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Project Finance & Infrastructure Journal



Energy Transition Report 2023

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Carving an energy transition niche, building a presence

When it comes to energy transition – a term that is every bit as ambiguous as it is ill-defined – now is the time to consolidate that reputation as a pioneer, whether that be in investment strategy or advisory

If you drop “energy transition” into conversation over your average dinner table, most diners – even those who do not work in the infrastructure community – will have a fair grasp of what you mean... but for those working in this space, it’s a badge you need to earn before you wear it in public.

Living in a world where legions line up to investigate every angle of what organisations do to sniff out the slightest whiff of greenwashing, claims of commitment to something as important as energy transition need to be cast iron and copper bottomed – or reap the whirlwind.

One of the features in the pages that follows is penned by a particularly interesting organisation – EDHEC Infra – which has done more for the infrastructure and energy community than any other organisation (to my mind) to support the industry as it readies itself to report to the Task Force on Climate-related Financial Disclosures (TCFD).

This is no simple process and asset managers will benefit greatly from working on models with the right data to support claims. Let’s face it, they are going to need robust metrics to base their claims on because this is not where you want to be relying on a hope and a prayer.

This is no simple process – having a complete understanding of the impact on climate of infrastructure investments – and while this is all but impossible to achieve, it’s good news that TCFD allows investors to use proxies and actively encourages benchmarking.

EDHEC Infra uses a combination of reported data, physical models and statistical techniques to produce robust, PCAF-aligned climate proxies and benchmarks for TCFD reporting at a low cost for Scopes 1, 2 and 3 emissions and carbon intensities.

So that’s your heavy lifting done. The wheel does not have to be re-invented by every single asset manager around the globe as they scrabble to cover their backs

and – finger in the air – try to assess the impact of their investments.

But, of course, fund managers can also help themselves by taking a look at the assets they own and make a judgment call on what’s a keeper, what’s an exit priority and where to build presence.

Assets be judged

Take CDPQ on this front. They got the memo early and took action. Since 2017, it has invested C\$29 billion in low-carbon assets, and by 2025 this figure is due to reach C\$54 billion. It has reduced its portfolio’s carbon intensity by 53% compared to 2017, and – in 2022 – it completely exited all oil production. Furthermore, by 2050, it aims to achieve a net-zero portfolio, and is on track to reach this target.

Also featured in this issue of the *IJGlobal* Energy Transition Report is Edmond de Rothschild Asset Management (EDRAM) which in 2014 launched the BRIDGE (Benjamin de Rothschild Infrastructure Debt Generation) platform.

From those early days, the aim of the BRIDGE platform was to invest in renewable energy and – more broadly – to back energy transition across Europe. Again, an organisation that was plugged into the zeitgeist before it was “a thing”. The fund manager now boasts a 15-strong team with some €5.6 billion of ESG-compliant assets in 16 countries across the continent.

The support community

There are a slew of advisers that have specialised in this space and we will increasingly see boutiques crop up – likely hiving off from the established firms – to carve that all-important niche in a space that is not going to slip down the priority list for the foreseeable future.

For more years than I care to admit, I have been insisting that the likes of law firms and enormous management consultancies will have to make a hard decision one day on



Angus Leslie Melville

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the future of their (how shall I put it) less zeitgeist-focused practices... and possibly we’re already seeing this play out organically as they peel away from the mothership.

It rather puts one in mind of cowboys wearing dark hats (the bad guys) and those wearing light-coloured Stetsons (good guys). Will those big ticket, high-earning partners be “encouraged” to set up on their own and hide behind PO Boxes while their former colleagues embrace their cleaner images with smiles that fade just a little bit when they see big-ticket transactions closed by their dark-hatted chums.

Everybody in the infra community understands that the likes of upstream oil and gas deals need to be done... just you’re less likely to have your office daubed in orange paint if you’ve divorced the nasty relations and they’re living in hiding. ■



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Do you have “Climate Comps”?

As the TCFD deadlines loom, many an infrastructure asset manager is still looking for the data they need to report the carbon intensity of their investments. That’s because the data has been either not very forthcoming or not very good (even if you prefer to ignore scope 3).

If this feels familiar, it is because getting the right data was always going to be difficult. Carbon emissions are not like financials, that can be sourced back to individual invoices. Carbon molecules cannot be counted as they float away and estimating emissions either requires an in-depth asset-level investigation or is going to boil down to using a proxy of sort.

Asset-level assessments are costly, and, in the end, they also rely on proxies (there is no little man counting the CO2 particles being released in the atmosphere). A line-by-line carbon assessment of a decent infrastructure portfolio can quickly cost millions of dollars and take many months. Conversely, TCFD allows using proxies but not all proxies are convincing enough. This is a familiar problem in private markets: few data points are available for comparable assets and a typical ‘comparable’ can look very ad hoc and unrepresentative if it is

Figure 1: Reported vs Estimated Carbon Intensity in infraMetrics Data for Transport and Network Utilities Assets

		Carbon intensity by revenue (tCO2/USDm)		
		S1 Carbon Intensity	S2 Carbon Intensity	S3 Carbon Intensity
IC60: Transport	Observed	12.8	32.6	46.2
	Estimated	14.2	32.2	47.1
IC80: Network Utilities	Observed	87.7	95.7	142.3
	Estimated	100.0	94.1	153.0

based on less than a dozen datapoints.

But there is a better (and cheaper) way. infraMetrics®, a data platform for investors in private infrastructure equity and debt, give access to climate impact and risk data that is both granular and robust and can be used as a benchmark or comparable of the climate risks of infrastructure companies.

Carbon Model Pageant

We have collected thousands of reported carbon emissions by different types of infrastructure companies all over the world and in each segment and subsegment of the TICCS taxonomy of infrastructure companies. Using this data, we have built and calibrated technology-specific



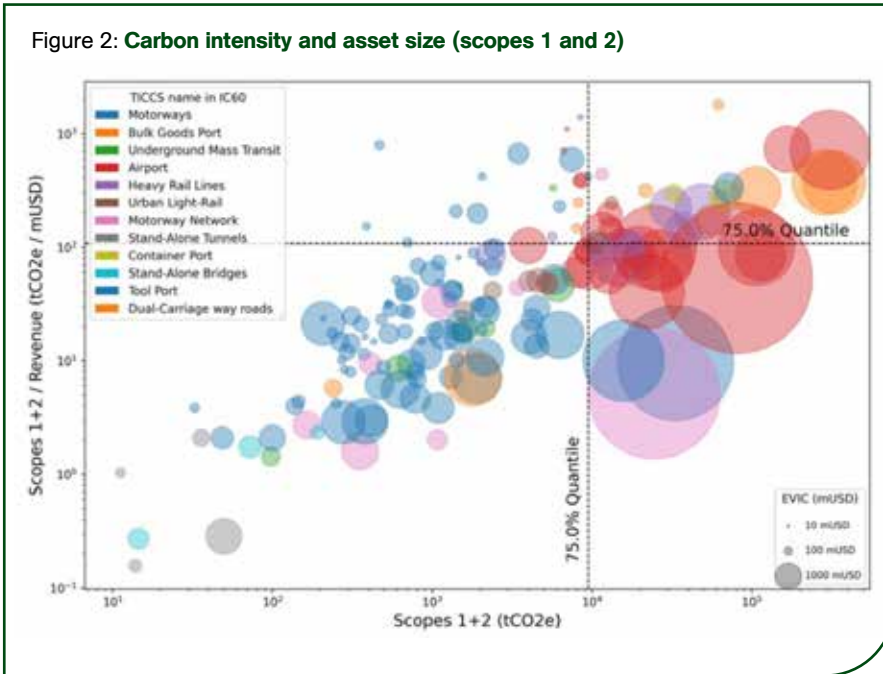
As the TCFD deadlines loom, many an infrastructure asset manager is still looking for the data they need to report the carbon intensity of their investments



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Figure 2: Carbon intensity and asset size (scopes 1 and 2)



models of the carbon emissions of these infrastructure assets.

Did you know that the shape and volume of airport terminal buildings can be used to partly predict their scope 2 emissions? The 'rounder' the building, the more energy efficient it is. Nooks and crannies are not good for your carbon footprint. Because we have compiled the physical shape of thousands of airports in the world (this is useful for physical risk assessments, more on that below), we know the shape of the terminal building of all the airports that report their emissions, and of those who do not. Likewise, a handful of factors, traffic, outside temperature and temperature variability, etc. explain and predict the bulk of the emissions of a typical road, data centre or port.

When we compare our model's performance with the reported data, we see that it is possible to model emissions for infrastructure companies with a good degree of accuracy – see figure 1. The average error of the models is close to zero. Of course, individual assets differ from the average (and the model) but to build comps at the segment level, this is very effective.

We produce estimates for scopes 1, 2 and 3, using a range of techniques, from the purely stochastic to physical models (counting planes and ships). Using this technology, a growing body of reported data and well-calibrated sector and subsector models, we generate carbon estimates for thousands of infrastructure companies, making our "Carbon Comps" very robust statistically, yet granular to the investor in

specific assets (see fig. 2 and 3). All this at a fraction of the cost of a line-by-line asset-level carbon audit.

