Exxon Mobil proceeds with Argentina expansion project in Vaca Muerta basin

IRVING, Texas – Exxon Mobil is proceeding with a long-term oil development in Argentina's Bajo del Choique-La Invernada block. The project is expected to produce up to 55,000 boed within five years and will include 90 wells, a central production facility and export infrastructure connected to the Oldeval pipeline and refineries.

"We are encouraged by the excellent results of our Neuquén pilot project and look forward to increased production through this significant expansion," said Staale Gjervik, senior vice president of unconventional at Exxon Mobil. "The reforms implemented by the federal and provincial governments have been critically important to enabling the development of the Vaca Muerta basin as one of the country's main energy resources."

If the expansion is successful, Exxon Mobil could invest in a second phase, which would produce up to 75,000 boed. Timing of

the second phase depends on initial project performance and business and market conditions, among other factors.

“Exxon Mobil has been an active player in the Neuquén basin since 2010 and in Argentina for more than 100 years,” said Daniel De Nigris, Exxon Mobil’s lead country manager. “We will continue to work closely with the government and our partners and will use our expertise and capabilities to bring jobs and other benefits to local communities.”

In 2015, the Neuquén provincial government granted Exxon Mobil a 35-year concession in Vaca Muerta for the Bajo del Choique-La Invernada block. Exxon Mobil began an exploration pilot program the following year and now has three producing wells, and three additional wells moving into production. A production facility, gas pipeline and oil terminal have been in operation since 2017 and were recently connected to the Pacific Gas pipeline by a 16-in pipeline.

Bajo del Choique-La Invernada is a 99,000-acre block, located 58 mi northwest of Añelo and 114 mi northwest of Neuquén city. Exxon Mobil Exploration Argentina is operator and holds 90% interest in partnership with Gas y Petróleo del Neuquén, which holds 10% interest. Exxon Mobil Exploration Argentina is leading its unconventional operations in the Neuquén basin under a joint venture agreement with Qatar Petroleum, which has 30% interest in Exxon Mobil’s upstream affiliates in Argentina.

Prime Minister agrees legally

binding net-zero emissions target for 2050

Announced on Tuesday night (11 June), the Prime Minister revealed that the statutory instrument to amend the Climate Change Act of 2008 to account for a net-zero target by 2050 will be laid in Parliament on Wednesday.

Prime Minister Theresa May said: “Now is the time to go further and faster to safeguard the environment for our children. This country led the world in innovation during the Industrial Revolution, and now we must lead the world to a cleaner, greener form of growth.

“Standing by is not an option. Reaching net zero by 2050 is an ambitious target, but it is crucial that we achieve it to ensure we protect our planet for future generations.”

The move comes just over a month after the Committee on Climate Change (CCC) published its recommendations to Government on legislating for a net-zero carbon economy. The body’s advice includes bringing the ban on new petrol and

diesel car sales forward to 2035; quadrupling the UK's renewable energy generation capacity; improving biodiversity across 20,000 hectares of land annually and deploying carbon capture and storage (CCS) at scale.

Crucially, the CCC believes that reaching net-zero by 2050 can be done using between 1-2% of GDP in 2050. This is the same level of funding currently allocated to work related to compliance with the Climate Change Act.

Devil in the detail

How the UK actually plans to reach net-zero emissions will need to be set out. Chancellor of the Exchequer Philip Hammond claimed that spending cuts for schools, hospitals and the police force would be needed to fund total decarbonisation of the UK economy, which he estimated at £1trn.

The *Financial Times reported* last week (4 June) that the cabinet has accepted a request by Hammond that 88 megatonnes (million tonnes) of emissions from the 2013 to 2017 carbon budget should be carried forward to give the UK more leeway in meeting future targets. The decision flies in the face of advice issued by the CCC when it urged ministers not to take advantage of the existing rule.

Under the Climate Change Act, the UK is currently targeting an 80% reduction in emissions by 2050 against a 1990 baseline, following similar advice from the CCC in the past. However, the current Act only accounts for international aviation and shipping on a territorial basis. Under the proposed new strategy, the net-zero target would encompass *all* sectors, including shipping and aviation.

One deviation from the recommendations is the use of international carbon credits. The UK Government has confirmed that they will retain the ability to use these credits to offset emissions within an appropriate monitoring, reporting and verification framework.

The UK Government also looks set to stick with its original phase-out date for new diesel and petrol vehicles. However, MPs have confirmed a bid host COP26.

The Government's target will also tap into the growing influence of youth climate strikes. A Youth Steering Group will be led by DCMS and the British Youth Council to advise the Government on priorities for climate change, waste and recycling and biodiversity loss. They will start their review in July.

The legislation means the UK will become the first G7 nation to enshrine a net-zero target, and will conduct assessments within the next five years to push for other countries to set similar targets. A key ambition of this assessment is to ensure that UK industries to not face unfair competition from foreign businesses neglecting climate impacts.

Rapid turnaround

It also follows months of calls from MPs and businesses alike to enshrine a net-zero target into UK law – a discussion that has been amplified by the recent climate school strikes and Extinction Rebellion protests.

The announcement from the Government comes just hours after the Business, Energy and Industrial Strategy (BEIS) committee's chair Rachel Reeves MP introduced a new bill for legislating on net-zero to the House on Tuesday afternoon (11 June).

The bill, which followed the CCC's recommendations and included all international aviation and shipping, was broadly welcomed across the house – particularly by groups such as the Environmental Audit Committee (EAC).

Path to net-zero

The UK Government first requested advice from the CCC on how

best to legislate for a net-zero carbon economy last Autumn, in the wake of the Intergovernmental Panel on Climate Change's (IPCC) landmark report on global warming.

