Global Production Report 2019

Members of the Permian team. Photo courtesy of Chevron
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IOGP Global Production Report 2019

Security of energy supply: a goal worth pursuing

In this third edition of IOGP’s Global Production Report, we see a continuing rise in demand for oil and gas across most of the world. In many – if not all – regions, production is also rising. Based on the latest BP Statistical Review of World Energy, published in June 2019, this report draws its conclusions from 2018 data.

It shows that:

• Global demand for oil and gas are at their highest levels ever, with particularly dramatic growth in Africa, Asia Pacific, the Middle East and the Americas.

• Regarding security of supply, the Middle East and the CIS regions remain big exporters, while Europe and Asia Pacific have to import the majority of their oil and gas. Meanwhile, the Americas are approaching oil and gas independence while Africa could become an importer within a decade.

• Field depletion is of growing concern as demand for oil and gas continues to rise (see page 34 for more details).

IOGP has more than 80 Members, which collectively produce in excess of 40% of the world’s oil and gas. They operate in each of the regions covered in this report: Africa, Asia Pacific, the CIS, Europe, the Middle East, North America and Central and South America. This report, like its predecessors, looks at regional production and demand figures for both oil and gas.

For each fuel in each region, the specially-devised IOGP Production Indicator© shows to what degree a region can meet its own demand through indigenous production.

IOGP continues to be grateful for the data and insights that our Members have provided for this report. Once again, it shows how for long-term prosperity and security of supply, the world needs further investment for responsible oil and gas production in each of the seven regions covered.

Gordon Ballard
Executive Director
The map above shows the division of the world into seven regions. The delineation of zones is not intended to reflect offshore boundaries.
The IOGP Production Indicator© (PI) for oil is based on dividing daily production in thousands of barrels (or, for gas, billion cubic metres per year) by demand. The Production Indicator indicates the level of a region’s self-sufficiency (and export potential). A Production Indicator above 100% demonstrates the ability to export; below 100% shows the need to import.

**THE CIS**
- PI FOR OIL is **353%**
- PI FOR GAS is **143%**

**THE MIDDLE EAST**
- PI FOR OIL is **330%**
- PI FOR GAS is **124%**

**ASIA PACIFIC**
- PI FOR OIL is **21%**
- PI FOR GAS is **77%**
A decade’s decline in oil self-sufficiency

In 2018, Africa’s oil production of just over 8 million barrels of oil per day remained static. More significantly, it was down 2 million barrels per day since 2008.

This, coupled with domestic demand that continues to rise, puts Africa’s latest oil Production Indicator at 207%, compared to 332% a decade before. Consequently, the region can export little more than half of its production. A decade ago, the region’s oil export potential was more than two thirds of its production.

In fact, 2008 was the year that Africa reached its highest production of oil so far.

Then, as in 2018, the biggest producer was Nigeria, accounting for 25% of the region’s oil output. Nigeria’s oil production remains stable at about 2 million barrels per day, only slightly lower than the 2.2 million barrels per day a decade earlier.

After Nigeria, the two biggest regional producers are Angola and Algeria, each of which accounts for about 20% of Africa’s oil output.

Angola’s production has dropped 18% in a decade to 1.5 million barrels per day in 2018. This is of some concern in a country so reliant on oil for its export revenues and tax base. A new comprehensive licensing round, which aims to auction 55 blocks by 2023, could improve the situation.

Algeria’s production declined by more than 20% since 2008. Production in 2018 was 1.5 million barrels.

Has the downward trend been reversed?

Oil production in kbd by country

Demand in Africa is on a long-term upward trend

Oil demand in kbd by country

Source: BP Statistical Review of World Energy 2019
Among other producers: Libya had 12% of African production in 2018, down from 21% in 2008 and more than 50% in the early 1970s. However, Libya’s 2018 output of 1 million barrels per day is more than twice the production in the period from 2014-2016. Egypt has retained its share of 7-9% of African production throughout the decade.

Indigenous demand steadily rising
Between 1975 and 2018, demand for oil in Africa almost quadrupled from 1 million barrels a day to just under 4 million barrels per day – indicative of the continent’s economic growth and rising standards of living. The strongest demand comes from Egypt, which in 2018 consumed 0.76 million barrels per day. South Africa was in second place with 0.53 million barrels per day. Moreover, demand growth is accelerating. It took 17 years between 1975 and 1992 for African demand to rise to 2 million barrels per day. It took 15 years to reach 3 million barrels per day and only 11 years to reach 4 million barrels per day.

What remains and where
The continent holds 7.2% of the world’s oil reserves, with 125 billion barrels still untapped. The largest proven reserves are in Libya, which has over 48 billion barrels. Nigeria comes second with 38 billion barrels.

Opportunities and challenges in Africa
With global oil consumption widely forecast to grow in the long-term, our strategy continues to be Africa’s leading independent oil producer. Tullow has exploration assets in a number of locations, but our production remains focused in Africa. In terms of reserves-to-production ratios, Africa is behind only the Middle East and South/ Central America. When you combine this with our successful track-record on the continent, and the strong relationships that we have spent many years developing, we see Africa as an ideal place to grow our company.

In Ghana, our flagship Jubilee and TEN fields continue to deliver substantial value, in terms of both reserves and production growth. Our Non-Operated assets in Gabon, Equatorial Guinea and Côte d’Ivoire add portfolio diversification in more mature fields and continue to provide stable cash flows. West Africa therefore remains a highly attractive investment proposition for Tullow.

Our ongoing developments in East Africa have not progressed as quickly as we had initially hoped, with regulatory uncertainty continuing to be a significant challenge. We are optimistic, however, that good progress has been made recently. In Uganda, we are confident that the environmental and technical challenges can be managed, but the uncertainty around certain tax issues remains a sticking point. In Kenya, our Early Oil Pilot Scheme is expecting to deliver the first ever lifting of East African crude in Q3 2019. This will be a significant milestone both for Tullow and for the people of Kenya.

The primary barriers to our growth in Africa remain unchanged. Difficult license terms, complex tax regimes, and the length of time it takes to reduce commercial uncertainty and take decisions will continue to restrain progress. However, we are confident that our continued commitment to deliver responsible and sustainable value to the countries in which we operate will be the key differentiator in delivering value to our stakeholders and host countries.

Katherine Harvey, Senior Geoscientist - Exploration Advisor, Tullow Oil
John Power, Senior Commercial Advisor, Tullow Oil
Export capacity down despite record production

In 2018, Africa produced just under 237 billion cubic meters of gas – more than ever before. One third of that gas is excess to regional demand and so available for export. As a result, the gas Production Indicator was 158%. A decade before, the Production Indicator was 215%. In volume terms, 2018’s export capacity was 87 billion cubic meters compared with 109 billion cubic meters in 2008.

