Lebanon: How advanced technology can help power the country's future

Lebanon – a vibrant country with a lively culture, high ambitions for the future – and a strong demand for additional power. Right now, Lebanon has an energy shortfall of 1.5 gigawatts (GW), which will become *more critical* as the country's energy consumption continues to rise. It's estimated that power demand in Lebanon will grow by about 5% each year between now and 2021, and by 3% each year from 2022 through 2030.[1]

Compounding the energy shortage situation is an outdated energy grid that is unable to handle current–much less future–energy transmission needs. The result is frequent blackouts across the country, which residents and businesses alike have to address with private generators–a costly and

unsustainable option.

Lebanon’s energy roadmap

In response to the country’s increasing energy needs, Lebanon’s Ministry of Energy and Water developed an extensive plan to improve and modernize Lebanon’s power infrastructure that addresses the entire energy chain, from generation to transmission and distribution to consumption.

This plan requires advanced technology, deep industry expertise, and solid financing models to be successful. In support of this plan, GE (General Electric) presented a comprehensive roadmap in November 2018 at the seminar “Powering Lebanon Forward” held in Beirut under the patronage of the Ministry of Energy and Water.

The right energy mix at the right time

The energy roadmap illustrates how a tailored mix of reliable, flexible, efficient and cost-effective energy technologies can help address Lebanon’s energy shortage in the near-term and provide ongoing power for the future.

Under this comprehensive plan, and in partnership with the Minister of Energy and Water and other stakeholders, GE proposes to:

- In the short-term: Add up to 1.5 GW—enough to close the country’s current energy gap—through fast-track gas power technology, simple-cycle power plants that can run on heavy fuel oil, light diesel oil and natural gas, and wind power plants that can generate clean energy.
- In the medium-term: Increase power generation capacity by up to an additional 1.3 GW through new combined-cycle power plants, the conversion of simple-cycle power plants to combined-cycle (so that more power can be generated from the same amount of fuel), and new wind power farms.

- In the long-term: Bring online up to another 2.7 GW to meet the country's energy needs through new combined-cycle power plants and renewable energy facilities.

This additional amount of power needs to be manageable by the grid so that it can be transmitted and distributed while keeping the network stable. For that reason, the roadmap also includes solutions to strengthen the grid by upgrading up to 6 existing substations and developing up to 17 new substations. Moreover, the roadmap also plans to implement an Integrated Energy Management system that tracks generation, transmission and distribution to allow the Ministry to identify losses in the network.

GE's roadmap for Lebanon is a custom-tailored plan that not only addresses the country's current needs but includes the buildout of Lebanon's infrastructure to allow future adoption of new technologies and fuels.

"In developing our proposed roadmap for Lebanon, GE considered

the most effective mix of machinery, technologies and timing, based on the grid size and the fuel availability in the region, now and in the future", says Joe Anis, President & CEO of GE's Gas Power business. "For example, GE's suggested mix of technologies includes the implementation of our highly efficient 9E gas turbines. These units are a perfect fit for Lebanon, as they can burn heavy fuel oil—currently used in the country—as well as tri-fuel configurations when natural gas becomes available in the future."

GE commissioned its first gas turbines in Lebanon more than 30 years ago, and the company is now looking to help build the foundation by strengthening the country's power infrastructure with technologies that will support Lebanon's current *and* future energy needs. "History has brought GE and Lebanon together, and *together* we can build a future that is even brighter", concludes Joe Anis.

Oil dips as U.S. crude production hits record

Oil prices dipped on Thursday, dragged down by weakening factory output in China and Japan and record United States crude output, although markets remained relatively well supported by supply cuts led by producer club OPEC.

International Brent crude futures were at $66.20 per barrel at 0525 GMT, down 19 cents, or 0.3 per cent from their last close, *Reuters* and the *News Agency of Nigeria* reported.

U.S. West Texas Intermediate crude oil futures were at $56.90 per barrel, down four cents from their last settlement.

Prices were dragged down by surging American crude oil production which has risen by more than two million barrels per day over the last year to an unprecedented 12.1 million bpd .

Traders said China’s weakening economy also weighed on oil prices.

Factory activity in China, the world’s biggest oil importer, shrank for a third straight month in February as export orders fell at the fastest pace since the global financial crisis a decade ago, official data showed on Thursday.

Amid weak demand from China, oil producers are having to cut

prices.

Russia’s Surgutneftegaz is selling April-loading ESPO crude oil at the lowest level in three months, charging $2.20 to $2.40 per barrel over benchmark Dubai quotes.

In Japan, Asia’s second-biggest economy, factory output posted the biggest decline in a year in January as China’s slowdown affected the entire region.

But oil markets remain relatively well supported by supply cuts by OPEC, which together with some non-affiliated producers like Russia known as ‘OPEC+’ agreed late last year to reduce output by 1.2 million bpd to prop up prices.

Because of these cuts, U.S. commercial crude inventories fell 8.6 million barrels in the week to February 22 to 445.87 million barrels.

“Crude imports into the U.S. fell 1.6 million bpd last week, to a two-decade low,” ANZ bank said on Thursday.

Energy exports to fuel Euro-Med revival Expert says. Greece should play a lead role

***Yannis Maniatis** - Member of the Hellenic Parliament; former. Minister of Environment, Energy and Climate Change, Greece*
***Roudi Baroudi** - CEO, Energy & Environment Holding, Qatar*
***Christos Folias** - Former Minister of Development, Greece*

DELPHI, Greece: Oil and gas deposits under the Mediterranean could restore momentum to the European Union in general and its Euro-Med cooperation project in particular, an industry veteran told a conference in Athens on Saturday.