The report shed light on the vast difference in economic, social and environmental impacts between the Paris Agreement's agreed 1.5C and 2C pathways for the first time, revealing that the 0.5C difference would significantly worsen the risks of drought, floods, extreme heat and poverty for hundreds of millions of people. In order to limit warming to 1.5C, the paper concluded, global emissions would need to be cut by 45% by 2030 before reaching zero in 2050.

In the wake of the report, Scotland has already legislated to hit net-zero by 2045, while Wales has legislated for a 95% cut to national emissions by the same deadline. On a global level, efforts to reduce emissions have seen a 1C drop in the temperature rise being forecast by the end of the century – from 4C to around 3C.

From a business perspective, several of the UK's largest corporates have also set their own pre-2050 net-zero or 1.5C targets in light of the IPCC's claims, including the likes of BT, Skanska UK, Ecotricity and Aldi UK and Ireland. This trend can be seen across the global business community too, with modular flooring firm Interface, engineering and electronics giant Bosch and container shipping giant Maersk among the global cohort of so-called "zeronauts".

Businesses from all sectors and of all sizes have also been aiming to drive change outside of their own operations by lobbying the UK Government to legislate for net-zero. Last month, a coalition of 128 UK-based businesses, industry networks and investors wrote to Ministers demanding that a net-zero target for 2050 is legislated "immediately" and were told such moves would be made "in a timeframe which reflects the urgency of the issue".

Commenting on the introduction of the legally binding target, Secretary of State for Business, Energy and Industrial Strategy Greg Clark said: “We want to continue our global leadership and that’s why we are introducing a legally binding net zero target to end the UK’s contribution to global warming entirely by 2050. The report we commissioned from the Committee on Climate Change makes clear that we have laid the foundations to achieve a net zero emissions economy, and that it is necessary and feasible.

“Almost 400,000 people are already employed in the low-carbon sector and its supply chains across the country. Through our modern Industrial Strategy we’re investing in clean growth to ensure we reap the rewards and create two million high quality jobs by 2030.”

A green reaction round-up will be published on the edie website shortly.

Matt Mace & Sarah George

Global emissions climbed at highest rate in seven years in 2018, BP says

Global carbon emissions jumped the most in seven years in 2018 as energy demand surged, according to BP's annual review of world energy, indicating the world is falling behind in its efforts to rein in climate change.

The report, one of the most closely watched surveys of global energy trends, found that primary demand rose at the fastest pace this decade in 2018 even though economic growth weakened. China, India and the U.S. were responsible for two thirds of the 2.9% increase in consumption.

Urgency is building around the world to contain a global increase in the temperature, which has risen 1 degree Celsius since the start of the industrial revolution and is on track to at least double that increase by the end of the century. It marks the quickest change in the climate since the end of the last ice age some 10,000 years ago.

"At a time when society is increasing concerns about climate change and the need for action, energy demand and carbon emissions are growing at their fastest rate for years," BP Chief Economist Spencer Dale said at a briefing in London.

Much of the gains were driven by more volatile weather

patterns. An increase in the number of days that were either unusually hot or cold boosted energy use for heating and cooling, Dale said. As a result, global CO2 emissions rose for a third straight year, a trend likely to stick for the time being.

Almost 200 nations pledged to take steps to limit warming to well below 2 degrees through the Paris Agreement on climate change in 2015. Their aim was to limit the superstorms, droughts and famine predicted to happen more frequently with runaway climate change.

Even the dirtiest fossil fuel for power generation is increasing. Both consumption and production of coal advanced at their fastest rate for five years, driven by the need for developing economies across Asia to connect millions of homes to a reliable source of electricity. That's despite coal's share of primary energy falling to just over a quarter of primary energy and 17 gigawatts of plants burning the fuel being retired.

BP's report contained some more hopeful trends. Renewable energy consumption jumped 15% in 2018, near the record advance from a year earlier. China, again at the forefront, is adding more renewable energy than the world's most developed nations in the OECD combined, BP said.

Growth in output from wind, solar, geothermal, biomass and burning waste accounted for about a third of the increase in total power generation, or the same as the increase in coal.

"Renewables can't grow quickly enough," Dale said.

5 extreme trends that will affect oil in the next 5 years

Opinion by**Theo Priestley**
The Oil & Gas industry is synonymous with the word ‘extreme’ but in many ways that term doesn’t translate well when it comes to keeping up with the latest of technology trends.

While the environments that the energy industry operate in might be considered so, the ability to tap into emerging trends is on the opposite side of the spectrum compared to other industries like Manufacturing.

So what should the oil and gas and energy industries be looking toward in the future to maintain its own extreme, competitive advantage?

Internet of Things (IOT) and Edge Computing – Connecting the Sea for Extreme Operational Efficiency

An industry buzzword that’s been around for a while now. IOT

is picking up pace with the interest from the energy sector as it looks to harness data from an array of sensors whether from tidal, wind, or traditional oil and gas pipelines.

The attraction of receiving real-time, operational data from machines and large, inaccessible equipment is huge as companies seek to minimise or predict failure, and maximise efficiencies and uptime.

But let’s scrutinise the promise of IOT further, because it’s not as easy as it appears to extract the value required.

For example, there are approximately 3,500,000km of pipeline across the World on and offshore. Beneath the waves an estimated 70% are already at or beyond design life.

While on land both WiFi and 5G are touted as the standard for connecting IOT-enabled devices, and for harvesting data in real-time the reality facing the energy industry is that 70% of the World’s surface is water, and those technologies don’t work subsurface which would enable the internet of things in the extreme environments they operate in.

