

Global energy outlook: implications for the East Med



BP published its Global Energy Outlook earlier in the year. The key message is that renewables are growing faster than any fuel in history, but carbon emissions keep rising. In addition, energy demand is set to increase by a third by 2040 driven by increases in prosperity in the developing world.

Introducing the Outlook, BP CEO Bob Dudley said “One of the biggest challenges of our time is a dual one: the need to meet rising energy demand while at the same time reducing carbon emissions.” The world needs both – doing one without the other will not work.

The key findings in BP’s latest Energy Outlook are:

Even though global GDP will double by 2040, primary energy

demand will increase only by a third, due to energy efficiency

The power sector will use around 75% of the increase in primary energy

85% of the growth in energy supply will be generated through renewable energy and natural gas, with renewables becoming the largest source of global power generation by 2040

Global carbon emissions continue to rise, signaling the need for a comprehensive set of policy measures, including decarbonisation, to achieve a substantial reduction in carbon emissions.

The majority of the increase in global primary energy will come as a result of the increase of income per head in the developing world, demanding more energy. Without an increase in energy becoming available this rising prosperity will be suppressed.

This will lead to growing competition between different energy sources driven by abundant energy supplies, and continued improvements in energy efficiency, keeping energy prices low.

Factors underpinning global energy changes and trends

There is a clear correlation between human progress and energy use. Around 80 per cent of the world's population today live in countries where average energy consumption per head is less than that the European average. As a comparison, the average energy use per head in 2016 in China and Brazil was half that in Europe and in India about a fifth. Conversely, the US average was twice that in Europe.

Increasing prosperity means that the world will consume a third more primary energy by 2040 compared to now, but that will still leave about two thirds of the world's population living below the European threshold.

Trade disputes and threats increase energy security concerns. This leads countries to increase domestically produced energy and reduce dependence on imports.

The greatest impact is on countries and regions most exposed to foreign trade and energy imports. Notable examples are China, Japan, India and Turkey. This results in less imports of oil and gas, and a shift in the fuel mix towards domestically-produced sources of energy, such as coal, nuclear and renewables, leading to a sharp reduction in global energy trade.

Trade disputes also impact oil and gas exporting countries. The US and Russia are notably vulnerable to this.

The message from history is that concerns about energy security can lead to permanent changes in global energy use, as did the 1973 Arab oil embargo.

Outlook for natural gas

The outlook for natural gas is good, with global demand expected to increase and be resilient over the next 20 or so years. But this is being increasingly impacted by the accelerated adoption of renewables combined with electricity storage, the unit costs of which are coming down fast.

Based on current trends, gas demand is expected to grow at a rate of about 1.7 per cent per year. To meet this, new investment will be needed into oil and gas production, with preference given to low-cost supplies.

The pattern of natural gas supply is changing, with the shale revolution making the US the world's largest producer of gas. Also the rapid growth of LNG is transforming how natural gas is transported and traded globally, with a global reach.

LNG exports will increase significantly, led by the US and

Qatar, fostering a more competitive and globally-integrated market. LNG trade is expected to double, with Asia remaining the dominant market. But this is highly dependent on the effects of prices, energy security, trade wars and sanctions.

The abundance of gas supplies and competition with increasingly cheaper renewables and coal mean that price matters. Lower prices will support future increases in demand and conversely high prices could limit future gas demand growth. Only projects with low development costs will succeed.

Challenges

The abundance of global oil and gas resources means that global energy markets are becoming more competitive. In addition, new technologies are revolutionising the way in which energy is produced, transported and consumed.

The greatest challenge will be to reconcile the need for more energy to support continued global economic growth and rising prosperity, together with the need for a more rapid transition to a lower-carbon future. As Dudley said, this is one of the biggest challenges of our time: "We know the desired outcome of energy transition, but we still do not know the path to get there."

Environmental campaigners are urging oil and gas companies to reduce emissions and spending on fossil fuels. However, the challenge is: what are the alternatives to provide the additional energy the world will need in future? And when and how is this additional energy going to be provided in a reliable and dependable way, and on demand?