“Many of the problems facing the EU today stem from a failure

to ensure that political and security partnerships between governments and militaries would come part and parcel with direct benefits for every-day citizens from all walks of life," Roudi Baroudi, CEO of Doha-based Environment and Energy Holding, told the second day of the Delphi Economic Conference. "The consequences of this failure have been particularly troublesome for several key members of the Euro-Med family."

As a cornerstone of the region and a victim of the global economic meltdown, "no country has a more important role to play in this process than Greece does," added Baroudi, who has worked in several parts of the energy sector for more than 40 years.

"The real tragedies are the personal ones involving jobs lost, families scattered, and dignity under assault," he told an audience of high-profile figures from the private and public sectors. "These are the indicators that have to change if we are to make good on the European dream, and if we are serious about inclusiveness, the Euro-Med region is actually a great place to start."

Baroudi, who has advised governments and companies on three

continents and helped draft significant parts of European Union energy policy, also seconded remarks by Greek President Prokopios Pavlopoulos, who reminded guests at Thursday's opening ceremony that technological advance has often come at a heavy price in terms of jobs. Accordingly, Pavlopoulos argued, greater effort had to be made to find ways for technology and its applications to offer more human benefits alongside usual pluses like cost reduction and efficiency.
"Human civilizations have always struggled with how to balance these factors, and a similar approach must apply to oil and gas development" Baroudi warned, but "today the energy industry is better-equipped than ever" to achieve sustainable development while minimizing environmental impacts.

Referring to the massive gas fields discovered in the Mediterranean in recent years, he said the resulting revenues and savings could be decisive for several countries. "We also have global standards, including the recommendations of the COP 21 and COP 24 climate summits," he noted, "and the governments in question just need to be muscular about implementing and enforcing these rules. Greece's role will no doubt include continued leadership on this score, too."

"If all of the countries involved agree to be bound by the United Nations Charter and other international laws and regulations," Baroudi predicted, "the tools are available to carve out a happier future for all of our peoples [and] … so are the resources."

ExxonMobil makes biggest

natural gas discovery in two years off the coast of Cyprus

- ExxonMobil announced on Thursday that it has made the world’s third biggest natural gas discovery in two years off the coast of Cyprus in the Eastern Mediterranean.
- Based on preliminary interpretation of the well data, the discovery could represent a natural gas resource of approximately 5 trillion to 8 trillion cubic feet.
- The EU is considering developing a gas hub in the Mediterranean key to diversifying its energy sources and reducing its dependence on Russia.

ATHENS- Exxon Mobil announced on Thursday that it has made the world’s third-biggest natural gas discovery in two years off the coast of Cyprus in the Eastern Mediterranean at the Glaucus-1 well. The region is already know for some of the world’s largest such discoveries. It wants to become an alternative energy source for Europe.

Based on preliminary interpretation of the well data, the discovery could represent a natural gas resource of approximately 5 trillion to 8 trillion cubic feet (142 billion to 227 billion cubic meters). Further analysis in the coming

months will be required to better determine the resource potential.

“These are encouraging results in a frontier exploration area,” said Steve Greenlee, president of Exxon MobilExploration Co. “The potential for this newly discovered resource to serve as an energy source for regional and global markets will be evaluated further.”

Glaucus-1 was the second of a two-well drilling program in Block 10. The well was safely drilled to 13,780 feet (4,200 meters) depth in 6,769 feet (2,063 meters) of water. The first well, Delphyne-1, did not encounter commercial quantities of hydrocarbons.

Block 10 is 635,554 acres (2,572 square kilometers). In 2017, Exxon Mobil and state-owned Qatar Petroleum won the rights to explore for oil and gas in offshore areas south of Cyprus. The east Mediterranean island is located in the Levant basin, where both Israel and Egypt have found some of the largest reserves of natural gas in the past decade.

In 2017, Exxon Mobil and state-owned Qatar Petroleum won the rights to explore for oil and gas in offshore areas south of Cyprus. Exxon Mobil owns a 60 percent stake in the block, while Qatar Petroleum holds the rest.

At a press conference in Nicosia, CyprusEnergy Minister George Lakkotropis said he is excited about the findings. “It is an amazing development for all of Cyprus. This is the greatest discovery within our Exclusive Economic Zone (EEZ). In the coming months, the amount of natural gas will be more accurately estimated,” he said.

Tristan Aspray, vice president of exploration for Europe, Russia, and the Caspian, at Exxon Mobil told reporters Thursday that the next few months will be devoted to data analysis. “We need to see multiple factors such as the quality,” he stated. He also noted that Exxon Mobil will carry

out additional drilling most likely next year.

The Turkish factor

The gas finding now has energy analysts wondering how thorny it will be working with Cyprus – a divided country, between Greece and Turkey – and its split maritime zones.

Perched on the maritime edge of two massive gas finds in the Levant Basin – Leviathan off Israel and Zohr off Egypt, Cyprus, lies in a region of overlapping rivalries and geopolitical risk. Cyprus is ethnically divided, and Turkey, which supports a breakaway Turkish Cypriot state in north Cyprus, says Greek Cypriots have no jurisdiction to explore for natural gas. Greek Cypriots say it is their sovereign right.

