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IEA IEF OPEC  
Symposium on  
Energy Outlooks

A JOINT IEA IEF OPEC EVENT

Joint **IEA IEF OPEC**

**Report on the**

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## 1. Introduction

This summary reflects the main outcomes of the Eleventh session of the IEA-IEF-OPEC Symposium on Energy Outlooks that the International Energy Forum (IEF) convenes yearly, in collaboration with the International Energy Agency (IEA), and the Organization of the Petroleum Exporting Countries (OPEC). The symposium was held virtually on 17 February 2021 at the IEF Headquarters in Riyadh and convened close to 300 participants including ministers and other high-level industry and government representatives who gathered alongside leading experts.

Opening remarks by HRH Prince Abdulaziz bin Salman, Minister of Energy of Saudi Arabia; HE Dharmendra Pradhan, Indian Minister of Petroleum and Natural Gas, and HE Timipre Sylva, Minister of State for Petroleum Resources, Nigeria alongside HE Joseph McMonigle, Secretary General, IEF, touched on the impacts of the COVID-19 pandemic, the outlook for global energy security and market stability, and the need to achieve shared climate goals.

HE Mohammad Sanusi Barkindo, Secretary General, OPEC; HE Fatih Birol, Executive Director, IEA welcomed participants as co-hosts and reviewed current and future energy market trends and also provided their views on COVID-19 impacts and solutions, achieving UN Sustainable Development Goals, and the pace of energy transitions.

HE Francesco La Camera, Director-General, International Renewable Energy Agency (IRENA) and HE Yury Sentyurin, Secretary General, Gas Exporting Countries Forum (GECF) were invited as special guests.

Session I focused on the latest IEA and OPEC energy outlooks and key findings of the IEF-RFF Comparative Analysis of IEA, OPEC, and Global Energy Outlooks outlined in the introductory paper prepared by the IEF in collaboration with Resources for the Future, and in consultation with the IEA and OPEC and IRENA and the GECF for the relevant sections where their outlooks were discussed.

Mr McMonigle moderated presentations by partner organizations that were represented by Ayed Al Qahtani, Director, Research Division, OPEC; Keisuke Sadamori, Director of the Office for Energy Markets and Security, IEA; and Richard Newell, President and CEO, Resources for the Future, RFF. The objective of this session was to present and compare the outlooks prepared by the IEA and OPEC, place them in the wider context of other global outlooks including those published most recently by IRENA, the GECF, BP, and Equinor and to exchange points of view on their determinants



and wider implications. Mr Spencer Dale, Group Chief Economist, BP plc was also invited as a special guest to provide a company perspective on energy outlooks.

Session II focused on stakeholder views on energy investment, non-OPEC supply and clean energy technology on the road to recovery. The impact of COVID-19 on energy investment, resilience of non-OPEC supply, and government policies as they pertain to clean energy technologies were the main topics of discussion. Vicki Hollub, President and CEO, Occidental Petroleum, provided an introductory keynote on the US energy markets, policy, and clean energy technologies.

Coby van der Linde, Director, Clingendael International Energy Programme, moderated a session including Ayad Al Amri, Executive Director, Business Development, ACWA Power; Jamie Webster, Senior Director, Center for Energy Impacts, Boston Consulting Group (BCG); Mahmood Abd Rahim, Head, Strategic Research, Petronas; and Kaare Sandholt, Chief Expert, China National Renewable Energy Centre (CNREC), Energy Research Institute of National Development and Reform Commission.

The Joint Symposium on Energy Outlooks is one of three joint high-level expert meetings that the IEA, IEF and OPEC undertake under the trilateral work program of the producer-consumer dialogue to enhance understanding of the energy market and policy developments. The trilateral work program was agreed upon by the three organizations under the Cancún Declaration, which was endorsed by energy ministers at the 12th IEF Ministerial Meeting, held in Cancún, Mexico, in March 2010, as referenced in Attachment Two of the Cancún Declaration. In addition to the Joint IEA-IEF-OPEC Symposia on Energy Outlooks, the trilateral collaboration involves workshops on Physical and Financial Energy Market Interactions and Gas and Coal Market Outlooks.

Substantial progress was made over the course of the previous 10 IEA-IEF-OPEC Symposia on Energy Outlooks to enhance collective understanding of flagship publications through in-depth dialogue and advancing the comparability of the IEA's and OPEC's outlooks. The IEF also successfully facilitates collaboration between IEA and OPEC experts in a series of technical meetings.