Nevertheless, emissions are going in the wrong direction. The world needs a comprehensive set of policies to meet the dual challenge of more energy, less emissions. Dudley summed this up when he said "we can do this even faster and more efficiently with clearer, smarter policy signals from governments."

But, as BP said, it is important to remember that it is not a race to renewables – it is a race to reduce emissions. With increasing global energy demand, most fuels will still be needed to 2040. The road to Paris is long and challenging.

Implications for the East Med

Clearly there is a future for natural gas. But the world has plentiful supplies and only low-cost projects will succeed. East Med gas is expensive to develop and unless ways are found to keep costs down – for example through the development of large-scale, integrated, projects – it will struggle to secure export markets.

The possibility of ExxonMobil developing a large-scale LNG plant at Vasilikos, together with Total and Eni, offers the best hope. But time is not on our side. This needs to be given priority over all other options and brought forward. Waiting for another ten years to get there may be too late.

Cyprus also needs to prioritise adoption of renewables. The continuous delays in liberalising the electricity market, now to December 2021 at the earliest, are inexcusable. These delays give credence to the suspicion that they are linked to the plan to import LNG. This was aired in earlier articles in the Cyprus Mail, including one in September last year, stating “After years of delays, and with full knowledge of what should happen and by when, Cyprus is not yet ready to liberalise the energy market! Only one word can describe this – incredible!... The earliest possible this can now be achieved is 2020... Let us hope that this will continue as planned, given the incredible number of postponements to date!”

Sadly, like many other past promised deadlines, 2020 has also gone. And I predict that 2021 will have the same fate. What we need is clear, firm, plans and transparency!

Novatek hits full-scale production at Cryogas-Vysotsk LNG plant



Novatek, Russia's largest private gas producer, said its joint venture with Gazprombank, Cryogas-Vysotsk has commenced full-scale production of liquefied natural gas (LNG).

"Cryogas-Vysotsk is our first medium-scale LNG project," noted Novatek's head **Leonid Mikhelson** on Wednesday.

"Our marketing strategy provides for loading of bunkering vessels, small wholesale LNG sales, and LNG sales as a motor fuel to the Baltics, Scandinavia and North-Western Europe

markets," he said.

Mikhelson further added the company sees potential to expand its commercial presence in this developing LNG market segment.

Cyrogas-Vysotsk is a medium-tonnage LNG project located in the port of Vysotsk, Leningrad Region of Russia on the Baltic Sea.

The project's initial design capacity is 660,000 tons of LNG per annum, and its infrastructure includes a 42,000 cubic meters LNG storage tank and an offloading berth designed to handle LNG carriers with a capacity of up to 30,000 cubic meters.

Novatek acquired a 51 percent participation interest in Cryogas-Vysotsk project in July 2017.

**Occidental makes £44bn
Anadarko bid, seeking to
break up Chevron deal**



Occidental Petroleum Corp. triggered a bidding war for Anadarko Petroleum Corp. after making a \$57 billion (£44bn) counter-offer in attempt to break up a proposed takeover by Chevron Corp.

Occidental said Wednesday it's offering \$76 per share in cash and stock. That compares with Chevron's April 12 agreement to buy The Woodlands, Texas-based Anadarko for \$65 a share in stock and cash.

Key Highlights

Anadarko's assets include operations in the Permian Basin in West Texas and New Mexico. The world's fast-growing oil major patch, the Permian has helped to turn the U.S. into a net exporter and become a bigger producer than Saudi Arabia. Chevron earlier this year unveiled ambitious growth plans for the Permian. The Occidental offer may not be as appealing as Chevron's to Anadarko shareholders despite the higher price. Occidental's smaller size and balance sheet compared with Chevron mean there may be more uncertainty over its prospects of completing a deal. Also, it's not immediately obvious how

Occidental would fund Anadarko's giant liquefied natural gas plant that's being developed in Mozambique. The project may have to be sold, adding another layer of uncertainty.

Market Reaction

Anadarko shares rose 15 percent in pre-market New York trading.

Report: Clear CCUS policy needed for UK net-zero emissions goal



The UK Government should update its “vague terminology” on carbon capture usage and storage (CCUS) deployment in the UK to create clear policy drivers that transform the technology into a primary tool to meet national and international climate

change targets.