Greek Cypriots, who run Cyprus' internationally recognized government, have licensed several offshore blocks to multinational energy companies for exploration on Cyprus' Exclusive Economic Zone. Last year the Italian company Eni and its partner France's Total announced a breakthough gas discovery a the Calypso block off the island's coast that looked geologically similar to the mammoth Zohr field off Egypt. Zohr holds an estimated 30 trillion cubic feet of gas, the largest ever discovered in the Mediterranean.Calypso in Cyprus's waters is an estimated 80 km away. But just days after the discovery the ENI drill ship was stopped by Turkish military vessels on its way to the its drilling site.

There are worries now that the ExxonMobil gas discovery could worsen preexisting tensions in the area despite the fact that Cyprus has the support of the European Union to explore and exploit its natural resources.

The EU is considering developing a gas hub in the Mediterranean key to diversifying its energy sources and reducing its dependence on Russia, which supplies roughly one-

third of the bloc’s gas. Ideas on how to accomplish this goal are three-fold according to Sohbet Karbuz, director of the hydrocarbons division, Mediterranean Energy Observatory: 1) to build a massive EastMed pipeline to ship natural gas from Israel and Cyprus to the EU through Greece and Italy; 2) develop an LNG plant to liquefy the gas and then ship it to Europe, or 3) a combination of both.

“The dream was that the discovery of gas in the Eastern Mediterranean would bring cooperation and peace in the region. The reality is that it may trigger more disputes,” Euthymius Petrou, former advisor to the Greek Ministry of Defense and expert on Turkish affairs told CNBC.

So far no international energy company has expressed interest in investing and supporting the EastMed gas pipeline project. Politicians and industry analysts in Greece and Cyprus hope ExxonMobil will take on this role. ExxonMobil would not comment on that prospect.

‘Seismic market on the rise’: Polarcus

Dubai-based contractor eyes increased awards and pricing after boosting backlog despite Q4 loss Polarcus is bullish about seismic market prospects this year, despite recent oil price volatility, as it sees higher tendering activity after boosting its contract backlog by around 40% over the past year. The Oslo-listed seismic contractor has recently notched up eight contract awards to lift its backlog to $232 million at the end of the fourth quarter, up from $164 million a year earlier, and now has its four operating vessels fully booked for the first half of this year and 70% booked for the full year, though another vessel, Polarcus Nadia, remains laid up. The company saw tendering activity increase more than 20% last year on 2017, with pricing improvement throughout the year, and has a “strong pipeline of opportunities in 2019”.

It said strong vessel employment prospects provide “good visibility of future earnings and the ability to further increase pricing levels”.

Dubai-based Polarcus notched up its highest-ever vessel utilisation of 96% in the latest quarter, fuelling higher revenue of $58.4 million, up from $37.2 million a year earlier. Steve Marshall 27 Feb 2019 08:49 GMT However,

increased costs due to higher utilisation left the company with a net loss of $13.3 million, albeit narrowed from a year-earlier loss of $26.2 million, while it also suffered an operating loss of $5.8 million compared with a loss of $19.3 million in the same period of 2017. Chief executive Duncan Eley said the contractor has a “positive outlook” for 2019 after a crippling four-year market slump in which seismic players have been severely hit by exploration cutbacks by oil companies.

“With the oil price around current levels, pricing in the seismic market is expected to continue to improve over the short to mid-term driven by continued increase in demand from E&P companies and supply discipline from a reduced number of global vessel operators,” he said. He stated that Polarcus is “in the midst of a transforming competitive landscape” with fewer players offering a tighter supply of high-end 3D and 4D seismic vessels as the active global fleet has been cut by a third to only around 20 units from 32 in late 2016, while at the same time demand is on the rise. “Pricing levels of recent awards represent an improvement in the global marine acquisition market,” Eley said, adding “we expect to see our margins continue to improve as pricing levels increase”.

As energy world focuses on Permian, Gulf makes its own comeback

The attention of the energy industry has focused in recent years on the Permian Basin, the once tired West Texas oil field that roared back to life when hydraulic fracturing and horizontal drilling freed the vast reserves locked in its shale. But as the Permian gathers the attention, another aging oil field is making its own comeback.

The Gulf of Mexico is producing a record of almost 2 millions barrel of crude oil a day and expected to increase its output each year over at least the next five years as new projects begin operation and new discoveries in deeper waters are made. After struggling in the aftermath of the oil bust as investment shifted onshore, the Gulf has found new life as oil companies have succeeded in lowering costs, and market dynamics have made the heavier crude produced in the Gulf more valuable and sought after by refineries from the Gulf Coast to Asia.

The energy research firm Wood Mackenzie projects Gulf drilling activity to jump 30 percent this year after four consecutive years of declines. The federal government forecasts production to grow another 15 percent next year to 2.3 million barrels a day as as oil companies, particularly the biggest players, find advantage in deepwater wells that deplete far more slowly

than shale reservoirs.

“The quality of Gulf crude as well as the longer life of offshore wells make it just as attractive as shale to large producers today,” said Sandy Fielden, Morningstar’s director of oil and products research.

As in the Permian and other shale plays, producers that have found ways to make money with lower crude oil prices have opened the spigots. The Permian Basin and the Gulf of Mexico account for about half nation’s output, now at a record 12 million barrels a day.

Cutting costs

The average cost of extracting oil barrels from deepwater wells has plunged by more than 50 percent in five years, according to Wood Mackenzie, as companies have standardized project designs and equipment. They also focused drilling projects near existing platforms that can be connected to the new wells via underwater pipelines and umbilicals, which is far less costly than building and installing new platforms.

The breakeven price for profiting off of deepwater wells has fallen from about $70 a barrel a few years ago to closer to $40, according to the top Gulf producers BP and Royal Dutch Shell. As one measure of the vast gains in efficiency, consider this: Gulf producers are pumping twice as much crude with a quarter of the drilling rigs used in the mid-1990s.

