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ENERGY TRANSITION DIALOGUES

INTELLIGENCE BRIEFING

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UAE: LEADING THE H2 RACE? ACHIEVING A JUST ET? COP26 & INVESTMENTS THIS WEEK'S EVENTS

HYDROGEN

UAE'S ROLE IN THE GLOBAL HYDROGEN ECONOMY?

The UAE has extraordinary natural resources and assets. This does not just mean renewable resources to produce green hydrogen, but also CO₂ storage capacity to produce blue hydrogen. The country also has broader assets, such as ports, human capital, and a solid regulatory structure. All of these make it much more likely for the country to produce, ship, and sell large volumes of low carbon hydrogen products in a short amount of time.

Path to net zero

The UAE's net zero pledge was extremely important and ground-breaking. It was the first Middle Eastern country to do so and the first major non-OECD oil and gas exporter – a vote of confidence across the whole decarbonization spectrum. Reaching this goal requires a massive expansion of nuclear power and renewable sources. Efforts are already underway, including improvements in energy efficiency and industrial efficiency, electric vehicles, and carbon capture and storage (CCS). Hydrogen is very key to that mix. Firstly, it plays a role in decarbonizing the domestic economy. There are large industries in the UAE – particularly petrochemicals, fertilizers,

Robin Mills, CEO, Qamar Energy



Dr. Julio Friedmann, Senior Research Scholar,
The Center on Global Energy Policy at Columbia University SIPA

refining, and steel – that could benefit from using hydrogen. And secondly, as a major oil and gas exporter, developing a hydrogen economy will mean that the UAE will have a strong economic future – even in a world moving towards net zero.

Blue vs green?

Whether it is green or blue hydrogen, the most important thing is to focus on the lifecycle of carbon emissions. The footprint is the factor that determines whether the fuel is “clean” or not. If green hydrogen is produced using grid electricity, it would emit quite a lot of greenhouse gas (GHG) emissions. For blue hydrogen, there are concerns about upstream methane emissions and whether there is upstream leakage and flaring. In both cases, the UAE

is extremely well-positioned to manage the emissions. Why? Because the nature of its infrastructure means very low leakage. This means blue hydrogen could be produced with a very low emissions footprint. People may have concerns about the nature of blue hydrogen. But if we stay determined about the need to keep the lifecycle footprint low, then it should be able to compete with green hydrogen. Green hydrogen costs are substantially more expensive than blue hydrogen nearly everywhere on the globe, though this will eventually change. Today, we are having a hard time scaling up green hydrogen, but we can scale up blue hydrogen very quickly at scale by retrofitting existing plants or by building new plants.

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\$80-\$100BN

could be generated in annual export revenues in an aggressive scenario where GCC countries will dedicate 700-1,000 GW of RE capacity, powering 250-500 GW of electrolysis, potentially producing 80-100 Mt/Year of hydrogen by 2050.¹

50 MT

of hydrogen and derivatives could be supplied by GCC countries to European and East Asian markets by 2050 – equivalent to 30% of Europe and East Asia's market in this scenario.²

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Sources: "UAE's Role in the Global Hydrogen Economy" Report

COP26: A JUST TRANSITION IS CRUCIAL FOR EFFECTIVE CLIMATE ACTION

Peter Godfrey, Managing Director – APAC, Energy Institute

A just transition is crucial for effective climate action: this is key to remember at COP26. We must establish rules of the game for the way developed, underdeveloped, or developing countries tackle the energy transition.

Another piece in the climate action puzzle that needs attention is a globally agreed price on carbon. Only then can we start putting the regulatory and pricing frameworks into place, with these market signals then allowing us to create the pace and scale that is needed in the transition. Success when it comes to scale very much depends on richer nations putting mechanisms in place to allow poorer nations to achieve a relatively level playing field.

Rethinking circularity

If we continue to use our extractive resources the way we do now, we will need nearly double the amount we use by 2050. Therefore, a regenerative model is essential. When it comes to taking action to support a circular economy, firms tend to only think about their own business model. The holistic approach within the whole value chain is still missing when it comes to creating a circular economy. For example, the upstream oil and gas business must take more responsibility for downstream – and vice versa.



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TOP TAKEAWAYS

- A just energy transition is crucial. We need rules of the game so developed, underdeveloped, or developing countries can take action.
- There must be a global consensus on carbon pricing. Only then can we start putting regulatory frameworks, pricing frameworks, and market signals in place - all of which supports a just transition.
- A holistic approach within the whole value chain is still missing in plans to create a circular economy. For example, upstream oil and gas must take more responsibility for downstream - and vice versa.

TOP 5 NEWS STORIES

- ADNOC to Tap into RE for Electricity Generation
- KSA Outlines Plans Under Mideast Green Initiative
- UN Sounds Alarm on Missing Climate Pledges
- ADQ Launches New ESG Policy
- KSA to Use \$110bn Gas Project for Blue H2

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PODCAST THIS WEEK

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COP26: A STEP CHANGE IN CLIMATE ACTION & INVESTMENTS?