That is one of the key takeaways from the Business, Energy and Industrial Strategy (BEIS) Committee's new report, released today (25 April) which notes that the UK could not credibly adopt a net-zero emissions target with CCUS playing a key role.

The UK Government has confirmed that it is seeking advice from the Committee on Climate Change (CCC) on how best to bolster its carbon reduction targets and create a net-zero economy, with a formal response from the CCC set to be published next week.

The report notes that a failure to deploy CCUS in the UK could double the costs of meeting the 80% emissions reduction envisioned through the Climate Change Act, rising from approximately 1% of GDP annually to 2% in 2050.

The report notes that the UK has a "favourable environment" to establish CCUS as a technology. Five clusters – Teesside, Humberside, Merseyside, South Wales, North East Scotland – have been identified as well suited to early CCUS deployment, which aligns to Energy Minister Claire Perry's vision of a "just and fair" low-carbon transition across all areas of the UK.

However, policymakers have been criticised over their approach to CCUS. A stark warning from the CCS taskforce was issued based on the need to move timeframes forward for CCUS. The taskforce criticised ministers for closing the £1bn competition fund for CCS in 2015, citing claims that the decision could cost the UK an additional £30bn if it is to meet its 2050 carbon targets.

The new report analyses commitments made under the Clean Growth Strategy, which committed up to £20m for viable CCUS schemes as the UK forges ahead with its coal plant phase out by 2025.

Late last year, the UK Government unveiled plans to “make CCUS technologies a reality”, including an aim to bring the nation’s first large-scale CCUS facility online by the mid-2020s. However, government ambitions largely focus on using CCUS as an add-on for current power generation methods. The BEIS Committee report claims that it can instead be a key tool for decarbonisation and “presents an opportunity to reduce the overall cost of meeting the UK’s emissions reduction targets”.

“Whilst we strongly support cost minimisation, we disagree with the CCUS Action Plan’s stipulation that deployment ‘at scale’ should be supported only if ‘sufficient’ cost reductions are achieved. Such vague terminology gives no certainty to investors and does little to ensure that CCUS can contribute to meeting the UK’s overarching climate change targets at least cost, given its existing status as the cheapest – or only – decarbonisation option in many industrial applications,” the report states.

Benefit analysis

Specifically, the report called for an urgent consultation to allocate funding for CCUS industry clusters, ideally ahead of future Contract for Difference (CfD) auctions. The forthcoming Comprehensive Spending Review should also focus on CCUS, the report states, in order to denote its wider benefits in extending lifetimes for select industries that would otherwise be decommissioned under national climate policy requirements.

The Committee also recommends the Government task the National Infrastructure Commission – or a third party – to conduct cost-benefit analysis as to how CCUS can be used to decarbonise industrial emissions.

Anna Turley, Labour MP for Redcar and Member of the Business, Energy and Industrial Strategy Committee, said: “The UK has an opportunity to lead the world in the development of a new CCUS

industry. In addition to helping to tackle UK carbon emissions, CCUS can play a crucial role in delivering much-needed investment in skills and infrastructure and supporting regional growth and jobs.

“The current Energy Minister has been a champion for CCUS, and there have been some encouraging recent developments, but the CCUS industry has been the victim of years of turbulent policy support and suffered a series of false dawns. The Government now needs to give the ‘green light’ to CCUS and ensure that we seize the domestic growth and jobs opportunities of this modern, green industry.”

Italy’s fiscal dispute with EU might resume after debt exceeds forecasts



Reuters/ Brussels

Public debt in Greece and Italy, the two most indebted countries in the eurozone, grew last year while the bloc as a whole saw its liabilities decrease, the European Union statistics office said yesterday.

Rome's growing debt, which is also higher than Brussels had predicted, is seen as further stretching EU fiscal rules that require countries with high debts to gradually bring them down.

Italy, whose eurosceptic government adopted free-spending policies last year that have so far had little impact on growth, had debt equivalent to 132.2% of national output in 2018, or €2.3tn (\$2.5tn), up from 131.4% in the previous year, Eurostat said.