African gas production in 2018 increased by 5%. The biggest producer was Algeria, with 92.3 billion cubic meters, equivalent to a 39% share of total volumes for the region. A Gas Production Indicator of 216% means that Algeria can now export more than half of the gas it lifts.

Egypt’s gas production and demand are fairly evenly pegged, giving it a Production Indicator of 98% and virtual self-sufficiency. With output of 58.6 billion cubic meters (a return to levels of a decade before), it boasts 25% of Africa’s production.

Nigeria is Africa’s third largest gas producer. Its 49.2 billion cubic meters – an all-time high – account for 20% of the region’s total.

Record production coupled with even stronger demand

Tripling consumption over the past 20 years continues to diminish export capacity

Operations in Egypt. Photo courtesy of moonfish8/Shutterstock
A record year for demand as well

African gas demand is accelerating. It has doubled in 15 years (from 72 billion cubic meters) and, in the past five years, it has increased by nearly 30%. In 2018, the region required 150 billion cubic meters, a 6.6% increase over the previous year.

Egypt leads the continent in its appetite for gas, accounting for 40% of Africa’s demand. Algeria takes 28.5%. With another 7.6% coming from other North African states, more than 75% of Africa’s gas demand is centred there.

West African nations make up the bulk of the remaining demand at 16%.

What remains and where

Just over 7% of the world’s natural gas is to be found in Africa. The bulk of those reserves are in Nigeria (37%), Algeria (30%), Egypt (15%) and Libya (10%).

The future of gas in Africa

It is an exciting time for the energy industry in Africa. Domestic energy production is forecast to grow ~54% by 2040 – almost twice the global rate – and energy consumption is set to grow 127% by 2040.

One of the biggest challenges for the industry is meeting this growing demand, while reducing carbon emissions. BP is embracing this dual challenge and gas plays an important role.

An example in the BP portfolio is the Greater Tortue Ahmeyim project (GTA), on the maritime border between Mauritania and Senegal. It is an innovative floating LNG concept designed to provide gas for global export and lower cost domestic energy for both countries. It is the first major gas project to reach final investment decision in the basin, achieving the fastest progression from discovery to sanction of any greenfield LNG project in industry history.

Another key challenge for Africa, as well as an opportunity, is the growing young population and the associated need for jobs. This means we need to focus on the economic benefits we can bring to the continent, through gas project such as GTA. Activities getting underway on GTA have already resulted in a growing supply chain, and we have made a commitment to prioritize development of local workforce capability and the integration of suitably qualified local suppliers.

It also challenges us to make the best possible use of social investment opportunities, to support overall capability in societies and communities. In Mauritania and Senegal, our social investment programmes are underway, designed to promote economic development, environment, health, and education within the local communities.

BP sees a bright future for the gas industry in Africa and I’m personally very excited to see GTA play an integral role.

Jonathan Evans, Head of New Countries, Africa
Asia Pacific’s record oil consumption triggers record imports

Although Asia Pacific is the world’s biggest oil consumer, its production has lagged. Consequently, its Oil Production Indicator in 2018 was down to 21%. As a result, the region needed to import more than 28 million barrels per day. In 2008, Asia Pacific’s Production Indicator was 31% and 38% in 1998.

China, the region’s largest economy was also its biggest importer. China’s Production Indicator in 2018 was 28% – a marked decline from the 48% of a decade previously.

In 2018, Asia Pacific produced 7.6 million barrels of oil per day, 8% of the world’s total. Ten years before, the figure was 8.1 million barrels per day. Regional production peaked in 2013, with 8.3 million barrels per day.

China produces half of Asia Pacific’s oil

Oil production in kbd by country

Growing economies are growing on oil

Asia Pacific consumes 36% of the world’s oil – a total of 36 million barrels per day. This is the highest level of consumption recorded for the region, an increase of 38% in a decade.

China is the region’s largest producer, accounting for half of its oil. Its output of 3.8 million barrels per day was 6% lower than average for the decade.

Other important Asia Pacific producers are India and Indonesia with a share of 11% each, Malaysia with 9%, Thailand with 6%, Australia with 5% and Vietnam with 4%.

China is the region’s largest producer. Photo courtesy of CNOOC
The region's foremost economy, China, accounts for 38% of Asia Pacific's oil demand. India comes second at 14.5%, Japan third with 11%, and South Korea 8%. With the exception of Japan and Pakistan, every country in the region experienced its highest ever demand for oil in 2018.

To put the level of Chinese oil demand in perspective, it is almost the equivalent of Europe in its entirety. In 2018, China used 13.5 million barrels of oil per day, 90% of Europe's 15.2 million barrels per day.

India provides another interesting point of comparison. Its 5.1 million-barrel-per-day consumption in 2018 was a quarter more than demand in all of Africa during the same period.

In the last decade, Asia Pacific's demand increased every year by 1 million barrels per day.

What remains and where
Asia Pacific holds 3% of the world’s proven oil reserves. Just over half of this oil is found in China, the region’s largest consumer and producer.

Exploration breakthroughs
CNOOC Limited, an IOGP Member Company, is China’s largest producer of offshore crude oil and one of the world’s largest independent oil and gas exploration and production companies. “In its independent operations, the Company has been adding to its reserves and production mainly through independent exploration and development in offshore China,” says Yuan Guangyu, CNOOC Limited’s Chief Executive Officer, in the Company’s 2018 Annual Report.

In offshore China, the Company has been following “a value-driven exploration strategy...resulting in outstanding achievement. The Report goes on to chronicle an exploration breakthrough achieved in the South China Sea with the newly-discovered Lufeng 12-3, “the largest commercial PSC discovery in recent years,” with “the potential to be developed into a mid-sized oilfield. The new discoveries of Enping 10-2 and Enping 15-21 confirmed the exploration potential of the northern belt of Enping Sag, and are expected to be jointly developed with Enping 15-1 to create a mid-sized oilfield,” the Report says.

The Report goes on to highlight “the rolling exploration in the Bohai and Beibu Gulf areas” where “proven crude oil geological reserves will contribute to our production capacity.” This is in addition to “progress made in risk exploration in new areas.”
Production and consumption reach an all-time high

More imports needed as demand outpaces production

Imports remain imperative

Notwithstanding record production, unprecedented demand for gas in Asia Pacific gives the region a Gas Production Indicator of 77%. Asia Pacific’s Production Indicator was 78% in 2017 and has been in the range of 76% - 80% since 2011. The last time the region approached self-sufficiency was 20 years ago.

In 2018, Asia Pacific imported more than 190 billion cubic meters of gas – the biggest volume ever. The biggest importers were Japan, China and South Korea.

China’s Production Indicator in 2018 was 57%, compared with 99% a decade before. As a result, China must now import 43% of the 121 billion cubic meters of the gas it needs.

In contrast, Australia’s gas Production Indicator in 2018 was 314%, more than double the figure of the previous decade, 146%. As a result, Australia’s gas export potential of 89 billion cubic meters is greater than ever, following a 30% rise per year over the previous five years.