“The deepwater is thought of as an expensive and difficult place to be,” said Starlee Sykes, BP’s regional president for the Gulf. “Recent developments are changing that.”

The world’s biggest oil companies, including BP, Shell and Chevron dominate much of the Gulf, and other top global players such as the French oil major Total, Norway’s state energy company Equinor and The Woodlands’ Anadarko Petroleum als are investing more in the region. Asian energy companies,

valuing the political stability of the United States over potentially bigger returns in more volatile regions such as Africa and Latin America, also are developing projects in the Gulf.

Those firms include include China National Offshore Oil Corp., called CNOOC, and the Japanese companies Inpex Corp., Mitsui Oil and Marubeni Oil & Gas.

Shell completed a series of smaller expansions last year and, this fall, will put its multibillion-dollar Appomattox platform in operation about 80 miles of the Louisiana Coast to target deep geologic layers believed to hold much on the undiscovered oil in the Gulf. Appomattox will be followed in 2021 with the Vito platform about 150 miles southeast of New Orleans.

After Vito, Shell expects to hone in on its Whale discovery — announced a year ago — in the southwest Gulf almost 200 miles south of Houston. Rick Tallant, Shell vice president for production in the Gulf, said a final decision for a multibillion-dollar development of Whale is likely in 2020.

“The industry in general is starting to reinvest back into the Gulf of Mexico,” Tallant said.

In January, for example, BP said it would spend $1.3 billion to expand its Atlantis development about 150 miles south of New Orleans. BP said it produces more than 300,000 barrels of oil equivalent a day from the Gulf and plans to exceed 400,000 barrels daily by the mid-2020s.

The Gulf also is attracting further investments from smaller players such as the Houston companies Talos Energy, Fieldwood Energy, W&T Offshore and Houston Energy.

Ron Neal, co-founder of Houston Energy, said these companies are taking a contrarian approach, targeting the Gulf when shale is all the rage and buying leases at significant

discounts to acreage in the Permian Basin. The Gulf's wells are costlier to develop up front, he said, but they can churn out high volumes of oil for many years, unlike shale wells, in which production drops sharply after the first year or so.

"The deepwater is healthy," Neal said. "We just try to be consistent and not reactionary, and it's worked pretty well."

To Mars and beyond

Wood Mackenzie predicts the next big project to move forward could be Chevron's and Total's 2017 Anchor discovery more than 100 miles south of New Orleans. That development could trigger more than $10 billion in investments.. Last last year, Chevron's new Big Foot platform came online east of the Anchor find.

In addition to lower lease costs and longer well life, another factor is driving increased activity in the Gulf of Mexico: premium prices for its oil. Gulf wells produce a medium grade crude and the benchmark, called Mars, is selling at $6 a barrel more than lighter crude produced in West Texas – a premium of about 15 percent and the highest differential for Mars sine 2013.

The reason: a global shortage of the heavier crudes preferred by refiners from the Gulf Coast to Asia. Several developments have cut the supply of heavier crudes on the market, including OPEC's production cuts, U.S. sanctions on Iran and Venezuela, and OPEC-style output reductions put in place the government of Alberta, Canada to try to lift prices of the heavy crude produced in the province's oil sands.

Analysts expect Gulf of Mexico oil to fetch higher prices at least though the end of this year.

"As the U.S. consolidates its position as one of the world's largest producers and a major exporter," said Fielden, the Morningstar analyst, "the long-term value and importance of

offshore production shouldn’t be underestimated.”

Aramco eyes LNG deals in next gas strategy

LONDON (Bloomberg) – Saudi Aramco aims to become one of the world’s largest players in natural gas and the company is eyeing projects in Russia, Australia, America and Africa to kick-start a global business in the liquefied form of the fuel.

“Gas is a major market and we want to be one of the largest players,” Amin Nasser, the chief executive of Saudi Arabia’s state-run oil company, said in an interview in London. “There’s appetite to invest in natural gas and LNG.”

Asked whether the company, formally known as Saudi Arabian Oil Co., will have made a major overseas investment in gas in a year’s time, Nasser responded: “I hope so.”

Natural gas is turned into a liquid by super cooling it to minus 162° Celsius (minus 260° Fahrenheit). After that, the liquefied natural gas, known as LNG, gets loaded onto massive ships and transported around the world. The liquefaction technology, which was developed commercially in the 1960s and 1970s, gave natural gas access to global markets, allowing it to reach countries from Japan to Spain.

The world's biggest oil companies have invested heavily in natural gas and LNG, with Royal Dutch Shell Plc and Exxon Mobil Corp. operating large projects from Qatar to Australia. In many ways, Western oil companies also see natural gas as part of their energy transition strategy: it's far less polluting than crude oil, releasing less carbon dioxide that contributes to climate change.

Gas strategy

The push into natural gas is a change of strategy for Aramco, which is already the world's largest oil exporter. The company, fully owned by the Saudi government since its nationalization in the 1970s, has a relatively small natural gas business today, which focuses on meeting local demand. Nasser wants to change that, starting gas exports both from fields in Saudi Arabia but also from outside the kingdom.

"We are in discussions with Russia, Australia, America and Africa," Nasser said, declining to name any of the companies involved in the talks. In the past, Saudi officials have said the kingdom is talking about taking a stake in a Russian project known as Arctic LNG 2 controlled by Novatek PJSC.

