

Energy Transition

INTELLIGENCE BRIEFING

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TOP 10 DAILY NEWS DIGEST **HYDROGEN** **INSIGHTS** **EVENTS THIS WEEK**

“Data is Fuel for Accelerating Energy Transition”



Q&A with Mohit Kaul, Co-Founder, Enerdatics

How critical is data in the energy transition?

The energy transition will continue to accelerate, and data will play a pivotal role just as it did during the shale revolution in the last decade. A few years ago, we began hearing the phrase that data is the new oil. The world began to recognize the value of data in making more informed and timely decisions. However, at present only a minuscule amount of information gets analyzed and utilized in all forms, irrespective of the sector. The ability to convert unstructured data into a structured representation is crucial, but it is still underestimated. Companies need to understand that there is a vast amount of data which may be originating internally or may come from external sources. The first step is to have it in a structured format. All businesses need a data source for any of the teams that are functioning. They also need a source that makes it easy to access the data. This is where data providers come in.

How important is transparency in the structuring of these data sets?

Transparency is key because you do not want to base your analysis and decision on a number that you do not understand or know where it came from. Structuring data presents a massive value proposition. For example, if you get a thousand pieces of paper, you are not going to make sense of it. But if somebody gives you the same data in 10 columns and 10 rows, it suddenly starts making sense. It could be as simple as a spreadsheet which people would use, or as complicated as machine learning and visualization software.

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How do you see partnerships accelerating the transition?

Companies - from power producers to private equity firms, traditional oil and gas companies, and technology specialists - need to consolidate their positions in mature markets while they simultaneously establish their footprint in emerging markets. Power producers have a natural advantage due to their legacy business capabilities. They are integrated into the transmission and distribution grids and have emerged as preferred partners in mature markets. However, they often do not have access to a capital base like oil and gas or private equity firms. That is where some partnerships are commonly observed. If we look at oil and gas companies, they have significant project development expertise, especially in carbon capture or offshore wind. So, they could tie up with private equity firms and renewable energy producers. Technology specialists will partner with oil and gas companies that don't have the technical expertise but that have the capital and expertise to execute the technology solution that they offer. Another category could be large investors taking direct stakes in operational and under development assets, partnering with oil majors and technology specialists.

Will legacy technology or new innovations drive the transition?

It depends on the frontier they are targeting. Offshore or challenging scenarios will see more experienced players. For example, for solar rooftops and simpler projects, there is a lot of interest from smaller and newer entrants. As the penetration of distributed energy sources in domestic power grids increases, the need for services like grid management load balancing will increase. Today, small scale power plants control a significant share of the renewable market. This is where we see a lot of smaller entrants coming in and growing the customer base as well.

What kind of deals should we expect to see over the next few years?

The private equity space and the oil and gas companies transitioning into energy companies, will have a significant role to play in the more difficult offshore frontiers. There will be more strategic joint ventures. It is very interesting to see how innovative this space is and will continue to be.

[FULL INTERVIEW HERE](#)

TOP 10 NEWS DIGEST

- WHAT ARE THE KEY CLIMATE THEMES AT DAVOS?
- INVESTORS CALL FOR DOUBLE DOWN ON ENERGY TRANSITION
- RENEWABLES REMAIN CHEAP DESPITE SUPPLY CHAIN CHAOS
- WEF: WORLD IN ONE OF THE MOST SEVERE ENERGY CRISES SINCE 1970S
- DENMARK'S TOPSOE PLANS EUROPE'S LARGEST ELECTROLYSER PLANT
- 'HYDROGEN ISLAND' COULD PRODUCE 1MN TONNES OF HYDROGEN PER YEAR
- SOLAR ENERGY THAT USUALLY ESCAPES EARTH OVERNIGHT CAN BE CAPTURED
- CHINESE GREEN BOND ISSUERS MUST IMPROVE DISCLOSURES TO ENSURE GROWTH
- SOUTH KOREAN FIRMS TO SIGN AGREEMENT FOR GREEN HYDROGEN PROJECT IN ABU DHABI
- BLACKROCK'S CEO FINK CALLS FOR A FAIR & JUST TRANSITION TO SUSTAINABLE ENERGY



INSIGHTS

What Tea Tells Us About Climate — and Ourselves



Bill Spindle
Council on Foreign Relations
International Affairs Fellow, India

A visit to the world renowned tea growing region of Darjeeling underscores how climate impacts can reverberate far from where they are first felt.

