Renewables could account for 86% of global power generation in 2050

According to the International Renewable Energy Agency (IRENA), renewable energy sources (RES) could account for 86% of power generation in 2050. IRENA's reference scenario foresees electricity to become the central energy carrier, reaching a 50% share of final energy consumption by 2050 (from the current 20%). Renewable power development should benefit from the fall in the Levelized Costs Of Electricity (LCOE), which should halve between 2010 (US$80/MWh) and 2050 (US$40/MWh) for wind power and divide 9-fold for solar, from US$347/MWh in 2010 to US$38/MWh in 2050. Solar PV deployments could accelerate from the current 109 GW/year to 360 GW/year in 2050, while wind capacity additions could surge from around 54 GW/year to 240 GW/year.

Conversely, fossil fuel consumption would decline: oil demand would be reduced to 22 mb/d (from current 95 mb/d), gas demand would reach 2,250 bcm/year (from around 3,750 bcm/year in

2018) and coal demand would collapse from around 5,360 Mtce/year in 2018 to 713 Mtce/year in 2050. The investment required to decarbonise the global energy system is estimated at US$15,000bn by 2050 (-40% than previous estimates due to decreasing renewable power generation costs).

The higher renewable power generation could cut CO_2 emissions by 27% in 2030 (compared to the current level), by 48% in 2040 and by 71% in 2050, leading to a fall in CO_2 emissions per capita, from 4.3 tCO_2/cap in 2010 to 1.1 tCO_2/cap in 2050.

https://www.enerdata.net/publications/daily-energy-news/renewables-could-account-86-global-power-generation-2050.html

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China plans to boost domestic coal production by 100 Mt in 2019

China expects to increase its coal production by 100 Mt in 2019 from the 3.5 Gt produced in 2018. Despite China's commitment to cut excess produciton capacity, production will be boosted by the 194 Mt/year of new coal mining capacity approved in 2018 and by the 29.5 Mt/year new coal mining capacity to be added in 2019. Consequently, coal imports could decrease by 10 Mt to 12 Mt in 2019.

China is by far the world's largest coal producer, with a production that increased by 3% in 2018 (+100 Mt). Coal production increased rapidly over 2000-2011 (almost 9%/year) before peaking in 2013 at 3.8 Gt and reducing until 2016. The trend shifted in 2017, when production grew again (+100 Mt or +3%). The northern and north-western regions are the main production areas.

https://www.enerdata.net/publications/daily-energy-news/china-plans-boost-domestic-coal-production-100-mt-2019.html

China’s installed capacity expected to reach 2,000 GW in 2019

According to the China Electricity Council (CEC), China’s installed capacity should reach around 2,000 GW at the end of 2019, representing a total increase of more than 100 GW compared to 2018 (1,900 GW). Most of the capacity increase – around 62 GW – will come from non-fossil fuel capacities. Coal consumption for power generation is expected to increase by 80 Mt in 2019.

China is the world leader in annual newly installed capacities for wind and solar. The wind power capacity increased by more than 20 GW in 2018 (+13%) and reached 184 GW. Overall, Chinese wind power capacity has increased nearly sixfold since 2010. Solar power capacity have soared over the past years, from less than 900 MW in 2010 to more than 130 GW in 2017 (+53 GW over 2016) and to nearly 175 GW in 2018 (+44 GW in 2018).

https://www.enerdata.net/publications/daily-energy-news/chinas-installed-capacity-expected-reach-2000-gw-2019.html

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Israel Builds World's Largest Solar Power Tower

The Ashalim 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.