It's Getting Physical

TCFD also requires knowing "the amount and extent of assets or business activities vulnerable to physical risks". This is trickier because it really requires asset-specific data. We have collected data not only for the shape but the makeup of hundreds of infrastructure assets and associated them with different hazard models and damage functions (see figure 4) to create a dataset of 'damage factors' for the most important hazards for infrastructure assets (floods, storm and heat). Combined with financial data, this allows the computation of physical risk VaR and expected losses today (the baseline).

Physical risks are very specific to an asset and its location. Thus we cannot build benchmarks or comparables for assets that all have different exposures, in a context where most portfolios or funds have between 5 and 20 assets. Asset-level geo-data remains essential to answer these questions more precisely. Investors need to decide how robust (and costly) they want their TCFD physical risk assessments to be.

What can be done now is to analyse individual assets based on their location as described above. This is much more powerful than analysis based on a single point (longitude and latitude) because it takes the specific asset into consideration e.g., the proportion of the runway that would be flooded with a certain probability is associated with a damage function (vulnerability) that is specific to airport runways. In other words, you have to know your infrastructures...

Such analyses can then be compared to the typical physical risk score of a benchmark reference like the infra300 index.

Figure 3: Climate Proxies/Comparables available in infraMetrics

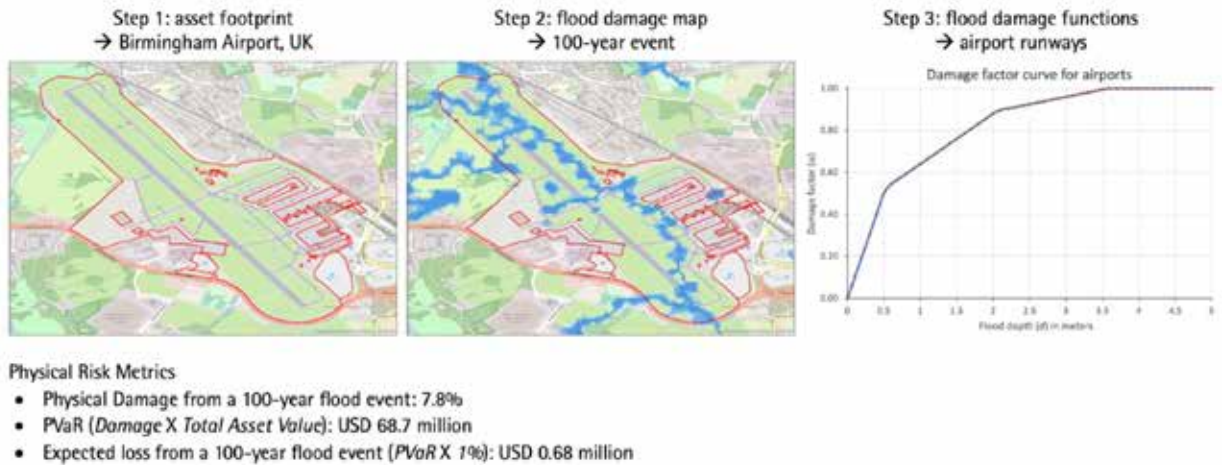
Climate Impact Measures	Unit	Horizons	Scenarios
Financed Emissions - Equity	tCO2/Market Cap	Today, 2030, 2040, 2050	Orderly transition, Delayed transition, No transition
Financed Emissions - EVIC	tCO2/EVIC		
Climate Impact Measures	Unit	Horizons	Scenarios
Emission intensity of Revenues	tCO2/\$M Revenues	Today, 2030, 2040, 2050	Orderly transition, Delayed transition, No transition
Ebitda at Risk (shadow carbon price)	% Ebitda		
Transition Risk Extreme Value	% Loss	by 2030, 2040, 2050	
Alignment Risk Extreme Value			



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Figure 4: Approach to estimating asset-level physical risks: floods in airports



Beyond the Baseline

Climate risk assessments are only a starting point: beyond today's baseline, investors need to plan for what climate change might bring in terms of lost revenues, lower profits, higher capex and more. For this, we all use a range of climate scenarios. Independently of the preference taken for one scenario or another, the starting point or baseline from which the scenario is to be applied to estimate either transition risk (usually proxied by a rapid change in carbon taxes) or physical risk (the asset-level and economy-wide damage caused by

extreme weather events) is an all-important datapoint.

This is probably why getting your TCFD Comps right matters the most today. Not so much that they have to be 'right' for the sake of reporting the correct number, but they are also the main input in your future climate risk assessment and will determine quality of the risk estimates.

Just like we have used comps for financial analysis for decades, it makes sense to adopt similar approaches for climate risks, but we need to make sure to be using the best data, large and granular datasets, and

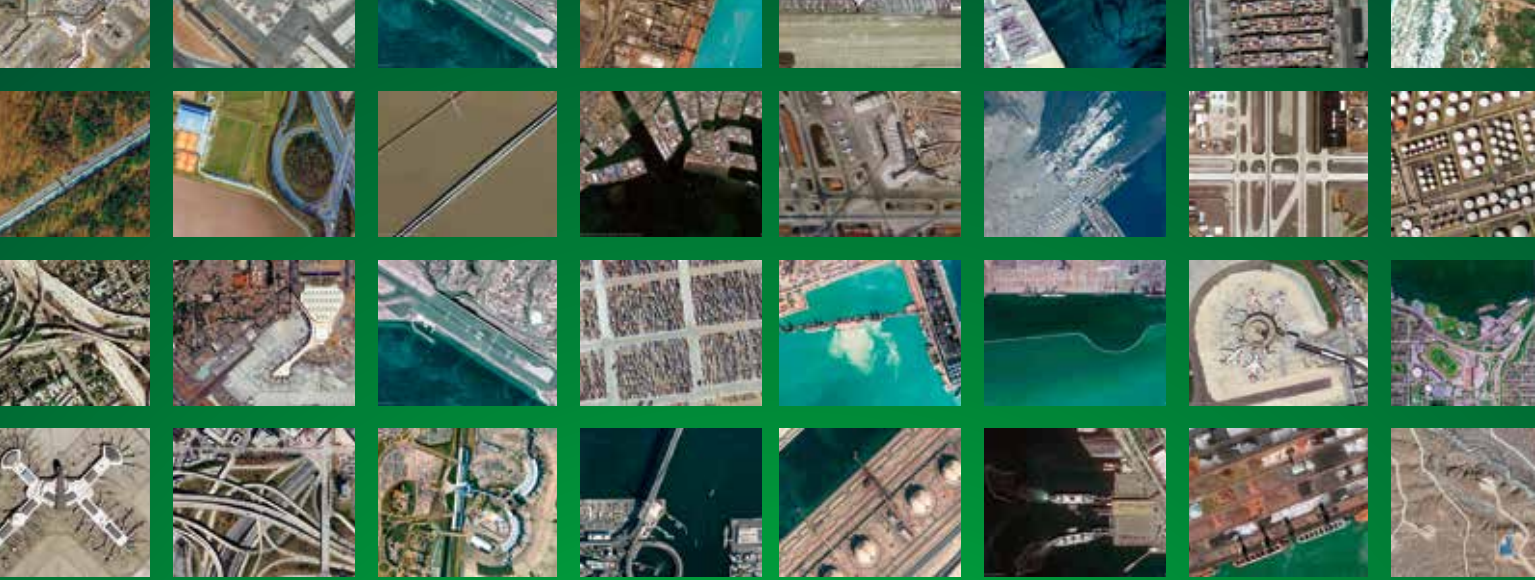
robust models. Do not hesitate to ask your consultant to demonstrate that their model is robust! (ours is..)

Using Scenario data like the one created by NGFS, it is possible to project the cash flows and discount rates of infrastructure companies until 2050 in each scenario and look at the difference of valuation as a proxy of extreme climate risks.

