

تحت رعاية صاحب السمو الشيخ محمد بن زايد آل نهيان، رئيس دولة الإمارات العربية المتحدة
Under the Patronage of H.H. Sheikh Mohamed Bin Zayed Al Nahyan, President of the UAE



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Middle East Energy Club



ADIPEC Leadership Roundtable

2023 Output summary

Decarbonising. Faster. Together.

How NOCs can contribute to a lower carbon global energy system

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Defining the global energy future

The ADIPEC Leadership Roundtables play a pivotal role in the ADIPEC Strategic Conference programme. These sessions are held at the prestigious Middle East Energy Club (MEEC) and bring together ministers, top industry executives and policymakers from over 100 countries to engage in meaningful discussions and seek viable solutions to today's most pressing climate and energy challenges.

As part of an exclusive network of dynamic global executives, participants in the ADIPEC Leadership Roundtables are at the forefront of the energy sector, driving change with their insights and solution-oriented outcomes.

These roundtable sessions foster open and impactful conversations among influential decision-makers who are shaping the responsible energy industry's future and implementing innovative business strategies to create a cleaner and more secure energy landscape.

With a limited attendance of 30 delegates per session, each 90-minute roundtable is expertly facilitated by an experienced moderator and hosted by an industry thought leader. This format ensures highly interactive discussions and provides fresh, objective perspectives.

Foreword

National oil companies (NOCs) can, and are, contributing to reducing greenhouse gas emissions while also providing the energy security and affordability that the world needs. There are four key areas driving NOC strategies: the development of advanced technologies; adequate investment across all energy sectors; improvements in operational efficiency; and the ongoing facilitation of industry co-operation.

From harnessing advanced skills to accelerate the implementation of low-emissions solutions and simultaneous investment in upstream and downstream capacity, to flare minimisation and the piloting of cutting-edge carbon removal solutions, we are seeing positive action across the board.

While discussion around the immaturity of certain technologies in the oil and gas sector, and a belief that renewables alone are the only solution to the climate change challenge, persist, we are confident of the contribution and role that the industry will play in reducing greenhouse gas (GHG) emissions.

NOCs should be proud of what has been achieved to date but must remain vigilant and not focus on one aspect of the energy sustainability trilemma while neglecting the others. This will only lead to further market volatility, price shocks and energy shortages.

With the energy availability and capability that oil has provided for decades, an ongoing requirement countries and their respective NOCs must continue to work together to reduce emissions, progress a lower carbon future, and develop an optimised future energy mix.



Hosted by:
His Excellency
Haitham Al Ghais
Secretary General
OPEC



How NOCs can contribute to a lower carbon global energy system

With around 80 per cent of the world's proven oil reserves under the management of the 23 OPEC members, national oil companies (NOCs) have a pivotal role – and responsibility – to play in greenhouse gas (GHG) emissions reduction and the overall energy transition.

The journey to decarbonise operations will require substantial effort to upgrade traditional business models as well as investments in, and deployment of, climate technologies such as carbon capture and storage (CCS), methane emissions reduction and hydrogen supply chains.

Methane emissions, in particular, is becoming an increasingly hot topic with an estimated 40 per cent reduction believed to be achievable at a negative carbon cost, making advancements in this area a critical lever for climate change mitigation.

Significant capital is already being invested by the world's NOCs into technologies and solutions, with an estimated US\$4 trillion committed between 2020-30. Many OPEC members are at the vanguard of change with a growing roster of achievements while others are building capacity to reduce emissions.



Moderated by:

Pattabi Seshadri

Managing Director & Senior Partner; Global Leader, Energy Practice
Boston Consulting Group



Jaime Webster

Partner and Associate Director
Centre for Energy Impact,
Boston Consulting Group



ROUNDTABLE THEMES

The key questions informing the discussion covered:

- What can stakeholders and partners do to devise a sustainable pathway for NOCs to lower their carbon footprints?
- How are NOC business models evolving to achieve lower carbon footprints while operating successfully in a decarbonised economy?
- What could the future from 2050 to 2060 look like for an NOC?

Investment across the energy mix key

A pragmatic approach to reality is critical when addressing energy stability. While wind, solar and, to a certain extent, nuclear, are propelling us to meet climate goals, additional hydrocarbon investment is still needed to offset declines and ensure energy affordability.

