The Arab Gulf States Institute in Washington

Building bridges of understanding

Petro Diplomacy: Gulf Countries in a Net-Zero World

Conference Report

The Arab Gulf States Institute in Washington

Building bridges of understanding

Petro Diplomacy: Gulf Countries in a Net-Zero World

Conference Report

November 30, 2021

Event Report

#2

2021

The Arab Gulf States Institute in Washington (AGSIW), launched in 2015, is an independent, nonprofit institution dedicated to providing expert research and analysis of the social, economic, and political dimensions of the Gulf Arab states and key neighboring countries and how they affect domestic and foreign policy. AGSIW focuses on issues ranging from politics and security to economics, trade, and business; from social dynamics to civil society and culture. Through programs, publications, and scholarly exchanges the institute seeks to encourage thoughtful debate and inform the U.S. foreign-policy, business, and academic communities regarding this critical geostrategic region.

info@agsiw.org

This publication can be downloaded at no cost at www.agsiw.org.

Cover Photo Credit: AP Photo/Michael Sohn

About This Report

For the seventh consecutive year, the Arab Gulf States Institute in Washington convened its Petro Diplomacy conference, held virtually for the second year running due to the coronavirus pandemic. The conference brought together private and public sector stakeholders from the United States, Europe, and the Gulf Arab countries to discuss the energy transition and ways in which the Gulf petrostates are positioning themselves for a net-zero environment. The world of energy is going through a tectonic shift toward carbon neutrality and mass electrification as dozens of countries have adopted net-zero emission targets, including oil producers Saudi Arabia and the United Arab Emirates. This transition has led to questions regarding the future roles of oil and gas, and specifically national oil companies, in a world moving – however haltingly – toward carbon neutrality. Petro Diplomacy offers a unique forum for industry experts to engage with policymakers and analysts looking closely at how oil and gas producers in the Middle East are preparing for the possibility of a peak in oil demand and what measures they are adopting to decarbonize their mainstay energy industries. This report was compiled by Kate Dourian, non-resident fellow at AGSIW and contributing editor at MEES.

Videos of the keynote session with Mohammed bin Khalifa bin Ahmed Al Khalifa, Bahraini minister of oil and gas, and the three other sessions are available online at:

https://agsiw.org/programs/petro-diplomacy-2021-gulf-countries-in-a-net-zero-world/

Contents

Foreword

Ambassador Douglas A. Silliman
President, AGSIW

On behalf of the Arab Gulf States Institute in Washington's board of directors and staff, it is my pleasure to share with you the report of our seventh annual energy conference, "Petro Diplomacy 2021: Gulf Countries in a Net-Zero World."

Due to the coronavirus pandemic, we again held the conference virtually, from October 19-21. As in the past, the Petro Diplomacy conference brought together stakeholders in the energy sector of the Gulf Arab states, global supply competitors in North America, analysts, and policymakers to discuss how changes in technology, fiscal priorities, and opportunities for growth continue to alter the relationship between politics and energy for both the region and the world.

The conference was held as the global economy begins to recover from the widespread and deep effects of the coronavirus pandemic and ahead of the 26th United Nations Climate Change Conference, COP26, in Glasgow, Scotland, making it a particularly propitious moment for these discussions. With the urgency of climate change, the common thread was how the energy industry, one of the biggest contributors to greenhouse gas emissions, can navigate the energy transition. The discussions focused on how Gulf national oil companies, which are charged with providing revenue to their governments to sustain their economies, plan to handle the transition to more sustainable sources of energy, what role natural gas will play, and how the energy mix for both exportation and domestic use will evolve. The energy transition will have geopolitical implications especially for oil producers. And while the OPEC+ alliance of OPEC and non-OPEC oil producers was rocky in early 2020, it now seems to only be growing stronger, though its future remains unsure with growing pressure to transition away from fossil fuels.

AGSIW's Petro Diplomacy conference has become a signature annual event, aiming to advance the conversation on the future of the energy industry and assess the wider geopolitical, economic, trade, and investment climate. I am confident that the key findings from this report will better inform policymakers, industry leaders, and interested citizens as they consider the momentous challenges ahead for the Gulf Arab states, oil producing countries, and international energy market.

Ambassador Douglas A. Silliman
President, Arab Gulf States Institute in Washington

Executive Summary

The Arab Gulf States in Washington held its seventh annual Petro Diplomacy conference via Zoom from October 19-21, 2021. The event explored the ways in which the Gulf Arab oil producers are adapting their policies to manage the energy transition and the growing drive toward carbon neutrality and considered what contribution they can make to the decarbonization effort. The global economy is on the mend after the bruising effects of the coronavirus pandemic in 2020, but the oil and gas industry is still in recovery and trying to find its place in a world striving for carbon neutrality.