Up to 0.2% of the Italian debt was due to derivative contracts, which are usually used to hedge against risks but triggered losses for 4.7bn euros in 2018, Eurostat data show. Other eurozone countries have reduced their debt thanks to derivatives.

Although Rome has decreased its losses on derivatives from the €5.4bn posted in 2017, the negative impact over the country's debt has exceeded 25bn since 2015, data show.

The European Commission, which monitors eurozone states' budgets, refrained in December from starting disciplinary steps against Italy over its growing debt. It predicted then that Italian debt would be 131.1% of gross domestic product in 2018 – lower than yesterday's data showed.

The Commission has said it will reassess Rome's compliance with EU fiscal rules, including the requirement to cut debt, in June, taking into account the final debt data from Eurostat.

A spokeswoman for the EU executive declined to comment on the new figures released by Eurostat.

She said Brussels' new evaluation of Italy's position will also be based on new forecasts due in May of debt developments, and on Italy's report on its fiscal plans for the next three years which Rome had just submitted.

Italy's 10-year government bond yield jumped to its highest in

seven weeks yesterday, pushed up mostly by unease over government infighting and an upcoming ratings review.

Italy bucked the eurozone trend, as overall debt in the 19-country currency bloc fell to 85.1% of GDP last year from 87.1% in 2017, Eurostat said.

The bloc's aggregated budget deficit also dropped to 0.5% of GDP from 1.0% in 2017.

The fall coincided with Germany's reduction of its debt to 60.9% of GDP, from 64.5% in 2017.

The bloc's largest economy also widened its public surplus to 1.7% of output from 1.0% in 2017.

In Greece, debt climbed to 181.1% of GDP in 2018, the largest ratio in the eurozone.

The increase from 176.2% in 2017 was mostly due to the last instalment of eurozone creditors' loans as part of the country's third bailout programme which ended last summer.

The recent exit from the bailout programme exempts Greece from the normal application of EU rules that require countries with public debt above the 60% of GDP threshold allowed by EU law to cut the excess by 5% a year. Cyprus, another of the bloc's most indebted countries, saw its debt rise to 102.5% of GDP from 95.8%.

Portugal, which was also bailed out during the eurozone's debt crisis, saw its debt fall to 121.5% of output from 124.8%, while Belgium's debt declined to 102.0% of GDP last year from 103.4% in 2017.

French public debt was stable at 98.4% of output, while the country's budget deficit dropped to 2.5% of GDP from 2.8% in 2017.

GECF lecture focuses on climate change impact on environment



Doha

The Gas Exporting Countries Forum's (GECF) Monthly Gas Lecture in Doha focused on climate change and was led by two experts from Unesco and Qatar University.

The lecture held at the forum's headquarters was a result of the collaboration between Unesco's local office and Qatar University.

In his introduction, GECF secretary-general Dr Yury Sentyurin said, "It is not because we are in this industry that we are not focused on the environment. Quite the contrary. Natural gas is the cleanest fossil fuel and contrary to what some people's perception is, one of the safest fuels overall. Compared to other fossil fuels, natural gas releases the lowest amount of carbon dioxide into the air after combustion, in fact, 50% less than coal and 20%-30% less than oil."

“We consider it as our duty to act within the limits of our authority to reverse the consequences of climate change,” Sentyurin added.

Donia Abdelwahed, programme assistant (Science) at the Unesco Cluster Office for GCC and Yemen provided an introduction on Unesco’s work in the field of natural resources management and response to climate change.

Donia said, “We are all to a certain extent responsible for climate change and its impact on the environment. As a society we are all jointly suffering its consequences too.”

She pointed out that “it is part of Unesco’s role to urge stakeholders to strike a balance between development and preservation so that future generations can enjoy the same things we have been able to.”

In the light of their work towards achieving the UN’s Sustainable Development goals, an objective shared by the GECF, Unesco’s Qatar office is collaborating with Qatar University on preservation of the coral reef ecosystem in Qatar.

In line with this, the second part of the lecture was done by Dr Radouan Ben-Hamadou, associate professor (Marine Science) and head, Department of Biological and Environmental Sciences at Qatar University.