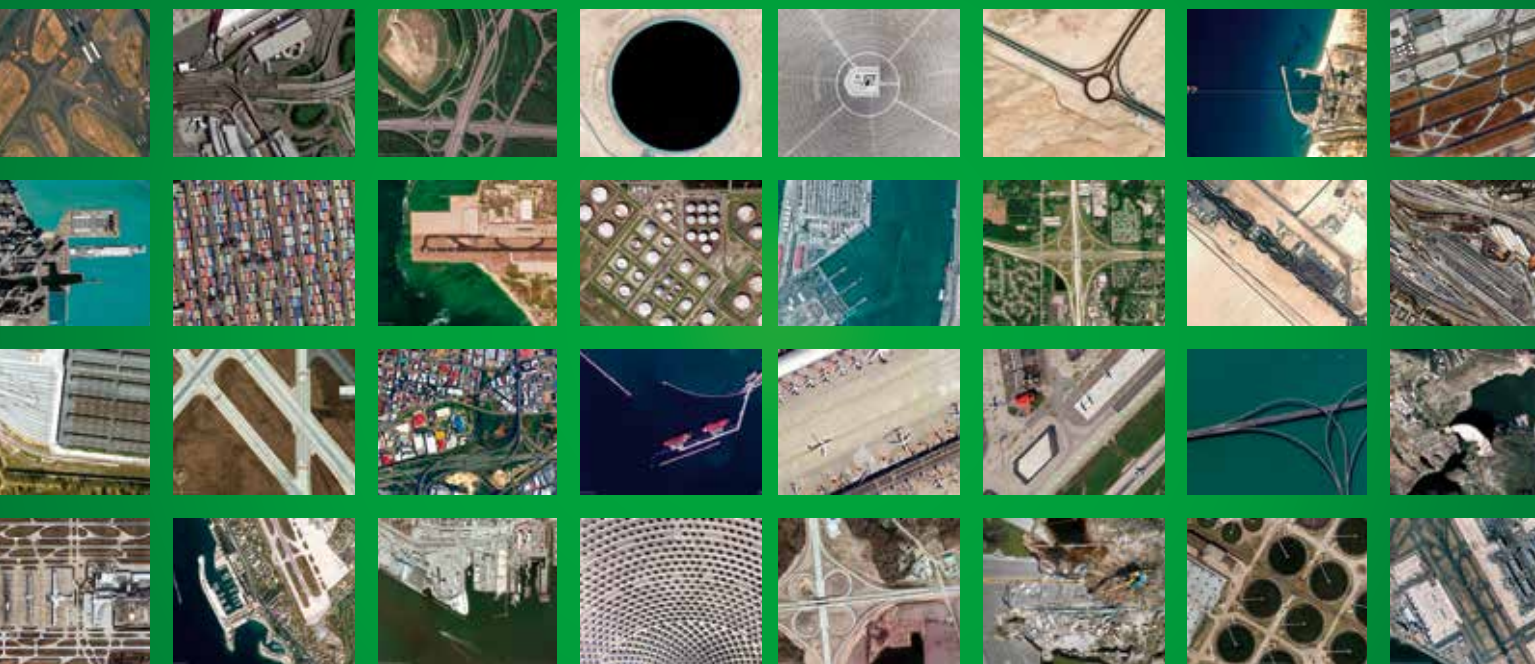
These difference can be very large: we estimate that investors in infrastructure would lose up to 30% of the value of their portfolio in the event of a very 'disorderly' transition. ■

Climate risk assessments are only a starting point: beyond today's baseline, investors need to plan for what climate change might bring in terms of lost revenues, lower profits, higher capex and more





Do you have your Climate Comp?



Knowing the climate impacts and risks of infrastructure investments is challenging and costly, but **TCFD** allows investors to use proxies and encourages benchmarking. With **infraMetrics®** climate proxies (or "Comps"), investors can approximate the climate impact of their assets using analytics customised to fit them the most: by activity, technology, size and more. With climate benchmarks, investors can gauge their own assets against the average level of climate impacts and risks of the relevant sector or segment.



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CDPQ – decarbonising the real economy

With C\$402 billion (US\$296.6bn) in assets under management, CDPQ is one of the world's leading investment groups. It is also a global leader in sustainability, spearheading efforts to decarbonise the real economy and limit the impacts of climate change by investing in sustainable projects across its various asset classes.

Published earlier this year, CDPQ's latest Sustainability Report includes some impressive figures. In 2022, it reached C\$47 billion in low-carbon assets – up from C\$18 billion in 2017 – with a goal of attaining C\$54 billion by 2025. It reduced the carbon intensity of its portfolio by 53% compared to 2017 and almost completely exited all investments in oil production. By 2050, it aims to achieve a net-zero portfolio – and is on track to reach this target.

Recent low-carbon infrastructure investments include Akiem, a European locomotive leasing service, which has a fleet that is 75% electric; Shizen Energy, a Japanese renewable energy infrastructure business in which it invested ¥70 billion (US\$474m); multiple acquisitions in sustainable lands in the US and Australia; and HY2GEN, a European green hydrogen investment platform in which CDPQ participated in a €200 million fundraiser.

"The wide range of infrastructure investments we've been making is evidence that driving the transition to a low-carbon economy has to go beyond investing solely in renewable energy," said

Emmanuel Jaclot, executive VP and head of infrastructure at CDPQ.

"As we seek to grow our infrastructure portfolio from C\$45 billion to C\$84 billion, our ability to generate new investment opportunities globally will prove critical. This includes ensuring we remain innovative in how we deploy capital despite an increasingly challenging environment, with a focus on specialised platforms that offer us access to greenfield development and further acquisitions."

A C\$10 billion transition envelope

As part of a new climate strategy launched in 2021, CDPQ created a C\$10 billion fund to support companies operating in the heaviest emitting sectors to reduce the carbon intensity of their activities. To qualify, businesses require a proven decarbonisation strategy, implementation plan and associated disclosures detailing their progress.

The investor, which manages funds for 48 public pension and insurance plans, completed three transactions that met those criteria last year, which were also audited



Emmanuel Jaclot

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Recent low-carbon infrastructure investments include Akiem, a European locomotive leasing service, which has a fleet that is 75% electric

by independent external experts and in line with the Paris Agreement. These included providing part of the €485 million financing to support KKR's acquisition of Albioma SA, a French energy producer operating more than 1GW of thermal, solar and geothermal energy; a reinvestment in American utility company AES Indiana; and further one in Apraava Energy, an Indian electricity provider, to accelerate their transition to renewable energy sources.



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In November, CDPQ issued a second green bond – and the first in Canadian dollars – worth C\$1.25 billion (US\$935m), further underlining its climate commitments and increasing the value of its green bonds to over C\$2.5 billion since the program's launch in 2021. The issue also enabled it to diversify funding sources globally by leveraging sustainable assets such as the Réseau Express Métropolitain (REM), Montréal's light rail system built and operated by CDPQ.

The firm's multiple awards in 2022 include *IJGlobal's* Direct Investor - Global, with judges praising its weighted-average return on its depositors' funds was 13.5%, compared with 10.7% for the benchmark portfolio, representing US\$10.4 billion in value added. They also cited that its net assets were US\$419.8 billion, up US\$149.1 billion over five years, with investment results of US\$141 billion and net deposits of US\$8.1 billion. Over 10 years, investment results were US\$241 billion and net deposits were US\$19.8 billion.

2023 so far

Beyond the benchmarks, completed transactions and awards of 2022, CDPQ has had a strong first half of the year.

In June, president and CEO Charles Emond was among 11 counterparts



Charles Emond

“The REM will have an impact on the daily lives of thousands of people in the Greater Montréal area, and we’re very proud of it.”

at Canadian pension plan investment managers to call on companies to embrace the new International Sustainability Standards Board (ISSB) disclosure framework. The new standards will consolidate existing disclosure standards including the Sustainability Accounting Standards Board (SASB) standards and the Task Force on Climate-related Financial Disclosures (TCFD) framework.

On July 31st, CDPQ's REM – Québec's largest infrastructure project in 50 years – opened its doors on the first branch of the network. Once complete, the 100% electric and automated metro system will connect 26 stations along a 67km route, making it the longest automated metro in the world. It is expected that the REM will reduce GHG emissions by 100,000 tons per year.

“The REM will have an impact on the daily lives of thousands of people in the Greater Montréal area, and we're very proud of it,” said Charles Emond. “This investment speaks to our dual mandate, as it will generate significant economic benefits for Québec and each time passengers step on board, they will contribute to financing their retirement. It's truly a signature project that will deliver tangible benefits starting today and for future generations.” ■



Constructive capital to accelerate the transition



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Capitalising on the energy transition: **know-how, dedication and a bit of luck**

A decade ago, the concept of “energy transition” was familiar to climate scientists, but not to most financial services professionals. But some did detect an opportunity that could transform both the climate and the infrastructure business.

In 2014, Edmond de Rothschild Asset Management (EDRAM) launched the BRIDGE (Benjamin de Rothschild Infrastructure Debt Generation) platform. The aim was to invest beyond traditional transport and social PPPs to include utilities, digital infrastructure and renewable energy.

More broadly, this means backing the energy transition across Europe, and acting as an alternative arranger of infrastructure debt for project finance, refinancing and acquisition finance. Now, the 15-strong London and Geneva-based team manages €5.6 billion in assets through ESG-compliant investments in 16 countries on the continent.

“Very early on, we broadened the investment universe and introduced – and then slowly prioritised – the energy transition across all sectors. We wanted to embody it both as an ESG-focused firm and a manager of a new and fast evolving asset class,” says Jean-Francis Dusch, managing director and global head of infrastructure and structured finance debt at EDRAM. He is also CIO at BRIDGE.

Fast forward to 2023, and 45% of EDRAM's assets are linked to the energy transition.

In April, it announced the close of its €2.5 billion (\$2.7bn) BRIDGE V infrastructure debt fund, comprising €1.9 billion in senior debt and €600 million in yield plus.

