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ENERGY TRANSITION DIALOGUES

INTELLIGENCE BRIEFING

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SCROLL DOWN!

UPTAKE OF CIRCULARITY IS NOT AT A PACE WHERE IT NEEDS TO BE

Shelly Trench, Partner and Managing Director, The Boston Consulting Group (BCG)

Currently, the uptake of a circular economy is not at the pace that it needs to be. The reality is that only 9% of our economy globally is circular. That means that we are very much in a take, make, waste type of economy and need to push out of that.

We need to remember that a circular economy is different from decarbonization where you look at one resource or one emission. With a circular economy, we look at all the resources and waste streams across the company. It is not an easy task.

The challenges?

First, they do not know the starting point and have not invested enough to map that. Secondly, there is no mechanism or standard in place as yet for them to define what is good or poor performance on circularity overall. And the third point is that there are all of these resource and climate strategies being developed by different business units, but not fully integrated. Circularity is the smart way of being. It must be embedded into every business plan, target, and process that firms are designing.

GCC's net zero future?

The fact that the GCC is an oil-producing region that is heavily dependent on the energy sector does not preclude it from reaching net zero targets. One of the reasons why the region has not yet gone public with net zero ambitions is because they are still charting their path. It is going to be difficult and it is going to require investments. We need to think through the marriage between the investments and the costs that are needed, the very aggressive economic growth ambitions that we have, and the business opportunities that will come out of this economy overall.

FULL INTERVIEW HERE

TOP TAKEAWAYS

- **Circularity is the smart way of being. It must be embedded into every business plan, target, and process that firms are designing.**
- **Energy producers are investing in their downstream portfolio in the pursuit of circularity. It allows them to gain more control over the use/ reuse of materials as feedstock.**
- **The fact that the GCC is heavily dependent on its energy sector does not preclude it from reaching net zero goals.**

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HYDROGEN MOVING FROM HYPE TO REALITY

Andrew Clennett, Chief Executive Officer, Hiringa Energy

To overcome the challenges of establishing a hydrogen economy, finding locations that have a potential need for hydrogen is a good start. The emerging hydrogen hubs would greatly reduce the costs associated with the value chains.

As a proportion of the total cost of the value chain, the shipping of hydrogen is not going to be prohibitive, but it needs to be at scale. For this to work, we need to unlock technologies that are in the very early stages, consequently taking much longer to be achieved.

Overcoming analysis paralysis

We need to move beyond the hype and towards execution. We need to find applications of hydrogen that can work early and at scale. In other words, those that do not need many stars to align. We need to get partners to connect and create that commercial pathway. One key area of focus is heavy transport because the volumes you can create with a few vehicles are high. To put this into perspective, ten trucks are equivalent to fifteen hundred cars. If we can create this at scale, we have a commercial model in hand.

The path forward?

More and more companies are committing aggressive targets to their climate commitments. Considering the growing emissions targets set globally, there are only a handful of pathways for them to be achieved – alternative fuels like hydrogen being one. The finance sector has a huge role to play, and hydrogen is garnering a lot more interest than the conventional sector now. Another notable development is that there is a great deal of upskilling coming through from the finance sector. They are learning more and more about hydrogen – and rapidly.

TOP 5 NEWS STORIES

- Oman Sets Up Hydrogen Alliance
- OMV to Present Sustainability-Focused Strategy in 2022
- Gazprom Eyes Blue Hydrogen Production
- HSBC KSA Launches 1st Climate Fund
- Engine No. 1 Takes Climate Fight to Other Oil Majors

131
large-scale projects have been announced globally since February 2021, taking the total to 359 projects.[1]

$500BN
is the estimated total of hydrogen investments into projects and along the whole value chain through to 2030.[2]

30%
of the total investments are considered "mature". This means the investment is either in a planning stage, has passed a final investment decision, or is associated with a project that is already under construction, commissioned, or currently operational.[3]

1/2/3Hydrogen Council, McKinsey & Company

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PODCAST THIS WEEK

GI Consultancy Intelligence Publishing

HYDROGEN: SEIZING INVESTMENT OPPORTUNITIES

Dr. Steve Griffiths
Senior Vice President – Research and Development, Khalifa University

FULL PODCAST HERE

With green hydrogen, we must think about how to build supply and demand in parallel.

