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Energy Transition

GI Consultancy Intelligence Publishing

INTELLIGENCE BRIEFING

ISSUE 50, MONDAY, JUNE 6th

SCROLL DOWN

BLUE HYDROGEN ESG INSIGHTS EVENTS THIS WEEK

"Decarbonizing Real Estate Value Chain Crucial to UAE Net Zero Goals"

Q&A: Madhav Dhar, Founder & COO of Zazen Properties

What is driving the UAE's decarbonization in real estate?
With 40% of global carbon emissions coming from property development and its entire value chain, the UAE has the key drivers to lead decarbonization in this sector. The country has big plans to continue building in the years to come. It can set an example for the region and rest of the world, with a leadership that implements strategies quickly and effectively, offering incentives in infrastructure and government initiatives.

How can the country set its goals in motion?
The government understands that they need best practices in place. The first step is education. People need to realize that building sustainability is not a cost – that it is a value enhancement – that would be the biggest shift in mindset. As more education comes to the fore and as government supports more sustainable development - whether it is from the contractor, procurement, or developer - all these things will come into balance. It also needs to set up ways to track new developments to assess whether they are aligned with sustainable regulations.

CONTINUED ON PAGE 2

CONTINUED *Q&A: Madhav Dhar, Founder & COO of Zazen Properties*

What's the role of partnerships to help achieve these targets? Collaboration is the only way to reach the ambitions that have been set – holding every stakeholder in the entire lifecycle accountable. Developers need to balance sustainability in their cost and design – not easy to do as their price point is relatively fixed. There's also a need to start educating users, because they will be looking for value for money. They need to understand that owning a sustainable home can bring their operation costs down by 10% to 15%. And maintenance costs will probably be 20% lower over time. It's a mindset. The government needs to play a huge role here and offer incentives to encourage investment.

How does technology for sustainable building lower costs? We see the UAE and the region catching up on trends from Europe. In terms of building materials, we still need to improve the understanding on the safety of sustainable materials such as cross-laminated timber and recycled plastic. Once more EU regulations come in, the entire industry will start using them. Procurement is still a challenge, but with technologies such as BIM (Building Information Modeling) being widely used, every single stakeholder in the chain can give their input, even at the design stage. This has resulted in less material waste and less resource usage due to quality visualization. Prefabrication is another development that can help optimize the process. These processes are already in Europe, but they are now coming to the forefront in this region, especially in the UAE and Saudi Arabia.

Sustainable construction has many facets – which are most important? In our projects, we focus on three things: energy efficiency, water efficiency, and the general livability factor. We've implemented efficient irrigation systems where we saved 33% in water consumption, and we've used plants to absorb carbon dioxide. Other aspects include motion sensor lights which can contribute to reducing energy costs by 20%. If we factor in solar installations, that's a further 25% reduction. In making all these choices, it comes down to balancing sustainability with costs and how you sell.

What more can be done to attract investment? If there is focus on improving and optimizing how this industry works, the finance side will support projects. Government must step in alongside educating stakeholders, because they need to have an incentive to start thinking this way, to start building this way, and to start buying this way. This can happen through mandates for buildings to reach a certain level of energy consumption or negative carbon emission over the next five years. Banks have begun approaching us to offer better mortgage rates for end users but more needs to be done in general to encourage the sector.

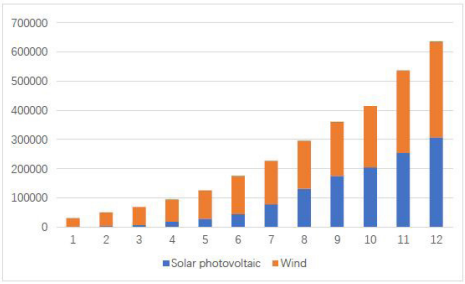
Next priorities for the real estate sector? I would consider retrofitting old buildings to be the low hanging fruit. Ensuring that larger developers become leaders in sustainable building is also central. There are a lot of new developments in Dubai offering waterfront living for example, yet none of them have committed to building consciously. Over the next year, we need to put in place regulations that require such developments to have some level of sustainability. There are institutions established already for such purposes, but they need to be aligned and have common standards.