This doubled the raise for BRIDGE IV across two vehicles – Senior Energy Transition and Higher Yield – and enabled the launch of BRIDGE VI. The new fund will focus on existing senior investment grade and higher yielding BB creditworthy junior (Yield+) strategies in Europe, while also expanding into countries such as the US. A new strategy, Yield Square +, is also added where BRIDGE takes a partial equity risk in



Jean-Francis Dusch

“We want to focus on energy transition but also to provide investors with an opportunity to diversify their portfolios.”

order to support the energy transition and digital infrastructure plans of target assets

Last year saw EDRAM win *IJGlobal's* Infrastructure Asset Manager of the Year (Debt). During the period, the BRIDGE team ploughed more than €1.5 billion into 30 investments across sectors and brownfield/greenfield assets, from energy transition through to digital infrastructure, utilities (and their decarbonisation), transport (including green mobility) and social infrastructure (including energy efficiencies). This was broken down into €1.2 billion in the senior strategy, and €350 million in yield plus – twice the amount deployed in 2021.

Having entered the energy transition space early, EDRAM was poised to take advantage of opportunities in renewables and all the new technologies and sub-sectors underpinning the broader energy transition as they arose, explains Dusch.

“Four years ago, we began to invest in green mobility with charging point infrastructure alongside the TEN. For us, each of these transitions also represents an opportunity to get involved in social infrastructure with energy efficiencies and the whole process of decarbonising utilities.”

The firm invested in renewables very early on, prompting it to think there was more to do, and an opportunity to enable investors to build and operate greener infrastructure. Around 2019-2020, it began to focus on “Gen 2 Energy Transition”, which included battery storage, floating offshore and hydropower. Because infrastructure debt is about the quality of the investment team, EDR further strengthened and expanded its investment team to add the necessary expertise.

A flexible approach

With definitions for energy transition proliferating across the industry, what does it mean for EDRAM?

The firm, says Dusch, defines the term broadly – and beyond just renewables.

“We want to focus on energy transition but also to provide investors with an opportunity to diversify their portfolios.”

With the key word being “transition”, EDRAM executives think about how to reach global warming reduction goals, which in Europe includes reducing carbon dioxide emissions by 55% by 2030 (the EU's Fit for 55 initiative).

“We all know that 2030 is practically tomorrow. And as a European, I can say that



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we focus a lot on the goal – but we also need to reach the goal,” says Dusch.

For him, renewable energy is the obvious place to start, and this also includes green mobility, social infrastructure projects offering energy efficiency, and the decarbonisation of utilities.

This clearly means excluding coal, for example, but the firm’s flexible approach enables it to support a company that operates part of its business in abandoned coal mines in northern France that produces district heating and renewable energy.

Project Ares is a green bond financing of La Française de l’Energie (LFDE), an energy producer with a negative carbon footprint. LFDE’s main activity is the capture of methane emissions (CH4) from abandoned coal mines in France and Belgium and to convert or monetise this gas into electricity, gas and heat sales under long-term regulated tariffs (feed-in tariff in France or green certificates in Belgium) or long-term private contracts with local stakeholders. These include industrials or municipalities willing to offer local and affordable green energy to surrounding communities.

Methane, explains Dusch, is 80-90 times more toxic than CO2 and can cause explosions. Financing LFDE’s ambitions is what financing the energy transition is all about, as well as a tangible way to help Europe reach its objectives.

A commitment to the environment, and to investors

Being among the first to enter the energy transition race doesn’t mean EDRAM can rest on its laurels, however.

Like all firms, it has to be constantly scanning the market for new assets, while monitoring its existing ones.

Sourcing is the first layer, says Dusch. He credits this to a direct relationship with sponsors, and the team’s ability to convince them that they can structure the right instrument, and ensure the sustainability of the asset itself.

“We managed to establish the platform as a credible arranger, which means that sponsors – financial or industrial – will talk to us at an early stage when they want to develop projects and further implement their energy transition. They also see us as being able to mitigate the underlying risk early, take a view on new technologies and regulations, as well as understand what the energy transition is all about.”

Equally central to the team’s *raison d’être* are a commitment to ESG and a duty of care towards investors, says Dusch.

“Our goal is always to stay ahead of the market as legislation evolves, and as ESG requirements change. It’s important to remember that your competitors can do it as well or better – especially at the top end of the market.”

Jean-François Dusch

Managing director and global head of infrastructure and structured finance debt, **EDRAM**

“We need to provide evidence of how we will make an impact, something we’ve measured for each of the assets we invested in since 2018. Back then, we were probably one of the first debt funds to take on the energy transition label, and in the same year, we began to prepare for the SFDR (the EU’s Sustainable Finance Disclosure Regulation).”

EDRAM’s funds meet “at least” SFDR Article 8 guidelines for funds promoting social or environmental characteristics, so it has to measure impact.

This means looking at how assets avoid carbon emissions and align with 2050 global warming reduction goals, and this is all audited by external consultants.

“We have clear guidelines, and when I say our funds are compliant with Article 8, it’s not self-proclaimed. We always know there’s an audit coming,” says Dusch.

To give investors complete transparency, the firm explains in its placement memorandums how it selects assets, in which sectors, according to which guidelines, and under which structures.

So an investor knows which United Nations Sustainable Development Goals (SDGs) we follow, how we’re going to source deals and structure them – sometimes but not always using ESG-specific covenants – and then that we will monitor and report on their progress.

Staying ahead of the market

When EDRAM took on the energy transition label five years ago, it knew that ESG was a work in progress – and that the same was true for the SFDR, says Dusch.

“We learn every day, because we want to be ready. Back in 2021, many investors thought these were nice-to-haves. But now we know that ESG must be part of the asset selection process.”

Dusch confirms that the firm’s reporting duties are fairly onerous, but says EDRAM can rely on dedicated reporting resources within the global asset management of EDRAM and the BRIDGE team to produce what investors require in a tailor made way. This means that it can provide very detailed data – whether it’s quantitative, qualitative, or both – in order to meet whichever internal constraints investors have, or which regulatory frameworks they follow.

The firm helps investors by ticking two boxes – capability and process – and providing evidence of it, giving EDRAM an edge in terms of fundraising, says Dusch.

“Our goal is always to stay ahead of the market as legislation evolves, and as ESG requirements change. It’s important to remember that your competitors can do it as well or better – especially at the top end of the market.”

When the team began to look at new technologies, Dusch remembers having to convince the firm’s investment committee that it was worth taking a risk... but not to transfer it to investors.

“We had to explain to our investors what we were doing, and why we believed it would work. So we’ve had the luxury of full support from top management, the drive to build a talented team, and crucially, a bit of luck; but a luck which we forced,” he concludes. ■

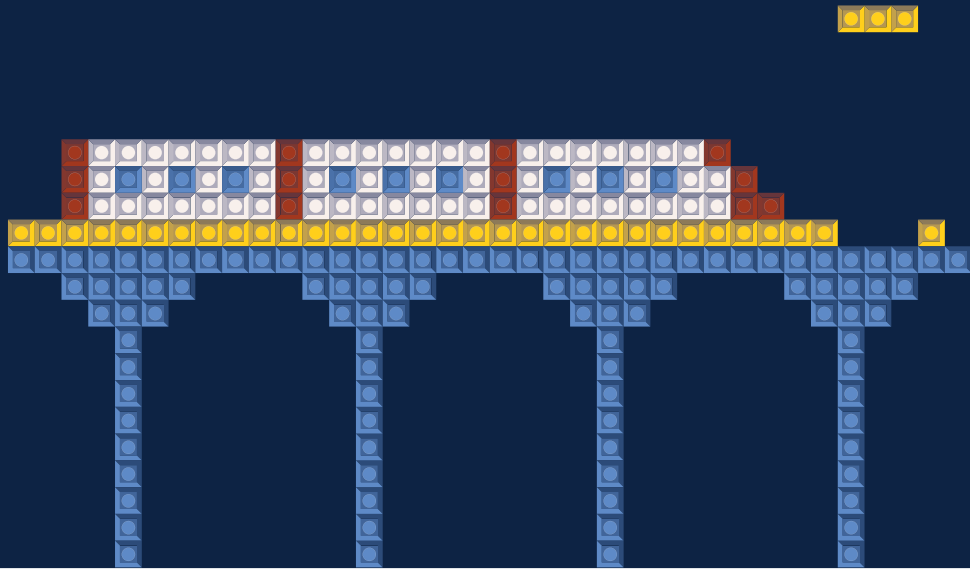


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EUROPE CASE STUDY

EQT's ferries platform, Nordics

EQT's recently launched platform Nordic Ferry Infrastructure (NFI) added an asset in January, as EQT completed the acquisition of Helsingborg-headquartered ForSea Ferries from Igneo Infrastructure Partners. *IJGlobal* reporter **Claudia Preece** takes a look.

NFI, the pan-Nordic vehicle comprised of "floating bridges", is made up of the ferry companies Molslinjen and Torghatten – and now ForSea. Its overarching theme is to help renew the transport network in the Nordics, increasing capacity as well as pushing forward the green transition.