I am a fan of blue hydrogen to the extent of getting the hydrogen economy going, but we need to balance that with the green initiatives. Oil and gas companies need to find a way to monetize their hydrocarbon facilities in a global economy that is much more focused on sustainability. When we are making the argument for blue hydrogen, we need to be very careful about how we can mitigate the emissions from the natural gas supply chain. The best practice we see today is that some companies are able to get their total emissions from methane down to less than 1% of total production – the industry average is currently at 1.5%. If oil majors can put their entire supply chain of natural gas and methane and try to mitigate those emissions, we can make a credible argument for wanting to be a player in the energy transition through action.

Hydrogen valleys

The next step for the Middle East region is to make the local industry competitive and create a hydrogen cluster in the country. In the UAE, there are hard-to-abate industries that need to decarbonize and hydrogen is a solution. We need to look at our local industries and try to make them competitive. This is especially important with the upcoming carbon border adjustments in the EU. A next step is to look into producing green and blue hydrogen through the local cluster valley. That is how it is happening globally. It is valleys and clusters that are building up, not international exports.

FULL PODCAST HERE

Dr. Joaquin Narro
Managing Director, Alcazar Investment

Gas prices in Europe have rallied to record highs. We have not seen such high prices even in extreme events since 2005. This has deep implications for the oil majors that are pursuing the blue hydrogen route.

One point to note is how are these high gas prices going to feed through to the cost of blue hydrogen as we go forward? We are accustomed to saying that blue hydrogen is a cheaper option than green hydrogen because we have cheaper gas, but at current prices, it might not necessarily be the case. In the current environment, it is vital for oil and gas companies to monitor and map the prices of blue hydrogen, as well as garner financial support.

Market forces

Moving forward, we might see a naturally occurring competition between green and blue hydrogen through the market forces of supply and demand. This is a more organic way of developing the market compared to other interventions and government involvement.

$15TRN is the investment required from now to 2050 to decarbonize energy and other industries with hydrogen, as estimated by the Energy Transitions Commission.

Thomas Engelmann,
Head of Energy Transition, KGAL Investment Management

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We are on the edge of a complete transformation – one that requires us to rethink our industries.

For example, the steel industry has never used hydrogen. The cement industry is the same. These hard-to-decarbonize industries are the key to unlocking a major hydrogen economy. Moving forward, we need a certain kind of stimulation in the early stages – this is where subsidies come into play. But we do not want to stick with subsidies for long because it is simply not sustainable. We need to bring green hydrogen to a whole new status and, in the interim, we need the support of subsidies within a specified timeframe.

6% of global hydrogen was by produced natural gas, and 2% by coal – contributing to 830mn tons of CO_2, as estimated by the International Energy Agency (IEA) in 2019.

INSIGHTS INTO INDIA

Our 9/11 Journey, Our Climate Commitment...

GI Consultancy Intelligence Publishing

Bill Spindle
Council on Foreign Relations, International Affairs Fellow, India

The attacks defined an era that lasted two decades. As we enter a new era shaped by climate change and energy transition, it's not clear we've learned the right lessons.

Climate change did not cause 9/11, create the political conditions that sparked the Arab Spring uprisings, or spur ISIS to establish its murderous "caliphate." But increasingly, it was helping spread that chaos, deepening those conflicts, complicating and undermining any sort of remediation and reconciliation.