The conference opened with a conversation between Ambassador Douglas A. Silliman, AGSIW president, and Mohammed bin Khalifa bin Ahmed Al Khalifa, Bahraini minister of oil and gas, who provided the perspective of a small island kingdom that produces oil and gas while trying to mitigate the impacts of climate change. The first of three sessions that followed addressed the evolution of the roles of national oil companies and international oil companies and how they are adapting their businesses to manage the energy transition. The second session explored the future of natural gas and renewable energy, while the third covered the geopolitical implications of the energy transition on oil producers and the future of the OPEC+ alliance of OPEC and non-OPEC oil producers.

Introduction

The industry has gone through a 7-year cycle of low prices in oil and gas and huge underinvestment, made even worse by the coronavirus pandemic.

The energy industry is transforming as more and more states issue target dates for net-zero carbon emissions, raising questions about the role of oil producing states in a carbon-neutral world. The Middle East is at the epicenter of this tectonic shift in the way that energy is produced, transported, and consumed. The onset of the coronavirus pandemic in 2020 and the critical need to address climate change have focused the minds of policymakers on the urgency of action to decarbonize the global economy at a faster pace. This is putting pressure on oil producing countries to adapt and embrace new technologies to decarbonize one of the most polluting industries that has sustained them for decades. But all this comes at a price, and there is a risk that a shortfall in investment in oil and gas, driven by climate change concerns and pressures, might exacerbate energy shortages in the future.

The small island kingdom of Bahrain straddles two camps. It is both an oil and gas producer and a country that is threatened by the effects of climate change on its scarce water resources and fragile marine life. Renewable energy provides some answers to the daunting challenge of getting to a carbon-neutral future, but it still cannot replace fossil fuels in a number of sectors of the global economy, which still runs mostly on hydrocarbons. The oil and gas industry has suffered from a 7-year stretch of low prices, a decline that was exacerbated by the onset of the coronavirus pandemic, when oil prices collapsed to below zero. An estimated $1 trillion was sucked out of the energy investment cycle, and access to capital for hydrocarbon projects has become much more difficult because of stricter environmental and governance conditions, sterner shareholder-driven conditioning on operations of international oil companies, and the

risk that oil and gas assets may become stranded as demand peaks.

The national oil companies, many of which operate in OPEC member countries, will need to adapt their businesses to manage this risk and diversify their energy portfolios while ensuring that they generate rent for their respective governments. The international oil companies have already begun their transformation into more diversified energy companies and are under increasing pressure from climate activists and investors to step up their decarbonization efforts and move away from fossil fuel assets. The energy transition is going to happen at different speeds in different regions, so while some Gulf national oil companies are investing in renewable energy, they will not be able to generate the same high rents they do from oil and gas sales. To the extent that they reduce fossil fuel production and fail to find alternative sources of income, national oil companies will lose their power domestically and on the international stage. If they fail to reduce the carbon intensity of their oil, some national oil companies will become casualties of the transition. National oil companies with the lowest emissions like Saudi Aramco, the Abu Dhabi National Oil Company, and Qatar Petroleum and those taking active steps to lower the carbon content of their products are likely to prevail in a net-zero world. The result is likely to be a kind of bespoke oil stripped of varying levels of harmful greenhouse gases that would be a more acceptable alternative than conventional oil.

Net zero does not mean zero carbon, and fossil fuels cannot be eliminated entirely now or in the coming decades. Even the most optimistic climate-neutral scenarios include oil and gas in the energy mix, though oil demand is expected to shrink while gas is expected to continue as a transitional fuel in power generation for some time to come. The Middle East is one region where natural gas is the dominant fuel in power generation, and much of the natural gas produced in the Gulf oil exporting states is consumed domestically. Saudi Arabia and Iran combined consume more natural gas than China, and demand is set to continue, with renewables making up a tiny fraction of the energy mix in the region. The United Arab Emirates, Kuwait, and Oman are among the oil producers that are net importers of natural gas, some of which is supplied by Qatar, a global liquefied natural gas giant. Saudi Arabia and the UAE are investing in green hydrogen produced from renewable energy, but there are doubts as to whether hydrogen can become an exportable commodity because natural gas has the advantage in that the infrastructure to produce and transport it is already in place. Even if the hydrogen economy were to take off, it is more likely to be consumed regionally and cannot generate the same kinds of rent that OPEC countries earn from selling oil and gas.

The 2020 oil shock galvanized the OPEC+ alliance of OPEC and non-OPEC producers to take drastic action to stabilize the market but only after Saudi Arabia and Russia settled a dispute over timing of a production cut that sent oil prices tumbling below zero in the United States. It took mediation by Bahrain and U.S. intervention to bring about an agreement by the 23-member OPEC+ and contributions from independent producers to slash supply by close to 20 million barrels per day to stabilize the market. The alliance has since grown stronger with Riyadh and Moscow now appearing to be on the same page on output policy.

By continuing to withhold barrels from the market as demand has recovered, the OPEC+ producers managed to keep prices afloat above $80 per barrel while ignoring calls from major consumers, including the United States, to increase production.