The sector is considered by market onlookers to be a growing area across the region, with the demand for transport and mobility continually on the rise and trade activity following suit.

Speaking to this growth with ForSea in mind, Mats Hope, managing director at Igneo Infrastructure Partners, said: "Transport volumes have seen a near full recovery post-pandemic and are anticipated to continue growing for the foreseeable future."

He added: "The growth in national traffic has closely followed the underlying drivers for travel including GDP and population growth."

In EQT's own words, its aim with NFI is to be "forward leaning and lead by example" through its investments and "get the rest of the ferry industry to follow" in the pursuit of sector development and the search for new green fuel alternatives.

NFI's 3 assets

The 3 assets that make up NFI to date are held in EQT Infrastructure V. The first is Molsinjen, founded in 1963, Denmark's largest passenger ferry company.

It operates 9 ferry routes across Denmark and transports more than 8 million passengers a year using its 15 vessels.

Its routes link Denmark's most populated areas, as well as link islands to the mainland and connect to Germany and Sweden.

According to the business, "it operates a young, modern, and fit-for-purpose fleet under long-term concession agreements as



well as on a commercial basis as the sole operator with high barriers to entry."

Torghatten is the largest business held under the NFI umbrella. Founded in 1878, its fleet is made up of 92 car ferries and some smaller passenger vehicles. It runs across 59 connections within Norway and transports more than 8 million passengers a year.

It is a 'critical' part of the country's domestic transportation system and has contracts with public transport authorities – typically medium to long-term contracts.

EQT submitted a bid for Torghatten in 2020, when at the time the private equity firm said: "EQT Infrastructure has followed Torghatten closely for many years and is impressed with its development over the last decade with respect to growth, profitability, and sustainability work."

ForSea ferries, the latest addition to NFI, was acquired from Igneo Infrastructure Partners – First Sentier Investors' direct infrastructure team. It is the sole operator of 'roll-on/roll-off' ferries and specifically runs between Helsingør, Denmark, and Helsingborg, Sweden.

Its single route crosses one of northern Europe's busiest sea lanes and connects via the closest point between the 2 countries (around 4km).

Igneo acquired ForSea in January 2015 and during its ownership "supported numerous value-accretive initiatives ... including the successful transformation and rebranding of the business into a fully independent company, and extensive investment into the business totalling SEK 729 million of capex, including the complete renewal and life extension of the entire quay wall at Helsingør, and the conversion of 2 vessels into the world's largest battery-powered ferries", said Mats Hope.

ForSea ferries was one of 4 assets in its first flagship fund European Diversified Infrastructure Fund (EDIF) and was subsequently held in its third European Diversified Infrastructure Fund – EDIF III.

Annually it transports 7 million passengers and 1.8 million passenger cars across the strait. It owns 5 ferries and of these assets, 2 are electric already and a third is planned for retrofit.

This decarbonisation is a key focus for the new owners, with full decarbonisation of the fleet planned by 2030. EQT is set to draw on its "extensive experience in developing companies in transport and logistics with a focus on sustainability and long-term ownership".



EUROPE CASE STUDY

Inception of Nordic Ferry Infrastructure

EQT's pan-Nordic ferry operator of "floating bridges", NFI, was born out of a sector review of the Nordic transport system overall conducted around 5 years ago – specifically focused on the road network's symbiotic relationship with natural waterways.

The investment thesis concentrated on the 'mission critical' role that ferries represent in these jurisdictions – important in terms of passenger transport, as well as freight traffic – with the essential services provided linked to underlying demand trends.

In addition, it was found that the jurisdictions in question were on the cusp of an increased demand regarding energy transition measures. Specifically, the transformation of ferries from hydrocarbon-based fuels to greener fuels.

Carl Sjölund, the responsible partner at EQT, said: "We look for areas where we can support and invest actively into the ongoing energy transition. Within the wider transport market, we identified the floating bridge segment as one such area. With the market in the Nordics being fragmented in parts, and also underinvested in parts, we saw an opportunity to build something unique by supporting these businesses on their transition to drive investment into the next generation of ferries and future-proof the businesses."

NFI is the result of a combination of the 3 businesses, which were identified as part of the thematic pursuit and held in EQT Infrastructure V.

The first 2 assets, leading Danish and Norwegian ferry transportation companies Molslinjen and Torghatten, were standalone investments acquired by EQT Infrastructure in February 2021 and March 2021 respectively.

The sale of Molslinjen was organised as a structured auction process with EQT picking up the entirety of the operations. Torghatten, on the other hand, was previously a multi-modal operation and was comprised of an airline, a bus business and other minor operations, as well as the core ferry operation.

According to EQT, Torghatten's non-ferry assets were not aligned with the investment thesis of building a pan-Nordic floating bridge operator. The air component was therefore carved out of the sale, with the minor bus segment and other remaining interests offloaded by EQT following the transaction.

Both acquisition processes were delayed by the Covid-19 pandemic. Subsequently, due to the debt market at the time, EQT acquired the businesses on the basis of

keeping existing debt within the companies and rolled the existing debt in both of the businesses separately.

Following this, NFI was born. The companies were not merged, but instead brought closer together first by harmonising the capital structure of the companies jointly. A new sustainability-linked financing was put in place, with Molslinjen and Torghatten continuing to operate locally under their existing brands.

Over time, group-level governance was put in place, with a new chief executive and board of directors introduced at NFI level.

The recent addition of ForSea within NFI, compliments the offering. The sale was first reported by *IJGlobal* in September (2022), with EQT understood to have shown considerable interest in the asset from early on.

NBOs were submitted in October (2022), with both financial and strategic investors and several local investors in the running at the time. Other interested bidders were understood to include:

- Basalt
- CapMan
- Copenhagen Infrastructure Partners
- Infranode

In November, EQT's Molslinjen announced its successful bid and the acquisition subsequently closed on 26 January (2023).

According to EQT, ForSea formed part of the original sector thesis mapping and was chosen in large part due to its similarities with Molslinjen and its potential for mutually beneficial growth.

What's next

The overarching objective of NFI – to invest the Nordic transport network and support growth in the sector, as well as contribute to the green transition – is underway.

According to EQT, the focus for now is on integrating and developing these businesses to get them on the right footing before further potential acquisitions. The 3 assets in the portfolio share unique competencies which are well placed to support each other's offerings.

- EQT's investment in these businesses is set to ensure increased capacity in the networks to support further transport demands, as well as doubling down on the decarbonisation of their activities, which in practice means:
- investing in brand new ferries as well as retrofitting existing ones – typically resulting in larger vessels which will add capacity
 - replacing hydrocarbon-based fuel sources with green alternatives – electric as far



Carl Sjölund

as it is suitable. Where this is unviable the plan is to push the sector for more alternatives

For example, Torghatten recently won its first tender to launch hydrogen-based ferries. It is set to build 2 new hydrogen vessels by October 2025 with its existing main vessels (in operation since 2012) to be converted to low emission solutions.

Molslinjen began operation of its first fully electric ferry – Grotte – on one of its most popular routes in October 2021. The new sustainable vessel provides transport between the coastal town of Esbjerg and the Fanø island off the southwestern coast of Denmark.

Following on its track record in electrification, Molslinjen has also recently been awarded contract renewal on the Als and Samsø routes, where Molslinjen will introduce 2 new-build electric ferries in 2024 and 2025 respectively.

Speaking to *IJGlobal*, EQT said: "The fundamental thesis behind investing in the green transition is to be forward leaning and lead by example through our investment. The aim is to get the rest of the ferry industry to follow our lead and help drive the development of new green fuel alternatives."

Advisers

Advisers to Igneo were:

- Rothschild – M&A
- EY – financial and tax
- Vinge & Gorrissen Federspiel – legal
- Arup – technical & ESG
- E.K. Consulting – commercial
- Willis Towers Watson – insurance

Advisers to EQT were:

- DC Advisory – financial
- Danske Bank – financial ■



NORTH AMERICA CASE STUDY

EIR's billions remain up for grabs, North America

The Inflation Reduction Act was finally signed into law in the US in August 2022 after more than a year of negotiations. **Natalie Boyer** drills down into the detail.

West Virginia Senator Joe Manchin (D), the deciding vote, lengthened discussions by insisting on capital being made available for retrofitting coal and oil plants, creating carbon capture projects and adding emission control technologies.

Manchin's \$5 billion provision later became known as the Energy Infrastructure Reinvestment (EIR) Program (Title 17, section 1706), which now guarantees up to \$250 billion in loan authority from the Department of Energy's Loan Programs Office (LPO).

The funding is for existing electric and petroleum energy infrastructure that have ceased operations and replace them with clean energy technology or retrofit operating fossil fuel assets.

Unexpectedly, big oil and gas companies are not racing to take all the funding, instead, smaller players in the energy sphere are showing interest and revealing unique ways to use the loans.

"A lot of people when it was passed, thought the utilities would come in and just gobble it up and they would be ready," explained Taite McDonald, a partner at Holland & Knight, which represents at least one-fourth of the 150 applications in the LPO's pipeline.