Tim Buckley
Director of Energy Finance Studies – Australia & South Asia, IEEFA

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The amount of electrolyzer capacity for green hydrogen production will grow by 50-fold in a couple of years.

Plus, the deflation we have seen in solar energy, we are also now seeing in batteries and electric vehicles (EVs). For one, look at India's massive renewable energy push and the wall of capital that is coming. I expect the country to triple its investment in the next two years. Looking ahead, coal or oil companies can make good money right now. But buyers – like India and China – must deal with rampant inflation. The best protection against that is domestic investment in renewable infrastructure.

Unstoppable momentum

A sea of climate pledges are being made worldwide, which will be a gamechanger if fully implemented. I also believe that COP26 will be a catalyst for climate action. Right now, there are talks in the US about placing a \$1,500/ton fee on methane emissions. That would be a wonderful initiative with a reforming effect on the global oil and gas industry. Furthermore, the UN Global Financial Net Zero Alliance now exceeds \$100trn of pledged capital to support 1.5 degrees, with 2030 interim targets. One takeaway to note is to not bet against \$100trn!

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Sebastian Foot
Founding Partner, Bloom Sustainable Advisors



Investors detest uncertainty. They need clear signals to predictability and enable them to invest.

I hope that COP26 achieves greater alignment between the major parties on how to move forward, which in turn helps investors. There is still a little hangover from the Kyoto Protocol. The ambition of the clean development mechanism (CDM) and joint implementation leads us down the path of a potential global carbon price, or at least indirect linking of markets through some sort of fungible instrument that is recognized at the UN level. The policy work that must go into creating a global carbon price is going to rumble on for some time. However, what is different this time is that there are so many regional schemes emerging. We used to

talk about carbon credits, or allowances, or offsets. Now, we are going to enter the decade of carbon accounting. If a corporate is willing to pay \$20-\$50/ton for offsets, they should consider that to be their internal carbon price and that should then be used as a lever to drive internal innovation.

The issue of greenwashing

In the context of higher inflation and higher energy prices worldwide, the argument around whether efforts are actually greenwashing is not the most important point right now. Let us talk about energy resilience. Let us recognize the value of long-term clean energy as an asset on our balance sheet and a way of mitigating volatility.



Iain Munro
Strategy Director, Ryse Energy

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Electrifying the unelectrified is a big outcome I would like to see emerge from COP26.

Approximately \$200bn is needed to achieve greater electrification. Energy access for those is going to be critical. There are still 1bn people without access to either electricity or reliable electricity on the planet – we must address that. The displacement of diesel and moving towards clean energies is one of the most important pieces of that puzzle.

Small steps, big outcomes

It is becoming easier and easier for countries and companies to decarbonize. There has always been a battle about technology deployment. With utility suppliers or self-generation, it is very easy now to go green. And it does not necessarily need massive investments. Set a sustainability strategy and a roadmap towards achieving your ESG targets – those are already two big steps.

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SURVEY RESULTS

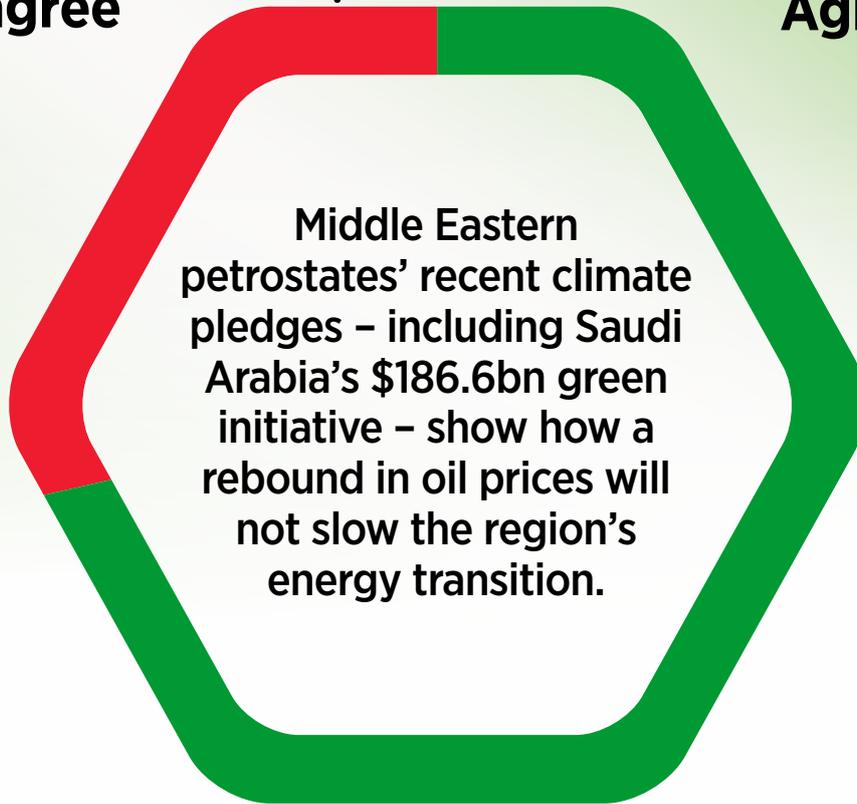
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29%

Disagree

71%

Agree



31 OCT - 12 NOV 2021

GLASGOW

COP26

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INSIGHTS INTO INDIA

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How the US Can Help Itself by Helping India. *The Divide Between Developed and Developing Nations Shouldn't Be Undermining Climate Talks.*



Bill Spindle

Council on Foreign Relations, International Affairs Fellow, India

Days before delegates gather for the most important global climate conference ever, countries are cleaving along familiar lines: the developed world versus the developing.