But the fact remains that the world is facing a climate emergency and the energy industry as one of the biggest contributors to greenhouse gas emissions has to accept that there is no turning back. Higher carbon and border taxes are expected to add more pressure on producers who will have to speed up the decarbonization of their mainstay oil and gas industries. OPEC+ producers want a stable market for their product, and they realize it is a product that will be plateauing and decreasing in demand in coming decades. This may lead to more competition among producers seeking to secure a larger share of a shrinking market, particularly in the key demand growth Asian economies, and short- and intermediate-term opportunistic increases in production as national oil companies seek to maximize rent in anticipation of peaking demand. These developments might change the dynamic in relations among the oil exporters but do not necessarily mean the end of OPEC or OPEC+.

Bahrain: Case Study of an Island State in Transition

The revenge of the old economy is coming back. … A lot of investments went into technology in the last few years, and suddenly we are realizing that "oops" we have underinvested here, and we really don't have an alternative yet.
– Mohammed bin Khalifa bin Ahmed Al Khalifa, Bahraini minister of oil and gas

Mohammed bin Khalifa bin Ahmed Al Khalifa, Bahraini minister of oil and gas, provided an overview of the challenges facing Bahrain – uniquely in the position of oil producer and exporter during the energy transition on the one hand as well as an island state that is among the countries most affected by climate change on the other. He mentioned Bahrain's concerns regarding water scarcity, which is endemic to the region, and the Middle East's reliance on desalination, which uses large volumes of hydrocarbons to desalinate water. Technologies to incorporate solar and other renewable technologies in desalination processes are being tested along with efforts to bring down costs, but the minister said timing is crucial to avoid disruption to supply and price dislocation.

As part of its national decarbonization effort, Bahrain has launched a pilot project to install solar panels on houses, but the government wants to prove the commerciality of these new technologies to see if they can be applied more widely. "One of the risks countries face is that they overdo it too quickly and end up having a huge bill that's unsustainable financially," Mohammed bin Khalifa said. Once the technology proves economically viable, the government will invite private sector companies to invest since public-private partnership will be crucial as subsidies are removed, allowing for true competition.

The Gulf states are taking steps to mitigate the impacts of climate change, but to move too quickly away from oil and gas is a risk. Mohammed bin Khalifa mentioned the recent energy crisis in Europe and East Asia, which has led to record high gas and electricity prices across Europe, as an example of regions that mistimed the move to renewables and paid the price. He said, "It's a very delicate balance. If policy comes in too quickly, we will often mess it up." Hydrocarbons are irreplaceable in some sectors of the global economy, like aviation and the mining industry, which uses diesel to extract the rare earth minerals needed for the transition. Mohammed bin Khalifa stressed that it is important to scrutinize the science, because a rush to net zero at this pace will have dire consequences.

One of the challenges is that capital for the oil and gas sector has been curtailed, and that will have far-reaching consequences. The industry has gone through a 7-year cycle of low prices in oil and gas and significant underinvestment, made even worse by the coronavirus pandemic. "Once you cut back for seven years, you're trapped in the boom cycle of commodities, and the same applies to many commodities today," Mohammed bin Khalifa said. When oil prices crashed at the end of 2014, an estimated $1 trillion went out of the investment cycle. "By the time you realize it, and we are realizing it now, we are going to scramble to raise capital and suddenly, the drive toward net zero is making funding difficult. So, the supply challenge is a reality now," he added. A short-term view of energy markets is dangerous because the sector needs multiple years to see the results of an investment. "The revenge of the old economy is coming back. … A lot of investments went into technology for the last few years, and suddenly we are realizing that 'oops' we have underinvested here, and we really don't have an alternative yet," Mohammed bin Khalifa said.

But this does not mean the climate change agenda is not a priority for governments across the Gulf region, and the national oil companies will need to apply stricter carbon reduction commitments. The challenge is to ensure that there are no anomalies and shortages in the energy transition already underway as a result of a lack of investment in traditional energy sources. Introducing scaled-up alternative energy technologies before they are commercially viable might lead to higher costs and a possible backlash from consumers, particularly in developing countries.

For the Gulf oil producing states, one of the technologies that is gaining ground is carbon capture, utilization, and storage, where greenhouse gases are captured and stored rather than released into the atmosphere. Bahrain has started a number of pilot projects to assess the viability of carbon capture, utilization, and storage at several locations in the kingdom. These technologies will need to be developed and scaled up over time with the requisite investment if crude oil and oil products are to be assured a space in a lower-carbon world. Furthermore, hydrocarbons are subject to high taxation in Europe, and adding a carbon tax will make them extremely expensive.

"People have to wake up, and you have to be careful. I can see it today. Nobody is going to fund hydrocarbon projects so supply takes a hit, and the 7-year cycle of boom/bust continuously comes," the minister said, pointing out that some analysts were predicting that oil prices will rise to $100 or $200/bbl as supply falls short of demand in the future. "We are at the lowest point in terms of discovery of oil and gas, and at the same time in investments; and COVID exacerbated the issue even more," Mohammed bin Khalifa said.