This applies for smart cities also where existing infrastructure is buried below ground.

Asset integrity management is a big concern for the oil industry today as costs soar towards an asset’s end of life while production declines, and this doesn’t take into account the reputational cost and damage of having a major failure subsea, the environmental impact and costs associated with loss of production and revenue.

Many installations are in late life but with little understanding of actual pipeline condition and integrity meaning a loss in revenue and production if longevity cannot be extended.

This is a critical use case of IOT technology, especially

Subsea Internet of Things where the retrofitting of wireless monitoring devices and sensors can greatly increase the amount of data required for effective decision making at this level; data including pressure, temperature, fatigue, corrosion, and vibration and flow from sensors which form part of an Edge network of devices which can not only communicate with each other in real-time but offer analytical capabilities meaning the cost of data transfer from thousands of meters below the surface is greatly reduced for efficiency.

Blockchain – Asset Management taken to the Extreme

Asset integrity is only one key aspect of maintaining an efficient, productive and compliant energy network. Asset management at this scale is a headache for many engineers, CTOs and CFOs responsible for production.

How can you track thousands of components, their lifespans, their repairs and replacements, the costs associated and third party invoices effectively and in a way which can't be altered or mismanaged?

Blockchain offers an answer. Although the underlying aspect of Blockchain is purely a distributed ledger and therefore a backbone infrastructure technology (and in reality, very boring) the fact that an asset's lifecycle, service and test records can be recorded and traced on blockchain offers greatly enhanced transparency and auditability.

If a critical component is purchased, everything about that item has already been recorded, from the materials used, their original source, down to who manufactured it, and who signed off on the quality testing.

From that point on, where the part is used, what it is used for, when it was operational, any failures recorded, any repairs recorded, to its eventual decommissioning is stored on the digital ledger, completely immutable to change or alteration.

Digital Twins – Using IOT and Real-Time Data for Extreme Visualisation

The concept of a Digital Twin along with the Internet of Things again is not a new concept. A Digital Twin refers to the digital replica of physical assets (physical twin), processes, people, places, systems and devices that can be used for various purposes.

The digital representation provides both the elements and the dynamics of how an Internet of things device operates and lives throughout its life cycle.

The idea of creating a digital representation of an asset or device combined with the real-time sensor data can be extremely inviting for many industries and the energy sector is no exception.

Being able to visualise an entire installation, down to pumps, motors, pipes, valves, compressors, turbines and much more, along with real-time data associated with their operation can be an engineer’s dream however the balance in question is being able to receive that information at critical moments in a timely and meaningful way.

This is fine for where remedial work or understanding the behaviour of a component or machine where time is not critical is perfect for the application of this technology.

Walking through the exploded view of a huge turbine using virtual or augmented reality works very well in scenarios where there are no time constraints.

But every engineer knows that you simply can’t beat being presented with a dashboard in real-time.

For all new technologies, context is absolutely key in the correct implementation and the energy sector is no exception to this rule.

However, many Digital Twin initiatives fall short simply because they do not take into account subsea infrastructure, and operational decisions are being based on only half the picture.

Remember to take into account real-time data from your offshore structures.

Virtual/ Augmented Reality – Bringing Data Closer to the User in Extreme Conditions

Imagine being able to walk through a pipeline installation without physically being there.

Imagine being able to walk through a huge wind turbine and all its internal components and seeing them operate in real-time.

Imagine being a diver meters below the surface of the ocean, and having information relayed and overlaid in real-time via your mask or helmet from wireless sensors instead of holding a display and attaching it to a wired sensor installation.

Imagine this same capability for an ROV operator and control screen.

All this is possible with augmented and virtual reality. While the technology itself struggles to find a foothold in the real world of the consumer, on an industrial scale it is flourishing as it finds new ways to present information to a user that frees their capacity to do other tasks, or instructs them on how to repair or monitor complex machinery in extreme conditions without the need for manuals or guides.

Artificial Intelligence – Extreme decision making made possible

No industry can escape the rise of the machines, or the capabilities that machine learning and advanced algorithms can bring to automating decision making and making sense of petabytes of data in an instant.

As time becomes as much a critical commodity as revenue, A.I. can aid in the analysis of real-time energy production and asset lifecycles, GIS data for site planning, aiding in faster operational decision making, invoicing and order to cash automation, predictive maintenance of assets and the planning of repairs with minimal interruption to production, automation of ROV equipment without the need for operators, the list can be endless if applied correctly.

Again, it’s key here to reiterate that this trend goes hand in hand with edge computing, and the movement and processing of data and critical information at the source (in most cases, at sensor level) rather than at the datawarehouse will become the norm and most efficient method of implementation in the future.

What we must bear in mind is that A.I. is nothing more than algorithms that can learn from their inputs and adapt, and for that to happen it needs to be given the right data to make those decisions in the types of scenarios listed.

The oil and gas industry has a big task ahead before thinking about the implementation of machine learning solutions; how can it get that data out from installations and equipment in extreme conditions such as subsea locations?

What data is absolutely critical to make an A.I. solution viable and is it available? How ‘clean’ is that data the organisation holds? The old saying ‘Garbage In/ Garbage Out’ has never been truer than today when discussing the potential of A.I.

There we have it, 5 extreme trends for the next 5 years to think about. But perhaps there is a sixth trend when you consider all five at once, because in combination they are extremely powerful and interconnected, and every one is about the underlying value that can be extracted from the data generated by the business.

And they do say that ‘data’ is the new oil after all….