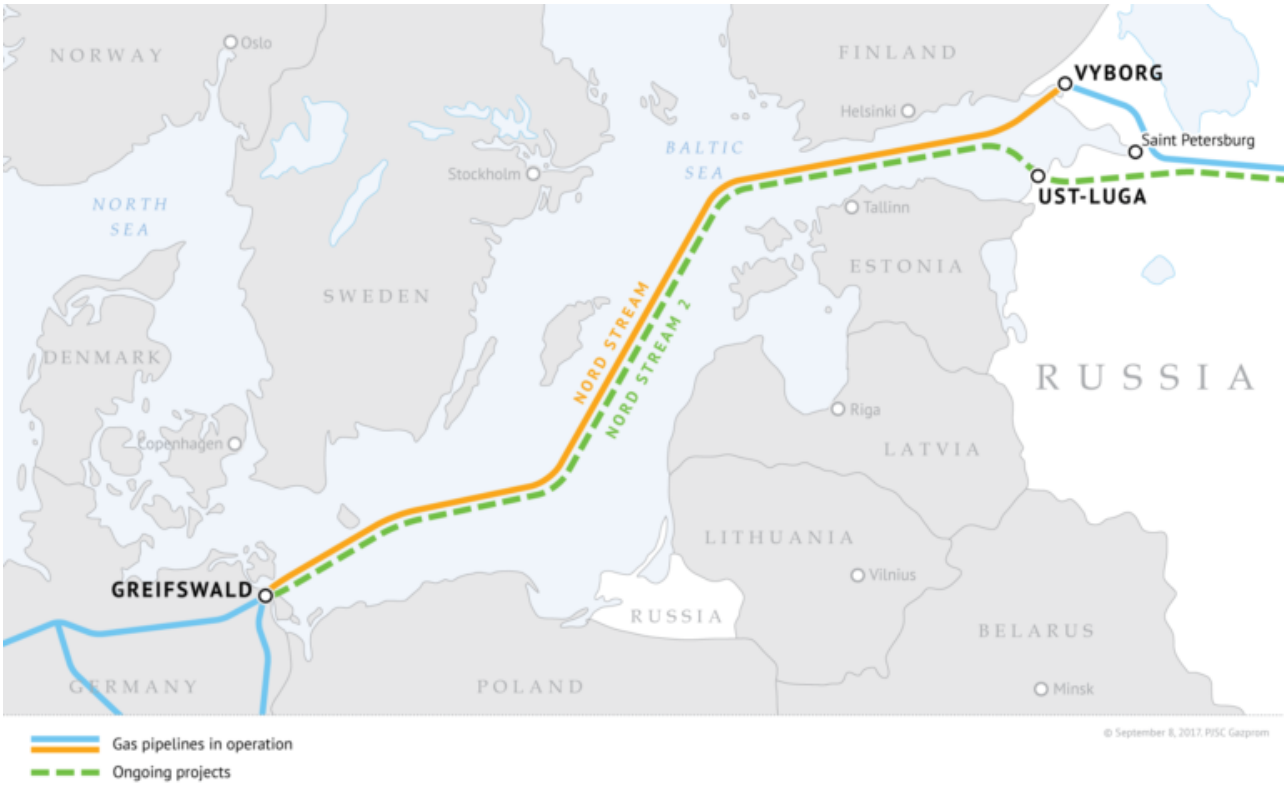
For this round, it has merged the pre-qualification process for license bidders into the bidding process.

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

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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

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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.

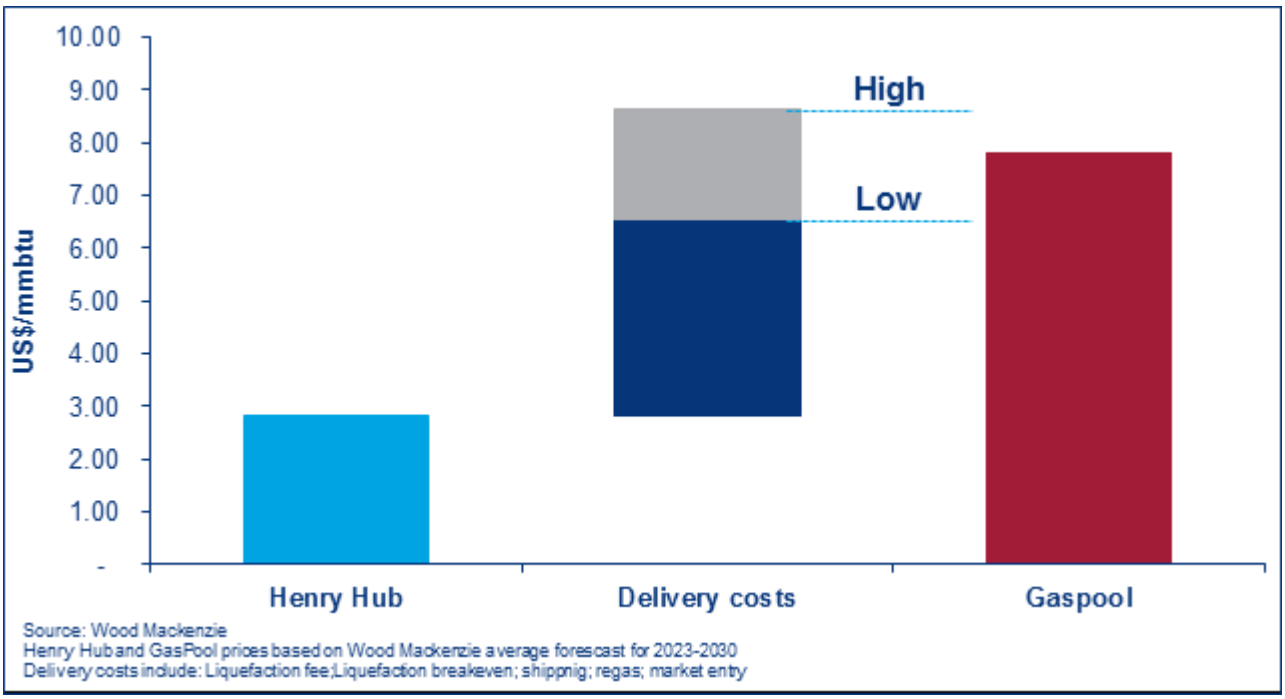


Chart showing US LNG cost into German hub price

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:

