

# Energy Transition



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# INTELLIGENCE BRIEFING

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**OP-EDS: RENEWABLES    FOSSIL FUEL INVESTMENTS    US POLICY**

***“Solar Demand Globally Increased 50% in 2022 Compared to 1% Growth Rate we are Accustomed to Seeing in Oil Markets!”***

**Rob Barnett**  
EMEA Team Lead for Energy  
& Commodity Research  
Bloomberg Intelligence

Wind and solar don't compete with oil in the liquids market but in gas markets, particularly in Europe these days, they are more viable. At the start of the Ukraine crisis last year, we projected that Europe could fully get off Russian gas in four years by going full throttle on renewables. They did it in about 12 months, albeit aided by factors like mild weather and a big cratering of industrial gas demand. We also had gas to coal switching and US LNG supply. Renewables are the fastest growing segment of the energy space.

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## *“It’s very hard to have an Energy Transition if you ignore energy security goals.”*

Rob Barnett, EMEA Team Lead for Energy & Commodity Research  
Bloomberg Intelligence



### **Will Europe abandon its Energy Transition for energy security?**

It’s very hard to have an Energy Transition if you ignore energy security goals. It was very prudent for example in the case of Germany, to bring some of their coal plants back online last year - these decisions were quite practical. But I think all governments and most stakeholders are continuing full steam ahead on everything Energy Transition related.

### **Does China, or the Ukraine war hold greater weight today on energy markets?**

China’s reopening will be the big differential but there are other factors, such as whether a recession will happen and how deep or long it will be. The value of the dollar is also critical and how US policy decisions feed into that.

### **Is Europe’s renewables agenda vulnerable to its reliance on Chinese materials?**

Once you’ve got the equipment installed, there’s less concern, but about 80% of the solar supply chain globally is in China. We saw the US take some significant action this past year to help try to manage that risk. The Inflation Reduction Act is basically a clean energy bill, and the US wants to push manufacturing domestically. Europe is probably going to take a very serious look at that question because if it doesn’t change the incentive structure, it risks the manufacturing happening in China or perhaps the US. The wind supply chain isn’t nearly as concentrated in China however, with companies like Vestas, Siemens, Gamesa and Nordex quite actively making turbines in Europe.

*\*Paraphrased Comments*

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**James McCallum**  
CEO & Chairman, Xergy Group  
Professor of Energy, Strathclyde University

## How will the Arm Wrestle Between Energy Security & Energy Transition Playout in 2023?

Today, every conversation in the industry swings towards the energy transition versus the security of supply. It is undoubtedly the energy issue of our time. The premise is for the oil and gas industry to be thought-leading in the energy transition. But we have lost a huge amount of trust from the public by not communicating strategies. In some cases, major oil and gas companies had held back from investing in energy transition when they knew the issues coming towards carbon emissions. This year, there will be an enormous thought around energy efficiency and the decarbonization of conventional resources – not simply hydrocarbons versus renewable energies.

## Lack of investments in oil and gas infrastructure

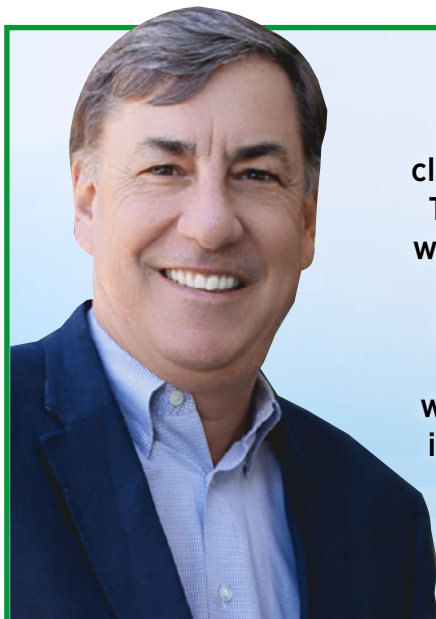
There is no denying that investments by super majors into traditional infrastructure have not been happening in recent times. There have been changes on the boards of the super major oil and gas companies as they try to figure out the landscape of the energy diversification agenda versus the continued supply of fossil fuels. But the reality is that money has been flowing into the oil and gas industry – we should not forget that. The super majors recorded extraordinary profits over the course of last year because of the Russia-Ukraine conflict. What was different last year was that the capital has not flown into infrastructure investments yet – instead, it is going back to shareholder dividends for the super majors.

## Which technological advancements could make a significant breakthrough in 2023?

The offshore environment of the United Kingdom Continental Shelf and the Norwegian Continental Shelf are good places to look at the potential of technological advancements in 2023. There are mature basins with reservoirs that are suitable for CCUS activity. This year, floating offshore wind is likely to play a part in the electrification of existing mature assets, and offshore wind will be a crucial component in the move toward renewable energy. We will also continue to see research moving into hydrogen. But this will not happen without enormous challenges, as 2023 will be a transitional year.