Oil companies and giant utilities can usually use longstanding relationships with banks to get the best deals on the market and do so on their balance sheet, McDonald explained.

But there are other reasons the largest

energy companies, especially oil and gas giants, are not rushing to apply for the funding.

"I think that one of the reasons that major energy companies hesitate to work with the Loan Programs Office is the time requirements," said Matthew Kittel, a former DOE managing investment officer who transitioned to senior financial specialist at Societe Generale this past spring.

According to the DOE, the process can take almost a year to reach a conditional commitment for a loan – and there is an expiration date. "Funds for the 1706 program have to be committed by September 30th, 2026, which, for a heavy industrial project, is as good as tomorrow," said Kittel.



The Energy Infrastructure Reinvestment Program is for existing electric and petroleum energy infrastructure that have ceased operations and replace them with clean energy technology or retrofit operating fossil fuel assets



NORTH AMERICA CASE STUDY

It is not just the impending deadline, but the time it takes to go through the plethora of applications. Though the DOE has been speeding up due to the increased flow since 2022, the EIR takes longer to go back and forth than a regular bank or even some of the other DOE loan programs, Kittle said.

Exxon's recent acquisition of Denbury to grow its carbon-capture and sequestration technology and claim Denbury's pipeline is an example.

With more than 1,300 miles of CO2 pipeline and 10 sequestration sites, Denbury gave Exxon a readymade pipeline that includes 925 miles through the Gulf Coast region. Instead of being pressed to meet deadlines or waiting a year or so for just loan approval, the private sphere provides more flexible propositions.

Another issue is optics. Some companies fear that taking government funds would be a reputational risk.

Shell-subsiary Savion recently partnered with local developer Edelen Renewables to repurpose a coal mine into a solar park, bringing new opportunities to a suffering coal community.

The project could have qualified for a 1706 loan but instead, the \$231 million construction investment came from Savion's private financing. This deal was announced days after climate protestors tried to storm the stage at Shell's shareholder meeting and reported hefty profits for their first quarter reports.

"If you're a large oil company, for instance, and the general perception of the public is that you are making more money than you should, there is risk that public stakeholders will ask why should you get government support when you can pay it on your own," explained Kittle.

Thirdly, large corporations often avoid the DOE and government engagement because of disclosure concerns. Engagement with the government will reveal private information that large multinational companies might care to keep private. Major energy companies are chiefly concerned about sharing internal details of their technology, project plans, and project performance with the government.



Taite McDonald

"A lot of people when it was passed, thought the utilities would come in and just gobble it up and they would be ready."

The last risk is politics, especially on the cusp of an election.

McDonald saw this first-hand when the Trump administration effectively froze the LPO. Her team later represented clients that created an ad hoc coalition to push for the program to be reinstated.

"You might be halfway through the process, and you've invested millions of dollars, and not to mention all your time, and then all of a sudden, it's no longer available to you," Kittle added. For a company that can finance its project privately, it pays more attention to the uncertainty of the funds – especially with an election approaching in 2024.

Big oil and gas may not be rushing to get the funding from the 1706 program – but that does not mean the applications are not flowing in.

"We're seeing a lot of interest in the new 1706 program now that the guidance has been released. So, we expect a lot of new applications to come in, and we have even already gotten our first," Jigar Shah, director of the LPO with a long record in the energy finance industry, told *IJGlobal*.

"When we first launched the EIR Program, I think everyone told us we didn't need the money... like, 'You're wasting your time,'

Shah said during a podcast on Common Resources, an environmental and energy non-profit publication. "And then we hired some great people to run it, and they have unearthed all sorts of projects that the people needed us for."

The LPO now has probably \$40 or \$50 billion worth of projects that are preparing to apply for the funding, including IPPs and utility companies, Shah continued.

One utility has been vocal in their interest in 1706. PG&E, California's largest utility, reportedly is applying for around \$7 billion to update its electrical grid to reduce wildfire risk. A key issue for PG&E has been receiving funding from traditional banks after a difficult bankruptcy restructuring in 2020. Both the DOE and PG&E declined to comment on the application details.

Based on the 10-year US Treasury note, DOE loans would be at 3.7%, while private companies would charge PG&E in excess of 6%.

This is also a great opportunity for the private sector to get a lot of early learning in newly emerging markets, with government support, public-private partnerships.

Kittle emphasized the value that could be added to the program if private banks utilized the program to underwrite a loan and seek a guarantee, reducing their exposure on the project to less than 20%.

This triple exposure would help banks feel more comfortable with new technology and make the process swifter for the LPO, as private bank deals arrive pre-underwritten, pre-negotiated, or "fully baked" as Kittle put it.

"Banks can learn the technology, these sectors, markets, contracts. And that way, when the money expires – 2 or 3 years from now, when the government is no longer able to participate, the private banks are ready to go. They can pick up the torch and continue the path to decarbonization," Kittle said.

Other experts in the industry see 1706 funding going beyond its current guise.

"I actually see 1706 as an opportunity for developers to come in, and not just retrofit utility assets, but retrofit buildings for Net Zero as a whole. And we have already seen some interest there, too," McDonald said. "It's a near-term opportunity for developers."

Jigar explained that retrofitting brownfields can mean turning old facilities with barge or rail access into an industrial park or transformer manufacturing plant.

The LPO now estimates that the 1706 program will dole out \$60 billion in loans, with the average loan size between \$1 to \$3 billion. While the supermajors ignore the EIR there remains billions in capital up for grabs. ■



Big oil and gas may not be rushing to get the funding from the 1706 program – but that does not mean the applications are not flowing in.



LATIN AMERICA CASE STUDY

Offshore wind – LatAm’s mission to Mars

Offshore wind in Latin America is generating conversation, if not power, as its governments attempt to meet ambitious energy transition goals – as *Power, Finance & Risk’s* **Alix Publie** reports.

According to the World Bank, the region holds 8,000GW of potential technical capacity, with Brazil, Colombia, Chile and Mexico offering some of the best resources for implementation.

Yet project finance for offshore wind has yet to take off, and many industry experts at REFF LatAm 2023 do not expect this to change in the short term, despite posturing from well-known energy companies.

“There’s a lot of potential but the big difference between the Americas and Europe is space. There are still a lot of suitable locations that can be developed which are not as populated as Europe. There’s not enough pressure to go offshore,” said Bernhard Stohr, head of growth at Sonnedix in Chile.

With ample land resources still untapped, Latin America’s case for more costly and more intricate offshore projects is hard to justify to investors.

“You’re looking at 3.5 times the investment to generate the same amount of energy when comparing offshore to onshore. It doesn’t make sense economically yet,” said Benny Villarreal, chief executive at Vive Energia.

To alleviate the costs on developers, governments in other parts of the world have supported the sector through subsidies.

“In Mexico, we have a merit-based energy system. The energy is dispatched depending on price and the government couldn’t care less about the technology or how it’s made. Why would the government want to put a subsidy on this? I don’t see it happening,” said Villarreal.

In the case of Chile, a near-term possibility for offshore wind could make sense off the central coast, where most of the population is concentrated and the demand is the highest. But even then, subsidies are hard to reconcile.

“Authorities have seen renewable energy sources being quickly developed



Sami Asad Mir

“That’s really one of the first steps that governments need to take: put together a framework, a structure where you can really streamline those processes from the government perspective and give that certainty to the investors, which is really important.”

.....

successfully in the past by the private sector so talking about subsidies is hard,” said Stohr.

In the near term, the panelists agreed that corporate mandates would be the only solution driving financing for these assets. In Brazil, Petrobras recently joined forces

with Equinor to explore the development of 14GW of offshore wind capacity on a corporate mandate.

A lot of international majors and large developers have jumped on the trend in Brazil, as there is the added possibility of producing green hydrogen.

Shell is teaming up with Eletrobras on feasibility studies after the oil company applied for environmental permits to develop 17GW of offshore wind projects. Other foreign companies, including TotalEnergies, EDPR, Engie, are among those who committed to offshore wind generation in the country.

Developments like these are made possible thanks to the regulatory frameworks in place. Countries like Brazil and Colombia drafted road maps which provide guidelines for offshore wind projects. But in other jurisdictions, like Chile and Mexico, that same framework is still lacking.

“That’s really one of the first steps that governments need to take: put together a framework, a structure where you can really streamline those processes from the government perspective and give that certainty to the investors, which is really important,” said Sami Asad Mir, a partner at Allen & Overy.

A sound regulatory system is essential, as offshore wind projects often rely on cooperation between different government ministries and agencies to deliver environmental permits and licensing.

Despite the legal uncertainty and technology that’s still in its early stages, it is agreed that eventually costs will come down, allowing for economies of scale on projects to become a reality in the future.

“We are sending people to Mars. We do so many things that are more difficult than building offshore wind farms. It’s difficult for sure but we can overcome those challenges,” said Rodrigo Pedroso, chief executive at Pacto Energia. ■



ASIA PACIFIC CASE STUDY

Monsoon Wind Farm, Laos

IJGlobal reporter **Civi Yap** takes a look at one of ASEAN's largest syndicated loans – the 600MW cross-border onshore wind farm in Laos.