Theo Priestley is the Chief Marketing Officer at WFS Technologies, and a world renowned technology futurist.

OPEC Still Gridlocked on Meeting Date Amid Iran-Saudi Schism

With just two weeks remaining before they’re supposed to gather in Vienna, OPEC and its allies are still struggling to settle on a meeting date. It’s the latest example of how bitter geopolitical rivalry between Saudi Arabia and Iran can cause gridlock in the cartel.

The Organization of Petroleum Exporting Countries and its partners, an alliance that spans 24 oil-producing nations, must choose whether to extend production cuts into the second half of the year or end a pact that has put a floor under prices. It’s a decision of growing urgency as a deteriorating global economy and entrenched trade war batter crude prices.

Yet for the past three weeks they’ve been fruitlessly juggling

dates after Russia, the biggest non-OPEC producer in the coalition, sought to shift the meeting to early July. Now, as countries that initially resisted Russia's proposal give it their support, delegates familiar with the matter say opposition comes from just one nation: Iran.

It's almost certainly no coincidence that this intransigence comes as its longtime foe, Saudi Arabia, and other OPEC nations take the Islamic Republic's market share while its crude exports are squeezed by U.S. sanctions.

"This seems to be about flexing muscles, marking territory," said Helima Croft, chief commodities strategist at RBC Capital Markets in New York. "Digging lines in the sand because you can."

Iranian crude production has tumbled to the lowest in three decades as President Donald Trump pressures the country to renegotiate an accord on its nuclear program, data compiled by Bloomberg show. Meanwhile the Saudis, a religious and political adversary of Tehran, have aided Trump by raising their own crude production.

As tensions mount, hostilities have flared in the Persian Gulf, where Saudi oil tankers and pipeline infrastructure have suffered attacks that the kingdom has blamed on Iran.

Despite the political friction, OPEC is still broadly holding together on oil-supply policy. Even though Saudi Arabia has boosted crude production, it's still abiding by output limits agreed with the rest of the group at the end of last year, and wants these to be renewed when the cartel meets, whenever that may be.

Whether the group decides to gather at the end of this month or in July, there are currently no challenges to reaching an agreement, with the high level of stockpiles in the U.S. underscoring the need for a cuts extension at least until the end of the year, United Arab Emirates Energy Minister Suhail

Al Mazrouei said at an event in Montreal on Tuesday.

“What’s amazing about this dispute is that it has little to do with the actual content of the agreement — a rollover seems almost certain,” said Croft.

Power Shift

When Russia last month proposed changing the date of the meeting — originally planned for June 25-26 — because of a domestic scheduling conflict, it seemed another case of OPEC’s new ally demonstrating its influence. A previous gathering intended for April was scrapped at Moscow’s request.

Ever since the partnership between OPEC and its erstwhile competitors was struck in late 2016, Russia has typically secured beneficial terms. Saudi Arabia, OPEC’s biggest member, promptly supported Russia’s request on the change of meeting dates.

“It might look like a minor scheduling issue, but actually it’s a symptom of the shifting balance of power that’s been underway since 2016, ” said Derek Brower, a director at consultant RS Energy Group Inc. “Not just diary power, but actual pricing power is now decided by Russia and OPEC’s Gulf producers.”

Riyadh and Moscow may also prevail in the dispute over dates, which they’re seeking to push to July 3-4. Countries that initially opposed Russia’s request, such as Algeria and Nigeria, appear to have fallen in line, delegates say. Algeria dropped its objections after presidential elections in the country planned for July 4 were delayed, they said.

Sole Objector

That just leaves Iran, which insists that the original plan to convene on June 25-26 should stand. In a letter to OPEC’s Vienna-based secretariat, the Islamic Republic cited its own

schedule commitments for rejecting the date move, delegates said.

Venezuelan Oil Minister Manuel Quevedo, who this year holds OPEC's rotating presidency, is making another attempt this week to persuade Tehran to accept the change after failing to win over Iranian Oil Minister Bijan Zanganeh, said the delegates.

What happens if he fails is unclear. A compromise of holding the meeting for OPEC members on June 25 as originally planned, and moving the gathering for non-OPEC producers to July, has been considered, delegates said.

However, OPEC's rules require consensus for the date of a conference to be altered, and without Iran's blessing the upcoming gathering will – at least theoretically – remain set for June 25.

As both Saudi Arabia and Russia now cite a conflict with commitments surrounding the Group of 20 summit in Japan taking place in late June, how they would respond if the dates aren't amended is uncertain.

"It's a fiasco," said Brower.

Oil, gas and fake news on the airwaves last night

Oil and gas industry = good. Foreign Policy Magazine = not good. Those were the main messages on the airwaves last night.

Al Hayah Al Youm's Lobna Assal focused on Oil Minister Tarek El Molla's attendance at the Observatoire Méditerranéen de l'Energie (OME) in Paris, where he revealed that **Egypt's oil and gas production has reached 1.9 mn bbl of oil equivalent a day,** the highest level in the country's history. Assal then spoke to ministry spokesman Hamdy Abdel Aziz about a number of ongoing projects in the oil, gas and petrochem sectors (watch, runtime: 7:02).

Fighting fake news with cold, hard facts: Morsi-era Investment Minister Yehia Hamed's hit piece in Foreign Policy earlier this week grabbed the attention of Al Hayah Al Youm's Khaled Abu Bakr, who highlighted a riposte currently doing the rounds online written by Madbouly's economic adviser Gihan Saleh (watch, runtime: 7:38). Saleh accuses Hamed of making "numerous false and incorrect statements" to "hide and distort facts." Abu Bakr also mentioned Al Shorouk's Ziad Bahaa El Din's review of the piece, which criticized Hamed's argument for being overtly political.