*\*Paraphrased Comments*

## WEEKLY SOUNDING



### US POLICY

“The Inflation Reduction Act (IRA) aims to invest \$369 billion in climate spending and energy security – that is a remarkable number. The government will tell us where they want the money to go. But where does that money come from? And is the money spent wisely? The money will either be printed money, which is inflationary, or tax money, which is recessionary. So, we need to think about the people at the low end of the totem pole and how these policies will affect them. The difficulty that we face is that the IRA might be inflationary, and the issues are going to come up years from now.”

**Richard Redoglia**  
CEO, Matrix Global Holdings

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# Where do fossil fuels fit in?



**Bill Spindle**

Former Council on Foreign Relations International Affairs  
Fellow in India

January is the season for predictions — which, if 2022 taught us anything, have proved vexingly difficult to get right. Nothing, perhaps, is as vexing as answering one of the biggest questions hanging over the world's response to climate change: Where do fossil fuels fit in?

**T**he burning of ancient, fossilized matter is critical to our immediate welfare — but the greenhouse gasses we produce using them are the greatest threat to our future. We're dependent on them, maybe addicted. Is there a viable path between the economic ruin of going cold turkey and the ecological catastrophe we court by not tapering down much faster?

There may be. The argument goes as follows: pare fossil fuel use to a nub so small that the remaining greenhouse gas emissions can be captured at the source or their warming impact negated by removing greenhouse gasses elsewhere in the atmosphere. At the same time, while conducting the overhaul of our way of life this will entail, we have to contain the economic disruption enough to avoid a massive political and social backlash, boost energy use in developing countries and, not least, keep the money flowing for the transition to a decarbonized world.

As if on cue, the United Arab Emirates, host of the world's most important global climate summit later this year, has ushered to center stage its candidate to manage this global debate.

Meet Sultan Al Jaber, a 49-year-old, U.S.- and UK-educated wunderkind of Abu Dhabi, the largest, richest, and most powerful of the clan-based emirates that make up the country. The UAE is hosting November's United Nations gathering, the 28th Conference of the Parties, better known as COP28. Al Jaber, a go-to problem solver for the country's leader, Mohammed bin Zayed, will preside over COP28 as president.



Dubai Expo, which will also be the site for COP28 in November.

What makes Al Jaber controversial is that he heads the largest fossil fuel producer in the world, the Abu Dhabi National Oil Company (ADNOC). What makes him unique is he also helps one of the world's biggest renewable energy investors, Abu Dhabi's Masdar Clean Energy.

As ADNOC's senior executive, Al Jaber oversees one of the world's biggest expansions of fossil fuel production — the UAE's plan to grow oil output by about 40% to 5 million barrels by 2027. As head of COP28, he'll coordinate a global effort to keep global warming as close to 1.5 degrees Celsius as possible, the level at which scientists say the world might avoid the worst environmental fallout. Many climate

experts, along with the International Energy Agency, say meeting that target means capping global fossil fuel production at existing levels.

Some of this tension can be reconciled, believe it or not. For as long as the world needs oil and gas — which will be a long time even under the most ambitious transition scenarios — it makes sense to get it from the most efficient, least greenhouse gas emitting sources. Abu Dhabi increasingly provides just that by powering some of its offshore oil facilities with solar power and reducing the flaring of natural gas that accompanies oil production.

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Still, it's not a great look for the host of a climate conference. Environmental groups and climate activists are furious. They worry COP28 will turn into a showcase for fossil fuel producers, even more so than COP27 in Egypt last year.

Yet, unlike Egypt, Abu Dhabi has an impressive clean energy record. The UAE is a global leader in clean nuclear and solar power generation at home. It has invested heavily in renewable energy projects from India to the United Kingdom. The country was the first member of OPEC, the Organization of the Petroleum Exporting Countries, to undertake a net zero-emissions target. That set an example for Saudi Arabia, the most significant member of the group, which followed soon after.

Abu Dhabi is also an early entrant in two other technology races that will influence the speed of the energy transition and the role fossil fuels will play: Hydrogen and carbon capture.

Neither are ready to dent global emissions soon. But for the first time, real money is being spent figuring out how well they work and whether they can grow into substitutes for fossil fuels or a remedy for the emissions that arise from their use.

Climate and infrastructure bills in the U.S. are pouring money into pilot and commercial projects to see if they scale. China, Europe, India, Japan, Australia, Saudi Arabia, and even African nations like Namibia are among a coterie of other countries making substantial pushes into hydrogen, carbon capture, or both.

The UAE has big plans for hydrogen production. And it got into the carbon capture game way back in 2016, using the technology to reduce the greenhouse gas emissions of a massive steel factory.

