewable energy projects in the world. The facility covers an area of over 3 sq. km (2 sq. miles).

Israel's climate is ideal for solar power, particularly in the Negev which enjoys more than 300 sunny days a year. Israel has been home to many solar technology breakthroughs, but the government has been slow in getting away from using fossil fuels for power. But that is definitely starting to change with a goal getting 10 percent of its energy needs from renewable sources by 2020 with the new solar project. Once the project is proven fully successful, Israel plans to move ahead rapidly towards renewable energy sources.

Together with the recent discovery of huge deposits of natural gas along Israel's Mediterranean Coast, the Ashalim plant will contribute to Israel's security by reducing dependence on fossil fuel imports. It will also keep us safe by keeping 110,000 tons of CO2 emissions per year out of the air we breath.

Lebanon Announces New Blocks for Offshore Energy Work in Waters Also Claimed by Israel



Lebanon announced on Friday five offshore blocks to be included in its coming bidding round for energy exploration and production licenses, including four along disputed maritime borders.

Offshore energy development has been a central ambition for successive governments in cash-strapped Lebanon, but political paralysis has caused years of delays.

Blocks 8 and 10 both include waters also claimed by Israel, while blocks 1 and 2 include waters claimed by Syria. One of the two blocks for which licenses were awarded last year, block 9, is also on the disputed maritime border with Israel.

Energy Minister Nada Boustani announced details in a televised news conference of the upcoming licensing round, which she said on Thursday had been approved by the cabinet and would have a bid deadline in early 2020.

A consortium of France's Total, Italy's Eni and Russia's Novatek won the first licensing round last year for blocks 4 and 9 and plans to drill its first exploration wells by the end of this year. It has said it will avoid disputed waters.

"We expect greater participation in the second round of licensing," Boustani said, adding that representatives from

Russia's Lukoil, Spain's Repsol and Britain's BP had visited Lebanon in the last few weeks.

"For sure Total and Eni are still interested," she added.

Lebanon is on the Levant Basin in the eastern Mediterranean where a number of big sub-sea gas fields have been discovered since 2009 in waters off Cyprus, Israel and Egypt.

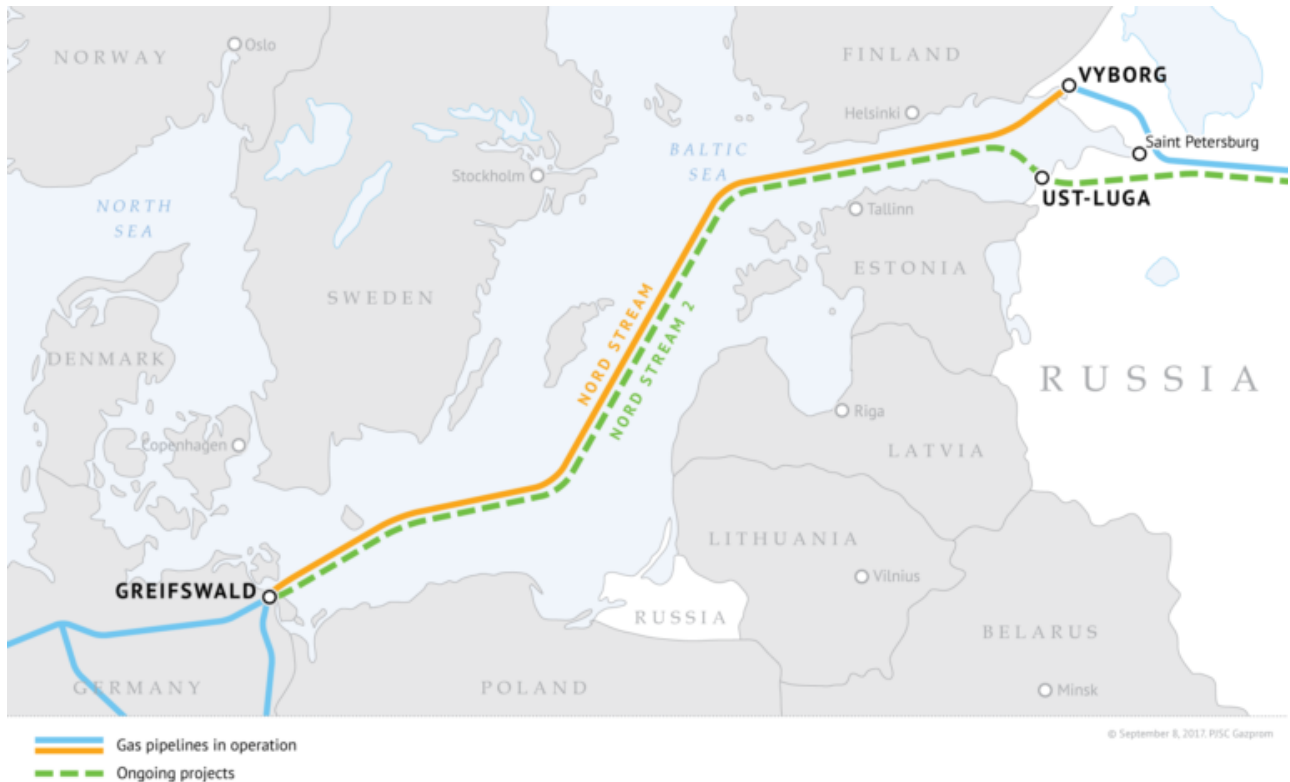
Beirut tried to launch its first offshore exploration in 2013, but domestic political problems delayed it until 2017.