OPEN LETTER TO UN SECRETARY GENERAL ANTONIO GUTERRES

His Excellency António Guterres
Secretary-General
United Nations
United Nations Secretariat
New York, NY 10017
U.S.A.

Re: <u>Maritime Boundary Disputes in the Eastern Mediterranean: Crises and Opportunities</u>

Excellency:

I write to request your urgent intervention in defusing a looming crisis directly affecting the vital interests of all coastal States in the Eastern Mediterranean as well as, indirectly, those of dozens of others in Europe, Asia and Africa. Specifically, your assistance is required to help resolve the inter-related maritime boundary disputes among the coastal States of the region in accordance with the principles and processes enshrined in the United Nations Charter and international law.

These longstanding boundary disputes have contributed to numerous confrontations between States in the past. The number and severity of international crises currently raging in the region and its periphery have increased tensions to dangerous levels. In addition, the relatively recent discovery of abundant oil and gas deposits offshore of several Eastern Mediterranean countries has dramatically raised the economic stakes attaching to maritime boundary disputes. As a result, several major powers – including the United States, the United Kingdom and France, on one side, and the Russian Federation, on the other – have significantly increased their naval and other military activities in the region. The presence of dozens more warships and warplanes in such a relatively enclosed geography virtually guarantees an increase in friction. As a result, it imperils the maintenance of peace and security in the region, and it hampers the economic development of the relevant coastal States and their peoples.

Only one thing can provide a chance for the lasting stability that has eluded the Eastern Mediterranean for so long: an integrated, interdisciplinary approach, based on “best law” and “best science”, one that resolves these maritime boundary disputes justly and fairly. The United States has used its good offices to promote, support, or even mediate various forms of dialogue among States in the region, and appears to have made some progress (especially between Lebanon and Israel). While this effort has helped to contain mounting

tensions, it has yet to resolve any of the key maritime boundary disputes in the region.

Excellency,

The best hope for effectively settling these matters in a timely fashion lies in greater involvement by the United Nations. The manner of that involvement may vary from case to case depending on the circumstances, but in general, only the UN and its institutions have both the legal and the moral authority to lead such processes to just and fair conclusions. I know I speak for millions of people I have never met when I respectfully request your personal intervention at this critical juncture.

The seven coastal States currently involved – Cyprus, Egypt, Greece, Israel, Lebanon, Syria, and Turkey – are all UN Member States. A possible eighth coastal State, Palestine enjoys both non-Member Observer State status at the UN, as well as official recognition by more than two-thirds of UN Member States. Cyprus, Egypt, Greece, Lebanon and Palestine have all signed and ratified the 1982 United Nations Convention on the Law of the Sea (UNCLOS). Israel is a party to the 1958 Convention on the Territorial Sea and the Contiguous Zone, and to the 1958 Convention on the Continental Shelf. The latter treaty has also been signed and ratified by Cyprus, while Lebanon has signed but not ratified the 1958 treaty. Syria and Turkey are not parties to any Law of the Sea treaties, but they are still bound by relevant rules of customary international law.

The International Court of Justice (ICJ), which is the UN's principal judicial organ, has affirmed in multiple cases that the maritime delimitation rules contained in UNCLOS reflect customary international law and, as such, are applicable generally. A body of jurisprudence regarding maritime boundary delimitation has developed through two dozen decisions by international courts and tribunals rendered over the past

half-century. This jurisprudence offers an authoritative guide for coastal States in solving their maritime boundary disputes.

In addition, like the legal framework and processes, the scientific landscape is now better defined – and therefore more predictable – than ever before. The latest mapping technologies and techniques are so reliable that what were once unpredictable variables can now be estimated with amazing precision. This means that any international court or arbitral proceedings or other means of maritime boundary dispute resolution are rooted not just in the same laws and rules, but also in the same science. As a result, governments can now enter into such processes and predict, with a high degree of certainty, what the outcomes will be, removing much of the guesswork that might otherwise cause them to demur or delay.

For purposes of the legal and scientific rules applicable to maritime boundary delimitation under contemporary international law, a total of 12 maritime boundaries can be said to cover the maritime spaces for the seven coastal States in the Eastern Mediterranean. At present only two bilateral maritime boundary treaties have been signed in the region: 1) the Agreement between the Republic of Cyprus and the Arab Republic of Egypt on the Delimitation of the Exclusive Economic Zone of 17 February 2003 (entry into force 7 March 2004); and 2) the Agreement between the Government of the State of Israel and the Government of the Republic of Cyprus on the Delimitation of the Exclusive Economic Zone of 17 December 2007 (entry into force 25 February 2011). This means that no fewer than 10 potential boundaries and more than six tri-junction points (or "tri-points") – i.e., more than 83% of the total maritime area of the Eastern Mediterranean – remain unresolved or in dispute.

As of April 2019, all seven coastal States in the Eastern Mediterranean had active offshore hydrocarbon industries, with approximately 238,135 square kilometers of waters covered by

some 231 available Oil and Gas Blocks, representing just over 51% of the total offshore waters in the region. Of the present-day blocks currently on offer, up to 36% can be classified as “contentious” due to uncertainties regarding the exact locations of maritime boundaries.

As a consequence of the uncertainties surrounding the vast majority of the maritime boundaries in the Eastern Mediterranean, future economic development stemming from seabed hydrocarbon discoveries and exploitation will be negatively affected, thereby reducing overall revenues for the region. (NB: for the Mediterranean Sea as a whole, there are 95 maritime boundaries, of which only 31 (or 32%) are treatied, while 64 (or 68%) remain unresolved or in dispute.)