The lecture entitled “The use of decommissioned oil and gas platforms for the restoration of the coral reef ecosystem in Qatar” was introduced by Donia.

Ben-Hamadou’s presentation explored the feasibility of the ‘rigs-to-reefs’ concept in Qatar, which turns decommissioned oil and gas platforms into artificial reefs.

He said that even though corals can adapt to extreme environments, they have “reached a breaking point” and are

“dying at a rapid rate”.

But he also mentioned that before any changes can be suggested, they need to understand the working of the ecosystem.

This is why they have been working for several years in collaboration with all stakeholders, including industry, to see how man-made structures can be turned from a threat into an opportunity.

Great strides have been made in the process and the opportunity could be a win-win situation for all parties involved, as the rigs-to-reef project will not only restore the ecosystem but could also provide significant savings on decommissioning costs for oil and gas companies.

GECF said, “Considering the forum represents 19 gas producing and exporting countries, jointly covering 70% of the proven global gas reserves, this research is clearly relevant to the GECF. Therefore, in his closing remarks, Sentyurin expressed his support of the initiative and his desire to enhance the Secretariat’s collaboration with Unesco’s Doha office.”

Chevron set to buy Anadarko for \$33bn in shale, LNG push



Chevron Corp yesterday said it will buy oil and gas producer Anadarko Petroleum Corp for \$33bn in cash and stock in a deal that doubles down on its bet on US shale and propels the company into the ranks of the world's "supermajor" crude producers. The deal makes Chevron the second-largest major by crude production, behind Exxon Mobil Corp, up from fourth. It expands Chevron's role in two areas where US energy output is surging – shale from the Permian Basin of west Texas and New Mexico, and liquefied natural gas (LNG) – which have helped make the US one of the world's largest energy exporters. "Chevron now joins the ranks of the UltraMajors – and the big three becomes the big four," said Roy Martin, senior analyst at consultants Wood Mackenzie. "The acquisition makes the majors' peer group much more polarised. ExxonMobil, Chevron, Shell and BP are now in a league of their own."

US crude production stands at a record 12mn barrels a day (bpd), and the nation is the third-largest producer of LNG, the super-cooled fuel that is seeing record demand as a cheaper, cleaner alternative for countries that still rely heavily on coal for power generation. Chevron's pledge to restrain expenditures has made it a favourite among energy

stocks, with its shares up 13.8% this year. It plans to sell some \$15bn in assets over time to offset the Anadarko deal. Still, investors sent Chevron shares down 5.2% to \$119.44 yesterday. Chevron chief executive Mike Wirth called the deal a "great fit" for the company. "This is really about creating shareholder value," Wirth said in an interview. "It's a great combination.

That's what drives this." The deal is the oil industry's largest since Royal Dutch Shell bought BG Group in 2016, and it sparked speculation that other shale producers are in play. Shares of Apache Corp, which also has extensive acreage in the Permian Basin, rose 1.8%, while Pioneer Natural Resources Co jumped 9%. With oil prices surging this year, Chevron and larger rival ExxonMobil have been increasing investment in the Permian Basin, the most prolific shale oil field in the country. Their efforts coincide with a pull-back by the smaller companies that revolutionised the industry through advances in horizontal drilling and hydraulic fracking. They have had to curtail spending due to investor dissatisfaction with weak returns. Chevron, which already has 2.3mn acres in the Permian Basin, said the Anadarko deal would give the combined company a 75-mile (120-km)-wide corridor across the Permian's Delaware basin, on the Texas-New Mexico border. "We will now see Chevron emerging as the clear leader among all Permian players, both in terms of production growth and as a cost leader," said Rystad Energy head of analysis Per Magnus Nysveen, noting that Anadarko's acreage is in the "sweetest spot" of the Permian's Delaware Basin. Anadarko also has a Mozambique LNG project, part of one of the industry's largest planned current investments, which Wirth said he still expects to move to final approval "sooner rather than later" this year.