FULL INTERVIEW HERE

Powering Renewables to New Heights

With a total of 636 GW of solar and wind power capacity installed at t he end of 2021, China has been the leader in global renewable energy development. Thanks to the economy of scale in both domestic and international markets, dramatic cost reduction was achieved by the Chinese manufacturers, enabling an on grid parity with the traditional fossil fuel power in China and elsewhere. As renewables continue to grow and China is expected to add over 100 GW of solar capacity this year, constraints have also become very apparent in power grid's capacity to absorb an increasing share of intermittent renewables, in availability of land resources, and in policies and regulations that would support a new business model to substitute the traditional one.

Figure 1. Cumulative Installed Wind Turbine and Solar PV Capacity (MW) in China



Source: International Renewable Energy Agency

If not being squarely addressed, those constraints could jeopardize the future development of China's renewables.The policymakers are fully aware of how imperative it is a nd decided to focus on tackl ing them , "eye to eye"eye", with a new "Action Plan for High Quality Renewable Energy Development Development1," (the Action Plan) released by the State Council on May 30th.

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"Blue Hydrogen Can Scale Quickly to Meet Short-term Opportunities"

Q&A: Alex Zapantis General Manager – Commercial, Global CCS Institute

How would you describe the current sentiment on carbon capture and storage (CCS)?
The spike in demand for carbon, capture, and storage (CCS) globally has been remarkable over the past few years, with projects and investments steadily growing since 2017. A total of 172 commercial CCS facilities are in various stages of development, compared to a count of 135 six months ago, and 29 of them are in operation. Apart from that, we have a backlog of at least 20 facilities that are currently under review.

How many years does it take for these projects from inception to operation?
It depends on the existing infrastructure in place. If you are looking at developing a new CCS project from scratch with very little geological data to identify storage resource, it may take eight years from taking the decision to commence studies, to injecting carbon dioxide into the ground. In theory, it can take less than two years, but factors like competing for access to drill rigs, to shipping it offshore, to the experts analyzing all the seismic data collected – all come into play. An oil and gas company which has all the data for their potential storage site can have a shorter timeframe as the infrastructure elements are in place, or approvals existing because you're already producing oil or gas and injecting CO2 from an industrial perspective. This is in fact the day job of the oil and gas industry.

How are these factors impacting the investment appetite for CCS?
What we are seeing is that short-term, easiest opportunities are being developed first.
In terms of blue hydrogen, there are 18 new blue hydrogen facilities in development, the first of which should be operating this year, with the ones with longest timelines possibly operating by 2027.

How is the challenge of scale being tackled?
One of the advantages of blue hydrogen is scale. There are currently seven facilities that produce hydrogen operating with CCS, producing between 200 and 1,300 tons of hydrogen per day. The total capacity of those operating facilities is about 1.5mn of clean hydrogen per year. A small hydrogen production facility from coal or gas with CCS would produce 300,000 to 400,000 tons per year.

Where do Middle East producers stand in becoming hydrogen leaders?
Saudi Arabia has all the ingredients necessary to be a massive supplier of clean hydrogen, blue and green, which is good news for the climate because they have lots of very low-cost hydrocarbons. They have excellent storage geology and a strategic imperative to decarbonize their product. It makes good business sense to invest in blue hydrogen production.

What is your take on blue hydrogen not being a clean energy source?
What matters with hydrogen regardless of its color is its lifecycle emissions intensity. That's the metric that matters. We are doing it for climate mitigation purposes. For clean hydrogen to meet the standard being called clean, it must have a very low lifecycle emissions intensity. For this, we need clear standards based on the lifecycle emissions intensity of green and blue hydrogen, and verification as well. Soon the market will demand that anyone selling and providing low emissions hydrogen will have to provide evidence of its lifecycle emissions intensity.

FULL INTERVIEW HERE

"What matters with hydrogen, regardless of its color, is its lifecycle emissions intensity. That is the metric that matters. We are doing it for climate mitigation purposes. For clean hydrogen to meet the standard being called clean, it must have a very low lifecycle emissions intensity."

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Vitol's ESG journey and our ambitions and plans for the future

Q&A: Gerard Delsad, Chair of ESG Committee, Vitol

What does ESG mean to Vitol?
ESG equates to good business practice. It is good business to ensure that operations are managed safely and responsibly, that our workforce is diverse and that stakeholder views are both canvassed and considered. Increasingly, in the context of the energy transition, it is also good business to think strategically about the implications of the transition on the company and how this will evolve in order to mitigate risks and identify and capture opportunities.