In terms of production, Australia, with 21% of the region’s production of 630 billion cubic meters, is coming close to rivaling China, which produces 26% of Asia Pacific’s gas. Australia’s production more than tripled in a decade from 42 billion cubic meters to 130. During the same period, China’s

Australia’s production has tripled in the past decade

Gas production in Bcm by country

Gas demand at an all-time high

Gas demand in Bcm by country

Source: BP Statistical Review of World Energy 2019
production doubled from 81 billion cubic meters to 162. Both nations broke their own production records in 2018. Elsewhere in Asia Pacific, other important producers are Indonesia and Malaysia, each of which produced 73 billion cubic meters of gas in 2018, equivalent to 12% each of the regional total.

An insatiable appetite for gas

Asia Pacific’s demand for gas reached an all-time high in 2018, with consumption at 825 billion cubic meters. This was a 64% increase since 2008. China took the lead among the region’s major consumers, accounting for 320 billion cubic meters, equivalent to 34% of the total. Next came Japan with 14%, followed by Australia, India, Indonesia, Malaysia, Pakistan, South Korea and Thailand – each consuming between 40-60 billion cubic meters or 5-7% of the total in 2018. Among these countries, the most dramatic rise in demand was in India. A decade ago, it consumed 40 billion cubic meters. In 2018, the volume was 58 billion cubic meters, an increase of 45%.

What remains and where

Asia Pacific holds 9% of the world’s proven gas reserves. China holds 34% of Asia Pacific’s share. Other major reserves are held by Indonesia with 15% and Australia and Malaysia, each with 13%.

The growing Asian gas market

Asian gas demand is forecasted to rise at a compounded annual growth rate of 3.2 percent. This is driven by the flexible nature of gas and government policy objectives, including climate change. As a result, Asia will become the world’s largest gas import market, surpassing Europe. The region is expected to remain the dominant global demand centre for LNG, reaching 80-85% of demand by 2025. Much of that growth is expected to be primarily generated in China, with Thailand, Pakistan, Bangladesh and Myanmar as LNG emerging markets.

Thanks to this strong demand, Asia Pacific is at the heart of BP’s longer-term plans for gas. The North West Shelf (NWS), Australia, and Tangguh, Indonesia, are BP’s two main LNG supply hubs to markets in China and Japan. Development of the huge Browse gas field, offshore north western Australia, would keep the five existing NWS LNG trains fully utilized to supply expanding Asian markets. In Indonesia, BP and its partners are adding a third LNG train to the Tangguh operation in Papua Barat, which will supply the country’s domestic market as well as regional demand. This third train will be available in the second half of 2021 and will increase the LNG capacity in Tangguh by 50% to reach 11.4mtpa. This illustrates BP’s long-term commitment to expanding its business in Indonesia and the region.

In Tangguh, BP continues to play its part in advancing human progress through various social investment in health, education, entrepreneurship, and electricity provision. We have helped to combat malaria, doubled the mean years of schooling, and tripled the community income, in line with our purpose to advance energy to improve people’s lives.

Nader Zaki, BP Asia Pacific Regional President
Russia, Kazakhstan & Azerbaijan lead the way

In 2018, the CIS achieved an Oil Production Indicator of 353%, substantially higher than the previous year’s 334%, and a return to the level of a decade before. In 2018, the region had the capacity to export more than 10 million barrels per day.

The region’s biggest producer was the Russian Federation, with an Oil Production Indicator of 354%. Four out of five barrels produced in the CIS came from Russia.

Kazakhstan’s Production Indicator was 540%, down from 618% a decade before due to an increase in local consumption.

In total, the CIS region produced 14.5 million barrels of oil per day, more than ever before and a 14% increase over the course of a decade. Russia, the region’s biggest producer by far, has experienced sustained production growth for more than 20 years – during which time its output has doubled.

Kazakhstan is the second-largest producer in the region. Its 2018 flow of 1.9 million barrels per day accounted for 13% of CIS oil. Azerbaijan is the next largest, with production of 0.8 million barrels per day in 2018, giving it a 6% share.

Production continues to grow

CIS export potential increases

Production reaches new heights

Demand slowly increasing with regional differences

Source: BP Statistical Review of World Energy 2019

The earliest reliable production data date only from 1985.
Demand still below early 1980s levels

Overall demand in the CIS in 2018 was 4.1 million barrels per day – still only about half of the demand of the USSR in the early 1980s before the collapse of the Soviet Union, but higher than the region’s demand low point in 1998.

Russia remains the biggest consumer of oil in the CIS, with demand at 3.2 million barrels per day. Kazakhstan came next in 2018, using 0.36 million barrels per day.

What remains and where

The CIS is home to 9% of the world’s proven oil reserves. Russia has a 73% share, Kazakhstan holds 21%, and Azerbaijan has 5%.

Kashagan: already exceeding expectations with production at 250 mbbl in less than 3 years

The giant Kashagan field ranks as one of the largest oil discoveries of the past four decades, with approximately 9-13 billion barrels (1-2 billion tonnes) of recoverable oil. The Kashagan reservoir, which is more than 4km deep, is highly pressurized and has high H2S content. It lies 80km offshore from the city of Atyrau, Kazakhstan in shallow waters of the Northeast Caspian Sea – often subject to extreme weather conditions. The first offshore oil production in the history of Kazakhstan commenced in 2016 thanks to Kashagan. Contributing 15% to the overall oil production of Kazakhstan, and 14% to its gas production, Kashagan has now become the second largest oil-producing field in the nation.

During the last 3 years, the asset has surpassed all expectations. Achievements include:

- All products (oil, gas and sulfur) were on specification for export within 48 hours of start up
- Gas flaring, at less than 1%, well below authorized limits and still improving
- Seamless ramp-up to over 380 kbb/d (above the design capacity of 370 kbb/d)
- Successful turnaround completed ahead of schedule
- Gas injection at maximum compressor/wells capacity
- Single digit production cost per barrel, far lower than initially expected and trending down
- World-class plant reliability and safety performance, still improving year on year

Kashagan’s progress has generated renewed optimism among shareholders and stakeholders that a plant capacity of 450 kbb/d will be achieved soon.

Operator North Caspian Operating Company (shareholders are KazMunayGas, Eni, Shell, ExxonMobil, Total, CNPC and Inpex) is currently working to further maximize the value of the asset through competitive and safe production and implementation of new and profitable projects.

Richard Howe, Managing Director of the North Caspian Operating Company N.V.
Unprecedented gross export potential

The CIS had a Gas Production Indicator of 143% in 2018. Although it has been higher in the past (147% a decade before), its gross export potential at 250 billion cubic metres was at an all-time high. While consumption in 2018 grew, expansion in CIS production outpaced demand.