He spoke of his own mediating role in the effort by the OPEC+ alliance, with U.S. support, to balance the market in 2020, when demand in the early days of the pandemic slumped by 30 million barrels per day and oil prices in the United States sank below zero. The decision to slash global oil supply by close to 20 mb/d – including contributions from independent producers in the United States, Norway, and Canada – helped to restore order and avoid what would have been a "bloodbath." That, he said, was "true diplomacy at its best," rather than what some have described as the behavior of a cartel.

On the possibility of demand for oil peaking in the next decade or two, he mentioned gasoline

as one oil product that could be replaced in the transportation sector with time as demand is likely to drop. However, that will depend on how quickly more efficient batteries can be developed for electric vehicles.

Also under pressure is the natural gas industry, where methane emissions and flaring have come under increasing scrutiny. Natural gas also suffers from the drawback that once liquefied, the cost of transportation means that it costs more to deliver than to produce. Still, natural gas will continue to be a transition fuel, but it is unclear for how long. Natural gas, as the cleanest of the fossil fuel family, is affordable and efficient, and there is no alternative now that can compete.

Hydrogen may become an alternative source of revenue for Gulf oil and gas producers, but gas still has an advantage because the necessary infrastructure already exists. It will take years to build the framework needed for hydrogen to become an exportable and affordable commodity. The conversion of hydrogen to ammonia, to enable transportation, is also hazardous because it is a deadly gas if it leaks, which is not an issue with natural gas.

Nuclear power generation is not expected to be a solution that fits all Gulf states. The UAE is currently the only Gulf Arab state with an operating nuclear power station and may be followed by Saudi Arabia, but it would not be a workable solution for a small country like Bahrain.

Although consumption of oil and gas is high in the region, production costs and carbon intensity of the oil produced is relatively low. Energy subsidies, which have been eased gradually in several Gulf states in the last decade, contributed to this high demand that made the region's residents among the highest per capita consumers of energy and water, even in a small country like Bahrain. The estimates of per capita consumption are misleading because the Gulf region is sparsely populated, and its overall contribution to greenhouse gas emissions is low. Bahrain's efforts to remove subsidies while raising its value-added tax will help to generate government revenue in anticipation of lower income from oil and gas, but Mohammed bin Khalifa stressed that such policies have to be introduced in a way that is socially acceptable.

National Oil Companies Versus International Oil Companies: Trading Places?

The industry is investing like it is preparing for a net-zero scenario, while, in reality, the supply-demand balance is something completely different.

There are different pathways to net zero and a multitude of stakeholders, the most prominent of which are the national oil companies of the big oil producing countries and the international oil companies, or international energy companies as they now prefer to be called. But their roles are changing as the energy transition is moving forward and the multinationals are adapting their business models to attain carbon neutrality. In addition, the definition of net zero varies, with some thinking that the world can run purely on renewables with no need for oil and gas, while others see a more varied energy mix that incorporates hydrocarbons

stripped of toxic gases. Aviation, heavy transportation, shipping, industrial, and chemical industries are among the sectors of the global economy that are very hard to decarbonize and will complicate the drive to attain net zero by mid-century.

There is a divide in how the international oil companies and national oil companies are approaching the challenge of decarbonization. The multinationals are under pressure from shareholders to phase out fossil fuels in their businesses and are in the process of divestment while directing investment more into renewables and electrification. The national oil companies, including those in the Gulf, have obligations to their governments to generate revenue to sustain their economies, which remain largely dependent on earnings from oil sales, while providing affordable and reliable energy to the population in the countries where they operate. While the international oil companies want to – or are being forced to – move away from hydrocarbons, the national oil companies want to manage emissions from the production of oil and gas because they see continued demand for lower-carbon products.

Saudi Arabia and Saudi Aramco have taken the position that it is not carbon that is the source of emissions but fugitive carbon that can be managed through carbon capture, utilization, and storage technology and the circular carbon economy, which they view as compatible with the aims of the 2015 Paris Climate Agreement. While Aramco has the technical and financial prowess to execute and invest in such alternatives like green hydrogen and solar energy, that is not the general picture for all national oil companies. There will be winners and far more losers in the transition. While it is said that the lowest-cost producer will be the last national oil company standing, it does not mean that the highest-cost producer will be the first to go. It may be that the highest emitters and the national oil companies in countries where the carbon intensity of oil is the highest may not survive the transition, where developed economies are likely to implement increasingly crippling carbon taxes on imports of carbon-intense oil. The most carbon-intensive production is in Algeria, Venezuela, Cameroon, Canada, Iran, Turkmenistan, Indonesia, Sudan, Trinidad and Tobago, and Iraq – all countries where production is dominated by national oil companies.

There is a need for an operational shift in some of these companies, because the price of carbon is expected to rise over the next few years along with higher import duties by the European Union on more carbon-intensive oil and gas. Without reducing the intensity of their oil, this group of national oil companies will find that their production is not going to be worth as much on international markets, and they might eventually collapse.

The energy transition is going to happen at different speeds in different regions. So, while some Gulf national oil companies are investing in renewable energy, they will not be able to generate the same level of high rents as they do from oil and gas sales. So, all the national oil companies will likely lose their power domestically and on the international stage, which will redefine the social contract in some places like Venezuela, Algeria, and Iraq and also in some of the Gulf states. The lowest emitters of emissions, like Aramco, ADNOC, and Qatar Petroleum, will likely prevail. But there are hundreds of national oil companies that are neither among the highest or lowest emitters with uncertain prospects.