For this round, it has merged the pre-qualification process for license bidders into the bidding process.

Pro-transparency group, the Lebanese Oil and Gas Initiative, urged the government to reconsider the decision, saying it might make the process more opaque.

Lebanon Announces New Blocks for Offshore Energy Work in Waters Also Claimed by Israel

**Nord Stream 2 to Be
Implemented Even With
Amendments to EU Gas
Directive – Novak**



MOSCOW (UrduPoint News / Sputnik – 05th April, 2019)

The Nord Stream 2 gas pipeline project will be implemented even with the introduction of amendments to the EU Gas Directive, Russian Energy Minister Alexander Novak told reporters Friday. On Thursday, the European Parliament approved amendments to the EU Gas Directive, which relate to the rules of operation of offshore sections of gas pipelines in the European Union. Now the amendments should be finally approved by the Council of the European Union. "Based on the draft [amendments to the Gas Directive] that were considered and adopted by the European Parliament yesterday, we can say the project will be implemented. And, of course, it will be implemented under this legislation, within the framework of what may be adopted. That is, these Gas Directive requirements will be implemented," Novak said when asked if changes to the EU Gas Directive would affect the implementation of the Nord Stream 2 project. The Nord Stream 2 project is a joint venture of Gazprom and five European companies: France's ENGIE, Austria's OMV, British-Dutch Royal Dutch Shell, and Germany's Uniper and Wintershall. The 745-mile-long pipeline is set to run from Russia to Germany to deliver Russian gas to European consumers. The pipeline project

has been welcomed by some countries in Europe and opposed by others who raise concerns over the alleged danger of Europe's dependence on Russia and subsequent diminished transit role of Ukraine. Moscow has repeatedly reiterated that the pipeline is a purely commercial project.https://www.urdupoint.com/en/amp/world/nord-stream-2-to-be-implemented-even-with-ame-586932.html?__twitter_impression=true

Fourth Report on the State of the Energy Union



The fourth report shows the progress made on the energy union since the start of the Juncker Commission. Building on results achieved so far, the report sets out legal rules, as well as political commitments and targets for a cleaner and

greener world. It takes into account evolving global environmental, economic and competitiveness challenges.

The energy union aims to give consumers secure, sustainable, competitive and affordable energy. It does so by overhauling European energy and climate systems and policies, putting the EU at the forefront in addressing global renewable energy and climate change.



Fourth Report on the State of the Energy Union COM (2019) 175

Implementation of the Strategic Action Plan on Batteries – COM (2019) 176

https://ec.europa.eu/commission/publications/4th-state-energy-union_en

Does Germany need LNG?



Proposals to build a German LNG import terminal have gathered momentum, but does the country need its own supply of LNG?

As Europe's largest gas market, Germany seems an obvious candidate to take advantage of the growing global appetite for LNG. However, the country remains an outlier, lacking direct access to the LNG market.