The availability of adequate investment across the current energy mix is vital if we are to meet future energy demand; OPEC members and global NOCs are actively demonstrating that it is possible to simultaneously invest in new decarbonisation technologies and hydrocarbons.

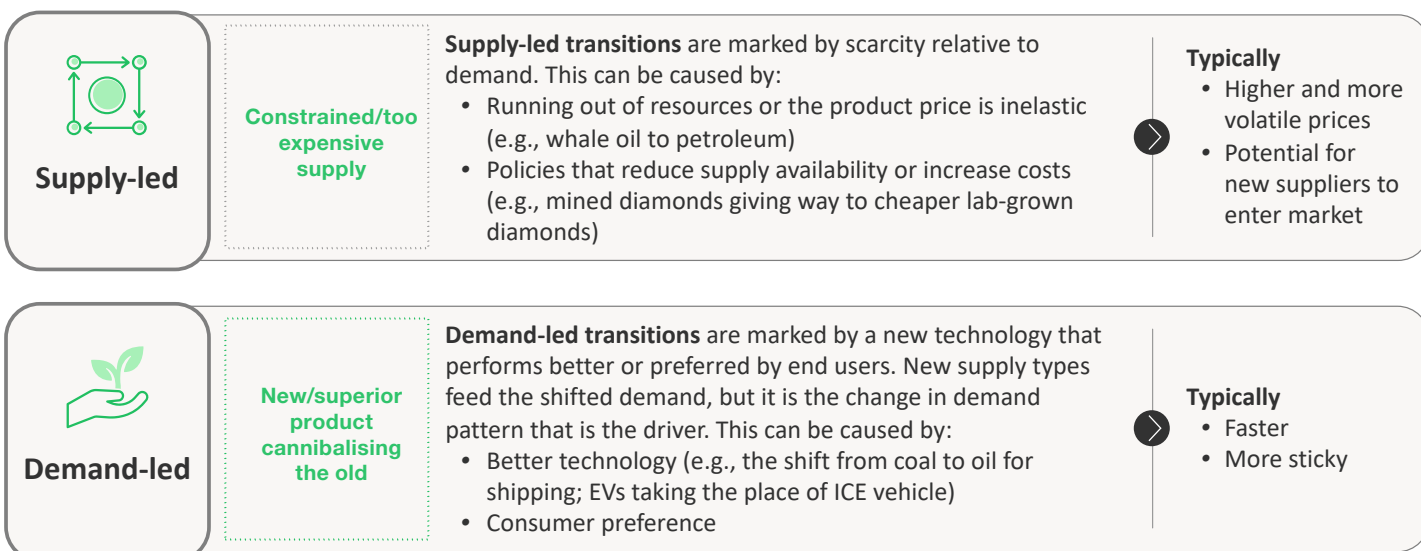
In the UAE, for example, ADNOC has allocated US\$15 billion for carbon intensity reduction programmes, to spur a 25 per cent decrease by 2030, with various projects underway, while planning to expand oil production capacity to five million barrels per day by 2027.

The development of carbon removal technology solutions dominates stakeholder conversations but methane emissions from landfills, agriculture and the oil and gas industry are responsible for around one-third of climate warming. Every molecule of emitted methane is one less molecule of energy that can be put to productive use and the oil and gas industry holds the key to creating and implementing cost-effective operational reduction solutions that will also drive economic opportunity.

This requires significant investment, and the solution sets are not unknown. The industry has a growing capacity to understand emissions origins, supported by a variety of technologies. Deployment is nascent and climate finance can help unlock and enable relevant technologies.



Transitions can be either supply-led or demand-led





Diversified models underpinned by technology

NOCs are working to harness advanced skills and knowledge to implement low-emissions solutions and to mobilise the latest clean technologies, with the aim of scaling up carbon capture utilisation and storage (CCUS), clean hydrogen technologies, direct air capture and carbon dioxide removal, all within the concept of a circular carbon economy.

The pace of technological advancement is gaining momentum. Among Gulf Co-operation Council (GCC) countries, for example, Saudi Aramco granted a total of 966 patents in 2022 while the UAE is piloting cutting-edge carbon removal technology that combines CO₂ removed from the air with seawater and injects it underground, where it becomes rock. The construction of CCUS hubs is also a strategic focus within the region.

Technological implementation and operational efficiency go hand in hand, with NOCs adopting a raft of measures and programmes spanning reservoir management practices, flare minimisation, methane leak reduction, greenhouse gas emissions management, and improvement of transportation and logistics to minimise energy waste and emissions.