As in previous years, the Russian Federation makes up the bulk of CIS export potential. In 2018 it was 86%. Russia’s own Production Indicator was 147%, with a record export potential of 215 billion cubic meters.

In 2018, the CIS produced 831 billion cubic meters of gas – more than ever before. For the past 15 years (with the exception of the period of the 2009 financial crisis) annual production has been over 700 billion cubic meters.

The majority of this production comes from Russia, accounting for 675 billion cubic meters in 2018 or 81% of total production. This is a 10% increase on 2008, when Russia’s annual production was 611 billion cubic meters. In the course of 20 years, Russia has increased its production by almost a quarter.
Turkmenistan and Uzbekistan are the region’s next biggest producers. Each has about 7% of total regional output at 62 billion cubic meters and 57 billion cubic meters respectively.

A growing appetite for gas

In 2018, the CIS consumed 581 billion cubic meters of natural gas, setting a new record for regional demand averaging an 8% increase over the previous five years. The Russian Federation led the pack in terms of consumption, accounting for 78% (455 billion cubic meters) of demand. Uzbekistan followed with 7%, Turkmenistan had 5%, and Belarus and Kazakhstan vied for third place with 3% of demand.

What remains and where

The CIS possesses almost one third [32%] of the world’s natural gas reserves. The Russian Federation holds the bulk of this, with a 62% share. Turkmenistan has the second largest volume of proved reserves, with 31%.

Satisfying growing demand

In order to satisfy growing demand for imported gas in European countries, production in CIS countries, particularly in the Russian Federation, was increased in 2018.

Russian gas exports reached approximately 255 billion cubic metres (bcm), of which about 245 bcm was for the account of OAO Gazprom. Russian gas was supplied to a large number of countries, with Germany as the main destination (58 bcm).

Declines in production in Western Europe were notable, especially in the Netherlands where the Government ordered a new cutback in production in order to mitigate earthquake risk in the Groningen area.

Russian export infrastructure is being expanded at a considerable pace. In the South, the TurkStream pipeline system through the Black Sea to the Turkish-Greek border area is about to be completed. In the North, the Nord Stream pipeline system has progressed well through the Baltic Sea and is planned for completion into Germany over the next several months.

Also important is the progress in the construction of the Power of Siberia system which will, with step-wise growth of volumes over the next several years, bring gas to the important and growing Chinese gas market.

Last but not least, the recent and planned expansions of LNG production capacity in both the Yamal peninsula and Sakhalin will not only lead to an increase in volume but also bring more flexibility in exports. Thus, Europe will continue to be the main market for Russian gas for many years to come but pipeline capacity to Asia and LNG exports will lead to gradually growing diversity.

Marcel Kramer, Regional Coordinator for Russia, the Black Sea and the Caspian, IGU
Since 2013, Europe has imported more than three out of four barrels of the oil it needs. The Production Indicator remained unchanged in 2018, at 23%. Ten years ago it stood at 29% and ten years before that, it had been at a record high of 42%.

Europe imported almost 11.8 million barrels of oil per day in 2018, nearly equivalent to what it imported in the 1970s, before the North Sea production boom – primarily from Norway and the UK.

Norway remains the biggest regional producer

Norway, Europe’s biggest producer, had an export potential of 1.6 million barrels per day almost seven times its own demand for oil. Its share of European production in 2018 was 52%.

As for the UK, it produced 1.1 million barrels of oil per day in 2018, or 31% of the region’s oil output. Thanks to investment in exploration and production, including in mature fields, the UK’s Production Indicator stood at 70%.

Europe, as a whole, produced a total of 3.5 million barrels per day, a 30% drop from 2008’s production of 4.9 million barrels per day and a 50% decline from 1998 production levels. The 3.5 million-barrel-per-day average over the past five years suggests that production decline has now levelled – a direct, positive consequence of continuing investment in a context of stable demand.

Europe imports more than three quarters of its oil

A five-year trend continues

Norway and the UK are Europe’s leading producers

Europe consumes 15% of the world’s oil

Highest demand for a decade

Source: BP Statistical Review of World Energy 2019
A stable demand for oil

In 2018, Europe accounted for 15% of the world’s oil demand. Europe’s need for oil has remained relatively stable, despite huge efficiency gains in vehicle engine technology and the manufacturing sector. The highest consumer was Germany, its 2.3 million barrels consumption per day in 2018 accounted for 15% of total European demand. Next came France and the UK, each of which held an 11% share of European consumption. Spain accounted for 9%, Italy 8%, and Turkey – which reached a million-barrel per day milestone – 7%.

What remains and where

According to Wood Mackenzie, Europe holds 32 billion barrels of recoverable oil in reserve. This could sustain current production levels for up to a quarter-century. Continuing development, however, would rely on responsive fiscal frameworks and strong cooperation between regulators and industry.

A rising demand in Central Eastern Europe

In contrast to European trends, oil product demand is still expected to grow in Central Eastern Europe – and it is not only road transport that will drive this increase. MOL Group, an integrated oil and gas producer, refiner and petrochemicals company, will raise the ratio of its non-fuel products under its new 2030 strategy. While MOL Group is also offering new services in electric and shared mobility as alternatives to oil use, our largest investments in high-value-added petrochemicals (butadiene and polyol) will generate demand for oil products as feedstock rather than energy source.

Most of the crude oil consumed in Central Eastern Europe is imported, but MOL Group still produces significant quantities of crude oil and natural gas in Hungary and Croatia from more than 2000 onshore and offshore wells. Our expertise in Adriatic and Pannonian Basin geology, commitment to keeping production costs low, and use of enhanced recovery technologies help maintain indigenous production levels and prolong the working life of our regional portfolio of mostly mature fields.

To ensure a sustainable future, society must use oil and gas in smart and efficient ways – and substantial change is inevitable. Emissions need to be minimized and offset, energy efficiency increased, and disposable products need to be given a further life through reuse and recycling. The oil and gas industry, and MOL Group in particular, understands this challenge: This is why we invest in transformative projects such as sustainable hydrocarbon and plastics production, recycling, alternative fuels and low-emission mobility.

Márton Pálmai, Brussels Representative, MOL Group
Self-sufficiency status quo

Europe’s Gas Production Indicator in 2018 was 46%, virtually unchanged from the previous year. While European production remains resilient, thanks notably to the growth of Norwegian production and the stabilisation of UK output, the trend of a slow decline continues, down from the 51% achieved in 2008 and the 57% recorded in 1998. In 2018, this meant Europe had to import nearly 300 billion cubic meters of gas out of the 549 it uses.

In total, Europe produced 251 billion cubic meters of gas in 2018, down 22% or 70 billion cubic meters from 2008’s output. The average production for the past decade was 260 billion cubic meters.