Key highlights from the two sessions and main findings from both organizations' outlooks are presented in the next sections. Full livestream and presentations can be accessed on IEF's website at [www.ief.org](http://www.ief.org).

## 2. Opening Statement

A high-profile group of ministers provided opening statements at the 11th session of the IEA-IEF-OPEC Symposium on Energy Outlooks at International Energy Forum (IEF):

- HRH Prince Abdulaziz bin Salman, Minister of Energy of Saudi Arabia acknowledged the progress made in bringing stability to oil markets, but warned against complacency, emphasized caution, and stressed the importance of adaptation and resilience in an unpredictable environment.
- HE Dharmendra Pradhan, Indian Minister of Petroleum and Natural Gas, reiterated that in the collective interests of both producing and consuming countries and that oil prices should be reasonable and responsible.
- HE Timipre Sylva, Minister of State for Petroleum Resources, Nigeria called for collective policy responses to prevent a protracted crisis in energy sector investment, widening divides between energy poor and affluent consumers, and missing SDG targets due to growing energy demand.

Mohammad Sanusi Barkindo, the Secretary General of OPEC; and Mr Fatih Birol, Executive Director, IEA highlighted four points as part of their opening remarks:

1. Collaboration between governments is crucial to achieving energy market stability in an uncertain environment.
2. Maintaining global energy security will require vigilance in the post-pandemic risk environment.
3. Increased upstream investment is essential to meet future oil demand that will grow in the medium-to long-term.
4. Government policy will play a key role in enabling and accelerating clean energy transitions through technologies such as Carbon Capture Use & Storage (CCUS) and hydrogen.

Special guests Mr Francesco La Camera, Director-General, IRENA, and Mr Yury Sentyurin provided their perspectives on energy transitions into 2050. Mr La Camera emphasized the crucial role energy efficiency, renewables, electrification, and green hydrogen will play in global decarbonization while Mr Sentyurin highlighted the increase of natural gas in the global energy mix.

Opening remarks reaffirmed commitments to international energy market security and the need for stable transitions especially considering the emergence of a new risk environment due to COVID-19 and the impacts of climate change. Speakers also drew attention to the efforts of the global community in managing the energy crisis and the continued need for data transparency and informed policy

decisions which will allow evolving energy systems to rebalance and enable a sustainable recovery.

### 3. Key Findings of the IEF-RFF Comparative Analysis of IEA, OPEC, and Global Energy Outlooks

OPEC and the IEA presented their short-, medium-, and long-term assessments of world energy outlooks in the context of a gradual and cautious economic recovery. OPEC emphasized economic uncertainties due to the COVID-19 pandemic are likely to persist and that any recovery in oil demand must be viewed with caution despite the roll-out of vaccines around the world and various policies designed to stimulate economic activity. The IEA highlighted how the pandemic and its aftermath might reshape the energy sector and implications this may have for clean energy transitions, and long-term industry strategies to reach net-zero emissions. For now, the duration and severity of the pandemic and the effectiveness of policy responses remain the two key uncertainties.

Both the IEA and OPEC project economic growth at 5.2 and 4.4 percent in 2021 after negative growth projections in 2020, with China being the only country to have positive growth in both 2020 and 2021. The IEA and OPEC projections of Indian GDP growth differ by 2.5 percent. Economic growth is expected to coincide with a rebound in short-term demand. The IEA and OPEC estimated non-OECD countries to lose 3.3 mb/d and 4.3 m b/d in demand in 2020, while projecting demand increases of 2.9 mb/d and 3.3 mb/d in 2021, respectively. The IEA and OPEC also estimate OECD demand to increase by 2.8 mb/d and 2.6 mb/d between 2020 and 2021, respectively, which amounts to a recovery of roughly half the demand lost in 2020. The IEA is more bullish on both non-OECD and OECD growth in the short-term. OPEC, on the other hand, projects a sharper decline in many regions in 2020 while also estimating a mildly greater recovery in the non-OECD region in 2021.