Rising food prices — the result of poor global crop yields due in part to climate change — played a significant role in the unrest in North Africa that erupted into the Arab Spring. When that ignited a civil war in Syria over the next few months, I remembered visiting suburbs around Damascus years earlier. Makeshift shanty towns had sprouted on the edge of the city filled with migrants from the country's north, where a years-long drought had wiped out agricultural communities. These were the same suburbs rising up — ultimately eliciting a brutal response by the regime of Bashar Assad that included chemical weapons. President Obama, tormented, in the end decided against an American intervention in response.

"The rivalry between India and Pakistan — sworn enemies in an ever sharper competition for dwindling waterways sustaining hundreds of millions of people — is among the most worrisome tinder boxes."

Likewise, climate change will increasingly exacerbate hot spots like Afghanistan, Iraq, Iran, Syria, and Yemen, as well as North Korea, Africa, the Arctic, and even India. Indeed, the rivalry between India and Pakistan — sworn enemies in an ever sharper competition for dwindling waterways sustaining hundreds of millions of people — is among the most worrisome tinder boxes.

And the world will ponder how to respond. Some activity will be among terrorists targeting the US, much of it will be aimed at creating mayhem much closer. But increasingly climate changes will feed conflict and chaos. Worsening droughts leading to more crop failures and water shortages, heat waves killing workers and cutting into economic productivity, storms and rising seas wiping out communities. Waning economic opportunities will push youth, particularly young men, into armed groups, further inflaming the violence. Refugees will roil the social fabric elsewhere, both across borders and within countries. These crises will have to be addressed each and of themselves for moral as well as national security reasons. Yet if we only treat the symptoms of climate change as they pile up one upon the next, we'll soon be overwhelmed.

IN FIGURES

According to the International Committee of the Red Cross, 200mn people may need international humanitarian aid annually by 2050, double the number now. Some $20bn in funds annually may be needed by 2030, seven times more than this year's record $2.6bn funding request from the organization (which is in turn double what the group needed in 2012). Already, armed conflict wracks a dozen of the 20 countries most vulnerable to climate change. Fourteen of 34 countries with a food crisis in 2018 suffered the double-burden of armed conflict and climate shock. More than half the world's population will live in a drought-prone region by 2050. A study last year argued that more intense and longer lasting heat waves will cause many more deaths in poor cities than rich ones — a conclusion no less threatening to world stability for being obvious.

FULL ARTICLE HERE

SNAPSHOT

BIG OIL'S NEW IDENTITY

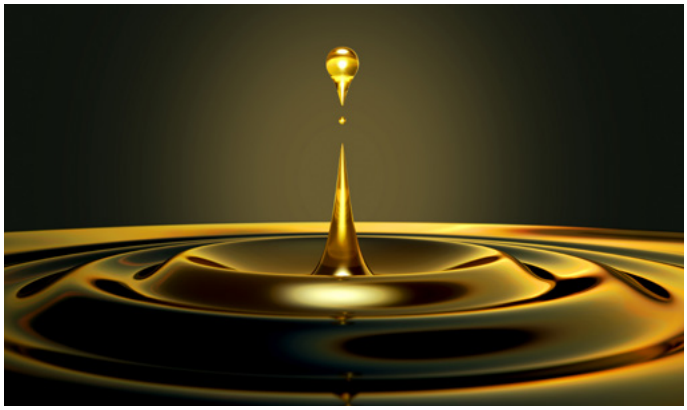
Big Oil is one of the Top 5 Themes of the Energy Transition that we delve into every day as part of GI's Energy Transition Dialogues. We also host weekly events with the world's leading voices on how black gold can quickly, profitably, and sustainability be influential in a low carbon future.

Black gold's gameplan is being rewritten by the global push for a lower carbon future – but it is still far from a "sunset" industry. Oil markets will remain integral to world's energy security by mid-century least. Environmental agendas and talk of near-term peak oil, plus the temporary demand destruction amid the Covid-19 pandemic, are undoubtedly impacting oil's status quo. But oil firms' proactivity shows they are keen to be seen as a new and knowledgeable ally in the world's emerging energy order – and that includes the Middle East, the historical epicentre of fossil fuels.