Norway remained by far Europe’s biggest gas producer. Its 121 billion cubic meters in 2018 accounted for 48% of European production; its output was almost equivalent to the entire region’s combined production. Norway was the only major European gas producer to outdo its performance of a decade before. Its export potential in 2018 was 116 billion cubic meters – equivalent to about 20% of total European gas demand.

The second-largest producer was the UK, which in 2018 accounted for 16% of European gas. It produced 41 billion cubic meters, down from 73 billion cubic meters in 2008. There, efforts to maximise output from older fields have maintained production levels relatively stable since the 2014 downturn. The UK Government’s ‘2015 Maximising Economic Recovery Strategy’ was instrumental in the UK North Sea’s renaissance, and could serve as a model for other mature basins. As for the Netherlands, the region’s third ranking producer, it pumped 32 billion cubic meters in 2018, marking a significant decline from the 86 billion cubic meters produced in 2008. Its output was equivalent to 38% of European production. In subsequent years, production in the Netherlands was impacted by both lower gas prices and problems with producing capacity.

Marked decline in Netherlands production

Using slightly less gas after five years of increased demand
of gas, down 55% from its 2008 volume. For the first time in recent history, the Netherlands became a net importer, with a Gas Production Indicator of 90%, down from 176% in 2008. This is in large part due to the progressive planned reduction of output from the Groningen field.

A high level of demand continues

Consumption of gas in Europe stood high, at 549 billion cubic meters in 2018, just below the average for the decade of about 555 billion cubic meters. In all, Europe accounted for about 14% of global gas consumption in 2018.

The biggest demand for gas in Europe came from Germany, which used 88 billion cubic meters, equivalent to 16% of regional consumption. The UK consumed 14% of gas in Europe, or 79 billion cubic meters. In these two countries, gas has become a fuel of choice as nuclear plants and more polluting coal and lignite plants are shut down due to safety or environmental considerations. Italy followed with 13% and Turkey came next with 9%.

Natural gas is of increasing importance to Poland. There, demand soared to an all-time high of 20 billion cubic meters in 2018.

What remains and where

Europe holds 2% of the world’s proven gas reserves. The bulk of these reserves are split between Norway (41%), Ukraine (28%), the Netherlands (15%) and the UK (5%).

Contributing to smoother energy transition with natural gas

The energy transition is one of the largest challenges faced by EU Member States in Central and Eastern Europe (CEE). The natural gas industry has been delivering efficient and affordable solutions.

The increase of natural gas consumption contributes to reducing emissions across the economy. PGNiG is finalizing investments in CCGT units and will supply gas to CCGT facilities developed by other companies. PGNiG also supports the government’s ‘Clean Air’ program by helping to switch coal-fired domestic boilers into high efficiency gas-fired units.

Stable indigenous gas production provides clean and affordable energy to Polish industry. New technologies allow us to optimize upstream activities in gas fields that had been in production for decades. We have been developing methods and techniques of capture of methane from coal seams. The research completed to date proved it to be commercially viable and it has the potential to increase indigenous gas production.

PGNiG has been active on the Norwegian Continental Shelf for more than 10 years. This year, we have started drilling an offshore exploration well on the Shelf as the operator. The planned gas infrastructure, namely Baltic Pipe, will allow PGNiG to transport its own production from Norwegian gas fields to Poland.

In order to ensure sufficient volumes of natural gas to meet increasing gas demand in Poland, PGNiG has entered the competitive global LNG market. Since 2016 we have signed several LNG contracts diversifying our import portfolio. Our experience and capabilities make PGNiG a natural partner for cooperation in building a modern and secure gas market in the CEE.

Piotr Wozniak, President of the Management Board, PGNiG S.A. (Polish Oil and Gas)
Export potential at a record level

The Middle East is producing as much as ever

Production exceeds demand by more than a factor of three

The Middle East achieved an Oil Production Indicator of 330% in 2018. While this is less than the 389% figure in 2008, the drop is more a reflection of increasing regional demand rather than falling production.

The Middle East’s export potential in 2018 was just shy of 20 million barrels per day, compared with 15.8 million barrels per day ten years before.

The region’s biggest producer, Saudi Arabia, had a 2018 Performance Indicator of 330%.

Looking at regional production as a whole, the Middle East has matched its all-time production high of 31.8 million barrels per day, first achieved in 2016. The biggest contributor to this was Saudi Arabia, with its 12.3 million barrels per day in 2018 – which accounted for 39% of the region’s output – and about 12% of the entire world’s production.

Next in scale came Iran and Iraq, each accounting for about 15% of regional production with 4.7 and 4.6 million barrels of oil per day respectively.

Iraq’s production in 2018 was at a new high, a 90% increase of 2.2 million barrels per day since 2008.

In Iran, the story is very different. Its 2018 output was lower than in 2017, possibly a result of continuing sanctions. Average production since 2000 has been 4.1 million barrels per day, a far cry from Iran’s production peak in 1974 of 6 million barrels per day.

A strong upturn in Iraq’s production

Just short of record consumption

Oil production in kbd by country

Oil demand in kbd by country

Source: BP Statistical Review of World Energy 2019
Other producers of note in 2018 were the UAE, accounting for 12% of regional output, Kuwait with 10%, Qatar with 6% and Oman with 3%.

Due to continuing internal conflicts, both Syria and Yemen have virtually ceased production.

Just short of record demand

The Middle East consumes 9% of the world’s oil. In 2018, its demand for 9.1 million barrels per day was only 0.1 million barrels per day short of the region’s record, achieved in 2017.

The region’s biggest producer was also its biggest consumer: Saudi Arabia used 3.7 million barrels of oil per day, or 41% of the Middle East’s total consumption. Demand volumes were 42% higher than in 2008.

Iran is the region’s second-highest consumer of oil, accounting for 21% or 1.9 million barrels per day in 2018, roughly consistent with demand for the previous decade. While Iran’s demand is now half of Saudi Arabia’s, in 1998 demand in both nations was at about the same level.

The UAE has the Middle East next highest level of oil consumption at 1 million barrels per day, or 11% of the total. This was an increase of 64% over its consumption in 2008.

Iraq’s demand for oil is 0.8 million barrels per day, equivalent to 9% of the region’s oil use.

What remains and where

Just under half of the world’s proven oil reserves – 48% – are to be found in the Middle East. That is twice the level of reserves in Central and South America and more than three times North America’s reserves.

Safety at the forefront for a growing oil industry

The Middle East remains a key player in the global oil and gas marketplace. National oil companies and independents are driving the momentum, transforming and diversifying their business streams.

Safety remains high on the agenda, as does a consistent approach to safety training, skills development and competency.

As the global skills organisation for the industry, OPITO works alongside regional stakeholders to support the safety agenda. To date, over 90,000 people have been trained to OPITO Standards in 2019 – an increase of 15% on 2018.

Workforce competency assessment and development is also of importance as more organisations are choosing to monitor and assess the competency of their workforce by having their competence management system (CMS) evaluated on a regular basis by a recognised external body.