Expenses from that project are expected to reach \$4bn over several years. The tie-up with Anadarko adds to Chevron's deepwater investments in the Gulf of Mexico and gives it a

stake in growing oil and gas production in the US Rocky Mountains in Colorado. At the end of 2018, Exxon and Chevron accounted for about one-fifth of Permian output, where producers pump around 4mn barrels per day (bpd) currently. IHS Markit expects it to hit 5.4mn bpd in 2023, more than the total production of any Opec country other than Saudi Arabia. "It will be a continuous shift toward larger companies in basically all segments of the shale industry," said Artem Abramov, head of shale research for Rystad Energy. Shares of Anadarko surged 32% yesterday morning, reflecting the 39% premium offered by Chevron compared to Thursday's closing market price. The \$65 per share offer was structured as 75% stock and 25% cash. The deal includes taking on \$15bn of Anadarko's debt.

Climbing Oil Prices Put India's Benign Inflation Outlook at Risk



A rebound in oil prices poses a risk to India's benign inflation expectations that last week allowed the central bank to deliver its second rate cut of 2019.

With crude at a five-month high, many investors are turning less confident about the Reserve Bank of India's pace of monetary easing, though a slowdown in economic growth and subdued inflation still support an easing bias.

The low headline print gave Governor Shaktikanta Das and the rate-setting panel the space to cut rates by 25 basis points each in February and April to support the economy. Some economists see room for one more reduction provided food and fuel costs don't spike. Data on Friday showed headline inflation quickened to a five-month high of 2.86 percent in March from 2.57 percent in February.

The RBI last week cut its inflation forecast to a range of 2.9 percent to 3 percent in the April-September period, compared with a February projection of 3.2 percent to 3.4 percent, while seeing price growth this year within its 4 percent

medium-term target. It separately cut economic growth forecast to 7.2 percent for the year that began on April 1, down from 7.4 percent previously.

“The recent rise in crude prices, if sustained,” could pose a challenge to both economic growth and inflation outlook, said Dharmakirti Joshi, chief economist with Crisil Ltd. in Mumbai.

Forecast for Brent, the benchmark for half the world’s oil, has been lifted on the back of production cuts, and the RBI sees prices being pushed up further should the U.S.-China trade tensions be resolved swiftly. The two sides are nearing a trade deal, with talks aimed at clinching one within the next month continuing.

A recent study by the central bank showed a \$10 rise from \$65 a barrel will lead to a 49 basis points increase in headline inflation, while a similar increase from \$55 a barrel would give around a 58 basis-point boost to consumer prices.

Oil’s charge higher has also offset any gains from a rising currency on imported inflation. The rupee climbed 2.3 percent against the dollar in March, making it the best performer in Asia. The currency is up more than 7 percent from its October low, leading to a view among economists like Kotak Mahindra Bank Ltd. Economist Upasna Bhardwaj that some of the impact from the rising currency could help ease inflation.

A 2018 working paper, co-authored by Monetary Policy Committee member Michael Patra, showed that a 1 percent change in the exchange rate translates into a 15 basis-point move in headline inflation over a period of five months.

“We see room for 25 basis points of rate in 2019 given the benign near term headline trajectory,” Bhardwaj said. “Nonetheless, the trajectory on crude oil price increase needs to be watched closely.”

Still, others see the rupee’s role being countered by oil.

“It appears on balance that the recent hardening of oil prices would have negated the impact of rupee appreciation to a large extent,” said Gaurav Kapur, chief economist at IndusInd Bank Ltd. in Mumbai.

Oil's big reset: Energy majors learn to thrive after price crash



Bloomberg/London

When Opec started an oil-price war in late 2014, most people believed US shale was doomed. In reality, the giant oil majors suffered most – burdened by expensive mega-projects, Chevron Corp, BP Plc and the rest struggled to adapt to the fall in energy prices.

Slowly, those companies figured out how to survive in the lower-for-longer price era. They cut costs and, more

importantly, learned how to stop them from rising again. In an industry that favoured tailored solutions for every project, companies started to talk about standardisation. At closed-door sessions in Davos, Switzerland, Big Oil bosses didn't waste time on self-important talk, but instead discussed how to share the design of anything from underwater valves to pumps.

Nearly five years after the crash, the cultural change is starting to work. The world's major energy companies have managed to press the reset button, allowing them to make profits today similar to what they did in a world of \$100-plus a barrel oil prices.