Momentum around proposals to develop a German LNG import terminal has gathered pace in the last year. But similar proposals have come and gone in Germany over the years. Has enough now changed for the country to join the world's growing club of LNG importers?

German gas supply on the political agenda:

The German government has given its political backing to an LNG terminal. Pressure from the US government on Germany to cease reliance on the Russian-led Nord Stream 2 gas pipeline has put the issue of an import terminal in the spotlight. While US influence cannot be ruled out, it is not a key catalyst. A more fundamental issue is one that has little to do with Russia or the US: the critical shifts in Germany's gas supply mix.

German gas supply mix:

Less stability in the gas supply mix means that Germany's gas market has been underpinned by four main sources: domestic gas production (accounting for just 7% of demand), alongside direct access to major piped supplies from Russia, Norway and the Netherlands, and access to LNG through neighbouring LNG import terminals nearby.

Timelines:

2030 – Planned closure of Groningen gas field which is 1/5th of the current share of Dutch supply to German gas market

2038 – Commitment to phase out coal from the German market

'Gronin-gone' – a shifting supply mix:

While Germany's major gas supply sources have been remarkably consistent and reliable over the past 20 years, all that is set to change. By 2030, only two sources will be left– Russia and Norway.

Since 2000, one-fifth of German gas supply has come from the Netherlands, with the majority sourced from Europe's largest gas field, Groningen. However, this field has been mandated to shut-in by 2030. Possibly earlier.

Germany's gas supply-demand balance will open up from 2022/23, which coincides with the planned start-up date for a German LNG import terminal. LNG is also set to play an increasingly important role in Europe, with European imports expected to double by 2025. Our analysis shows that more import capacity will be required to support this demand.

Coal is on its way out:

Despite unprecedented investment in renewable energy, Germany has made slow progress towards reducing emissions. However, a recently published road map now recommends a full coal phase-

out by 2038, with an option to advance this cut-off to 2035.

The phasing out of coal will be positive for gas demand. Germany's recently announced road map for phasing out coal has sharpened the focus on security and diversity of gas supply further. The country's power supply mix currently comprises coal, nuclear, gas and renewables. Within the next 20 years, it will comprise only gas and renewables.

The benefits of German investment into LNG are clear:

The reasons why Germany does not yet have its own access to LNG is straightforward: pipeline suppliers have proven reliable and competitive. But all that is changing: Groningen's upcoming closure puts a question mark over future security of supply, while the growth and diversification of LNG supplies creates interest in the market. For example, the delivered cost of US LNG (on a full life-cycle basis) is competitive into the forecast German hub price.

