

Energy Transition



INTELLIGENCE BRIEFING

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ENERGY TRANSITION REPORTS INSIGHTS EXCLUSIVE SOUNDINGS

Ireland's Offshore Wind Can Complement Europe's Hydrogen Demand

Catherine Sheridan, Chief Operating Officer, EIH2

Ireland has an incredible opportunity to produce 80 gigawatts of offshore wind power which can feed into hydrogen production and play a key part in Europe's energy transition. Wind resources can more than sufficiently power the country's electrification needs while also exporting hydrogen to countries with high demand such as Germany. EIH2 is Ireland's first green hydrogen production company which has been exploring several sites across the country where hydrogen production can be co-located with onshore wind farms or sectors with high energy demand.

Is energy poverty a concern as Ireland moves along the transition?

Citizens' concerns should be considered when we make decisions in relation to hydrogen and the energy transition. We have a very geopolitically driven global energy system which influences the price of energy. Our goal in Ireland is to have a green independent energy future because at present, we import almost 90% of our energy and primarily from fossil fuels.



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CONTINUED Catherine Sheridan, Chief Operating Officer, EIH2

Your take on the differing role of the colours of hydrogen?

Let us focus on what the end game is. As Ireland has abundant natural resources, it makes perfect sense for us to be looking at green hydrogen. However, I accept that certain things have boundaries and conditions, and to keep the lights on, it means we need natural gas. However, our end goal is green hydrogen and an independent energy future. This is the new geopolitics and energy map that allows for a sustainable, secure, and affordable energy for Europeans.

How are transport and storage plans being setup?

In the context of Europe and Ireland, the approach is to develop a hydrogen backbone and link up sources of energy to places where it can be used. Ireland plans to develop its local hydrogen network and will be tapping its gas network as the vehicle for hydrogen. Ireland is considering the energy transition through the lens of what is affordable, sustainable, and what gives us security of supply. Today pipelines are moving natural gas, but in the future, that will be hydrogen. Blending some of our hydrogen into the gas network can be a route to get the market up and running. The gas network itself could transition to being a hydrogen network in some parts.

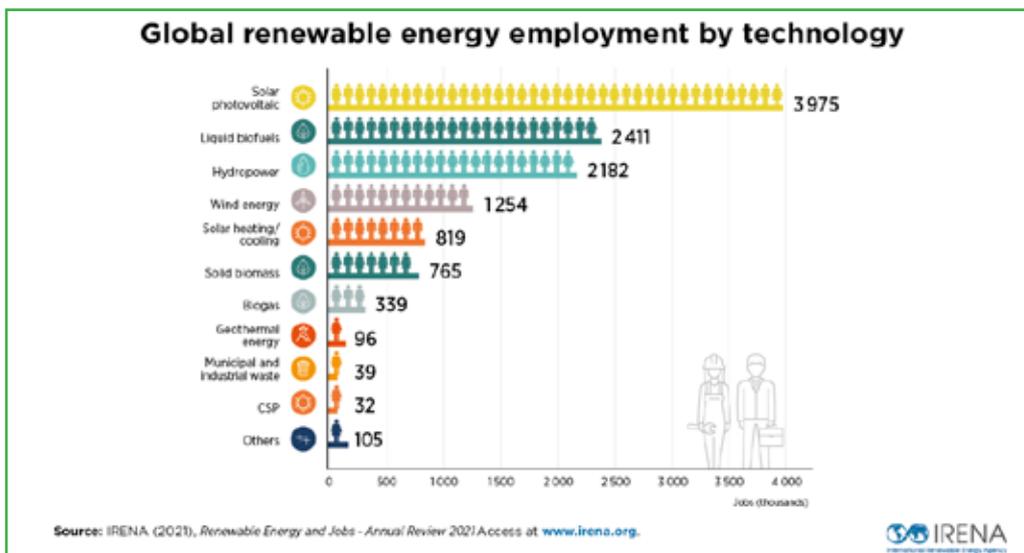
The advantage for Ireland is that it has an excellent foundation with an existing gas network and could work along with the National Standards Authority

of Ireland and representative groups like Hydrogen Ireland, a member of Hydrogen Europe, and other institutions like Engineers Ireland and Wind Energy Ireland. This kind of collaboration is needed to achieve the energy transition. We can no longer work in silos as we build an integrated energy system to include various types of energy that go across countries and technology traditions. We need to make sure that citizens are involved, and that they are supportive of the infrastructure needs and skillsets for the energy transition. We need everyone working together.

What is the next big step for hydrogen in Ireland?