Saudi Arabia's efforts to build a global natural gas business follow in the footsteps of regional rivals, including Qatar, one of the world's largest LNG exporters. The U.S. is also emerging as a large LNG shipper thanks to booming natural gas production from shale fields, from Texas to Pennsylvania.

Downstream investments

The gas shift comes as Aramco also invests heavily in oil refining and petrochemicals, in an effort to secure long-term outlets for its crude production. The company is mulling its first ever international bond later this year to help finance the acquisition of a majority stake in local chemical company Saudi Basic Industries Corp. The kingdom has promised an initial public offering of Aramco by late 2020 or early 2021, after shelving plans originally targeting 2018.

Aramco is also planning to boost the kingdom's domestic use of natural gas, aiming to replace the bulk of the 400,000 bpd or so of crude oil and refined products that Saudi Arabia burns to generate electricity. The oil freed by using gas instead for electricity generation could be exported, earning hard currency.

At peak times during the torrid desert summer, Riyadh burns through as much as 800,000 bpd of crude to produce electricity to meet peak seasonal demand for air conditioning. "We plan to eliminate most oil burning for electricity by 2030," Nasser said. "As a strategy, we will replace oil with gas."

Why Europe Won't Go for American Natural Gas

Washington can promise Europe all it wants, but U.S. domestic politics could change what actually happens.

by Nikolas K. Gvosdev

The U.S. national security community can often overlook how U.S. domestic policy can undermine American foreign policy goals. For example, take Secretary of State Mike Pompeo's European tour this past month, and the efforts of Vice President Mike Pence at the Munich Security Conference to rally support for Washington's preferred courses of action. There seems to be a glaring blind spot in how U.S. foreign policy analysts comprehend European resistance to U.S. efforts to increase the pressure on Russia and Iran.

In Hungary, for instance, Pompeo laid out before his hosts in Budapest a proposal to more closely align Hungary's energy imports with its security relationship with the United States. Instead of signing on to Russian proposals to extend its Turkish Stream pipeline into the heart of central Europe, the Secretary of State encouraged the Hungarians to consider relying on U.S. liquefied natural gas (LNG) exports for their

energy needs. Such a proposal would decrease Russian geo-economic influence in Europe and diminish the revenues available to the Kremlin for funding the Russian military. Furthermore, it would reinforce the foundations of the North Atlantic Treaty Organization alliance, on the grounds that allies not only defend each other, but they also buy essential goods and services from each other.

Pompeo's proffer received a cool shoulder. Of course, it is natural to point the finger at Russia's adept usage of tools of influence, especially financial, to keep government officials in favor of Russian projects. But that is not the complete story. Politicians in Europe, particularly when it comes to energy issues, are reluctant to eschew existing, proven and reliable suppliers of energy for projects that may not be realized.

It is very true that over the past several years, U.S. exports of energy have exploded onto world markets, as new technologies and methods unlock the hydrocarbon bounty latent in U.S. soil. Yet these methods are not universally accepted across the American political spectrum, and the apparent return to dependence on oil and gas is criticized by a number of leading U.S. political figures. Moreover, the long and torturous political saga of the Keystone pipeline shows that a geo-economic strategy of maximizing North American energy development and exports engenders significant domestic political resistance.

President Donald Trump adds a new political wildcard to the question. The direction in U.S. politics over the past few years has been for Trump's political competitors to oppose his policy agenda even if, prior to 2016, they supported specific proposals themselves. To the extent that expanding U.S. energy exports is a signature issue embraced by the Trump administration, it becomes easier for those running again Trump and his legacy in the 2020 elections to oppose such efforts. By doing so, they stand to gain the support and

activism of those domestic political groups who for environmental or other reasons oppose the expansion of the domestic hydrocarbon industry.

Imagine that I am a Bulgarian, Hungarian, or Austrian politician who is being offered a definitive Russian commitment to sell and market natural gas. Or imagine that I am a German or French leader who believes that, in the long term, Iran's energy reserves are crucial for the continent's economic development. Any official U.S. offer of an energy alternative depends, essentially, either on Trump's re-election in 2020 or the unshakeable promise from any of Trump's Republican primary or Democratic general election competitors to honor Trump's commitments. In these circumstances, it is not difficult to see why Europeans may hedge their bets. Why bet the proverbial farm on a U.S. LNG supply across the Atlantic if there remains significant doubt as to whether a Democratic successor to Trump—particularly as 2020 candidates endorse the so-called "Green New Deal" with varying degrees of enthusiasm—would continue with such plans?

The Russians are also aided by the reputation that Putin has for "doing what he says" whether with regard to a Syria intervention or the construction of the Kerch Straits bridge—both of which many Washington experts predicted would never happen. With actual pipe being laid across the Black Sea to create a new energy transit route between Russia and European Turkey, southern and central European states will have easy and immediate access to supplies of Russian natural gas. In contrast, U.S. plans to increase exports remain on the drawing board.

Proponents of the Green New Deal and other such measures may be prepared to take the geo-economic tradeoff of short-term Russian advantage in Europe in return for giving the U.S. longer-term leverage should the new technologies lead to major energy breakthroughs. If so, they should acknowledge that trade-off openly. For Democrats and Republicans who do not,

they too must make clear their policy priorities. One lesson from events in Europe this month, however, that cannot be ignored is that U.S. politicians do not have the option of keeping separate their domestic and foreign policy priorities. In short, choices need to be made and owned.

Novatek to bump 2030 LNG production target to 70 mtpa

Russia's largest independent natural gas producer and LNG operator, Novatek is looking to revise its liquefied natural gas production plans, reaching 70 million tons per year by 2030.