The Impact Electron Siam-led (IES) consortium's financial close on the 600MW cross-border onshore wind power project – which will export electricity from Laos to Vietnam – brings the Mekong Delta region closer to realising power interconnection and integration.

The renewable energy facility has the largest capacity in Southeast Asia and is the first wind farm in Laos. It also represented the largest syndicated renewable project financing transaction among Southeast Asian countries to date.

IES on 14 March (2023) achieved financial close after signing a \$692.55 million non-recourse project financing with the lender group, comprising 5 development financial institutions (DFI) and 3 commercial lenders.

The financing structure was:

\$482.55 million syndicated parallel loans – 19 years

- JICA – \$120 million
- ADB – \$100 million
- Kasikorn Bank – \$100 million
- AIB – \$72.55 million
- Thai Exim – \$60 million
- HKMC – \$30 million

\$150 million syndicated ADB B loan – 17 years

- Siam Commercial Bank – \$100 million
- SMBC – \$50 million

\$50 million blended finance concessional financing

- Canadian Climate Fund for the Private Sector in Asia 1 (CFPS 1) – \$20 million
- Leading Asia's Private Infrastructure (LEAP) Fund – \$20 million
- CFPS 2 – \$10 million
- ADB's Asian Development Fund-Private Sector Window (ADB-PSW) – \$10 million

The Asian Development Bank acted as the sole MLA and bookrunner – arranging,

structuring and syndicating the entire facility.

The total project cost came in at \$950 million to \$1 billion, with a debt:equity ratio of roughly 70/30.

First drawdown was due mid-April (2023). The debt had an average margin price of 300bp over Sofr, 2 sources close previously told *IJGlobal*, which has since been confirmed by a project insider.

Advisers include:

sponsors:

- DFDL – legal (Laos)
- Vilaf – legal (Vietnam)
- Hunton – legal (international)
- Mott MacDonald – technical
- Wind Pioneers – technical
- UL – technical
- Marsh – insurance
- ERM – E&S

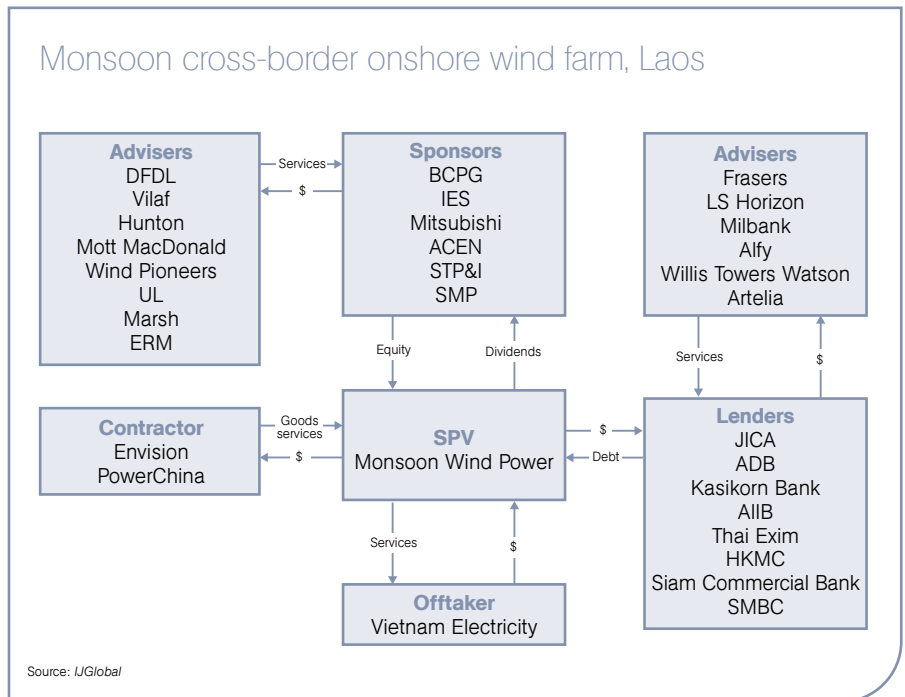
lenders:

- Frasers – legal (Vietnam)
- LS Horizon – legal (Laos)
- Milbank – legal (international)
- Afry – technical
- Willis Towers Watson – insurance
- Arteria – E&S

Mitigating risk with blended finance

The MLA had arranged a \$60 million blended finance to mitigate the project's curtailment risks, consisting of a senior tranche and a subordinate tranche, each around \$30 million.

Curtailment happens when renewable power generators curtail / reduce electricity generation due to grid limitations. This has been on the increase in recent times due to the surge of solar and wind capacity since 2019.



Source: *IJGlobal*



ASIA PACIFIC CASE STUDY

The senior tranche has a long-tenor and a lower interest rate, allowing the reduction of in-period debt service and becoming more resilient to curtailment because it provided a higher buffer in the cash flow.

The other portion funded an additional reserve account, designed as a liquidity reserve for more extreme curtailment scenarios, in addition to the standard debt service reserve account. This tranche of debt aims to absorb the curtailment without impacting senior lenders.

"This project demonstrated ADB's highly innovative use of blended finance, to enhance bankability and play a catalytic role in bringing together the syndicate. The cutting edge use of blended finance helped mitigate perceived risks, including curtailment, which to date have been solved by the market through the use of specific sponsor recourse," said Tarang Khimasia, unit head of funded distribution at ADB.

"It was a longer tenor but in the acceptable range, as the 25-year concessionaire provided a couple years of tail. Besides, the lenders could stretch the tenor because of different PPA terms that increased the project's bankability," a second source told *IJGlobal*.

Unlike onshore PPAs that are based on VND Index, the project's PPA involves US Dollars paid into offshore accounts. Besides, the PPA term uses English Law and offshore arbitration, further improving the PPA's bankability from a legal perspective.

The wind farm will have to commence operations by late-2025 to be eligible for exporting the electricity to Vietnam's state-owned utility Vietnam Electricity (EVN), under a tariff price of \$0.0695/kWh, for 25 years. Vietnam has many idle solar and wind power projects that could not sell electricity to EVN as they missed the COD deadline to be eligible for the feed-in tariff.

Lengthy process of trimming down lenders

The project had met with interest from the market since the beginning, which saw the MLA shortlist 14 lenders – 7 DFIs and

7 commercials in May 2022. "This project was a huge drawcard for lenders looking to increase their exposure in green and climate assets," the project insider told *IJGlobal*.

"We book ran an extended multi-stage transparent syndication process which was intentionally designed to target different pools of liquidity. The initial outreach canvassed over 20 lenders with the expectation that we would ultimately hone in on a more manageable number of lenders due to the inherent complexity of the transaction," said Khimasia.

"The final lender group represents a very balanced mix of international and regional commercial banks and development finance institutions with both categories of lenders taking comfort in each's presence and value add to the lending group," he added.

"The remaining lenders took a haircut on what they would have liked in terms of an exposure amount," the project insider added. In addition, the syndication process came amidst the interest rate hike, which impacted the funding cost. "It was a bit of a squeeze on both ends," the source explained.

The second source said that the DFIs could act more aggressively, such as longer tenor or lower pricing, while having more commercial lenders on the deal. "Even though there was an increase in funding cost due to interest rates hike, renewable transactions remained competitive in the region," the source said.

Initiating project from scratch

Monsoon is on a 1.1-1.5km elevated plateau in Sekong and Attapeu provinces, along the highway connecting Ubon Ratchatani, Thailand, to Danang, Vietnam.

Shareholders of Monsoon Wind Power comprise:

- BCPG
- IES
- Mitsubishi
- ACEN Renewables International
- STP&I
- SMP Consultation Sole



Tarang Khimasia

"This project demonstrated ADB's highly innovative use of blended finance, to enhance bankability and play a catalytic role in bringing together the syndicate."

IES leads the consortium, while BCPG holds a majority stake. On 11 January (2023), STP&I acquired a 15.87% stake in Monsoon WP for Bt1.5 billion (\$44m). The company purchased shares in Hong Kong-registered Impact Monsoon Holding (IMH) from BVI-registered Earth Power Investment, an existing shareholder of IMH.

The company in 2011 initiated the project with a wind study that sought to identify a suitable site for wind power projects in Laos. Initial plans involved exporting the electricity to Thailand, which then switched to Vietnam as the country pushed for higher mix of renewable energy.

In August 2015, the government signed a project development agreement with IES for a 25-year concession. BCPG was an early shareholder, while Mitsubishi and ACEN were the late joiners.