EiH2 is excited about the opportunity to collaborate and work with partners. The REPowerEU plan has designated land areas to be assessed to help the country measure its energy needs while ensuring that biodiversity, citizens' and other land users' concerns are considered. Some of the partnerships we are looking at with local companies offer the opportunity to decarbonize heavy goods vehicles, data centers and Irish distilleries, all looking to use hydrogen. The bigger ambitions are in the development of floating offshore wind projects in the south of Ireland. Through our projects, we are looking at bringing large volumes of electricity in partnership with utilities and industries to help Ireland achieve a green independent energy future.

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Special Report

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Cornelius Matthes

Chief Executive Officer
Dii Desert Energy

Green Hydrogen Momentum Accelerated in 1H 2022.

There has been a massive acceleration in green hydrogen investment this year as the price of grey hydrogen has risen along with natural gas prices. This took only in a matter of months in a development that was expected to take a decade. This is a complete paradox reflective of how the war in Ukraine has impacted Europe and triggered an energy crisis. Germany has taken drastic measures, reactivating its coal plants and introducing mechanisms to cut gas consumption. But diversifying gas supply will take a long time and will need investments and could jeopardize the Green Deal and net zero targets.

Is first mover advantage critical in the hydrogen game?

There are opportunities to this, as players can set the parameters and frameworks in developing the market, such as establishing certifications and trade conditions. Investors are understandably concerned that it will take time for

hydrogen production costs to drop but the industry has the potential to become a huge market, with a \$10 trillion value. Even for oil producing countries such as those in the GCC, hydrogen could generate long term revenues to rival oil and gas, and more importantly provide up to one million jobs by 2050.

Asian versus European markets

The Middle East's partnerships in Asia are in place based on existing client relationships in oil and gas. Japan, for example which has already received shipments of ammonia, is expected to import huge amounts of green molecules to abate carbon emissions by up to 20%. However, this could potentially shift from East to West considering that Europe has huge needs today. It is a historic opportunity for the Middle East to look from East to West and forge partnerships with European markets. ■

**Paraphrased Comments*



Guy Platten

Secretary General
International Chamber of Shipping

Green Energy Investors, Look to the Global South!

The development finance community has the chance to catalyze global energy transformation if it harnesses the opportunity open to it. And the greatest opportunity lies in the global south. As state actors broaden their options to mitigate risk — weaning themselves off Russian oil and gas, for example — investment banks and development finance institutions should look to renewable-resource-rich emerging economies. It is there that the next generation of suppliers and exporters of zero-carbon fuels will be found. Part of this is down to nature and abundance of wind and solar resources. The production and transport costs of green fuels in Latin America and Africa are expected to be over 20% less than the average cost of production in other parts of the world, due to plentiful solar and wind power in these regions. Simply put, it is cheaper, easier, and cleaner to produce the electricity needed to create fuels such as green hydrogen where the sun shines and the winds blow almost every day. These budding energy hubs, particularly maritime states, are primed to transform themselves from fossil fuel importers to zero-carbon fuel suppliers — and the international community, such as the European

Commission which has just recognized some future fuels, including hydrogen, as renewable, must take note.

Need for Holistic Investment

It is more than just wind and solar farms: It is about the production facilities and investment in infrastructure. This includes ports and engagement with shipowners so that the new ships, which will be needed to transport these new fuels globally, can be built at the scale and the speed required. The de-risking of the global energy supply chain will come from the reduction of reliance on countries whose sovereign territory sits on top of large fossil fuel reservoirs. As anyone can truly produce these new green fuels, a country's success in the new market relies on how quickly it can act. The winners will be those who enable an ecosystem that promotes long-term investment, implement export strategies and policies along with enhanced international cooperation agreements, and position their fuel-production infrastructure close to the coast. ■

Source: DEVEX

INSIGHTS

CHINA'S DOMINANCE IN SOLAR PV SUPPLY CHAIN: QUO VADIS?

By: CN Innovation

On 7th July, the International Energy Agency (IEA) released a highly substantive Special Report on Solar PV Global Supply Chains, highlighting China's dominance in that landscape and calling for diversification to ensure a secure transition to net zero emissions. This Insight China report offers an additional perspective on how China's dominance emerged, what are the hurdles for diversification, and a new thinking on tackling the dilemma facing the OECD countries.

How China built its dominance?

According to IEA, China accounts for over 80% of global shares in solar PV supply chain from polysilicon, wafers, cells to modules (Figure 1), and China's current investment plan would further elevate its share of global polysilicon, ingot and wafer production to almost 95% soon. China today is also home to the world's 10 top suppliers of solar PV manufacturing equipment.