New gameplans

Saudi Arabia, the world's biggest oil exporter, wants to attract more than $20bn investment in renewables over by 2030 [1] and the Kingdom used its G20 Presidency last year to promote the values of a circular economy. It also wants to establish a world-leading blue and green hydrogen export market by the 2030s.[2] In the UAE, ADNOC plans to reduce its already low carbon intensity by a further 25% by 2030,[3] while Qatar Petroleum (QP) wants to cut the emissions intensity of the country's LNG facilities by 25% and its upstream facilities by at least 15% – notable progress from one of the world's largest LNG exporters. QP also intends to reduce the flare intensity across its upstream facilities by more than 75%.[4]

Along with making significant investments in alternative fuels, Gulf Cooperation Council (GCC) countries have also begun to sell energy assets. Aramco sold 49% of its pipeline network to a US-led consortium



in a recent $12.4bn deal,5 while ADNOC raised $10bn by selling gas pipeline leasing rights.6 Such moves help energy giants' transition while avoiding large debt bundles – a smart move for those able to do it. Oil majors also have a major opportunity to deploy their decades of engineering excellence and innovation to support the overall transition to a low carbon future, including emerging renewable markets. Having forged new and world-leading ground for more than a century, oil players' value far exceeds actual oil.

Sources:
1 S&P Global Platts; 2 Government of Saudi Arabia; 3 ADNOC; 4 Qatar Petroleum; International Finance; 5 Saudi Aramco; 6 ADNOC

KEY INSIGHTS Views shared on our exclusive weekly events platform.

"IOCs are making renewables a bigger part of their portfolios, compared to NOCs. But the nationals have a great role to play in other low carbon solutions – like CCS and hydrogen."
Robin Mills, CEO, Qamar Energy

"If you are a NOC in the Middle East with ambitions to partially privatize or publicly list, you now must consider the climate in your calculus. Everybody will have to get on the same page one way or another."
Faris Al Kharusi, Principle Business Transformation Lead, Petroleum Development Oman (PDO)

2040
is when OPEC expects the world's demand for crude oil to peak. Other leading energy stakeholders expect it to be within a decade.

34%
reduction in capex last year was recorded for oil and gas companies, amid intensifying market pressures. This is slightly more than the initial 28% reduction following plummeting oil prices in 2014, BCG detailed.

50%
of the UAE's energy will come from clean sources by 2050, according to the OPEC member's Energy Strategy 2050 – up from less than 2% in 2018.

$6.9trn
of investments per year over 15 years are required in clean energy infrastructure to keep the global temperature rise under 2ºC, said the OECD.

WE ASK HOW CAN BIG OIL BE AN INFLUENTIAL AND PROFITABLE PLAYER IN A LOW CARBON FUTURE?

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THIS WEEK'S EVENTS

ENERGY TRANSITION DIALOGUES

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TWO MINUTE WARNING
INTERVIEW SERIES

Tuesday /// Sept. 14th /// 12:00 (UAE)

Frank Wouters
Senior Vice President - Energy Transition
Reliance Industries

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ENERGY TRANSITION DIALOGUES

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H_2 HYDROGEN
FULL COURT PRESS

Dr. Arunabha Ghosh
Climate Expert & CEO
CEEW

Wednesday /// Sept. 15th /// 11:00 (UAE)

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ENERGY TRANSITION DIALOGUES

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PODCAST WEDNESDAY /// SEPT 15th /// 13:00 (UAE)

Katarina Uherova Hasbani
Founder & Managing Director
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Aditya Shah
Head of Circular Economy Investments
Creek Capital

Dr. Rachel A. Meidl
Fellow in Energy and Environment
Center for Energy Studies
Baker Institute for Public Policy

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Director
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