As you well know, according to Article 33 of the UN Charter, “[t]he parties to any dispute, the continuance of which is likely to endanger the maintenance of international peace and security, shall, first of all, seek a solution by negotiation, enquiry, mediation, conciliation, arbitration, judicial settlement, resort to regional agencies or arrangements, or other peaceful means of their own choice.”

Given the rights and duties enumerated under Article 33, and following the successful precedent set by your predecessor in facilitating the 2016 agreement between Gabon and Equatorial Guinea to have their maritime boundary dispute referred to the ICJ, I humbly request that you consider appointing a Special Advisor and publicly expressing your readiness to launch a UN mediation process aimed at resolving similar disputes in the Eastern Mediterranean. Your personal engagement and imprimatur are of vital importance to help the affected countries succeed in resolving their boundary disputes peacefully and in accordance with international law.

It should be noted, too, that while even the active role of the United States is insufficient, on its own, to bring about the resolution of all boundary disputes in the Eastern

Mediterranean, its continuing engagement is almost certainly necessary. Given that US mediation has been particularly helpful for limiting tensions in one of the region's most dangerous relationships – the one between Israel and Lebanon – its backing of UN efforts on other fronts looks a lot like a prerequisite for success.

The aforementioned steps would help instill new momentum in the process – and confidence in the parties – at a critical time, when recent discoveries of oil and gas deposits in maritime zones of overlapping jurisdictions demand major investment decisions by foreign investors and the national oil companies of the countries involved. Offshore seabed hydrocarbon activities in recent years have resulted in a series of important discoveries, including two massive finds: *Leviathan*, discovered off the Israeli coast in December 2010 and reported to hold 22 trillion cubic feet (Tcf) in gas reserves; and *Zohr*, discovered off Egypt in August 2015 and reported to contain 30 Tcf. Both discoveries, which are proceeding to the development stage, lie in close general proximity to the boundaries delimited by the aforementioned bilateral treaties.

Once a Special Advisor has been appointed by you, it would be even more helpful if you could facilitate a multi-party ministerial meeting on the boundary disputes in the Eastern Mediterranean at UN Headquarters in New York, at the UN Office in Geneva, or at some other convenient and appropriate location. Preparatory meetings by technical teams representing the countries involved, assisted by neutral experts in maritime delimitation, could be organized before such a high-level meeting, a process that could then be replicated for additional sessions going forward.

Excellency,

Your active leadership in securing mutually acceptable solutions for the maritime boundary disputes in the Eastern

Mediterranean would not only help strengthen respect for the international rule of law, but also would contribute to lasting peace and improved neighborly relations in the region. In addition, the peaceful resolution of these disputes would likewise constitute a source of inspiration for countries facing similar challenges around the world.

Thank you for your consideration.

Very truly yours,

Roudi Baroudi
Energy Economist

Exclusive: Russia to pump dirty oil back from Belarus – sources

Some 5 million tonnes of oil were contaminated in April with organic chloride and the dirty crude is now stuck in pipelines in Belarus and further West – in Poland, Germany, Ukraine, Slovakia, Hungary and the Czech Republic.

The sources said it could take months to fully resolve the crisis.

The crude is blocking the 1 million barrels-per-day Druzhba pipeline, shut since late April, and the evacuation of dirty barrels is complicated by the fact that no firm wants to pay for or refine them as organic chloride can damage refining equipment.

Four industry sources familiar with the latest Russian plan told Reuters Moscow would reverse the Druzhba pipeline and pump back around 1 million tonnes of contaminated oil from Belarus, thus cleaning up the link all the way through to Belarus’s border with Poland.

Another 1 million tonnes stuck in Poland and Germany though, will be left there to be dealt with by those countries, the sources said.

“The Russians are open to agreeing to take back the polluted oil from the Belarus section which has not come to Poland yet, but there is no agreement on compensation,” one industry source said.

The source attended a meeting in Warsaw on Thursday between Russian, Belarussian and European companies to discuss how to resume oil exports via Druzhba, the loss of which is costing Russia $80 million per day.

Three other people present at the Warsaw talks or briefed on what was discussed also said the plan was for Russia to take back the oil from the Belarus section.

“This is a bit under 1 million tonnes. They plan to take it back to Russia,” one of four sources said.

The pipeline supplies Poland and Germany via its northern leg and goes to Ukraine, Hungary, Slovakia and the Czech Republic in the south. The routes split at the Mozyr refinery in Belarus.

ROAD MAP

On Friday, Russia and Belarus signed a protocol agreeing to clean the pipelines by pumping back the oil to Russia but the protocol gave no specific volume to be pumped.

Russia has not yet determined the amount it will pay in compensation, Economy Minister Maxim Oreshkin told reporters, adding Transneft had the resources to deal with the issue.

Russia’s energy ministry and Transneft, the Russian state pipeline operator, did not reply to requests for comment.

Belarus state energy company Belneftekhim, which manages the country’s two refineries, declined to comment. Polish oil refiners PKN Orlen and Lotos also didn’t respond to a request for comment.

Polish pipeline operator PERN said on Friday it had dealt with over 30% of oil contamination in its system but it may take several months to completely clean the network.

Germany’s economy ministry and oil industry association said on Friday that ongoing Druzhba problems did not pose a threat to the security of oil product supply and that there were no plans to release oil from strategic stocks.