In terms of supply, both the IEA and OPEC see greater production in 2021, with non-OPEC liquids supply to increase by 0.5 mb/d and 0.8 mb/d, respectively, with the largest differences in non-OECD Eurasia. Most of recovery will be due to the return of shut-in production, according to OPEC. In terms of the supply overhang, the OPEC and non-OPEC Declaration of Cooperation brought down the surplus from 267 mb above the five-year average in July to 138 mb in December. While both organizations cite uncertainty as a challenge to rebalancing the market, bringing the pandemic under control in 2021 would allow energy demand to return to pre-crisis levels by early 2023, according to the IEA, while a longer pandemic would usher in the slowest decade of energy demand growth for a century.



For the medium-term outlook, it is acknowledged that the IEA's Oil 2020 was published in March 2020 – before the full impacts of the COVID-19 pandemic were apparent and eight months before OPEC's World Oil Outlook. Nevertheless, both organizations project strong medium-term growth in liquids demand. By 2025, demand under the IEA's projections reaches 105.7 mb/d, compared with 103.7 mb/d

for OPEC, reflecting average annual growth between 2019 and 2025 estimated at 1.0 and 0.7 mb/d for the IEA and OPEC, respectively and growth primarily focused on non-OECD countries. OPEC expects non-OECD liquids demand growth to average 0.8 mb/d per year, while the IEA projects growth of 0.9 mb/d. By 2025, OPEC projects total OECD liquids demand to decline from 47.9 mb/d in 2019 to 46.8 mb/d, while the IEA projects total OECD liquids demand to increase slightly from 47.6 mb/d to 47.7 mb/d.

Despite strong oil demand in the medium-term, the IEA's Stated Policies Scenario (STEPS) projects that renewables will lead the rebound into 2030 while coal will not return to pre-crisis levels. In the Delayed Recovery Scenario (DRS), the growth in oil, coal, and natural gas will be most affected while renewables will remain resilient. In the STEPS and the DRS, oil demand reaches a plateau in the 2030s as transport fuels are no longer an engine for growth. However, a stronger push for efficiency, electrification, and recycling will be needed for oil consumption to decrease.

From a supply perspective for the period 2020-2025, OPEC projects supply growth of 5.7 mb/d, while the IEA projects supply growth of 4.5 mb/d. The IEA sees greater growth in OECD Americas at the start of the projection period but begins to taper off towards the end of the period. OPEC, meanwhile, revised down OECD Americas production in 2020 due to COVID-19 impacts but sees stable growth through 2025. Both the IEA and OPEC see most of the medium-term growth coming from US tight oil and production in Latin America. OPEC forecasts non-OPEC liquids supply will recover from pandemic-related shut-ins in the medium-term and some producers will see growth beyond the late 2020s resulting in supply returning close to 2019 levels.

For the long-term demand comparison, both the IEA and OPEC base their projections on the year of 2019. The IEA's STEPS scenario sees total oil demand at 111 mb/d while the OPEC Reference Case Scenario forecasts oil at 109 mb/d in 2040 with demand growth increasing by 0.5 mb/d for both scenarios. Oil still makes up the largest share of the energy mix in both scenarios. In the IEA's SDS,

2040 world liquids demand shrinks to 76.2 mb/d and growth over the 2019-2040 projection period shrinks by 1.2 mb/d. Although the more ambitious IEA net-zero energy emissions 2050 (NZE2050) scenario does not extend to 2040, the difference between the highest (IEA STEPS) and lowest (IEA NZE2050) projections for 2030 world liquids demand is 43 mb/d or 40 percent. This would almost certainly be larger in 2040. To reach the net-zero energy emissions in 2050 would require a set of dramatic additional actions over the next 10 years by energy companies, citizens, and investors who will need to ramp up clean technology deployment while continuing to reduce costs for hydrogen innovation and other low-carbon fuels, battery storage, and CCUS. While OPEC see the petrochemical and transport sector providing the basis for oil demand growth, the IEA sees oil demand reaching a plateau in the 2030s due to transport fuels becoming a less reliable engine for oil growth.

From a long-term supply perspective, the IEA and OPEC world liquids supply in 2040 are forecasted to be 111 mb/d and 109 mb/d with annual growth of 0.3 mb/d and 0.23 mb/d according to the IEA STEPS and OPEC Reference Case, respectively. The IEA SDS projects world liquids supply to be drastically reduced to 76 mb/d. Non-OPEC supply will increase by 0.1 mb/d according to the IEA while OPEC forecasts a reduction of 0.3 mb/d from 2019. According to OPEC, non-OPEC supply will fall over the long-term and OPEC liquids will fill the gap, growing from 34 mb/d in 2019 to 44 mb/d by 2045. Although there are similarities in long-term projections, differences between IEA and OPEC forecasts exist in regional supplies namely in the OECD Americas region by 3 mb/d, OECD Americas by 2.5 mb/d, and the non-OECD region by about 4 mb/d. Despite these differences, both the IEA and OPEC agree on the continued growth of US tight oil supplies.