Globally, 29 companies have achieved OPITO CMS approval, including Cansco International Corporation in the UAE. As more companies in the region work to achieve the OPITO CMS accreditation, it is clear that organisations want to develop a system that provides assurance and quality, and delivers on the need for formal processes around the competence of the workforce as well as training frameworks.

Benchmarking employees’ competency is a necessity as the assurance of a skilled and competent workforce is a vital tool in helping companies succeed. More importantly, it ensures that we continue to build a safe and sustainable industry in the Middle East and across the globe.

John McDonald, Chief Executive Officer, OPITO
More gas than domestic demand requires

The Middle East continues to produce more gas than it needs. In 2018, its Gas Production Indicator stood at 124%, up from 116% ten years earlier, but down from the 133% recorded in 2013. This is because demand rose by 30%, while production went up by 22% since 2013.

In volume terms, in 2018 the Middle East had an export potential of 134 billion cubic meters, down slightly from 140 billion cubic meters of five years before.

The biggest exporter was Qatar, with an export potential of 130 billion cubic meters and a Production Indicator of 400%. Its export potential constitutes the bulk of the entire region’s export potential.

The UAE’s Production Indicator has remained virtually unchanged at around 84% since 2008, when it first became a gas importer.

The Middle East as a whole is producing more gas than ever: 687 billion cubic meters in 2018. Its output is up 75% since 2008. With the exception of war-torn Yemen and Syria, each regional producer outdid itself in terms of volumes.

Iran, producing at a record level, had the lion’s share at 240 billion cubic meters, or 35% of the regional total.
Qatar was next with 26%, or 176 billion cubic meters, followed by Saudi Arabia, with a 16% share equivalent to 112 billion cubic meters. Although Saudi Arabia is producing gas in unprecedented volumes, this is offset by demand at record levels. As a result, Saudia Arabia’s Production Indicator was 100% in 2018.

Demand at a record level

In 2018, the Middle East used an unprecedented amount of gas: 553 billion cubic meters, up 190 billion cubic meters, or 56%, from a decade before.

Iran continued to be the biggest gas user, with 41% of total demand or 226 billion cubic meters.

A strategy for expansion

The Middle East has always been a key area in the energy industry. The region is one of the world’s top hydrocarbon producers, representing one of the global oil and gas hubs and easy access to markets. It still has huge potential, accounting for over 40% of global proven reserves of natural gas, a resource which will be instrumental in building a cleaner energy mix around the world.

Eni has been working in the Middle East since the 1950s. In the last two years, it has established a strong presence in the Gulf area, a historical achievement for the company, signing landmark agreements in exploration and development, in producing assets, and in refining.

The recent agreements are in line with Eni’s expansion strategy in the Middle East, through exploration of underexplored areas with hydrocarbons potential, and geographical diversification with scale benefits and project synergies. Technological innovation, scientific expertise, quick start-up times, and collaboration with our host countries have allowed the company to strengthen its presence in a such key area for the development of the energy industry. In the Middle East, Eni is currently present in the United Arab Emirates, Iraq, Lebanon, Oman, and Bahrain.

Alessandro Puliti, Chief Uptream Officer, Eni
North America achieves record oil production

Self-sufficiency in sight

US output leads the way

In 2018, North America produced more oil than ever before: 22.6 million barrels per day. This gave the region an Oil Production Indicator of 91%, up from the previous year’s 83%. In 2008, the Production Indicator was a mere 55%.

Given the scale of domestic production, North America had to import only 2.1 million barrels of oil per day. This contrasts with the situation a decade before, when North America had to import more than five times that volume.

The region’s biggest producer is the US, lifting 67% of the continent’s oil. The US has a Production Indicator of 75%, up from 35% in 2008. In fact, in 2018, the US accounted for almost all of the world’s net increase in production – setting a record for any country in any year. This has had a positive impact on US oil self-sufficiency: a PI of 75% means that the nation has to import only one quarter of its oil; a decade before the import figure was 65%. The positive fiscal implications of this progress were significant. Just five years before achieving its production record, the US spent nearly $350 billion to import the additional 8.9 million barrels of oil it needed every day. In 2018, oil import costs for the US were down by nearly two thirds (a drop that also reflected price fluctuations during the same period).

Canada, with a 23% share of regional production, enjoyed similar success, with a record flow of oil. In 2008, its Production Indicator was 138%. It rose steadily during the course of a decade to 213% in 2018.

The reverse occurred in Mexico, which produces 9% of North America’s oil. In 2008, Mexico and Canada were level-pegged on production. Since then, while Canada’s production has risen, Mexico’s has declined to a 36-year low. As a result, its Production Indicator has declined from 152% in 2008 to 114% in 2018.
Consuming 25% of the world’s oil

Every fourth barrel produced anywhere in the world goes to meet demand for energy in North America. For the past 15 years, the region has consumed 23-25 million barrels of oil per day. Recently, in both the US and Canada, demand is on an upward trend. As with production, the US predominates in 2018 demand, consuming 83%, or 20 million barrels, per day. These are volumes not seen since 2007, although oil demand has risen every year for the past five.

Canada accounted for 10% of North America’s demand in 2018, while Mexico consumed 7%.

What remains and where
North America holds 14% of the world’s proven oil reserves. Of those reserves, Canada has the lion’s share, with 71%. The US follows with 26% and Mexico is third with 3%.

Fueling America’s energy needs

For more than a century, Chevron has played a major role in helping meet North America’s energy needs. Developing and deploying the best talent to solve the most complex problems and leveraging our global expertise, strategic partnerships, and leading technologies has helped make us one of the largest liquids producers in the U.S.

Many of our U.S. assets are reliable and steady producers – and the foundation of our company. But through technology, we are building on this base to push energy frontiers, break through rocks, go deeper than ever before, and enhance recovery rates to optimize production and unlock potential.

Take the shale and tight rock Permian and Appalachian basins as an example. We have been in the Permian since the 1920s and today it is one of the most prolific oil and natural gas basins in the U.S. – the engine of America’s energy resurgence. We are among the region’s largest producers, with around 2.2 million net acres and total net unrisked resources estimated to exceed 16.2 billion barrels of oil equivalent.

The Permian is a key focus in our shift toward shorter-cycle time, high-return opportunities. Our royalty advantage, combined with good rocks and competitive execution performance, translates to compelling economics and a deep queue of opportunity. Enhanced oil recovery, horizontal drilling, hydraulic fracturing and accelerated “Factory Model” development techniques are helping us deliver transformational production growth. Data-led strategies are driving improvements in well targets and performance; and our digital capabilities are enhancing subsurface understanding to extract more value. Production is projected to reach over 600,000 barrels a day by the end of 2020 and over 900,000 barrels a day by the end of 2023.