In a meeting with the Russian president Putin, Leonid Mikhelson, Novatek's head said the current plans see for production volumes of 57 million tons, but these plans could be revised upwards in a year or two.

Mikhelson informed the construction on the Yamal LNG project's

fourth liquefaction train has started, a brief released by the press office of the Russian president.

The fourth LNG train will have the capacity to produce 900 thousand tons per annum, utilizing the hydrocarbon resources of the South-Tambeyskoye field in the Russian Arctic, bringing the project's total capacity to 17.5 mtpa.

The first LNG Train began production in the fourth quarter of 2017 and Trains 2 and 3 in July 2018 and November 2018, respectively.

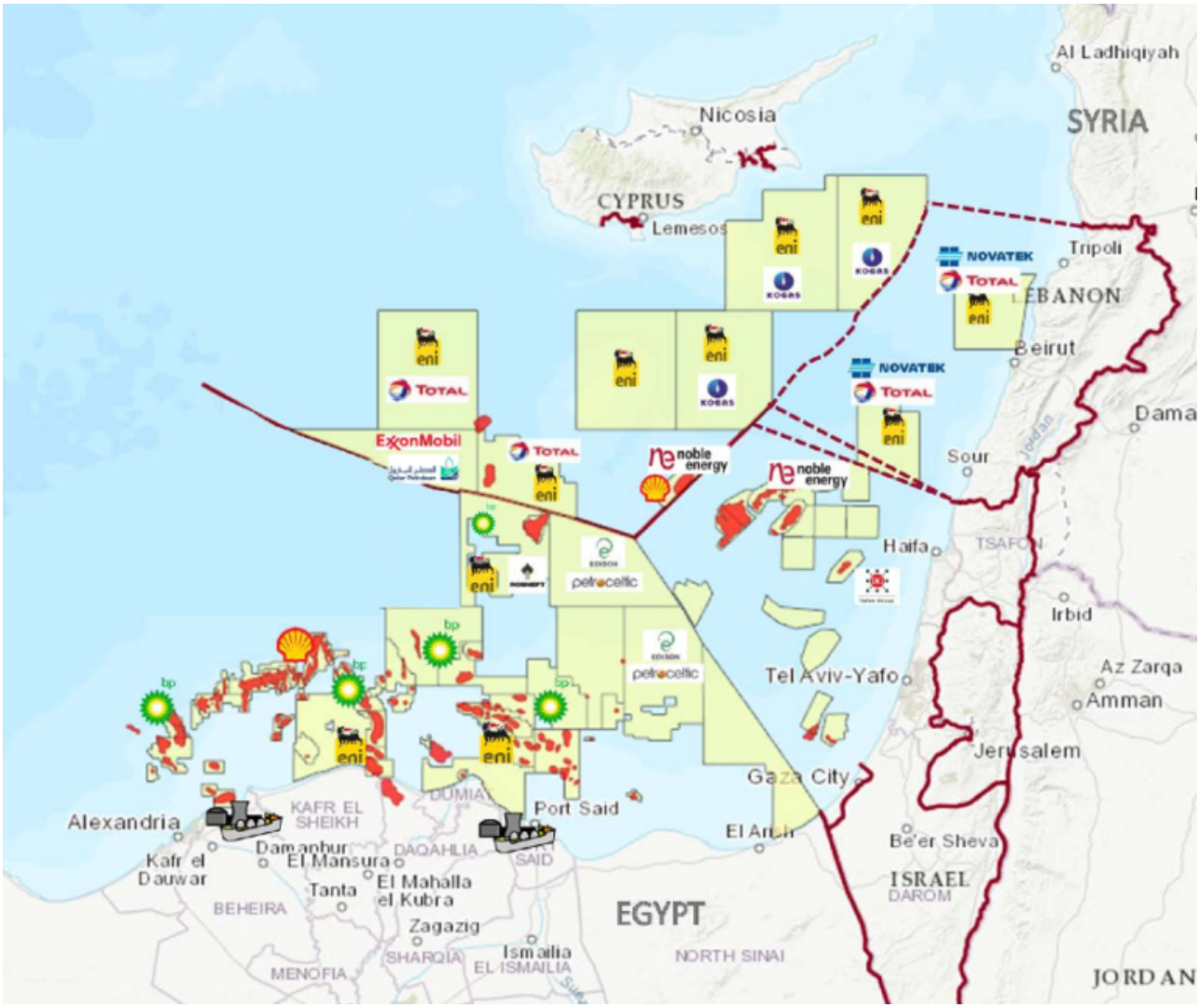
Besides Novatek, Yamal LNG's shareholders include France's Total, China's CNPC and Silk Road Fund.

Novatek is also developing the Arctic LNG 2 project envisaging constructing three LNG trains at 6.6 million tons per annum each, using gravity-based structure (GBS) platforms. It is based on the hydrocarbon resources of the Utrenneye field.

Novatek has already tagged a joint venture between the Italian contractor Saipem and Turkish oil and gas services company Renaissance for the onshore engineering and construction of the GBS platforms.

The company has also signed a contract on compressor equipment for the three liquefaction trains with Siemens.

East Med Gas: The Impact of Global Gas Markets and Prices



Ever since the discovery of the giant gas-fields Tamar, Leviathan and Zohr in the Eastern Mediterranean, the area has attracted growing international attention, with Egypt at the centre of it.

A lot is happening in the Eastern Mediterranean. Aside from the long-standing Cyprus issue and a number of other tense geopolitical standoffs, hydrocarbon exploration and production is taking centre stage, with more expected in the near future (see Figure 1).