Special guest Spencer Dale, Chief Economist at BP, contributed to the conversation by introducing BP's three forecast scenarios – the Business-As-Usual, Rapid, and Net Zero scenarios. Given the uncertainty of the COVID-19 pandemic and associated impacts on energy markets and transitions going forward, diverse scenarios help understand the range of uncertainties to help shape future strategies. Based on these scenarios, BP sees 2050 oil demand anywhere from 90 mb/d to 25 mb/d and natural gas from 5,000 billion cubic meters (bcm) to 2,000 bcm. However, energy trends common across all scenarios between now and 2050 include decreasing shares of fossil fuels in the energy mix along with absolute oil demand, an increased share of renewables, and an increased share of electricity in final consumption.



All speakers identified the need for more upstream investment in the energy sector as oil consumption will remain relevant in the years ahead regardless of the scenario in question. OPEC estimated that cumulative oil-related investments amount to about \$12.6 trillion – a requirement of \$380 billion per year between now and 2045.

#### 4. Stakeholder Views on Energy Investment, Non-OPEC Supply, and Clean Energy Technology on the Road to Recovery

The second session featured various speakers from diverse backgrounds providing their views on the future of energy investment and prospects for energy market recovery. The session started with a conversation between special guest Ms Vicki Hollub, President and CEO, Occidental Petroleum and IEF Secretary General Joseph McMonigle. Ms Hollub highlighted that the COVID-19 pandemic forced the shale sector to operate in an environment where capital was not being reinvested. This led to production declines over the last year, the impacts of which will be felt for the near term as recovery will not be immediate. Additionally, investors in US shale are increasingly looking for value on investment as opposed to production growth, she said. The only way to achieve value in the long-term, she added, was to achieve sufficient scale to minimize infrastructure costs. As a result, Occidental will focus on reducing debt, stable production, lower operating costs, and increased cash flow to create value for investors. For the shale sector, an effective breakeven oil price of \$40 WTI or below is a good benchmark given historical price movements, she said. Going forward, Ms Hollub sees digitalisation in the energy sector and the role of clean energy technologies such as CCUS, as transformational developments in accelerating energy transitions and attracting greater investment to the sector which will be required for the long term.

The session moved on to a discussion moderated by Professor Dr. Coby van der Linde, Director, Clingendael International Energy Programme with panelists Ayad Al Amri, Executive Director, Business Development, ACWA Power; Jamie Webster, Senior Director, Center for Energy Impacts, Boston Consulting Group (BCG); Mahmood Abd Rahim, Head, Strategic Research, Petronas; and Kaare Sandholt, Chief Expert, China National Renewable Energy Centre (CNREC), Energy Research Institute of NDRC.

Mr Ayad Al Amri touched on three points related to the electricity sector. He spoke about the importance of energy storage and proper allocations to avoid bottlenecks and increase the penetration of renewables into the electricity grid. Additionally, strong, and robust transmission lines will be important to take this electricity from one end of the country to another which will allow for greater grid

flexibility and increased incorporation of renewables. Third, developing greater interconnectivity is crucial in maintaining regional energy security where renewables have a role in balancing the load between countries and regions. While renewables continue to increase their share in the global energy mix, natural gas will also be essential going forward. Natural gas, a lower carbon fuel than coal, can complement the intermittency of solar and wind and will serve a major role in hydrogen production in combination with CCUS. However, CCUS needs the right incentives to accelerate investment. Mr Al Amri concluded by saying that fuel type, efficiency in operations, and cost of electricity are three key metrics in investment decisions, but environmental considerations should also be a part of that assessment.