Over the years, we've tackled many of the issues related to ESG in an informal manner and with various degrees of granularity across our business. But as the business evolved it became evident that a more formalised approach was required. Co-ordinating an ESG approach through the ESG committee that we created in 2018 has enabled us to be more strategic and thoughtful, as well as providing the framework for us to ensure ESG is applied in a consistent manner across all our operations, according to best practice.

Why have you only recently started reporting on ESG?
We've always been mindful of ESG considerations and discussed these with key stakeholders, such as our financing banks, co-investors or customers. For us, 2021 was the right time to consolidate our thinking and performance into a formal document. But 2021 was just the start; putting frameworks in place, collating and verifying data all takes time and we intend to build on this year-on-year to provide more transparency about what we are doing and our performance.

What has surprised you the most since you started on this ESG journey?
The internal response. When we began this journey, only a few people were familiar with the concept of ESG. But as we've explained it and as the value has become apparent, the buy-in and genuine interest from employees to participate in this journey has been really appreciated.

How are your ESG efforts structured?
We have a six-pillar strategy covering ESG, human rights, energy transition, education and training, risk management and reporting. We have made some good progress over the last three years under each pillar, but there is still much to do to embed our E&S framework across all of our activities.

Has ESG impacted the way you manage the business?
On the reporting side, the implementation of a more formalised structure has enabled us to monitor performance across the company better, highlighted potential areas of weakness as well as areas where we can improve. The changing energy mix is the greatest challenge the company has faced and is impacting people across multiple functions from finance, through to operations, shipping and trading. What ESG and related reporting guidelines have done is give us a framework to articulate our thinking. Every conversation with stakeholders begins with questions about our approach to ESG!

Where does Vitol have the greatest room for improvement?
Across the board we expect to improve continuously; the goalposts will, quite rightly, keep moving and ever higher standards will be expected of us. More specifically, areas that require a focus in the near term are diversity and human rights.
Regarding diversity, we simply do not have enough women in senior commercial roles. Regrettably, this problem is common across our industry so hiring senior women is not a solution. Instead we are focusing on hiring, developing and nurturing female talent at an earlier stage in their careers.
For human rights we began formalising our approach in 2019. Last year we hired our first human rights manager and we trust this will enable us to improve our approach and reporting around human rights.

Are there any downsides to a more formalised approach to ESG?
Not thus far. I believe the key factor is to make sure that the frameworks are relevant and useful for the business. There is no point in reporting if it is not truly relevant and representative and if it does not have a positive impact on underlying business operations.

What aspects of ESG are you (personally) passionate about?
I care about the business and our role in society. It is imperative that we do not cause harm. On a personal level, I am excited by the potential we have to use our business to improve lives and accelerate the energy transition. The transition will require capital and if we deploy ours wisely, we can build a sustainable future.

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Shifting the Trillions

A sustainable financial system for the great transformation

31 Recommendations by the Sustainable Finance Committee to the German federal government

The German economy is in the midst of a process of fundamental transformation due to the changing imperatives triggered by the climate crisis, digital technology and globalisation.

Major investments are necessary in order to future-proof production methods and business models and to ensure that Germany benefits from the opportunities that sustainable development offers. The financial sector has a crucial role to play here, because it has to mobilise the funds that are needed to achieve the great transformation. Sustainable finance aims to activate all market forces to ensure the efficient allocation of capital in combination with a robust risk management system.

Our current financial system performs this task inadequately. To ensure that the financial system takes systematic account of sustainability criteria, Germany needs to implement flagship projects and make extensive adjustments to legislative frameworks.

Against this background, the State Secretaries' Committee for Sustainable Development decided on 25 February 2019 to develop a national Sustainable Finance Strategy. To this end, the German government established the Sustainable Finance Committee – which is made up of 38 members from the financial sector, the real economy, academia and civil society – and tasked it with formulating recommendations that would feed into the strategy.

The Committee's recommendations are presented in this report, which urges the financial sector, the real economy and government to collaborate closely in order to advance the transformation. Academia guides the process by putting the transformation of the financial and economic system into empirical terms on the basis of verifiable facts and effective methodologies. Civil society provides important input and promotes the necessary public discourse about potential trade-offs and conflicts of interest.