What has become clear is that “advantaged hydrocarbons,” – fuels with a lower carbon or greenhouse gas intensity than the suite of hydrocarbons produced today – will have a place

in the future supply mix even as demand is certain to peak sometime between 2030 and 2040. But irrespective of what shape the plateau and decline will take, the industry will require hundreds of billions of dollars of investment in oil and gas to offset declines in existing fields. It will be a matter of where that marginal investment goes, whether it is directed to the lowest-cost assets or the lowest-intensity assets. Also absent from the debate is whether the marginal dollar should go to existing or new fields with the preference likely to fall on new fields with low exploration risk and high recovery rates rather than expanding production from old fields that will grow more carbon intensive over time.

What has emerged as the industry has shifted strategy is a clear mismatch in terms of incremental investment and the rebound in oil demand as the threat of the coronavirus pandemic recedes. With global gross domestic product growth of 6% in 2021, a record level not seen in many years, a mismatch between supply and demand was bound to emerge. The industry is investing like it is preparing for a net-zero scenario, while, in reality, the supply-demand balance is something completely different, which has had an impact on prices.

Over the long term, however, oil's share as the dominant fuel in the energy mix will decline due largely to electrification and lower use of oil in industry and in buildings. Demand will be crimped further by higher fuel efficiency standards. But even if oil's share goes down, it doesn't mean that the number of barrels needed will be lower because of population growth and the need to provide energy to countries that currently have limited access. However, the risks of price volatility and capital constraints are likely to continue for a number of decades. The requirement to comply with environmental, social, and governance standards to secure funding has raised costs and made access to capital more difficult for fossil fuel projects.

Yet this requirement can be a blunt instrument when it does not take into account efforts to lower the carbon footprint of oil and gas such as through direct air capture, carbon sequestration, geologic storage of carbon, and other practices. Rigid efforts to enforce these environmental, social, and governance standards are leading to investment funding drying up for some companies and could be exacerbating the oil shortage that has led to higher prices. The same applies to pressure on international oil companies to divest from fossil fuels, which may not necessarily translate into lower emissions, given that companies not subject to such pressures will be freer to step in and absorb the divested activities.

At the same time, the structural changes that are under way will result in declining profits for the national oil companies. One of the speakers referred to a study of private company profits over the last five years, which shows that there is more profit to be made from renewables than oil and gas. For national oil companies, redirecting their efforts to renewables will result in lower income.

The ability to produce rent from the oil and gas sector will broadly decline as well even for those last national oil companies standing. This will have a massive impact on countries that need more time to manage their transition and invest in diversification. Wealthy countries have promised to make available $100 billion annually to developing countries to invest in clean energy, but the national oil companies are not being supported in the effort and will need time to diversify and readjust to the new energy order. The lack of access to capital to assist in the transition to lower-carbon energy will exacerbate the falling rents for high-carbon

intensity national oil companies and may result in serious turmoil in some countries. For those national oil companies seeking loans or capital, they need to have a convincing narrative on the transition and assurances that they will not end up with stranded assets, because markets will not invest if they are not convinced that these newly emerging risks can be managed.

National oil companies need to become energy companies and diversify so they are better aligned with international oil companies. Many international oil companies still operate in several jurisdictions in partnership with national oil companies, but additional investments in oil and gas projects will need to adhere to stricter environmental criteria. For example, host countries that encourage management of gas flaring or venting would make it possible for international oil companies to monetize natural gas that would otherwise have been flared, a major source of greenhouse gas emissions.

Preventing global warming from reaching unsustainable levels will require an all hands-on-deck approach with all companies, both green and greening, to participate. The investment backdrop needs to allow for rewarding the companies that are looking to go green. The BP Statistical Review of Energy showed a 6% decline in carbon emissions in 2020, largely because of the slump in oil demand.[1] But emissions are on the rise again and are back to pre-pandemic levels. This has meant a lost year in terms of the decarbonization pathway needed, which calls for a 6% decline every year for the next 30 years to be in alignment with the Paris climate goal of limiting global warming to well below 2 degrees Celsius.

Along the way, the demand for change is getting louder. The international oil companies are making changes, and it's only a matter of time before the national oil companies will feel the same pressure.

The Future of Gas and Renewables in a Carbon-Neutral World

Saudi Arabia and Iran together consume more natural gas than China.

The Middle East is a huge market for natural gas and likely to remain so for some time. Saudi Arabia and Iran together consume more natural gas than China. The energy composition of Gulf states remains heavily skewed in favor of fossil fuels with renewable energy making up a tiny percentage of primary energy supply. Turning around the economies of oil exporting countries that have long relied on hydrocarbons as a mainstay of their economies and where natural gas is the dominant fuel for electricity generation will make it difficult to decarbonize the various stages of the energy complex.