Mr Jamie Webster reiterated the message about the need for added investment in the upstream sector to avoid price volatility in the future. The COVID-19 pandemic brought more capital expenditure cuts than during the oil price downturn in 2014. He added that by 2030 an additional \$225 billion in investments will be required to meet demand versus 2020 as additional production will be needed to offset declines. Without this investment, prices will inevitably rise and create more volatility for both producer and consumer countries. On a positive note, crisis in today's energy environment can be managed more quickly than in the past as there has been a 50 percent fall in lead times for new projects because projects that have a shorter cycle and faster lead-times from final investment decision to first-production are preferred over larger-scale slower, capital-intensive developments. Therefore, supply can be added quickly to the market if the right investments are made to satisfy growing demand in the future.

Mr Mahmood Abd Rahim brought a Southeast Asian perspective on the energy transition and emphasized the impact of COVID-19 as a catalyst that has accelerated energy transitions. Although the pandemic will have far-reaching consequences on the energy sector now and in the future, it is not unlike previous structural changes. Once again, the oil and gas industry is facing disruption and uncertainties on multiple fronts and driving energy players to step out, or pursue innovation, and incorporate strategies such as finding greater efficiencies, improving storage solutions, accounting for future electric vehicle penetration, and facilitating a low-carbon economy. As the pace of energy transitions is accelerating and gaining amplitude, industry has as much to do as governments, he said. As part of this shift, Petronas has outlined a plan as the first state-owned energy company to become net-zero by 2050 with the incorporation of clean energy technologies including CCUS.

The example of China provides an alternative perspective on energy transitions as presented by Mr Kaare Sandholt. China's energy mix will evolve over the next 30 years as it aims to achieve net-neutrality by 2060 and will employ four key strategies. This includes a rapid deployment of solar and wind, facilitating a controlled phase-out of coal, planning for a peak oil demand strategy in the next 10-15 years due to electrification of the transport sector, and incorporation of natural gas applications outside the power sector. Unlike other countries' net-zero strategies, natural gas consumption patterns remain stable into 2050, he said. Mr Sandholt stated there is no contradiction between green energy transitions and reliable, affordable, and secure energy systems and China will continue to rely on the green transition without impacting economic growth.

Special guest Felipe Bayon provided a South American view on the impacts of COVID-19 and the fragile state of the energy sector. Like other speakers, he acknowledged the role of COVID-19 in accelerating the pace of energy transitions. He added that achieving net-neutrality will largely depend on the technology available and the collaboration with government and industry. He outlined Colombia's role as one of the leading countries in terms of energy transition. In terms of Colombia's energy mix, natural gas will remain a fundamental part, but renewables will drastically increase from 0.1 percent to 18 percent as Colombia targets a 51 percent emissions reduction by 2030 and aims to be net-zero by 2050. Mr Bayon also outlined four key pillars making energy transitions possible which include increasing competitiveness to avoid stranded assets, diversifying beyond oil and gas, accelerating decarbonization, and embracing Environmental, Social, Governance considerations (ESG) in concert with technology and innovation.

Following the presentations, the moderator led a discussion with the participants on the role of industry in enabling the energy transitions, the scarcity of water resources that may create a comparative advantage for some markets vis a vis others on green hydrogen production, and how the energy sector can continue to attract investment in an environment where greater scrutiny is being placed on climate action. There was consensus that industry will play a vital role in achieving energy transitions due to technical expertise. At the same time, companies will also need to evolve and adjust to create value for investors in a new risk environment. That "value" now goes beyond a return on investment in dollars and incorporates a more comprehensive approach including sustainable practices and governance activities (ESG). This is exemplified by investors who are incorporating new metrics such as carbon intensity in addition to API and sulfur quantity to determine the sustainability of a particular slate of oil.

## 5. Conclusions

Reflecting on the key outcomes of the 2021 Outlook Symposium, the heads of IEA, IEF and OPEC found that this year's dialogue focused on the most crucial points including the impacts of the COVID-19 pandemic, supply/demand shocks, elevated uncertainty and market volatility, the accelerated pace of transitions, energy investment and trade, and energy futures that are both sustainable and inclusive. The IEA, IEF and OPEC reaffirmed their commitment to further strengthen the dialogue and take it forward in the post-COVID-19 era to enhance learning, achieve consensus, and deepen understanding as the energy market recovers and rebuilds. Going forward, short, medium, and long-term projections from the different organizations with their various scenarios will be even more critical to navigate a shifting and transformational energy landscape. Finally, both organizations expressed their deep appreciation to the IEF for hosting the 11<sup>th</sup> iteration of the Symposium and thanked all the participants who took part and presented their insights.

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