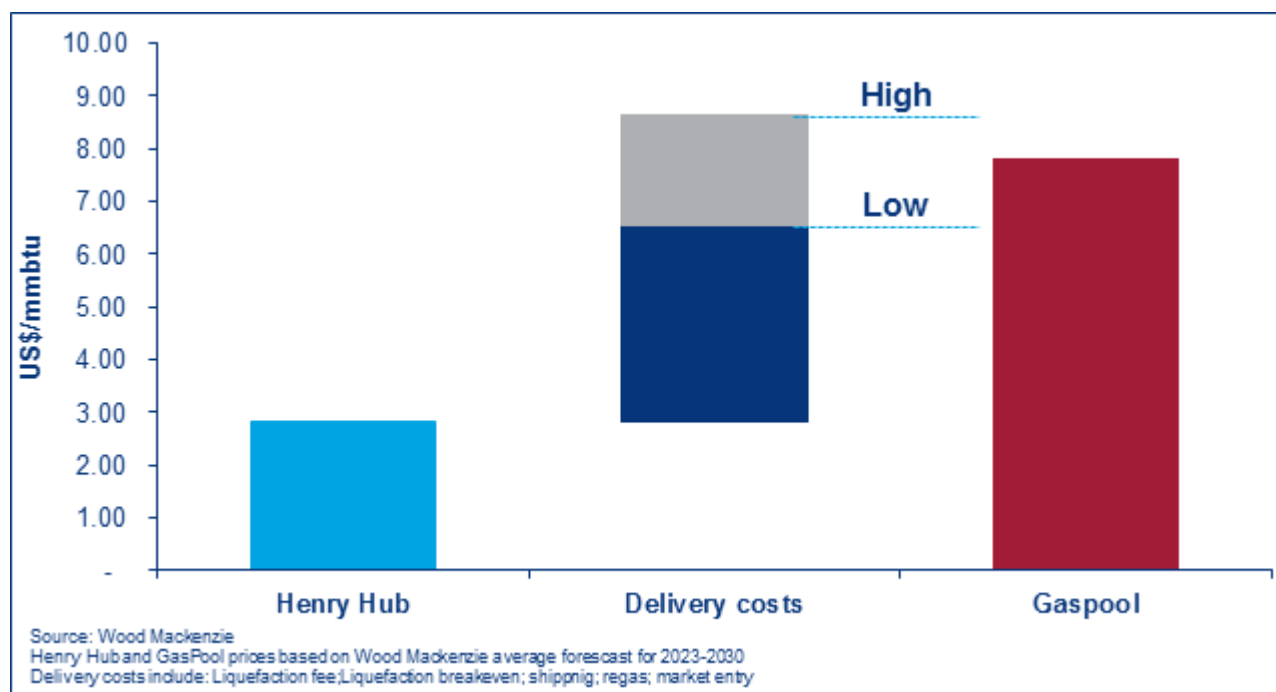


Chart showing US LNG cost into German hub price

The momentum behind a German LNG import terminal shows no signs of abating. And it is clear Germany would benefit from

having direct access to the world's growing LNG market. We expect a final investment decision (FID) on at least one of the three proposed import terminal projects by the end of 2019.

US crude oil production increased by 17% in 2018 thanks to tight oil



According to the United States Energy Information Administration (EIA), US crude oil production grew by 17% in 2018 to a yearly average of 10.96 mb/d, reaching a new record. Domestic production even reached 11.96 mb/d in December 2018, the highest monthly level of crude oil production. US crude oil production has increased significantly over the past 10

years, driven mainly by the development of tight rock formations. Companies operating in these areas have increased the use of horizontal drilling and hydraulic fracturing techniques. Tight oil production accounted for around 60% of total crude oil production in the United States in 2018.

The EIA predicts that this growth in crude oil production will continue over the 2019-2020 period and will reach 12.3 mb/d in 2019 and 13 mb/d in 2020. Most of the production will come from Texas, which made up 40% of the national total (about 4.4 mb/d) in 2018 and has been holding the top position in nearly every year since 1970 except for 1988 and from 1999 through 2011, when offshore production from the Gulf of Mexico (GoM) area was higher. Texas's production rose by another 0.95 mb/d in 2018, mostly due to the significant growth within the Permian region, which made up nearly 60% of the total US increase. The EIA expects three major tight oil plays in the Permian Basin, namely Spraberry, Bone Spring, and Wolfcamp, to account for half of cumulative tight oil production until 2050 (it should reach 12 mb/d in 2050), followed by the Bakken plays (19%) and Eagle Ford plays (17%).

GIIGNL Annual Report 2019: Strong demand in Asia drives LNG import growth for third consecutive year



GIIGNL, the international association of LNG Importers, is pleased to bring its 2019 Annual Report industry to the readers of Gastech Insights. This complimentary report is mainly based on data submitted by GIIGNL's 81 member companies. In the report, we describe the state of the LNG industry and the main evolutions of the last twelve months in LNG trade, contracts, liquefaction, regasification and shipping. For the second year, GIIGNL also reports on the development of retail LNG, providing statistics on LNG trucking and small-scale vessel loadings.

Main findings:

- In 2018, LNG imports reached 313.8 million tonnes, an 8.3% growth compared with 2017
- 42 countries are now LNG importers and 20 countries are exporters
- Since 1964, more than 97 000 cargoes have been safely delivered
- China and South Korea continued to absorb new supply

while additional volumes from Australia, the USA and Russia contributed to increase market flexibility