"Big Oil has been able to re-emerge from this downturn stronger and lower on the cost curve," said Michele Della Vigna, the top oil industry analyst at Goldman Sachs Group Inc, who had been a critic of the majors.

The level of spending at the world's eight largest integrated oil and gas companies fell last year to \$118bn, down 45% from a pre-crisis peak of \$215bn in 2013, according to data compiled by Bloomberg News.

But their business model has changed a lot in the process. The reliance on multibillion dollar projects in far-flung corners of the world has been reduced and the majors are pouring billion into Texas's Permian Basin, once dominated by independent exploration and production companies. Other strategies include trying to build new projects closer to existing ones and reusing old infrastructure to reduce costs. They've also re-discovered the joys of integration, investing in refineries and petrochemical plants that make money even when prices are low.

To the surprise of many in the industry, lower costs haven't translated into slower development. In fact, projects have often come ahead of expectations.

The industry got a lot of help from its suppliers. According to Exxon Mobil Corp, the cost of 3D seismic technology, used to find underground reservoirs, and the deep-water rigs needed to exploit them has fallen more than 50% from the 2013 level.

The new era means combining projects that pay back quickly, whether in US shale or elsewhere, with some traditional larger projects. In the oil industry, it's a model called short-and-long oil cycle, because some projects pay back in as little to two-to-three years, compared to as long as 10 years for conventional projects.

"Big Oil now wants a diversified portfolio with short-and-long cycle oil," said Daniel Yergin, the oil historian that this week hosts the annual CERAWEEK energy conference in Houston. "Before the oil crisis in 2014-15, the mere concept of short-cycle oil didn't exist in Big Oil."

Short-cycle oil has a one big advantage over mega-projects: companies can dial them up and down quickly to respond to changes in oil and gas prices.

The other significant change is natural gas. Big Oil had already embraced gas before the crisis, with companies like Exxon investing in massive projects in Qatar. But today some executives suggest gas is gaining the upper hand. "Gas is the fastest growing hydrocarbon," said Bernard Looney, chief executive for upstream at BP. "It's the future."

Despite the significant reduction in spending and much lower energy prices, returns haven't suffered, according to data compiled by Bloomberg. The biggest oil companies posted return-on-capital-employed – a traditional yardstick used by investors – of about 8.7% last year, higher than the 8.4% of 2014.

LNG Canada CEO sees no scenario that would stop its

project



Bloomberg/Vancouver

The head of LNG Canada said he does “not see a single scenario” that would stop the nation’s largest infrastructure project from getting built, dispelling concerns that the \$30bn gas export facility is at risk of mounting opposition from pipeline foes.

The liquefied natural gas project in northern British Columbia was approved by Royal Dutch Shell Plc and four Asian partners in October after obtaining the support of the province and 20 First Nation groups. But it continues to face a legal challenge disputing the constitutionality of the project’s approval, as well as protests by a group of indigenous holdouts.

“I do not see a single scenario that would cause the construction of this pipeline to be stopped,” Andy Calitz, LNG Canada’s chief executive officer, said in an interview in Vancouver.

TransCanada Corp is planning to build the pipeline that will carry the gas from western Canada’s prolific Montney shale formation to the coastal export facility in Kitimat. The whole

project – including the gas fields, pipeline and liquefaction terminal – fall within British Columbia and was authorised by the provincial regulator.

But a private citizen in Smithers, Michael Sawyer, mounted a legal challenge saying the pipeline is a federal undertaking and should have sought approval from the National Energy Board. The federal regulator agreed in December to consider the jurisdictional challenge and has requested evidence from the parties involved with final oral arguments set for March.

“It’s a complex world – the paths are not clear,” Calitz said. Any decision by the federal regulator could later be appealed in the courts. “But what I am clear about is that this pipeline, by the time that happens, will be in advanced construction.”

Separately, TransCanada is seeking to sell a stake in the pipeline project. That move was long contemplated and doesn’t indicate that there are growing concerns about the project’s risks, Calitz said.

“It has always been a part of the financing strategy for the project,” Calitz said. “It has no impact on either the construction or the capacity or any other aspect of the project.”