These measures are yielding results. Saudi Aramco's crude oil carbon intensity (CI) is ranked among the world's lowest, and it has concrete targets to reduce its upstream CI even further by 2035. Angola, Kuwait and the UAE also rank positively for low CI. As oil demand peaks, selecting those oils with lower carbon intensity can further reduce emissions.

For countries still developing their future energy roadmaps, commercialisation of opportunities is key. For example, Algeria is focused on hydrogen development with a roadmap to pioneer production based on an initial 30-40 terawatt-hours goal by 2040, anchored by a competitive pricing model. Embryonic technologies are also being explored, such as combining captured CO₂ with bacteria and hydrogen to produce ethanol for use in the perfume industry, while nature-based solutions studies are being undertaken to look at ways to make forests productive while delivering on conservation commitments.

Time is of the essence. The rollout of ground-breaking technologies must be accelerated. The clock is also ticking for critical mineral mining, with the International Energy Agency (IEA) reporting a required quadrupling of minerals to maintain a timely transition.



Co-operation, collaboration and communication

The energy transition is multifaceted, involving political, climate, population and domestic economic transition phases that converge to create incredibly complex and bespoke scenarios. Under the current geopolitical circumstances with tensions in supply chain, trade relationships, etc., there is clear fragmentation and regionalisation happening, yet the decarbonisation opportunity remains attractive thanks to the energy security rationale.

NOCs, international oil companies (IOCs), and countries need to continue to collaborate on the common goal of ensuring stability across the global energy system and making progress on achieving a lower carbon future. Worldwide energy availability, which was historically fuelled by oil, will only continue to accelerate as we tackle the energy sustainability trilemma.

Facilitating the exchange of best practices and a ramping up of co-operation between NOCs, IOCs and various partners involves ensuring that everyone is gathered around the table. This extends beyond the boardroom or high-level conference tables and into everyday operations. There is an opportunity, for example, to bring industry partners into the field to see pilot programmes in action and some NOCs and IOCs are already doing this.

Communication, similarly needs to take into account communities and consumers. One area that requires particularly delicate handling is managing public support for climate action and energy transition policies that will require behavioural change and consumer purse. If the public start to equate high energy prices with the energy transition, we risk derailing climate policy strategy.

No net-zero without the Global South

The continent of Africa requires singular attention and a differentiated approach, with national development plans largely focused on utilising oil and gas resources to propel industrialisation. The macroeconomic benefit metrics are clear when considering balance of payments, national capital formation, net fiscal impact and jobs. This places NOCs in a unique position.

In a region where 600 million people have no access to electricity, striking a balance between delivering much needed energy and mitigating climate change presents an immense challenge. Addressing dependence on biomass, for example, is a clear priority and is also critical in supporting reforestation ambition.

African countries are, however, already taking steps to effect positive change by targeting 'low-hanging fruit'. In Uganda, for example, the government has enacted zero methane flaring legislation while Nigeria reports a 95 per cent reduction in flaring and the creation of a commercial LNG opportunity. Angola was also a pioneer in this area, with its LNG exports now reaching as far as Europe.

The implementation of a broader range of game-changing technologies is nascent and requires collaboration with international companies to bring scalable technologies to the table. NOCs are also the direct conduit to local communities at project level and play a central role in inculcating a mindset shift for citizens for whom CCUS, for example, may mean little. High-level dialogue between nations is equally critical with the recent establishment of the Alliance for Climate Resilience, a calculated move to engage all stakeholders, beyond the oil and gas industry circle.



ROUNDTABLE TAKEAWAYS

- NOC strategies must encompass development of advanced technologies, adequate investment across all energy sectors, improvements in operational efficiency, and facilitating industry co-operation.
- Simultaneous investment into decarbonisation technologies and hydrocarbons is characterising the diversified business model but NOCs need to evaluate their energy basket.
- The pace of technological advancement is gaining momentum; however, the scalability of nascent technologies is being called into question.
- NOCs, international oil companies, and countries must ramp up collaboration as they work towards ensuring global energy system stability and decarbonisation goals. In tandem, clear communication with local communities and citizens is critical to the success of climate policies and programmes.
- Africa and the broader Global South requires a differentiated approach that takes into account industrialisation goals and addressing the basic energy needs of an underserved population.



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