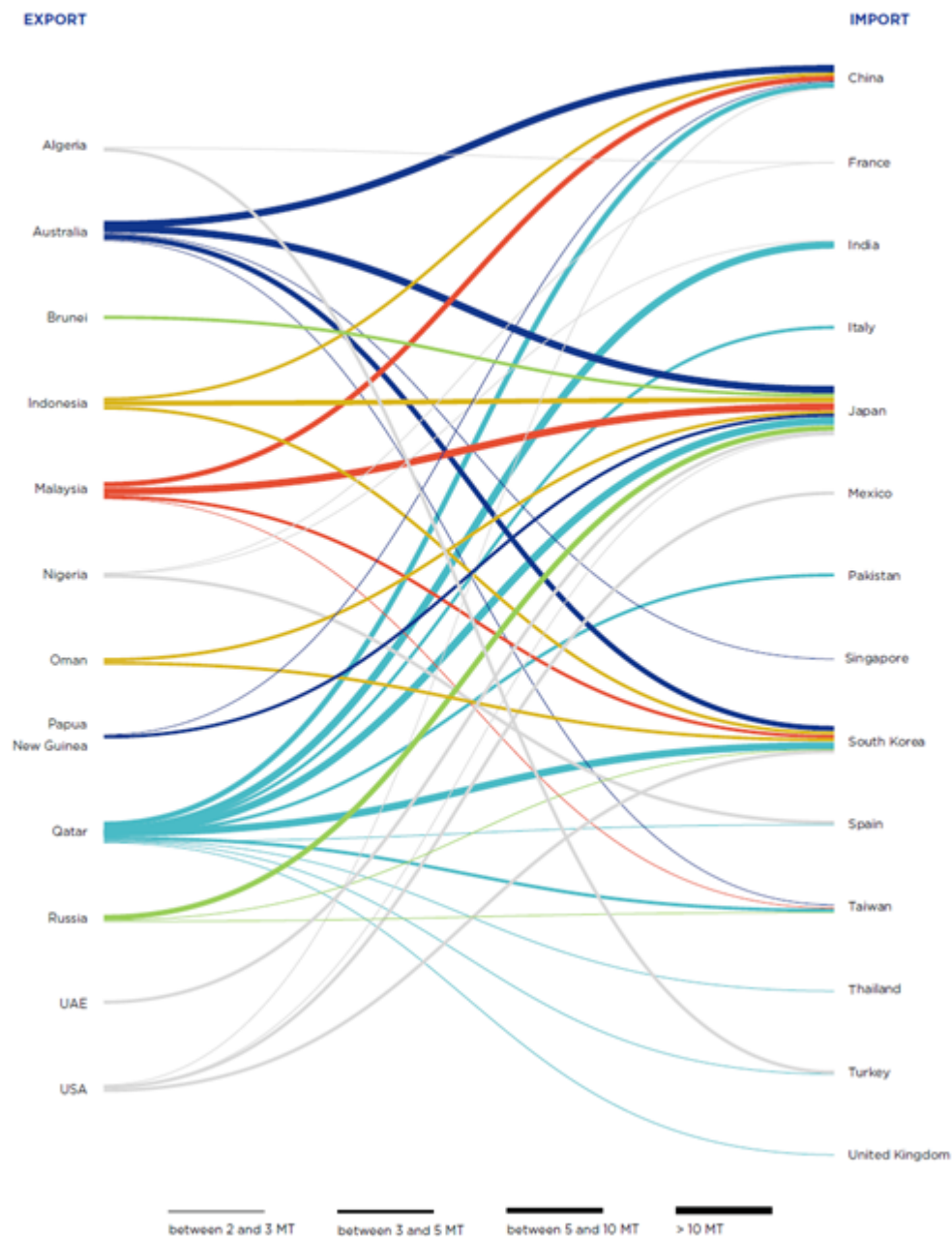
- LNG delivered under contracts of 4 years or less accounted for 32% of total imports or 99.3 million tonnes; cargoes delivered less than 3 months from the transaction date reached 25% of the market compared with 20% in 2017
- GIIGNL foresees profound changes in the global LNG market structure in 2019 and beyond

LNG supply moves west, demand moves east:

Two new countries – Bangladesh and Panama – joined the importers' ranks last year, bringing the total number of importing countries to 42. Asia firmed up its position of leading importing region with a 76% share of global LNG imports. Policy choices in the Asia-Pacific region largely drove the growth in LNG imports, fostered by measures to improve air quality in China and by uncertainties regarding nuclear power in South Korea. In Europe, cross-basin arbitrage opportunities continued to determine the level of LNG inflows as the reduction of price spreads led to a strong rise of import activity in Northwest Europe towards the end of the year.