Gas demand growth in the last decade has come from North America, China, and the Middle East. The Middle East is a major market for natural gas and a bigger consumer than the European Union, largely seen as the bellwether region for the natural gas market. The Middle East has the highest share of primary energy coming from natural gas in the world, having surpassed the countries of the former Soviet Union.

1 BP, *Statistical Review of World Energy 2021* (London: BP, 2021).

While there are signs that in some parts of the world natural gas consumption had reached a plateau and may decline, the switch from oil to gas for power generation in the Middle East continues with no sign of a letup. Natural gas is the main fuel used for power generation across several Gulf states. This is one reason why the percentage of renewable energy in the region has remained far below the global average, though significant growth is expected in coming decades as new projects have progressed, mainly in Saudi Arabia and the UAE. But it will take a massive effort to reach net-zero emissions as pledged by the two OPEC producers unless carbon capture, utilization, and storage solutions are scaled up massively and solar and wind projects proceed at a more rapid pace.

The BP Statistical Review of World Energy estimates that only 0.5% of primary energy comes from renewable energy in the Middle East or one-tenth of the global average.[2] That makes it difficult to see how the region with the lowest penetration of renewables can aspire to become a green hydrogen producer and exporter of solar-based hydrogen, an industry that Saudi Arabia and the UAE are separately developing.

Because renewables make up a larger share of primary energy supply in the rest of the world, the switch away from natural gas has been more dramatic, a trend that is likely to continue and gather speed as much of the advanced economies have declared net-zero emission targets by mid-century. Ahead of the 26th United Nations Climate Change Conference, COP26, in Glasgow, Scotland, in November, the UAE, which has one of the more diversified energy mixes in the Gulf region, became the first Middle Eastern state to declare its commitment to a net-zero economy by 2050. It was followed by Saudi Arabia, which set a 2060 target date to attain carbon neutrality. The Saudi declaration included a pledge to cut methane emissions, which have come under increasing scrutiny as a polluting byproduct of natural gas production, through leakage or flaring.

As a result of the focus on methane emissions, the role of natural gas as a transition fuel can no longer be taken for granted despite the recent turmoil in gas markets, which in Europe and East Asia have experienced shortages. These shortages are due to a number of factors, not solely the transition away from hydrocarbons, though some, such as the Bahraini minister of oil and gas, have highlighted the danger of moving too rapidly away from the predominant fuels in the global energy complex. Natural gas is no longer "energy transition proof," stressed Nikos Tsafos, James R. Schlesinger Chair for Energy and Politics at the Center for Strategic and International Studies. The International Energy Agency in its "Net Zero by 2050" report issued in May projected demand for natural gas would shrink by more than half by 2050 in a net-zero scenario, while LNG demand would be 62% smaller by mid-century after some growth in the interim.[3]

The current gas shortage in Europe and East Asia has led to worries about supply adequacy and a debate as to whether this is the result of an excessively fast transition to low-carbon fuels or an insufficiently fast transition. There are also questions as to how the growing number of countries adopting net-zero targets by mid-century or beyond will impact investment in the gas industry both regionally and globally. With the international oil companies constrained by

2 BP, *Statistical Review of World Energy 2021* (London: BP, 2021).

3 International Energy Agency, *Net Zero by 2050: A Roadmap for the Global Energy Sector* (Paris: IEA, 2021).

shareholder pressure from investing in the fossil fuel industry, it is by no means certain that the national oil companies will be able to adapt quickly enough to satisfy demand growth. Many of the Gulf states are net importers of natural gas and LNG, and one way to avoid shortages will be to rely on increased developments of both conventional and unconventional gas and possible efforts at regional gas integration and cross-border trade within the region.

The natural gas industry is changing as a direct consequence of the transition, where it is being displaced by renewable energy in the electricity sector, as well as in heating and cooling, leaving it with a role as an industrial fuel in much of the world. It is a different dynamic in the Middle East, where demand pull is stronger, though the only significant supplier of natural gas is Qatar, and it is likely to remain so as it expands its LNG production capacity.

The mood is changing with regard to natural gas; where once there was an expectation that demand would increase forever, a peak is now in sight. For natural gas to have a future, it will need to tackle methane emissions, which applies also to Middle Eastern producers and exporters of LNG. Carbon capture, utilization, and storage offers a solution, but it will need to be implemented urgently, as demand increases in the Middle East and Asia and as Europe applies stricter standards on the carbon content of its gas imports, if natural gas producers want to win a larger share of the LNG market.

Current high gas prices may have implications for the consumer in the longer term, and consumers are busy diversifying their sources of supply with the recent buying spree by China one of the main causes of the recent tightness in gas supply. China has been signing or trying to sign contracts with U.S. LNG exporters in what one speaker described as a frenzy. Other consuming countries like India and the rest of the Southeast Asian countries are extremely price sensitive and will be worried about whether natural gas is an affordable solution in the long term.