The Himalayan foothills rising from India's eastern plains can seem as far removed from the hectic world of global commerce as the Sundarbans swamps we visited earlier in our journey, here, here and here.

But Darjeeling is known the world over. The name conjures up the aura of fine tea, thanks to a British colonist's long-ago hunch that Chinese tea bushes would take to these steep hillsides. Entrepreneurial Indian growers expanded the horizons of Darjeeling tea many fold and far further afield.

Today Darjeeling teas are sipped not only, reportedly, at Buckingham Palace, but also sold in Paris boutiques, coveted by Munich connoisseurs and sought out by Tokyo tea mavens. Darjeeling's two early season tea harvests, especially the 'first flush' leaves being plucked while we were there, sell at some of the highest international prices, comparable to museum quality art and fine wines.

Today, Darjeeling's 'gardens' — the quaintly colonial local term for tea estates that sprawl up, down and across thousands of acres of steep slopes — are under profound environmental stresses, including from a changing climate. These threaten an area that, tea aside, occupies a teeming ecological niche featuring humungous ferns, rare birds and scores of insect varieties. They



are playing out against the backdrop of a society roiled by labor discontent and identity politics.

The damage will resonate far from India's shores, to everywhere Darjeeling teas are cherished. Of course, the prospect of elite tea drinkers being denied their most-refined and pricey cup is far from the worst toll climate change could impose. Still, Darjeeling stands as a stark example of how climate change impacts are ricocheting around the globe, disrupting lives and local livelihoods, global commerce and international exchange, a way of existing we've long taken for granted.

The region is also a powerful example of how local business owners — in this case the tea growers — and their international customers and partners can work to change an industry long stuck in its ways, while building resilience against the increasingly thorny challenges the changing climate presents.

My spouse and sometimes travel companion Michele and (who you'll recall from this earlier post) and I, arrived in Darjeeling in March. The gardens were just beginning their annual growing and picking cycle, the all-important first growth, or more poetically, 'first flush.' One of four pickings that take place before October, the first flush is the only one that follows a dormancy period, spanning the generally mild winter. Tiny, delicate leaves were appearing on tea bushes. The air was cool and the views picturesque — though, surprisingly, even to me after years experiencing India's pollution elsewhere, smog from the plains far below obscured peaks throughout our stay. This included the near mythical Kanchenjunga, third-highest peak in the Himalayas (after Everest on the Nepal-China border and Pakistan's K2). Kanchenjunga keeps a quiet vigil over the region, a constant presence to the local communities of Nepali-Indians who populate Darjeeling and work its tea fields.

Darjeeling's tea industry these days faces a typically troubling brew of human and climate-related problems. The biggest climate concerns are two-fold. The first is increasingly sporadic precipitation, long dry spells punctuated by violent waterfalls of rain or even barrages of thick hail, as opposed to the steady drizzle-to-downpour of the usual monsoon. The other is rising temperatures, particularly higher-than-average temperatures at night — a phenomenon occurring across the Himalayan range, sometimes known as the world's "third pole."