New LNG supply volumes were mostly driven by new production from Australia, the United States and Russia (Yamal). Eight new onshore liquefaction trains were commissioned in these countries in 2018 and a floating liquefaction unit came online in Cameroon. The Pacific Basin remains the largest source of LNG supplies with 43.8% of the global market, followed by the Middle East and the Atlantic Basin. In 2019, the share of Atlantic Basin LNG supply in global trade is expected to continue to increase, as new liquefaction capacity is scheduled to come online in the United States.

MAJOR LNG FLOWS IN 2018



Spot and short-term trade is rising:

Spot and short-term volumes accounted for 99.3 MT in 2018. The share of spot and short-term volumes jumped to 32% compared with 27% in 2017. This expansion was supported by the ramp-up of flexible volumes from the United States and Russia and by the rise of LNG volumes handled by aggregators and traders who are able to optimize their portfolios allowing them to market volumes, in some cases purchased on a long-term basis, on a short-term or spot basis.

Even if it may still take some years before the commoditization of LNG becomes a reality, our industry is on the verge of profound change in terms of market structure. In 2019 we are likely to reach a tipping point with many long-term supply contracts starting to expire and as new supply comes on-stream.



As Jean-Marie Dauger, President of GIIGNL put it in his editorial: “For LNG importers, long-term partnerships, destination and volume flexibility as well as the ability to optimize or arbitrage between Asian and European markets remain key. In China, in India and South East Asia, in particular, LNG’s environmental benefits and its versatility make it particularly attractive as a destination fuel for thermal power generation and cogeneration, in the industrial and commercial sectors as well as in a growing variety of fields like marine and road transportation.”

<https://gastechinsights.com/article/giignl-annual-report-2019-strong-demand-in-asia-drives-lng-import-growth-for-third-consecutive-year#.XK8XcmHAoUI.twitter>

Jordan, Egypt Strengthen Ties

with New Gas Line Compression Station Development Project



Minister of Energy and Mineral Resources Hala Zawati on Saturday met with her Egyptian counterpart Tariq Mulla to discuss joint projects between Jordan and Egypt in addition to strategies linked to energy saving and the diversification of energy sources, especially natural gas.

The meeting, held in Aqaba, also tackled ways of benefitting from the expertise of Egyptian companies in developing the Kingdom's infrastructure to best utilise natural gas.

In a statement carried by the Jordan News Agency, Petra, Zawati reaffirmed the presence of exceptional fraternal relations between Jordan and Egypt, pointing to their cooperation on issues of petrol and gas.

The two ministers also inaugurated the Egypt-Jordan gas line's main compression station development project.

Exxon Mobil leads oil and gas discoveries in 2019



A trio of offshore discoveries made by Exxon Mobil has set up 2019 to be the biggest year for new finds since the last oil price collapse in 2014.

With discoveries made offshore of Cyprus in the Eastern Mediterranean and off of Guyana in South America, Exxon Mobil alone accounts for nearly 40 percent of the new oil and gas gains found in the first quarter of the year, according to a new report from the Norwegian research firm Rystad Energy.

“If the rest of 2019 continues at a similar pace, this year will be on track to exceed last year’s discovered resources by 30 percent,” said Rystad analyst Taiyab Zain Shariff.

Although last year saw a handful of new discoveries in the Gulf of Mexico, all of the new conventional finds this year are international, ranging from the Mexican side of the Gulf to Africa, Europe and the Middle East.

Rystad counts 3.2 billion barrels of estimated oil equivalent discovered through March, versus just more than 9 million barrels for all of 2018.

The biggest announced discovery this year is Exxon Mobil’s gassy find offshore of Cyprus, which Rystad estimated at nearly 700 million barrels of oil equivalent. Exxon’s two new Guyana discoveries represent two more of the top six finds for the year.

Other than Exxon Mobil, the other top discoveries include Paris-based Total’s South Africa find, Spain-based Repsol’s Indonesia discovery, and the latest North Sea discovery made offshore of the United Kingdom that was actually made by the China National Offshore Oil Corp., called CN00C, in a partnership with Total.