Hydrogen, the majority of which is currently produced using natural gas, is increasingly being touted as an alternative, though even with anticipated growth, it will not match earnings from oil and gas. One speaker referenced an IEA report suggesting that by 2050, global trade in energy will be around $900 billion and hydrogen will account for 35%, which would mean a $300 billion market. That is much less than what OPEC countries earn from selling oil and gas and no substitute for the kind of rents that oil and gas sales generate for Middle Eastern exporters.

Geopolitics and the Future of the OPEC+ Alliance

We are in a climate emergency; the energy industry is one of the biggest emitters, and we have to accept that.

That OPEC+ has survived since 2016 has baffled most analysts, but even the skeptics now agree that the alliance led by Saudi Arabia and Russia is likely to survive though perhaps not for the same reasons that brought the once rival producing countries together. Riyadh and Moscow joined forces initially for a number of reasons, most importantly the common threat of U.S. shale oil. In early 2020, the coronavirus pandemic's impact on oil demand and prices caused friction between Saudi Arabia and Russia, which at the time was reluctant to cede

market share to the United States and opposed a supply reduction. This led to a breakdown of cohesion and a collapse in oil prices as the producers pumped at will. That bruising battle for market share was short lived, resulting in the landmark agreement in April 2020 to slash output to rebalance markets. The alliance has since grown stronger with Riyadh and Moscow now appearing to be on the same page on output policy.

Occasional tensions aside, the alliance of 23 oil producing countries has provided stability in the energy markets during periods of extreme shock. The group is likely to hold firm because the pandemic is not over; pandemic-caused supply chain disruptions are expected to linger for another two years, which will have a direct impact on the global economy. Demand uncertainty as the world emerges from the worst of the pandemic has prompted OPEC+ to adopt a cautious policy of a gradual tapering of production cuts that were agreed to in 2020 with predictions of a supply glut emerging in early 2022.

In the longer term, demand for oil is set to decline, and as its share of the global energy mix shrinks, it may lead to more competition among producers, particularly in the Asian growth market. Saudi Arabia and Russia are running neck and neck in supplying China with crude oil, while Iraq is also competing for a share of the Chinese market. Iran, meanwhile, is locked out of the global oil market and is likely to discount its oil to regain market share. Long-term projections about oil demand vary wildly. The IEA's net-zero 2050 scenario projects demand for oil will fall to around 24 mb/d from around 100 mb/d in 2019.[4] OPEC expects demand by 2040 to stay at the same level as today.[5]

The dynamics of the relationship among the major OPEC+ producers might change in the future as the transition away from fossil fuels gains traction. For now, however, collective action has succeeded in restoring market balance and lifting prices to 3-year highs, which at above $80/bbl is much higher than is needed for Russia to balance its budget. Russia's budget will break even with oil prices at $50/bbl compared with Gulf states, where the break-even point is between $60/bbl and $75/bbl. Russia has a little bit more cushion and can afford to let prices drop slightly, but it is going along with the consensus because OPEC+ is one of the ways in which Moscow solidifies its global reach. Therefore, it does not want OPEC+ to fail. However, that does not mean that oil revenue is not important for Moscow's budget, half of which comes from oil. Russia is also trying to produce oil from greenfield sites in the Arctic that require a higher price to be commercial.

One reason prices have held at these high levels is the OPEC+ decision to restore output gradually in increments of 400,000 b/d per month starting in August 2021 through the end of 2022. But not all producers have been able to produce at higher quotas, and that has left the market short of barrels as demand has picked up amid outages in the United States and Nigeria. Oil is also being lifted higher by the entire energy complex due to the gas shortage in Europe and East Asia that has led to record high prices for both gas and electricity. This is partly a legacy of steep declines in upstream investments for two consecutive years after the 2014 oil price collapse and exacerbated by project delays and an investment slump in 2020. At the same time, the cost of financing oil and gas projects is rising because of stricter

4 International Energy Agency, *Net Zero by 2050: A Roadmap for the Global Energy Sector* (Paris: IEA, 2021).

5 OPEC, *2021 World Oil Outlook 2045* (Vienna: OPEC, 2021).

sustainability requirements by the investor community.

The big oil importing countries are already grumbling about the higher oil price, and China's recent release of oil from its strategic stocks may have been a signal to producers to take heed. OPEC+ has so far ignored calls from major consuming countries, including the United States, to put more barrels on the market to cool prices.

But the world is still facing a climate emergency, and the energy industry, one of the biggest contributors to greenhouse gas emissions, has to accept that there is no turning back. Higher carbon and border taxes are expected to add more pressure on producers who will have to speed up the decarbonization of their mainstay oil and gas industries. The energy transition has empowered users who now have more choice in the type of energy they want to power their homes, businesses, and cars, so producers will need to be more sensitive to the needs of the consumer. Russia, as a supplier of oil, natural gas, and coal to the European market, will have to ensure that it doesn't overplay its hand, because Europe will have more options from renewables and a growing hydrogen industry that could reduce demand for Russian fossil fuels.