The key question, however, revolves less around the size of new discoveries and international investments in the area. More important will be to assess how global gas markets and prices will affect these discoveries, spurring or dashing the high-hopes of an emerging export-oriented “gas hub” in the Eastern Mediterranean.

As we enter 2019, two events stand out in the region: the drilling by ExxonMobil in block 10 off Cyprus (already in progress) and the potential for a sizable new gas discovery by the Italian company Eni in the Nour North Sinai concession, offshore from Egypt's Sinai peninsula.

Both are very promising. Should major discoveries be confirmed, for which there are high hopes, these could transform the region, not just in terms of the gas industry and exports, but also geopolitically.

Both developments are happening at a time when Bloomberg forecasts increasing global demand for liquefied natural gas (LNG) with a gap between demand and supplies developing after about 2025 if one follows its base projections (see Figure 2), or earlier, if higher demands actually materialise.

This would open opportunities for LNG exports from the region, from both Egypt and Cyprus. But there will be strong competition from new projects emerging in North America, Qatar, Africa, Australia and Russia.

The global gas and LNG market is in a state of flux. This is driven in part by China's slowing economic growth, but also due to concerns about the global economy, with global GDP growth expected to slow over the next few years.[5]

Sanctions and the trade war between the US and China are posing increasing threats to global LNG trading. These have brought home to China its vulnerability in energy supplies, where these rely mostly on imports. On top of this, China is going through an economic slowdown, expected to be long-lasting.

In response to these developments, China moved to change its energy policies in mid-2018, allowing regional governments to increase clean coal production and consumption.[6]

Combined with a rapid increase in renewables and nuclear capacity, China is countering these threats by boosting indigenous resources. In doing so, it has relaxed its clean air policies that led to the massive increase in LNG demand in late 2017 and for most of 2018. In addition, the Power of Siberia pipeline, with 38 billion cubic metres (bcm) per year capacity, is expected to start delivering gas to China in 2019.[7]

Meanwhile, in mid-2018, Japan also released its new energy plan to 2030, which includes a return to nuclear power and a reduction in the use of imported LNG, a process that has already started. On this latter aspect, Tokyo aims to reduce LNG imports from 84 million tonnes in 2017 to 62 million tonnes a year by 2030.[8] South Korea is also moving in a similar direction, continuing to rely on nuclear and coal power to the middle of the next decade.

Moving to India, while there is much talk about increased gas use in the future, New Delhi's pipeline infrastructure cannot handle increased LNG imports beyond the existing import terminal capacity of 30 million tonnes a year.[9]Building new pipelines is very challenging, not least due to complex right-of-way processes. New Delhi is also not giving up coal – quite the contrary. The priority in India is a rapid increase in cheap renewables, with a target to increase capacity to 175 gigawatts (GW) by 2022.

These developments are already having an impact on prices and are slowing LNG demand in Asia.

Looking to Europe does not provide much respite either. Europe is well supplied with gas. At the Platts gas and LNG conference in London last October, Gazprom confirmed it could sell gas at 4 US dollars per million British thermal units (mmBTU) and still make a profit.[10] In addition, US LNG companies are confident they will increase their sales to Europe at about 6.5 dollars/mmBTU.

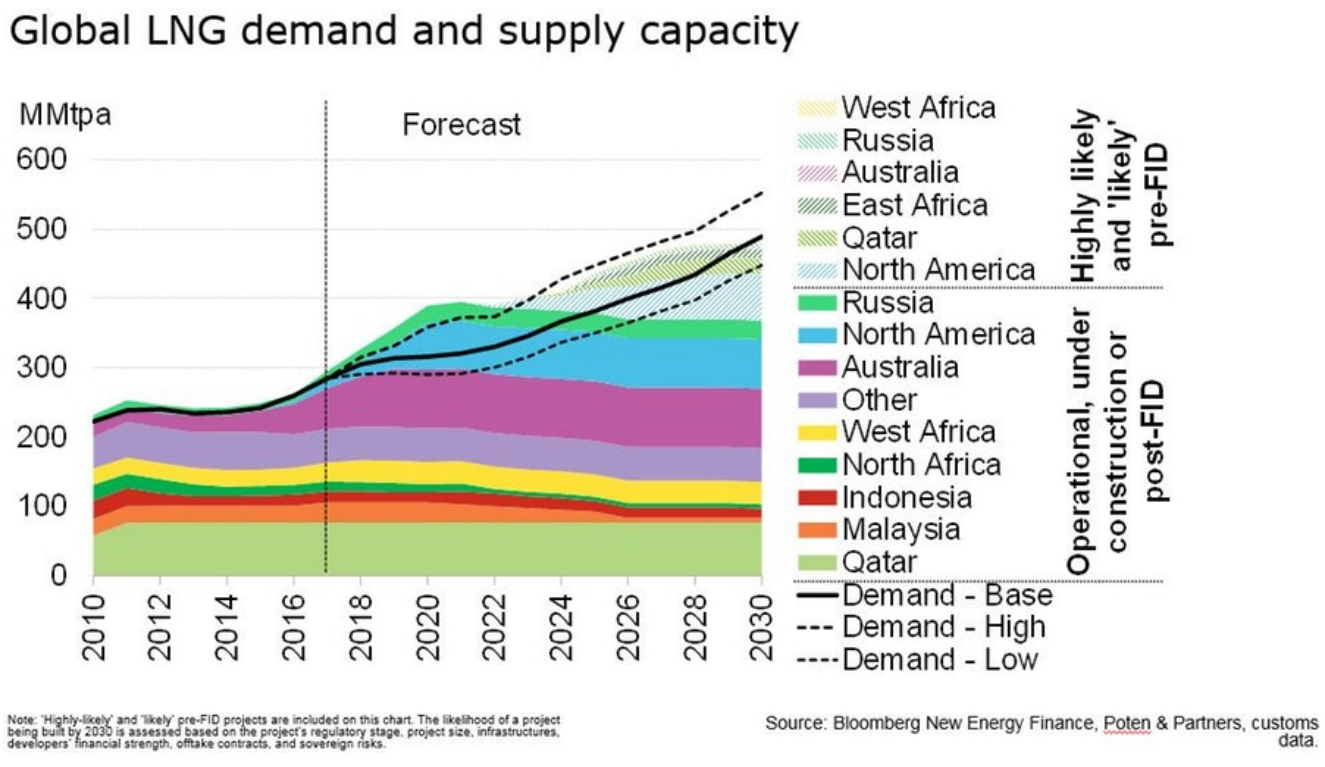
Longer term gas price forecasts made at the international gas and LNG conferences in October and November 2018 confirmed that, with record LNG supply, by mid-2020s spot LNG prices will return back to about 8 dollars/mmBTU in Japan and 6 dollars/mmBTU in north-western Europe.[11]