[https://www.chron.com/business/energy/article/Exxon-Mobil-lead-s-oil-and-gas-discoveries-in-2019-13751265.php?utm_campaign=CMS%20Sharing%20Tools%20\(Mobile\)&utm_source=whatsapp.com&utm_medium=referral](https://www.chron.com/business/energy/article/Exxon-Mobil-lead-s-oil-and-gas-discoveries-in-2019-13751265.php?utm_campaign=CMS%20Sharing%20Tools%20(Mobile)&utm_source=whatsapp.com&utm_medium=referral)

Turkish-Russian energy dependence vs. independence



Energy cooperation is the backbone of Turkey-Russia relations and a locomotive of their interactions in matters of regional security, military technologies, trade, construction and tourism. It ensures their stable progress but renders no immunity to occasional mishaps. The Turkey-Russia jet crisis of November 2015 has shown that for these relations to return to normal and resume their progressive development, their national leaders must apply political will. Developments after the amicable resolution of the crisis in August 2016 have also revealed that mutual trust and resilience are indispensable for Turkey-Russia relations.

Ever since the '70s, Turkey-Russia gas cooperation has been special: It is immune to political squabbles around the Russian gas monopoly and is guided by economic necessities. Cooperation is natural, since Turkey is an energy dependent country, while Russia is a prime global supplier of energy

resources and of natural gas in particular. This value added became apparent in 2016 when, discouraged by a lack of progress with Bulgaria to develop the South Stream project, Russia turned to Turkey and closed a deal to construct the Turk Stream gas pipeline in record-short time. Guided by economic necessity, the countries joined forces in pursuit of their sovereign wills: Russia proceeded to develop its southern export corridor to Europe, while Turkey moved closer to becoming a regional energy hub.

Turk Stream is a transit-free pipeline, and construction of its 1st line nears completion by year-end. No more than 52 hours will be needed to bring gas from Russia's Anapa on the Black Sea to Kilyıköy in northwestern Kırklareli province in Turkey by passing 930 km across the bottom of the Black Sea. Consisting of two lines, Turk Stream will supply Russian natural gas to Turkey and provide for its transit to EU markets.

When the 1st line is commissioned, Turkey will additionally start receiving about 16 billion cubic meters (bcm) of natural gas per year. Its 2nd line, currently under construction and of an equal capacity, will deliver gas to the Turkish-Bulgarian border from where it'll be further carried by the local distribution network to the border with Serbia. Going on to Hungary, Russian gas will eventually reach the mega storage facility in Baumgarten, Austria.

Diversifying gas supply

According to the Energy Market Regulatory Authority (EMRA), Turkey annually consumes close to 55 bcm of pipeline gas, while receiving at least half from Russia. Currently, the second largest supplier is Iran (16 bcm), followed by Azerbaijan (9 bcm).

From Russia, Turkey receives 14 bcm through the Trans Balkan pipeline transiting through Ukraine, Moldova, Romania and

Bulgaria, and 16 bcm by means of the Blue Stream submerged pipeline crossing the Black Sea from Novorossiysk, Russia to Samsung, Turkey, bypassing transit countries. Russia's contract with Ukraine for gas transit is due to expire in 2019, and chances are high for deliveries via the Trans-Balkan pipeline to stop after Turk Stream's completion, in particular, since Turkey will hardly need extra volumes of Russian pipeline gas in addition to the 30 bcm it currently receives.

Azerbaijan is about to substantially increase Caspian gas supply to Turkey and then to Europe through the Trans-Anatolian Natural Gas Pipeline (TANAP) connector, a brainchild of the EU and the backbone of the Southern Gas Corridor (SGC) transmission system envisaged to diversify EU gas supply. TANAP was launched last year to deliver to Turkey 6 bcm of gas from Azerbaijan's Shah Deniz-2 offshore deposit, one of the world's largest. Then, it proceeds to the Greek border to connect with the Trans Adriatic Pipeline (TAP), the European leg of the SGC, which will pump 10 bcm of Azeri gas to Greece, Albania and eventually Italy upon construction completion in 2020.