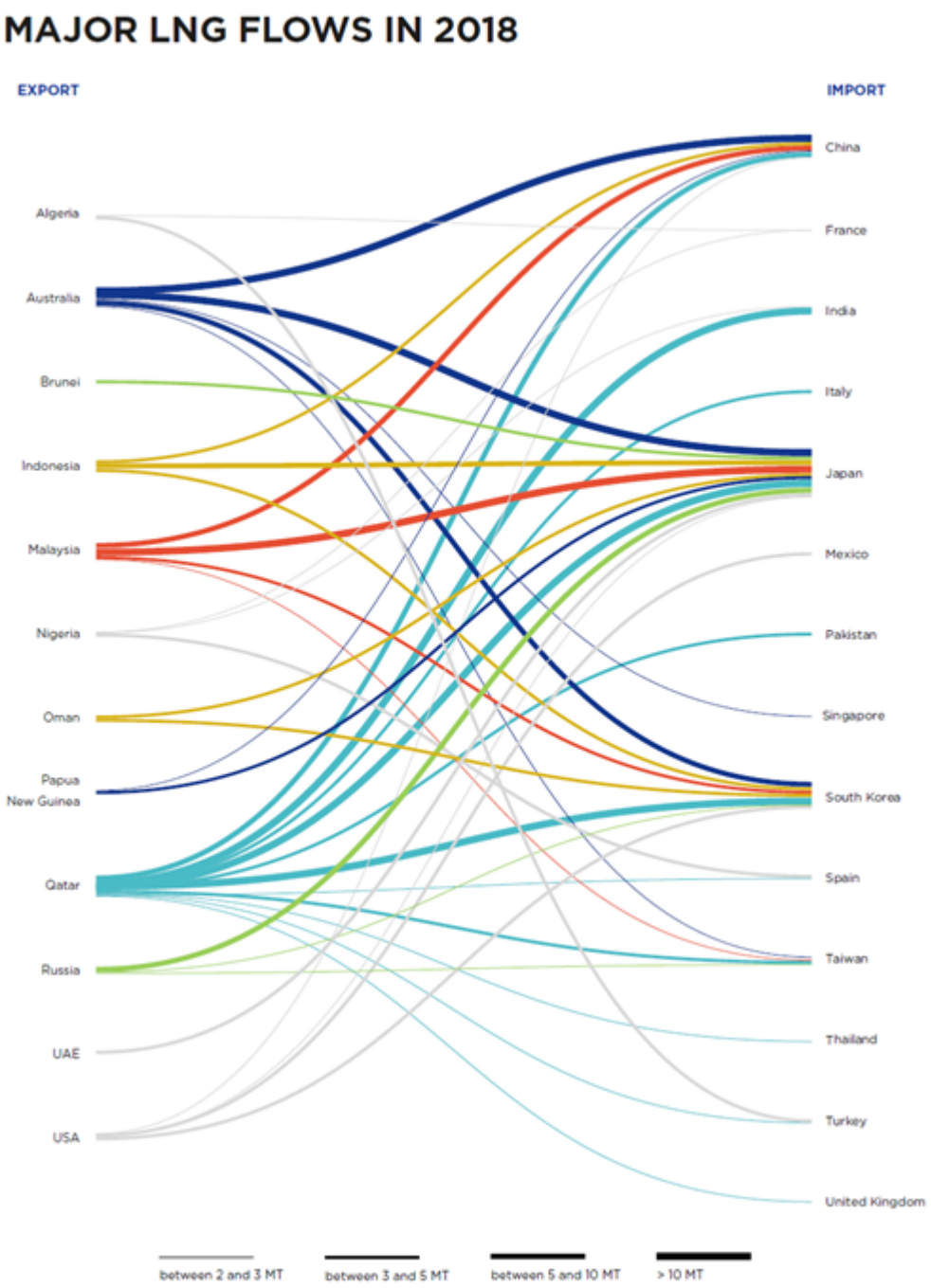
- In 2018, LNG imports reached 313.8 million tonnes, an 8.3% growth compared with 2017
- 42 countries are now LNG importers and 20 countries are exporters
- Since 1964, more than 97 000 cargoes have been safely delivered
- China and South Korea continued to absorb new supply while additional volumes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



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