It remained unclear where Russia is planning to send the contaminated crude after pumping it back, the four sources said. It previously sent contaminated oil via the Baltic port of Ust-Luga via a pipeline, while a small volume was sent by rail to the Black Sea port of Novorossiisk where it got mixed with clean oil.

Russia is also exporting oil via other ports in the Baltics, as well as in the south and east of the country. These supplies were not affected by the contamination.

So far, Russia has managed to remove around 2 million tonnes, using rail, storage tanks and ships, restoring, at least partially, clean flows to the Ust-Luga port and to Slovakia.

Russia’s dirty oil crisis is worse than almost anyone predicted

Bloomberg / London

After any normal voyage the tanker would quickly deliver its 700,000 barrels of Russian crude into a refinery for processing into gasoline, diesel and other petroleum products. But the Mendeleev Prospect is in limbo, the victim of Russia's unprecedented contaminated crude crisis that's been spreading chaos though the European oil market for a month.

The length and scope of the crisis has given it a political dimension. On Thursday, Polish Prime Minister Mateusz Morawiecki decided to get personally involved in finding a solution, but said talks were "very difficult, very tough."

Back in April, unusually high levels of the chemicals known as organic chlorides were discovered in the Russian crude flowing through the giant Druzhba pipeline, built in the 1960s to carry crude from the USSR to allied countries in Eastern Europe.

The chlorides can severely damage oil refineries and on April 24 Russia's state pipeline operator, Transneft PJSC, halted shipments. Moscow pledged to resolve the issue right away; four weeks later, the flow of Russian oil into Europe is little more than a trickle.

Druzhba usually supplies up to 1.5mn barrels a day of Russia's

benchmark Urals blend into central Europe – more than the total production of Opec member Libya. The crude goes directly to refineries through two separate pipeline spurs and via tankers from the Ust-Luga export terminal in the Baltic.

Despite repeated pledges from Russian authorities to resume shipments in days, the crisis is proving bigger, longer and costlier than almost anyone expected and a solution could still be weeks away.

In Germany, one of the continent's biggest refineries – the Leuna plant owned by French oil giant Total SA – has shut down. Poland has been forced to tap the emergency petroleum reserves. And as far west as Rotterdam, Europe's petroleum hub, some refineries have been forced to run at lower rates.

The technical challenge of handling millions of barrels of tainted crude has been compounded by fights over who will pay the cost of the crisis. An emergency summit in Warsaw on Thursday made some progress, but didn't nail down a solution.

"So far the resumption of flows along Druzhba has been progressing very slowly," Vienna-based consultant JBC Energy GmbH told clients. "Negotiations and payment arrangements here could well take some time, delaying the full resumption of flows."

Then there's mystery of what's happening to Russia's crude oil while Druzhba is shut. According to official data, output has barely dropped over the last four weeks, falling from 11.23mn barrels a day in April to 11.15mn barrels a day so far in May. But the country is shipping roughly 1mn barrels a day less than normal, about a tenth of its output.

That's led oil traders to puzzle on how Russia's been able to maintain production, asking whether Russia has the millions of barrels of empty storage needed to hoard the crude that hasn't flowed through Druzhba for four weeks.

Spokesmen for Transneft and Rosneft declined to comment.

As the weeks pass, the price tag soars. Speaking privately, more than a dozen oil traders and refining executives in London, Geneva and Moscow said the cost may reach $1bn. The estimates are based on the volume of oil contaminated and the

$10-to-$20-a-barrel discounts refiners are asking to take the tainted barrels. The traders and executives spoke on condition of anonymity to avoid upsetting their commercial relationship with Russia. “The Druzhba pipeline issue should cap Russian supply for the time being,” said Ed Morse, head of commodities research at Citigroup in New York.

Although Moscow has yet to give its own estimate, Western traders also believe the problem will prove larger and take longer to resolve than many predict. Russian oil officials talk about 20mn barrels contaminated, but oil traders and refining executives believe the real number may be closer to 40mn.

The larger the amount, the bigger the problem: the polluted crude will need to be blended very slowly to bring the chloride levels down to acceptable levels, on a 1-dirty-to-10-clean barrels ratio most likely. That process may well take months, not weeks. So far, refiners in Poland have experimented with blending and struggled.

“The Russian crude can only be blended down over time, a process requiring hundreds of millions of barrels of clean crude,” said Amrita Sen, chief oil analyst at consultant Energy Aspects in London. The second problem lies with who’s responsible for the crisis — and the cost of clearing it up. The pipelines are run by Transneft, headed by Nikolay Tokarev, a former KGB pal of Vladimir Putin. Much of the oil is supplied by state oil company Rosneft PSJC, run by the Kremlin power-broker Igor Sechin.

Russian oil officials have pinpointed the contamination to a small, privately-owned terminal in the Samara region, about 1,000 kilometres (620 miles) from Moscow. Who owned the oil and why it was polluted remain a mystery.

The contamination with organic chloride, which is very unusual, comes at a time when the global oil market is already short of supply of crude of similar quality to Urals.

The combined impact of US sanctions on Iran and Venezuela, Opec+ production cuts, and lower-than-expected output in Mexico has reduced worldwide shipments of denser crude with

high sulphur content. Premiums in the physical market for medium-heavy crude have surged to multi-year highs as a result. “This is a significant unplanned outage that is having spill-over effects,” said Harry Tchilinguirian, head commodity strategist at BNP Paribas. “What you end up with is a further reduction in the availability of medium quality crude oil.”

Russian officials and European oil executives are groping toward a solution. After Thursday’s Warsaw meeting, Transneft said uncontaminated barrels can flow into Poland by June 10 if interested parties implement a restart plan yesterday. But PERN SA, its Polish counterpart, said claims for compensation from oil refiners must first be acknowledged if the deadline is to be met.