FULL ARTICLE HERE

“Mobility Low Hanging Fruit for Hydrogen Investors”



Dr. Naveed Akhtar
Chief Executive Officer
Hy-Hybrid Energy

Mobility has great potential to deliver a boost for investors in the hydrogen market. In terms of aviation fuels, it is important to clarify that when we talk about hydrogen, there is a parallel activity going on, which is sustainable aviation fuels or SAF. People must understand that scaling up the production of SAF also requires hydrogen. Whether converting the SAF through fuel cells or in combustion form, hydrogen will play a role. Fuel cells would be the cleaner choice, but they are still in the testing stage and might be developed in the next decade. We could see hydrogen combusted in modified gas turbines, but that would also entail emissions of nitrogen oxides so would not be a zero emissions fuel. This is what companies such as GE Aviation and Safran are working on – to modify those existing gas engines to be used for hydrogen combustion.

Investment commitments in hydrogen have hit \$300 billion – is there demand to warrant this?

Various reports will tell you that these numbers are too low and that demand warrants higher amounts. At the same time, these figures are ambitious as there are questions on where this investment will come from. The cost of electrolyzers is still far too high and needs to be brought down for a green hydrogen economy to come into

play. Europe has about 10 megawatts of green hydrogen plants currently functional compared to China’s 150 megawatts of operational capacity. We need to see more on the ground developments.

How important is market architecture to investors?

This is precisely the challenge. Investors recognize that there is demand for green hydrogen, but they would like to see when to expect a return on their investment. Investors may have to wait at least 10 years for this as the costs of electrolyzers have yet to drop. Investors want to know what markets and which applications could give an early return.

Are cross-border and carbon pricing mechanisms important to scale up hydrogen?

Carbon taxes have a huge role in bringing green hydrogen into play. Europe is looking to import green hydrogen, and countries in the Middle East such as Saudi Arabia are looking to export hydrogen products as part of diversifying their portfolios and they would need to show that these products have been essentially manufactured by a supply chain that is green.

[FULL INTERVIEW HERE](#)

For more on Hydrogen
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GI Consultancy
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Whitepaper

Q4, 2021

**Moving Hydrogen from the Screen to the Field:
What will a Successful Consortium Look Like?**

DISRUPTION IS NOW

How decarbonization, decentralization, and digitalization transform the energy and resources sector

In this 2022 energy flagship report from Arthur D. Little (ADL), we explore the trends that are currently shaping the energy industry as it transitions with great ambitions toward net zero. This transition has a disruptive impact, be it carbon regulation, new technologies, emergence of new market players, as well as convergence of industry verticals. However, timing and speed vary by region and market. Also, political events influence direction and speed of the transition. Our ADL community, with 200 enthusiastic energy consultants and knowledge experts, started working on this report prior to the ongoing Ukraine crisis. Before, as a society, we were used to power and gas being available uninterrupted 365 days a year. The current conflict in Europe at the doorstep of many of our colleagues — as well as conflicts in the last century, like the oil crisis of the 1970s and the Gulf War in the 1980s — remind us how fragile energy supply can be. Regardless of how and when the conflict between Russia and Ukraine will end, the event will have long-lasting global implications on geopolitics and the energy sector at large. If the EU and countries like the

US wish or need to reduce their reliance on Russian oil and gas even faster, there are several options, but probably not without significant tradeoffs.

Figure 0. ADL view on the energy resources & cleantech market segments



Source: Arthur D. Little

[VIEW FULL REPORT HERE](#)

By **2050**,
renewables and energy
efficiency can provide
90% of the required reductions
in energy related CO₂

EVENTS THIS WEEK

Energy Transition Dialogues



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HYDROGEN FULL COURT PRESS

Dr. Oliver Weinmann

Managing Director, Vattenfall Innovation GmbH &
President, German Hydrogen Association (DWV)

TUESDAY /// MAY 24th /// 11:00AM (UAE)

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Energy Transition Dialogues



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TWO MINUTE WARNING INTERVIEW SERIES

Eng. Mohammed Al Taani

Secretary General
Arab Renewable Energy Commission (AREC)

WEDNESDAY /// MAY 25th /// 11:00 (UAE)

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