We've seen this before, the rich-poor divide has been a bugbear of climate conferences from the beginning. It has torpedoed multiple agreements. Transcending it was key the successful Paris conference of 2015.

Indian officials thrust the divide onto center stage last week by highlighting, yet again and quite correctly, that the developed world has failed to make good on promises to deliver \$100bn in climate funds for developing countries annually by last year. A senior official in the environmental ministry went as far as calling the funds, aimed at transferring clean energy technology and adapting to

climate change, reparations for damage caused by past emissions. African officials have said allocations from developed countries will need to reach \$1.3trn by 2030.

Fair enough. The United States, which indeed is responsible for more of greenhouse gas emissions currently in the atmosphere than any other country, has made things worse by offering only meagre funds, despite the shortfall and the past promises. And the Biden administration has watched what was supposed to be its signature climate offering at the conference unravel on the eve of the conference. Developed countries admitted this week that they won't crack the \$100 billion threshold until 2023, but vowed to spend enough beyond that amount through 2025 that the average between 2020-2025 will exceed \$100bn.

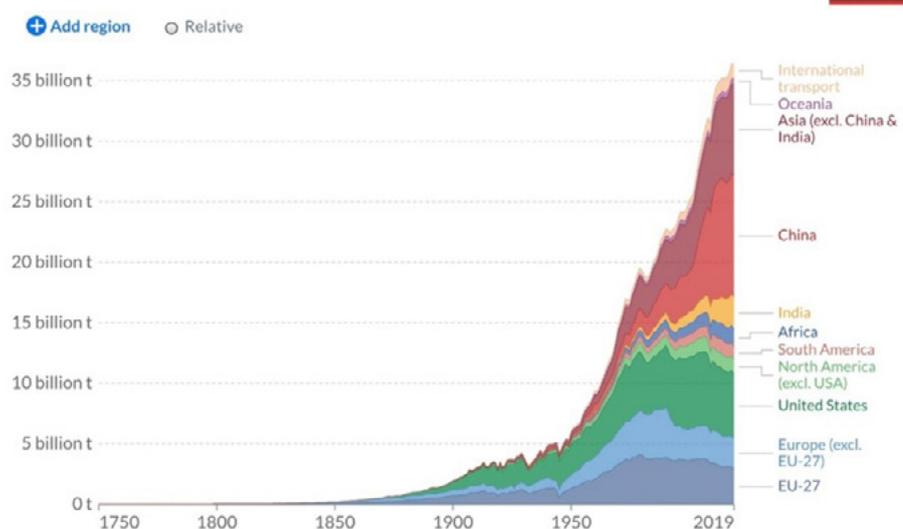
More promises.

All this is a shame, since the logic underlying this long-running dispute has been turned on its head in the time countries have been arguing about it. One change has been well noted: the rise of China and, to a lesser extent India, into the ranks of massive emitters themselves. China is now the biggest emitter by far (28% of the global total), with India coming in third (7%), although both post far lower levels per person due to their large populations. As a country, the U.S., the biggest emitter at the first conference, now falls between the two at 15%, with just over double India's share and half China's. America's per capita emissions still beat both. Yet a far more important change is less remarked on: falling renewable energy costs have made some renewables cheaper than any fossil fuel in many places, rendering the us-versus-them, zero-sum dynamic nonsensical. Or at least far less sensical, trending strongly in the direction of nonsense.

When renewable investments actually save money relative to fossil fuels, developed countries and rich investors can make money funneling investments into places like India. Meanwhile, those same investments save money for Indians, not to mention create cleaner air and an improved balance of payments as coal and oil imports fall.

Working together is profitable for both the developed and the developing world. Paying for renewable energy is not a zero-sum game anymore. And of course, emissions get reduced in the process — the main win-win.

Annual total CO₂ emissions, by world region



Source: Global Carbon Project
Note: This measures CO₂ emissions from fossil fuels and cement production only – land use change is not included. 'Statistical differences' (included in the GCP dataset) are not included here.

OurWorldInData.org/co2-and-other-greenhouse-gas-emissions • CC BY

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THIS WEEK'S EVENTS

ENERGY TRANSITION DIALOGUES Consultancy Intelligence Publishing

TWO MINUTE WARNING INTERVIEW SERIES

Tuesday /// Nov. 2nd /// 12:00 (UAE)

Noé van Hulst

Special Advisor – Hydrogen, IEA
Chair, IPHE



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HYDROGEN FULL COURT PRESS

Manuel Kuehn

Head of New Energy for Middle East and Africa
Siemens Energy

Wednesday /// Nov. 3rd /// 11:00 (UAE)



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