Our shale position, alongside our heavy oil operations in California and deepwater portfolio in the Gulf of Mexico, highlight our continued focus on identifying the region’s most prospective areas for development – and bringing those resources to production safely and cost effectively. Each year we produce enough oil to fuel 10 million cars and enough natural gas to light 12 million households from our North American operations. We know that this energy is essential to improving people’s lives and our leadership in this region is a profound source of pride.

Jeff Gustavson – Vice President, Mid-Continent Business Unit, Chevron
North America hits trillion cubic meter record in production & consumption

As the US and Canada hit new production heights, Mexico is at a 14-year low

A trillion-cubic-meter milestone

In 2018, North America produced more gas than its internal market needed, giving it a Production Indicator of 103%. As recently as 2013, the region was still a net importer, with a Production Indicator of 97%.

For the US, with a Production Indicator of 102%, this provided the opportunity to become a net exporter of gas for the first time – more than doubling its export potential over the previous year from 6.3 billion cubic meters to 14.7. A decade ago, the US was importing just under 83 billion cubic meters of gas.

To the north, Canada achieved a Production Indicator of 160%. While this was an improvement over the 146% of 2013, it was still less than the Gas Production Indicator of a decade ago, which stood at 186%.

Mexico continued a downward trend in 2018 with a Production Indicator of 42%. A decade previously, it had been 79%.

Looking at production in more detail, North America as a whole produced 1,054 billion cubic meters – more than 1 trillion cubic meters – for the first time in 2018. The US accounted for 78% of that, with Canada producing 18%.

Production – a trillion cubic meters is the magic number

Gas production in Bcm by country

Demand hits record 1,000 bcm

Gas demand in Bcm by country

Source: BP Statistical Review of World Energy 2019
Both nations reached all-time production highs. To the south, Mexico had 4% of total production for the region.

Record regional demand

In 2018, North America consumed more gas than ever before: over 1 trillion cubic meters. This was due, at least in part, to extremes of temperature through much of the region, leading to greater demand for heating and air conditioning.

Most of that demand – 80% – came from the US, with the remainder from Canada (11%) and Mexico (9%). In all, gas consumption in North America was up by 87 billion cubic over the previous year. During the course of a decade, gas consumption rose by 31% or 244 billion cubic meters.

What remains and where

Just over 7% of the world’s proven gas reserves are located in North America. There, the bulk of those reserves – 85% – are to be found in the US.

U.S. supply: a catalyst for global gas market evolution

As global natural gas consumption sets records – estimated by the U.S. Energy Information Administration (EIA) at 133.8 trillion cubic feet (tcf) in 2019 – markets at home and abroad have become increasingly competitive and interconnected. The energy revolution has increased supply, lowered market prices as well as volatility, and driven new investment and trade relationships that have countered past cyclical trends.

It begins with prolific natural gas production, enabled by pipeline, processing and export infrastructure. In Q3 2019, the EIA estimates that U.S. natural gas marketed production exceeded a record 99 billion cubic feet per day (bcf/d) – 25.3% growth compared with just four years ago, increasingly feeding domestic electricity generation as well as U.S. exports.

In U.S. electricity generation, the EIA reported natural gas’ share grew to 35.1% in 2018 from 23.9% in 2010. Meanwhile, real electricity prices decreased 6.5% between 2010 and 2018, and U.S. household expenditures on natural gas decreased more than 20%.

The U.S. has also become pivotal to global markets, shipping a record 5.2 bcf/d of liquefied natural gas (LNG) in July plus 7.25 bcf/d via pipeline. These exports were enabled by pipeline and LNG export facilities that are projected by the EIA to more than double again by 2025.

This growth spurred an unparalleled decrease in global gas prices, where natural gas in Europe and Asia Pacific ranged as low as $4.00 in Q3 2019. In the past, low prices deterred investors, but 2019 has been different so far with a record queue of new facilities waiting to be built.

With U.S. supply growth, the global natural gas business has also evolved diverse business models, contractual flexibility, liquidity and capacity building without long-term contracts in place. In many ways, natural gas markets are undergoing a transition like oil and refined product markets did decades ago, which is a win for U.S. producers, infrastructure, and consumers alike.

Dean Foreman, Chief Economist, American Petroleum Institute
With a 2018 Oil Production Indicator of 96% in 2018, Central and South America became an oil importer for the first time. During the year, it was obliged to obtain 0.3 million barrels per day from other sources, compared to an export potential of 1.4 million barrels per day a decade before, when its Performance Indicator was 123%. In 1998, it was even higher at 137%.

Much of this can be linked to the situation in Venezuela, where production dropped by nearly 30% in one year. Venezuela remained a major exporter, with a Production Indicator of 370%. In terms of volume, the 1.1 million barrels per day that were surplus to Venezuela’s own requirements were fewer than half the surplus of 2.5 million barrels per day that it had in 2008 and marked the lowest level ever. Inevitably, this had a major and negative impact on Venezuela’s oil revenues.

Brazil provided a contrast in 2018. There, increasing output moved the Production Indicator closer to self-sufficiency, with a score of 87%, compared with 49% two decades before.

Argentina, on the other hand, has experienced declining volumes. In 2018, its Production Indicator was 91%, versus 149% just over 10 years before.

Ecuador remains an oil exporter by a comfortable, though declining, margin that reflects increasing demand. Its 2018 Production Indicator was 203%, giving it the potential to export 0.3 million barrels per day. In 2008, Ecuador’s oil Production Indicator was 269%.

Central & South America as a region produced 6.5 million barrels per day in 2018, nearly 1 million barrels per day more than in 2008.
fewer than 10 years before. The biggest producer is Brazil, which has a 41% share of output, having surpassed Venezuela in 2016.

Venezuela, despite its problems, comes next with 23%. Its production decline accounts for most of the region’s fall in production.

Across the border, Colombia’s production has risen during the course of a decade. In 2018 it produced nearly 0.9 million barrels per day, up from 0.6 million barrels per day in 2008. Colombian production hit an historic high in 2013, hitting 1 million barrels per day. In the decade from 1998-2008, its average production was 0.6 million barrels per day.

Brazil leads rising regional demand

In the course of a decade, Central and South American demand for oil rose 13% to 6.8 million barrels per day in 2018. Brazil was the focus for a considerable part of this demand increase. In 2018, its call on 3 million barrels per day accounted for 45% of the region’s total. Brazil first hit that 3 million milestone in 2013 (having marked demand of 1 million barrels per day in 1978 and 2 million in 1998). Looking ahead, with advances in production, up ~40% since 2008 Brazil is on the road to long-term oil self-sufficiency.

Peru’s consumption is also on an upward trend. In 2018, it reached a high of nearly 0.3 million barrels per day.

What remains and where

Central and South America holds nearly one fifth of the world’s oil reserves and one country – Venezuela – has the biggest proved reserves in the world: 303 billion barrels. The next largest reserves in the region are in Brazil, with more than 13 billion barrels.