The IEA attributes China's success to the country's industrial policies and cost competitiveness. The report states that Chinese industrial policies focusing on solar PV as a strategic sector and on growing domestic demand have enabled achieving economy of scale and supported continuous innovation throughout the value chain. These policies have contributed to a cost decline for more than 80% over last 10 years, helping solar PV to become the most affordable electricity generation technology in many parts of the world. On cost competitiveness, the IEA says costs in China are 10% lower than in India, 20% lower than in the United States, and 35% lower than in Europe. These discrepancies are mostly due to large variations in energy, labor, investment and overhead costs.

While in generally agreement with this broad assessment, we would add three points to further explain the causes leading to the current situation.

The first is the market dynamism of Chinese private entrepreneurship.

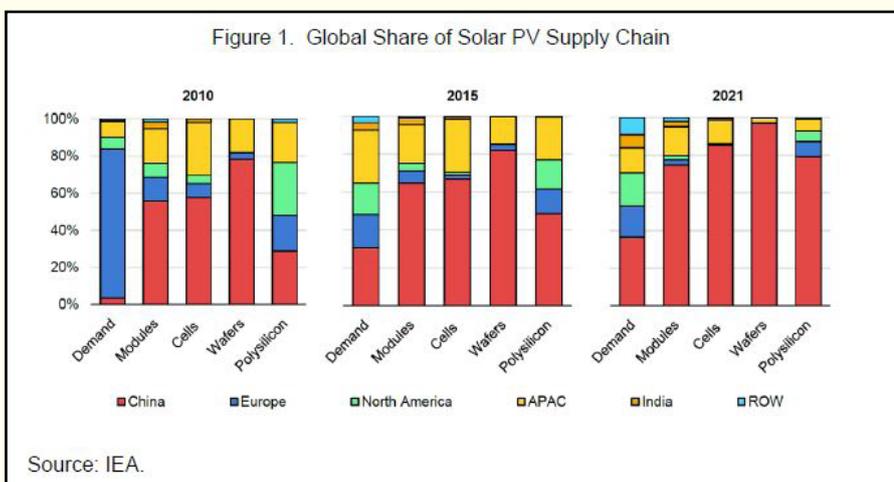
Contrary to the conventional wisdom that China's industrial policies are better carried out by state-owned enterprises, its solar PV supply chain has been built essentially by private entrepreneurs who seized the global market opportunity in the early 2000s and who persisted despite bumpy road with rounds of reconsolidation and fatal bankruptcies. Thus, this is a success of Chinese private entrepreneurship.

The second is the fact that solar manufacturing is just part of the overall manufacturing capability China has built since its WTO membership in 2001, which created the window of opportunity for it to become the "world's factory". With that capability, China provided what is needed for every segment of the solar PV supply chain to succeed, such as raw materials (minerals and metals), industrial clusters (industrial parks), financial loans, engineers and skillful workers, etc in the backdrop of a national development strategy to build a manufacturing-based economy.

And the third is the failure or inadequacies of OECD countries' industrial policies. While China has successfully translated its climate commitments into industrial policies to develop renewables, Europe stayed, to certain extent, at lip services and US has undergone a few rounds of in-and-outs in the global climate pacts.

Source: © CN Innovation (www.cn-innovation.tech).

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EXCLUSIVE SOUNDINGS



DIVESTMENTS: “Encouraging the use of the cleanest fossil fuels, like natural gas, over the dirtiest, such as coal, is an important step. Allocations to fossil fuel companies do not mean that investors must abandon their environmental principles. They can invest and engage with sustainability leaders within the fossil fuel industry, including companies that use the least environmentally harmful extraction techniques, protect biodiversity, and are stepping up their spending on renewables.”

Giovanni Staunovo
Strategist, UBS

Source: Financial Times

DECARBONIZATION: “Like any transformation effort, implementing a new operating model requires a detailed roadmap, a defined team with clear accountabilities, active change management, risk assessments, and supporting IT systems. For National Oil Companies, an integrated transition approach should focus on various critical levers, including activities and processes, new ways of working, digital and technology, and decarbonization.”



Bjorn Ewers
Managing Director and Senior Partner
Boston Consulting Group

Source: BCG



COPs: “The twin COPs in Egypt and UAE are a bridge to more sovereign issuance from emerging markets. We should be looking to a post-COP28 environment where green, social, and sustainable sovereign debt from developing nations has been supported and is multiplying with new deals on horizon. Sovereign issuance is an indicator of action from policymakers and financial regulators in facilitating north to south climate investment. The next two years of COPs are a springboard for policymakers to turn commitments into trillions, directed where it’s needed most.”

Sean Kidney
CEO, Climate Bonds Initiative

Source: Climate Bonds Initiative



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