To be sure, the situation is slowly improving. Russia is resorting to Soviet-style mobilisation, marshalling thousands of rail cars to move crude from the north of the country into a terminal in the Black Sea where the polluted crude could be slowly blended with clean flows.

The southern branch of the Druzhba pipeline, which goes into the Czech Republic and Hungary has started to pump, although at rates about half their normal level of 300,000 barrels a day. Clean crude arrived on Thursday in Slovakia and it’s expected to reach Hungary by Monday.

Ust-Luga is also receiving clean oil, but shipments remain patchy. The big problem is, however, the key northern branch of Druzhba going into Belarus, Poland and Germany, which remains closed, depriving the region of at least 700,000 barrels a day. So far, every plan to re-start the pipeline has failed. As an alternative, refiners in the region are getting oil via the Baltic ports of Gdansk in Poland or Rostock in Germany.

Until a proper solution is found, a crisis that started in a remote village in southern Russia will keep reverberating through the continent’s oil market – and the costs will rise and rise.

Big Oil is looking to conduct a big power experiment in your house

Big Oil wants to put a box in your hall closet that works like a human brain, can cut the lights, stop the refrigerator and will know how you move about in the privacy of your home better than you do.

Sounds worrying? It’s one of the ideas the world’s largest oil companies are experimenting with to survive in a low-carbon world.

Companies like Lightsource BP, in which British oil major BP Plc holds a stake, are trialing smart systems in people’s homes that will do everything from generating solar power,

storing it and managing consumption. Much like Spotify Technology SA gives users instant access to thousands of cool playlists without having to spend years building up their own collection, Lightsource BP wants to make sophisticated renewable power systems available to average people.

They are figuring out how to go big on electricity as demand surges with rising prosperity around the world while investors and activists put them under immense pressure to adopt green policies. However, concerns over climate mean the power industry of the future will be nothing like the past as focus shifts to efficiency and carbon-free electricity.

Todd Hill, an electrical engineer from Melbourne, lives in a four-bedroom house in a hilly town south of London with his wife and two daughters, represents what Lightsource BP thinks is possible.

After he moved into a new home in 2013, he installed 23 photo-voltaic panels on the roof capable of generating 5.3 kilowatts of power, about enough for his family of four. Lightsource BP added a battery to store the electricity the panels generate, an inverter which can be programmed to dispatch the stored electrons when needed, and a diverter to send surplus power to heat the water in his tank.
Hill controls this kit, which he estimates cost about $13,000, with an app that gives real time information. So he could be camel-riding in Mongolia and the technology will still know the best time to generate power in his England home and charge the battery. At night, when the solar panels are effectively useless, the battery can juice-up his electric car.

“The main aim is to use everything we generate within the home,” Hill, wearing a dark green shirt with a windmill on it, said over a cup of tea in his kitchen. “So anything that goes from the PV to the grid is a wasted opportunity that we can save money on.”

For anyone with less interest in tinkering with their day-to-

day power use, Lightsource BP is offering to take control. The company specializes in efficiently generating Hill's own electricity so he doesn't produce any surplus which can only be sold to the grid at discounted prices. And ensures he doesn't end up buying more expensive fossil fuel-generated power.

When the customer moves around the house, the artificial intelligence box learns patterns, like when a person works from home, or is on vacation, with the purpose of closely matching electricity generation with in-house consumption. It can do things like predict the next day's weather, detect individual appliances, collect data on how often and at what times they are used, and help produce a greater share of the power at home.

Hill is one of 200 people who tested a smart energy-management system for Electricity de France SA local unit and Lightsource BP, in whose lab he also works.

Most utilities potentially have a problem on their hands as more people generate their own electricity. In the U.K. about 27% of power is now produced outside of the big and hulking power stations of the past, according to National Grid Plc data. That could jump to as high as 46% by 2030.
A spokesman for EDF's unit EDF Energy said it aims to provide a range of "energy services," to customers to keep them on board. Its trial with Lightsource BP ended in 2018 but it's running other experiments, such as offering discounted batteries to homeowners with solar panels.

"Once you get the customer on your side, it's like an Apple ecosystem; those companies will make it really hard to switch providers," said Elchin Mammadov, a utilities analyst at Bloomberg Intelligence. "It's trying to make this offering more sticky and then you can up-sell other services."

A profitable business for the companies could be managing the power grid itself. A network of homes and businesses with

solar panels and batteries could potentially replace some of the giant power stations in the futures. Companies with access to these homes could help balance supply and demand for a fee.

“There’s going to be more and more electricity demand,” said Kareen Boutonnat, Lightsource BP’s chief operating officer. “You can manage that by effectively putting in a lot more generation and having generation on reserve and spending billions on having to upgrade the grid, or you can do that by having this type of smart system.”

More of the biggest oil companies are considering these smart power systems. Royal Dutch Shell Plc, which bought a big U.K. utility in 2017 and wants to be the world’s biggest electricity supplier, will also offer a range of smart home energy devices. It expects its power unit to eventually generate returns of as much as 10%, close to what it gets from producing and selling oil. French major Total SA has also acquired a large company, Direct Energie, and is examining different business models.

They also have tough competition from existing utilities and Silicon Valley tech companies, who are also trying to find the future’s winning power formula. Mammadov said these experimental businesses will probably be loss-making for the foreseeable future.

Meanwhile, at Hill’s home, they are looking forward to summer. That’s when he generates so much extra power that his family can take hot showers without having to turn the boiler on.