Guyana: from exploration success to production

From North America’s shale revolution to the booming exploration scene of Brazil, the energy landscape of the Americas is undergoing dramatic change. Nowhere more so than in Guyana, which has emerged as one of the most significant plays worldwide and is on the brink of turning exploration success into significant production. It’s a story that ExxonMobil is proud to be playing a part in.

ExxonMobil, along with partners Hess and CNOOC Petroleum, has made 14 discoveries on the Stabroek Block offshore Guyana since 2015. Combined, they equate to an estimated recoverable resource of more than 6 billion barrels of oil equivalent. This has led ExxonMobil to include Guyana as one of its key upstream growth areas in the next decade and beyond.

Plans to turn that vision into a reality are well underway, with first oil from the 120,000 barrels of oil per day Liza Phase 1 project expected by early 2020. Following closely behind, Liza Phase 2 is on track to begin production by mid-2022, while the third phase of development, Paraya, could come on-stream as early as 2023. Overall, we hope to be producing more than 750,000 barrels by 2025.

These major investments are already bringing tangible benefits to Guyana. The number of Guyanese nationals supporting our project activities more than doubled to over 1,100 in 2018, while ExxonMobil and its co-venturers spent nearly $60 million with almost 500 Guyanese vendors in 2018. Separately, among other community investments, ExxonMobil has announced a contribution of $10M for a new collaboration with Conservation International and University of Guyana to train Guyanese for sustainable job opportunities and to expand community-supported conservation.

Liam Mallon, President of Upstream Oil & Gas Company, ExxonMobil
A high production plateau

With a Gas Production Indicator of 105%, Central and South America retains its potential as a gas exporter. Since 2015, volumes available for export have consistently risen – following a period of decline that began in 2009.

This potential has increased despite a decade-long increase in regional demand for natural gas. While production has gone up by 12% to 176.7 billion cubic meters in 2019, demand has risen by 22% to 168.4 billion cubic meters.

Within that overall picture, there has been a notable discrepancy. Argentina’s Production Indicator has fallen from 100% in 2008 to 81% in 2018, meaning it now must import 9.3 billion cubic meters per year – despite a recent upward trend in production.

Looking at output generally, the region’s production has reached a lofty plateau. In 2018, Central and South America produced 176.7 billion cubic meters of gas, only slightly below the figure of 180.3 billion cubic meters in 2017.

The top three producers – Argentina, Trinidad & Tobago and Venezuela – are all about equal in their output, accounting for around 20% each of the total. Brazil is next with 14.5% of production.

Other important producers are Bolivia, Colombia, and Peru, each of which accounted for about 12% of the 2018 gas total.
Decreasing demand but still above the decade’s average

In total, Central and South America gas demand in 2018 was 168.4 billion cubic meters. Argentina was the nation with the biggest appetite for natural gas: an all-time high of 48.7 billion cubic meters, equivalent to 29% of the region’s total demand. This compares with demand of 43.2 billion meters a decade before.

The next biggest users of gas are Brazil, which accounts for 21% of the region’s gas demand, and Venezuela, which consumed 20%. While Colombia consumes only 8% of the region’s gas, demand is unprecedentedly high: almost doubling to 13 billion cubic meters over the course of the decade.

What remains and where

Central and South America hold 4.2% of the world’s gas reserves. Three quarters of that gas is found in Venezuela.

Future of natural gas in Central and South America

Of all the region’s gas developments, Argentina’s Vaca Muerta remains one of the most exciting. Its shale/tight gas is largely responsible for the continuing growth in Argentina’s production, which will open new opportunities within the region as well as globally, with anticipated investment in LNG facilities to serve a worldwide market.

There is also considerable potential in Bolivia, with 303 billion cubic metres of certified reserves. For example, the Incahuasi-5 field has already started production of 3.5 million cubic meters per day. While Bolivia has the advantages of existing infrastructure and neighbouring gas markets, it will face increased competition from Argentina and Brazil.

Brazil has achieved a record output of 118 million cubic metres per day; pre-salt gas production represents over 60% of this amount. This bodes well for the nation’s role as major gas provider for domestic and foreign markets.

In Colombia, the state oil company, Ecopetrol, will, over the next three years, allocate US$500 million to unconventional projects for gas as well as oil. Given government permission to allow fracking, this would boost reserves that are now stagnant.

A promising development in Peru was the approval by the environmental authorities to develop a US$4.4 billion project to develop onshore block 58 that borders two other Camisea blocks that are currently the nation’s principal gas producers.

In the Caribbean, Trinidad & Tobago has begun production from the Angelin field. This will have a production capacity of 21.5 million cubic metres per day.

Promising advances in Central America are expected on the demand side, particularly in Panama and El Salvador. Overall, gas-fired electricity generation is growing, thanks to the development of regasification infrastructure.

Izeusse Braga, Executive Secretary, ARPEL
The last word: investment

While the rest of this IOGP Global Production Report looks back to recorded production and demand, this page considers the implications of oil and gas field depletion – which can only be remedied by continuing investment in exploration and production.

As this report shows, some regions such as Europe and Asia Pacific have become increasingly dependent on imported oil and gas. This is caused by diminishing production and/or soaring demand. Global oil demand in 2018 was 30% higher than it was in 2000; natural gas demand increased even more dramatically by 60% during the same period.

Will this trend continue?

According to two out of three of the International Energy Agency’s (IEA) scenarios for the decades ahead, it will. And even in the third scenario, in which the use of energy actually falls, oil and gas would still meet just under half of demand. Each of these scenarios is worth looking at in more detail in the context of depletion.

As the IEA said about oil in its World Energy Outlook 2018: “The natural decline rate is the drop in production from all currently producing fields that would occur if capital investment were to cease immediately.” If that were to happen, global oil production in 2040 would be just above 15 million barrels per day. Thus, not investing in oil is not an option – not even when the demand goes down. The same holds true for gas.

The graphs below show the impact of depletion on oil and gas production without new investment.

![Oil Production](source)

![Natural Gas Production](source)
About IOGP

The International Association of Oil & Gas Producers (IOGP) is the voice of the global upstream industry. Oil and gas continue to provide a significant proportion of the world’s energy to meet growing demands for heat, light and transport.

Our Members produce 40% of the world’s oil and gas. They operate in all producing regions: the Americas, Africa, Europe, the Middle East, the Caspian, Asia and Australia.

We serve industry regulators as a global partner for improving safety, environmental and social performance. We also act as a uniquely upstream forum in which our Members identify and share knowledge and good practices to achieve improvements in health, safety, the environment, security and social responsibility.

This report’s content was compiled, calculated, and edited by Olaf Martins.

For further information, contact:
Arianna Checchi, Global Engagement Manager, IOGP.
ac@iogp.org

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IEA references are based on its 2018 World Energy Outlook.

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