East Med gas will have to compete with such prices if it is to secure export markets. With US shale on the resurgence, renewables penetration becoming an unstoppable phenomenon and coal holding its own competition to secure markets is going to be as fierce as ever.[12]

Global LNG demand can of course be expected to increase but, given recent developments in Asia, it will probably be nearer to Bloomberg's base projections (see Figure 2).[13] Moreover, such increases will be price-driven.

New LNG projects in Qatar and North America, which are at an advanced stage of approval, may lead to supplies in excess of Bloomberg's base projections, with the risk that over-supply may extend to the end of the next decade, keeping prices low.

Figure 2 | Global LNG supply and demand capacity



Source: Maggie Kuang, “The Future of LNG”, cit.

New energy outlooks expect a peak in fossil fuel demand in the 2030s,[14] warning that expensive gas could hasten the penetration of renewables and lead to a faster decline in hydrocarbon use. On the other hand, with low prices, gas could continue doing well.

International efforts to combat climate change can also be expected to impact the global energy market, including East Med gas.[15]

The EU has upped its 2030 climate targets, with renewables set to account for 32 per cent, energy efficiency 32.5 per cent and CO2 emissions reductions at 40 per cent in comparison to 1990 levels.[16] In addition, carbon pricing is increasing fast, promoting renewables and impacting fossil fuels. Renewables accounted for over 70 per cent of net additions to global power generation capacity in 2017. They now comprise over 26 per cent of global electricity.

While major oil and gas companies remain steadfast in their defence of the industry, the risk of increased divestment by the insurance industry and institutional investors, as well as litigation by activists, do pose threats to the industry.

As a result, and in addition to pursuing exports, Eastern Mediterranean countries should consider ways to maximise use of discovered gas in the region.

ExxonMobil’s Vice-President of Europe, Russia and the Caspian, Tristan Asprey, made clear at the Economist Summit in Nicosia in November 2018 that competitiveness will be essential in demonstrating commercial viability of an LNG export project in Cyprus.[17]

As also stated at the Economist Summit, there is a need to find ways to reduce regional geopolitical risk. LNG projects involve multi-billion dollar investments, the returns from

which take decades to materialise. Such projects and investments need certainties.

Among the key challenges is Turkey's effectively untenable position that islands, including Cyprus, are not entitled to Exclusive Economic Zones (EEZs). Turkey does not recognise the United Nations Convention on the Law of the Sea (UNCLOS) and takes the view that mainland continental shelves take precedence over islands.

On this basis, Turkish authorities continue to challenge Cyprus's right to develop its EEZ, disputing all related hydrocarbon activity. However, this is at odds with the EU, the US and the international community who recognise Cyprus's rights to its EEZ and its exploitation for the benefit of all Cypriots.

Overall, the Eastern Mediterranean still has strong prospects for more gas discoveries, especially ExxonMobil in Cyprus and Eni at Noor in Egypt, but unlocking this potential by securing export markets remains a challenge due to global markets, price viability and the fraught geopolitics of the region.

A prerequisite for further integration and realisation of the full gas potential of the Eastern Mediterranean is geopolitical and regional stability through resolution of regional conflicts. The recent establishment of the East Med Gas Forum should contribute to this and is a welcome development.[18] The EU and the US could also play a central role by putting diplomacy into action and developing incentives and disincentives for regional players.

Against this backdrop, a diplomatic solution on Cyprus could go a long way in improving regional geopolitics in the Eastern Mediterranean. But is this likely to happen? There is a glimmer of hope that negotiations may resume mid-2019, but few are holding their breath.

Yet, in addition to looking for exports, which is proving to

be challenging, Eastern Mediterranean countries should consider ways to maximise use of this gas regionally, an approach that would likely be more commercially viable and perhaps even lead to increased intra-regional cooperation in the area.

Gas exports from Israel and Cyprus face political and commercial challenges. But with Israeli and Cypriot gas exports to Egypt looking more likely, there is hope for Egypt to emerge as an energy hub in the Eastern Mediterranean, triangulating gas from multiple sources while improving its infrastructure for a better distribution and export potential. Egypt has already turned from an LNG importer to an LNG exporter in 2019, making Egypt the first true "winner" in the emerging East Med gas rush.

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