OPEC+ wants to have a stable market for its product. OPEC+ members realize it's a product that will be plateauing and decreasing in demand, and they don't want to end up with stranded assets. That means that they need to get products to their intended markets at a price that is somewhat moderate and that will sustain the economic recovery. At the same time, they will need to shield themselves from the impact of the transition on oil and gas demand as the global energy system becomes more diversified. Some of the region's national oil companies are positioning themselves to be leaders of newer technologies like green hydrogen, which has political implications. What is emerging in some countries like Saudi Arabia is a type of hybrid economy where oil production continues alongside massive investment in zero-carbon projects like Neom, the site of which has been billed as the largest green hydrogen plant in the world, running purely on renewable energy. That would be one way to square the circle.

But that will not happen overnight. Demand for natural gas and electricity in the Middle East is on the rise and the incorporation of more renewable energy from solar or wind will require storage solutions and time to be scaled up. Expectations have to be tempered, and people will need to accept that oil and gas will be a part of the energy mix for a while. But there are different kinds of oil and gas. Saudi Arabia and the UAE have an advantage in that their oil and gas production is relatively clean, and they do not flare as much gas. A kind of designer oil will be part of the future.

Conclusion

The energy industry of the future is taking shape amid a stepped-up effort to reach net-zero targets by mid-century. The Middle East's oil producers will need to transform their economies and their national oil companies to conform to stricter emission standards that will determine whether they can retain a share of the evolving energy landscape. The boom-and-bust cycle of oil and gas prices has disrupted both supply and the investment cycle, which will have implications in the years ahead. For the national oil companies to survive in a carbon-constricted world, they will need to lower the carbon content of oil and gas and avoid

being left with stranded assets when demand for fossil fuels peaks and goes into decline. Renewable energy is displacing oil and gas in some, but not all, sectors of the global economy, so there is still a need to invest in new capacity if only to reverse declines from existing fields. Net zero is a noble ambition that has been adopted by the majority of signatories to the Paris Climate Agreement, but regardless of the extreme urgency with which climate change demands a radical transition, it will take time to transform the global economy that has long been sustained by hydrocarbons.

The recent gas shortage in Europe and East Asia is a reminder of how markets can become dislocated if policy decisions are implemented before the energy system is equipped to manage the transition. While the energy transition is not the main reason for this dislocation, it is a snapshot of what might happen when supply falls short. The industry has lost $1 trillion in upstream investment since the oil price crash of 2014, and access to capital is becoming more restricted as a result of stricter environmental standards demanded by investors. The Gulf oil producers face a dilemma. They need to sustain the economies of their respective governments with revenue from oil and gas sales, which need to be at a level that will meet domestic and international demand and finance the transition to cleaner energy technologies like wind and solar. Green hydrogen might provide one alternative source of revenue, but it will not match the rent generated from oil and gas exports.

The climate emergency is real, and the energy industry, as one of the biggest contributors to greenhouse gas emissions, will need to be part of the solution. The international oil companies have joined the carbon neutrality bandwagon, but the national oil companies are still lagging behind and will need to step up their decarbonization efforts if they are to survive and be part of the solution to the challenge that climate change poses.

Agenda

October 19-21, 2021

Keynote Address

Speaker:

H.E. Mohammed bin Khalifa bin Ahmed Al Khalifa, Minister of Oil and Gas, Bahrain

Moderator:

Ambassador Douglas A. Silliman, President, AGSIW

Session 1: NOCs vs IOCs, Changing Dynamic as Net-Zero Ambitions Multiply

Speakers:

Michael Cohen, Chief U.S. Economist and Head of Oil and Refining, BP

Valérie Marcel, Associate Fellow, Environment and Society Programme, Chatham House

Adam Sieminski, Senior Adviser, Board of Trustees, King Abdullah Petroleum Studies and Research Center

Moderator:

Kate Dourian, Non-Resident Fellow, AGSIW; Contributing Editor, MEES; Fellow, Energy Institute

Session 2: The Role of Gas and Renewable Power Generation in a Carbon-Constricted World

Speakers:

Anne-Sophie Corbeau, Global Research Scholar, Center on Global Energy Policy, School of International and Public Affairs, Columbia University

Jim Krane, Wallace S. Wilson Fellow for Energy Studies, Baker Institute for Public Policy, Rice University

Nikos Tsafos, James R. Schlesinger Chair for Energy and Geopolitics, Center for Strategic and International Studies

Moderator:

Robin Mills, Non-Resident Fellow, AGSIW; CEO, Qamar Energy

Session 3: Geopolitics and the Future of the OPEC+ Alliance

Speakers:

Kate Dourian, Non-Resident Fellow, AGSIW; Contributing Editor, MEES; Fellow, Energy Institute

Li-Chen Sim, Assistant Professor, Khalifa University of Science and Technology; Non-resident Scholar, Middle East Institute

Karen E. Young, Senior Fellow, Director, Program on Economics and Energy, Middle East Institute

Moderator:

Ambassador William Roebuck, Executive Vice President, AGSIW

AGSIW Corporate Sponsors

Raytheon

Chevron
Human Energy®

LOCKHEED MARTIN

eog resources

Brownstein Hyatt Farber Schreck

aramco

General Electric

KMASS SOLUTIONS

Shell