This makes Azerbaijan a Russian competitor to challenge its gas expansion through Turkey to EU markets, while strengthening Turkey's position as a regional energy hub. These developments further diversify gas supply sources and contribute to Turkey's energy independence, making it immune to dangers of over-reliance on Russian gas imports, if they grow.

Recently, Turkey increased consumption of liquefied natural gas (LNG). During 2018, its dependence on pipeline gas decreased to less than 80 percent, while the share of LNG imports went up to about 20 percent. Turkey is expanding the LNG infrastructure and is keen on its combining with a diverse gas pipeline network and increased gas storage capacities. This trend reveals the country's pursuit of the goal of

becoming a regional energy hub, while contributing to the diversification of supply sources it started this decade.

Currently, Turkey operates four LNG terminals: two floating storage and re-gasification units (FSRU), while the remaining two are land facilities. In December 2016, the first FSRU became operational, and its current supply capacity has reached 5 bcm a year; it can re-gasify more than 12 percent of Turkey's annual gas demand. The second FSRU was commissioned in January 2018; it has the largest LNG storage capacity in the world, at 263,000 cubic meters.

Gas politics

In comparison with Russia, U.S. energy cooperation with Turkey is younger. Starting in the '90s, it was largely triggered by U.S. attempts to disrupt the Russian gas monopoly by prompting the supply of natural gas from the Caspian region to Turkey. With that in mind, the U.S. designed the Trans-Caspian Gas Pipeline (16 bcm) to deliver gas from Turkmenistan and Azerbaijan to Turkey to meet its gas demand and curtail Russia's further expansion in the Turkish market.

Though heavily promoted by then-U.S. President Bill Clinton's administration, the project never took off and was replaced with the Southern Caucasian Pipeline that started bringing more modest volumes of gas from Azerbaijan to Erzurum, Turkey, in 2007. Turkmenistan, in its turn, having failed to become a mega gas supplier to Turkey, made a U-turn in the direction of China and now annually delivers up to 40 bcm of natural gas to its market by means of the Central Asia-China pipeline commissioned in 2009.

Russia, following up on the U.S.'s aborted attempt to construct the Trans-Caspian pipeline, in 2004 successfully completed the Blue Stream pipeline that established a southern export route for its gas and made Turkey the first Russian gas consumer to enjoy transit-free deliveries and immunity from

the political squabbles around them.

Turkey-U.S. energy cooperation got a fresh boost in 2017 with the U.S. returning to the world gas market after 60 years of absence. In 2018, Turkey became one of the largest buyers of LNG from the U.S., according to the U.S. Department of Energy. From 2017, the U.S. share of LNG in Turkish gas imports rose to 2.7 percent from 1.6 percent, according to EMRA, which corresponds to a 66.4 percent increase in just a year. The U.S. also plans to double its LNG production to 40 million tons in 2019 and become the world's third-largest LNG producer.

Mutual affiliation

Independence has been a magic word and an eternal dream since time immemorial. Energy sector professionals are no exception, and the market is impacted by political squabbles around energy resource supply that at times overshadow the rationale of their production.

This March, the European Parliament adopted a resolution on the state of affairs between the EU and Russia, claiming that construction of the North Stream-2 pipeline poses danger to the EU domestic market. Pipeline construction envisages two lines to transport 55 bcm of Russian gas across the Baltic Sea to Germany, and completion is due by the end of 2019.

North Stream-2 construction is a relentless source of concern for the U.S. Last December, the House of Representatives adopted a resolution to support sanctions against North Stream-2, while calling on EU countries to drop their participation in the project.

Global developments reveal that for the foreseeable future Russian natural gas will remain an indispensable energy resource. In Europe alone, the increasing use of renewables for electricity generation results in higher consumption of natural gas needed to balance the grid when outages caused by

wind and solar farms occur. Immune to European Commission calls to diversify gas sources, Russia's share of the European gas market increased from 30 percent in 2014 to 37 percent in 2018.

"Gas pipelines are built not for making someone angry, but out of economic necessity," said Austrian Foreign Minister Karin Kneissl, when in Moscow this March.

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https://www.dailysabah.com/op-ed/2019/04/08/turkish-russian-energy-dependence-vs-independence/amp?__twitter_impression=true