To become a leading centre for sustainable finance, Germany must base its actions on reliable benchmarks and guidelines. For all of the Committee's recommendations, these are: the 1.5° target set out in the Paris Climate Agreement, the Sustainable Development Goals that form part of the UN's 2030 Agenda for Sustainable Development, and the UN's Guiding Principles on Business and Human Rights.

The recommendations focus on five main priorities:

1. A reliable national and European policy framework that lays a coherent groundwork for promoting sustainability in the financial sector and real economy

2. Integrated and forward-looking company reporting that ensures transparency and comparability, which in turn provide a basis for sustainable investment decisions and comprehensive risk management

3. Research and systematic knowledge-building with a particular focus on the changing skills and expertise that are needed among the people who are responsible for regulation, for the management and supervision of companies, for providing financial consulting services, and in the public sphere in general

4. Sustainable financial products that satisfy growing investor demand

5. Consolidating sustainable finance by building up institutional capacities that can provide continuous monitoring and guidance during the transformation process

Source: Sustainable Finance Committee of the German federal government c/o Federal Ministry of Finance

FULL REPORT HERE

INSIGHTS
The deep uncertainties that are stalling energy transition

Professor Ulf Moslener
Professor of Sustainable Energy Finance in the Faculty
Frankfurt School of Finance and Management

The need to move to a low-carbon economy is urgent, but the sheer number of 'unknown unknowns' is deterring policymakers and investors from taking action.

Climate change is one of the planet's most pressing issues. Whether its impact is on the places we inhabit, the air we breathe or civilisation itself, it is clear that climate change is having a disastrous effect on the world in which we live. Something must be done to reverse its detrimental effects, and there are a number of industries in particular where change could drastically improve the environment.

The energy sector is one, contributing to much of the carbon dioxide emissions that are affecting the planet. That is why the global energy sector must transition to clean energy - a fossil-based carbon-zero structure.

In principle, this switch sounds relatively simple, given we have the fossil-based fuels to make this transition. But not only is substantial investment needed to do so, there is also limited knowledge about where or how to make that investment. To be effective, it needs to be focused where carbon-intense infrastructure is to be replaced by low-carbon alternatives. Two sectors without which an energy transition is impossible are power and transport - power represented 40 per cent of global carbon emissions in 2018 and transport 23 per cent – but both come with huge challenges. I have recently worked with other researchers to identify what these challenges are and how these sectors can become carbon zero, in order to understand the drivers that are holding transition back; not just the obstacles to policymakers, but to investors as well.

In these sectors, neither policymakers nor market actors have estimates or probabilities to work with in tackling these issues. Under these circumstances, decision-makers find it difficult to make any investments, as traditional toolkits used to assess and handle risks do not work when such deep uncertainties are involved.

From our research, this appears to be the underlying issue with energy transition – a deep uncertainty of unknown unknowns. Investment is being delayed in vital energy-transition technologies, such as offshore wind farms or electric vehicles, because we simply do not have data, information or predictions on how to implement the most effective approach. This is drastically slowing the speed of a transition.

Energy infrastructure is capital intensive. We know that we need substantial investment in clean energy and we know that we need it fast. How can we ensure that policymakers and investors have the correct knowledge and an understanding of these current unknown unknowns, in order to effectively transition to a clean energy sector?

Investors and policymakers should work together on this if the policy signal is such that investors can rely on it. And to be clear - that is not easy. A simple law that can easily be changed will not do the job. Financial contracts, such as contracts for difference simulating a high carbon price for investors, may be more helpful.

There must be a credible commitment from policymakers signalling that, for example, the path towards zero emissions by the year 2050 will be implemented. This will allow for a better and more forward-looking plan for investors who are then more likely to invest in clean energy. Policymakers must make the decisions to push for this, but ultimately it needs private investment to be successful and policymakers have to make that investment as attractive as possible.

Governments need to send a credible long-term signal that the transformational change will happen. There may be concerns about this inducing costs and risks to competitiveness, but that could at least partly be compensated by strong and broad public support of research and innovation.

Energy transition is vitally needed if we are to reach carbon zero, not only in the clean energy industry, but as a contribution to tackling climate change as a wider issue. It is important that we can gather the most amount of information as possible in order to reduce the unknown unknowns and ensure investment in clean energy is as attractive as possible.

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EVENTS THIS WEEK

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