But here's the catch: Abu Dhabi uses these initiatives to produce additional fossil fuels. The captured carbon is injected into oil wells to pump more barrels of oil. The hydrogen the UAE is most interested in producing would be manufactured from natural gas rather than using renewable energy in a carbon-free process.



Here lies the challenge for the UAE and Al Jaber in overseeing the upcoming COP28. A key part of this year's summit will be the official international assessment of progress toward the Paris goals. This global "stock-take" will, without question, underscore just how far behind the world is falling as emissions continue to rise.

Capturing carbon from smokestacks and steel mills and sucking greenhouse gasses from the atmosphere can ease the transition. They may even allow a bit of fossil fuel use permanently. This doesn't change the fact that fossil fuels are the most significant cause of the global warming problem. Moving decisively to reduce their use is the fastest way to solve the problem. How to do that while protecting the poor and vulnerable — those most exposed to energy price spikes and fuel shortages — is more a matter of boosting financing for fossil fuel alternatives and clearing away obstacles

to getting them up and running than it is slowing down the energy transition. This is another area where Abu Dhabi, which has close ties to the developed and developing world, could make a huge impact at COP28. That will require the developed world to step up with far more funding at far lower interest rates.

To keep their balance as they cross the chasm below, with each careful step, tightrope walkers keep their heads up and their eyes focused on where they're going. A world with few, if any, fossil fuels is where we have to head, with every step, if we're to avoid the worst fallout of climate change.

Few know the landscape of fossil fuels to one side and clean energy to the other better than Sultan Al Jaber. The question is whether he can convince other nations to follow his direction.

This article was originally written by the author for Climate & Capital Media.

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# INDUSTRIAL CLUSTERS: *An Important Step in the Road to Net-Zero*



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**T**he World Economic Forum, in collaboration with Accenture and Electric Power Research Institute (EPRI), launched an initiative during COP26 in Scotland to accelerate the transition of industrial clusters globally to advance net zero goals. Industrial clusters are geographic areas that comprise co-located companies representing either a single or multiple industries. Due to high energy consumption, use of raw materials and complex global supply chains, industrial manufacturers are among the world's biggest emitters of greenhouse gases (GHG).

With nearly 70% of the global economy committing to net zero goals, industry leaders and governments are exploring solutions that could facilitate this transition while avoiding hefty costs. Industrial clusters are expected to play a key role in achieving this delicate balance. The proximity of multiple industrial energy consumers allows for scaling low-carbon technologies through multi-stakeholder collaboration, not to mention its potential to generate profits. In fact, McKinsey's research suggests that next-generation climate technologies could attract \$1.5 trillion to \$2 trillion of capital investment per year by 2025.

Fortunately, in the age of the Fourth Industrial Revolution, we could witness rapid technological changes that can

facilitate the implementation of industrial clusters. Technologies that could help lower industrial emissions and advance the creation of industrial clusters include carbon capture, utilisation and storage (CCUS), hydrogen, and electrification.

### CCUS:

CCUS technologies are particularly beneficial in decarbonising sectors with heavy emissions. They can capture more than 90% of CO<sub>2</sub> emissions from industrial facilities, according to recent research by the Center for Climate Energy and Solutions. Current challenges impacting the deployment of CCUS technology include high costs and high energy consumption. However, with more investment in research and development (R&D), CCUS can become more economical. In 2020, Abu Dhabi National Oil Company (ADNOC) announced a partnership with Total Energies to explore opportunities in CO<sub>2</sub> emission reductions and CCUS to reduce carbon intensity by 25% over the next decade.

### ELECTRIFICATION:

As the prices of renewable electricity have dropped in recent years, electrification can provide significant opportunities to lower the overall costs and emissions. Electrification is transforming sectors such as

transportation and is expected to feed 48 per cent of global energy demand according to McKinsey. The technology is particularly beneficial for industrial sectors such as cement, chemicals, and steel as they consume the most energy in comparison to other sectors. As recent research by IRENA shows, electrification could cut annual carbon emissions nearly in half by 2050.

### HYDROGEN:

As a clean-energy carrier, Hydrogen is well-suited to address a large percentage of greenhouse gas emissions and can play a significant role in decarbonization. It can abate emissions in sectors such as aviation and shipping, industry, buildings, and road transport. Recently, the UAE Ministry of Energy and Infrastructure (MoEI) announced signing an agreement with GHD Group, in partnership with the Germany-based Fraunhofer-Gesellschaft, to develop the UAE's National Hydrogen Strategy to achieve climate goals.

Overall, industrial clusters present a great opportunity to further stakeholder collaboration in the development of sustainable technologies. Cross-sector collaboration and R&D are essential for the deployment of industrial clusters. Most importantly, collective effort is key to achieving net-zero goals by 2050.

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***How is ADNOC Embracing the Energy Transition?***





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