Other involved companies included:

- Envision – wind turbine supplier
- PowerChina International – EPC contractor

The project also includes a 500kV transmission line connecting the wind farm to the south eastern provinces of Laos bordering Vietnam. The transmission line accounts for less than 3% of the total project cost. The scheduled commercial operations date is 2025. ■

Favourable PPA terms for longer tenor

The debt package had a longer tenor of 17 and 19 years than other wind power projects in Vietnam. The other 2 recent onshore wind deals in Vietnam are:

Project name	Project debt	Tenor	Lenders
BIM Wind Binh Thuan Wind Farm (88MW)	\$107m	15	2 DFIs, 3 commercials, 1 ECA
Lotus wind portfolio (144MW)	\$173.02m	15	1 DFI, 3 commercials, 2 ECAs



Gulf of Suez II Wind Farm, Egypt

An Engie-led consortium in April brought to financial close its second wind independent power project (IPP) in Egypt's wind resource-rich Ras Ghareb in the Red Sea Governorate. *IJGlobal* senior reporter **James Hebert** investigates.

The \$680 million deal for the 500MW Gulf of Suez II scheme was chiefly backed by DFIs – led by the Japan Bank of International Cooperation (JBIC) – but it also features several lenders on a \$155 million commercial bank tranche.

The Red Sea Wind Energy special purpose vehicle (SPV) signed up to \$501 million of debt on 6 March, followed shortly by financial close little under a month after that point. This deal will take the SPV's wind portfolio in Egypt to 762.5MW.

Gulf of Suez II is the fourth wind farm IPP to reach financial close in Egypt and is now in a race to become the third such scheme to begin commercial operations.

The project has also been called the Ras Ghareb II wind farm, owing to its location about 40km away from the town of the same name.

The gusty Gulf of Suez

The Ras Ghareb municipality – located on the coast of the Gulf of Suez, itself the north component of the Red Sea – is known for its suitability for wind turbines, as developer sources have been keen to point out when discussing the appeal of pursuing new deals in the region.

Such is the windy region's allure that, even after the Red Sea Wind Energy SPV won its first wind farm auction in Egypt – in April 2015 – one of the defeated bidders separately approached the government of Egypt for its own similarly sized (250MW) project in the same area within months of losing out to Engie.

This West Bakr project was developed by Lekela Power and is thought to be the second wind farm IPP to reach commercial operations in Egypt.

One of the shareholders in Lekela Power had previously spoken of the "world class wind resource" when discussing the 250MW West Bakr, which was brought to a \$335 million financial close on 7 August 2019.

The aforementioned project carries a tariff even lower than the bid put in for the 2015 auction – at \$0.038 per kilowatt hour.

It's little surprise then that the Engie-led consortium too decided to return to the Gulf of Suez for a second, far-upscaled wind project at 500MW. The ownership structure of Gulf of Suez II has therefore remained intact since the December 2017 financial close of the SPV's first Ras Ghareb wind farm, which outputs 262.5MW.

The 500MW sequel started life on 18 July 2018 when the SPV signed with Egypt's Ministry of Electricity and Renewable Energy (MoE) an agreement for a \$650 million project. The shareholding in the Red Sea Wind Energy SPV and the project sponsors are:

- Engie – 35%
- Orascom Construction – 25%
- Eurus Energy – 20%
- Toyota Tsusho – 20%

Orascom is the project's EPC contractor as well as minority stake partner on the equity-side.

Following the 2020 Covid-19 pandemic, the sponsors signed with national energy utility Egyptian Electricity Transmission Company a second set of project documents for Gulf of Suez II in October 2021.

Gulf of Suez II's energy will be sold through a 25-year power purchase agreement (PPA) at a levelised cost of energy understood to be at the \$0.03/kWh mark, which brings it roughly in line with the 20-year tariff signed for AMEA Power's 500MW Amunet wind farm – also located in Ras Ghareb – which made it to financial close on 5 December (2022).

In contrast to Amunet however, Engie says that the PPA for its own 500MW project is for a 25-year term rather than 20 years. Furthermore, Egypt's Ministry of Finance has provided a guarantee for the PPA to uphold the obligations of the offtaker EETC.

Financing

The Gulf of Suez II project is valued at \$680 million. Lender approvals on the \$501 million of debt were received on 8 February (2023) and the non-recourse debt is being provided by 3 DFIs and 3 commercial lenders. These 3 DFIs provided \$296 million of debt:

- JBIC – \$246 million
- European Bank for Reconstruction and Development (EBRD) – \$50 million
- Green Climate Fund (GCF) – \$50 million

Nippon Export Investment Insurance (NEXI) provided a wrap for the \$155 million commercial bank tranche, which was arranged by:

- Norinchukin
- SMBC
- Societe Generale

HSBC Bank Egypt is acting as working capital bank and onshore security agent.

The government of Egypt is hoping to raise the share of renewables in the energy mix to 35% by 2030 and 42% by 2035, per its Vision 2030 initiative as well as its Integrated Sustainable Energy Strategy which runs to 2035.

The sponsors broke ground on the project in November 2022. Engie said that Gulf of Suez II will be connected to the grid over 2 phases with full commercial operations due to start in Q3 2025. When complete, the 500MW power plant is expected to supply the equivalent energy to power 800,000 homes in Egypt.

Advisers

The sponsors were advised by:

- Clifford Chance – legal
- Matouk Bassiouny & Hennawy – local legal
- DNV – technical
- Golder – environmental

The lenders were advised by:

- Milbank – legal
- Shalaky – local legal ■



NEOM Green Hydrogen, Saudi Arabia

Saudi Arabia is driving forward with the world's single most ambitious hydrogen project as it pushes the green agenda in its bid to create a regional economic powerhouse

Saudi Arabia has stolen a march on the global market by reaching financial close in May (2023) on the most ambitious hydrogen project that will power the kingdom's far-reaching investment programme to turn the region into an economic and touristic powerhouse.

NEOM Green Hydrogen Project (NGHP) – at this stage – will be the world's largest utility-scale, commercially-based hydrogen facility and it stands true to KSA's green ambitions as it will be powered entirely by renewable energy.

The project is being delivered by NEOM Green Hydrogen Company (NGHC) – an equal JV between NEOM (ENOWA), Air Products and ACWA Power – and it is based on proven, world-class technologies that will include the integration of a combined capacity of around 4GW of renewable power from onshore solar, wind and battery energy storage systems (BESS).

It is scheduled for commission in 2026 when it will produce 600 tonnes per day of hydrogen by electrolysis using thyssenkrupp technology. It will also include production of

nitrogen by air separation using Air Products technology, as well as the production of up to 1.2 million tonnes per year of green ammonia.

Once operational, Neom Green Hydrogen project – located in Oxagon in Saudi Arabia's NEOM region – will mitigate the impact of 5 million metric tonnes of carbon emissions per annum.

The project company at the time of FC, concluded a deal with American chemicals company Air Products for the facility's EPC services, and secured an exclusive 30-year off-take agreement with Air Products for all the green ammonia produced at the facility.

Meanwhile, Saudi Arabia's Ministry of Industry and Mineral Resources in January (2023) granted its first industrial operating licence to NGHC.

Financing

NGHC reached financial close on the \$8.4 billion NEOM Green Hydrogen Project (NGHP) on 22 May involving \$6.1 billion of project finance debt provided by a slew of

local, regional and international banks and financial institutions.

The equity was provided equally by the 3 consortium members and amounted to \$2.45 billion.

The consortium signed the \$6.18 billion debt package for the plant in March (2023) – with full financial close achieved later in May – across a number of tranches:

- term loan tranches amount to \$3.1 billion:
- \$2.055 billion – USD denominated senior debt
- \$650 million – Euler Hermes covered
- Saudi Industrial Development Fund (SIDF) – \$1.25 billion
- Islamic debt – \$1.025 billion
- Islamic debt – \$625 million
- mezzanine debt – \$475 million
- multilateral facility – \$100 million

The senior debt component brought together a group of 21 lenders for packages structured as a combination of long-term uncovered tranches and a Euler Hermes covered tranche, arranged alongside conventional and Islamic bank facilities.





MENA CASE STUDY

The largest slug of debt is the USD denominated \$2.055 billion soft mini-perm loan which matures at the end of November 2050 – a tenor of 27 years and 9 months – with the National Development Fund taking the lion's share of that.

The lenders on this term loan are:

- Abu Dhabi Commercial Bank
- Banque Saudi Fransi
- BNP Paribas
- Credit Agricole
- DZ Bank
- First Abu Dhabi Bank
- HSBC
- KfW IPEX Bank
- Korea Development Bank
- JP Morgan
- Mizuho Bank
- MUFG Bank
- Natixis
- Norinchukin Bank
- Riyadh Bank
- Saudi National Bank
- SMBC
- Standard Chartered Bank

A smaller group of lenders – the non-local organisations – came in for the Euler Hermes covered facility that amounted to \$650 million and has a tenor of 17 years and 9 months (out to 2040). The 10 lenders, and their commitments, are:

- KfW IPEX Bank – \$200 million
- Mizuho Bank – \$83.33 million
- SMBC – \$83.33 million
- HSBC – \$66.67 million
- BNP Paribas – \$66.66 million
- Standard Chartered Bank – \$43.33 million
- SABB – \$36.67 million
- DZ Bank – \$26.67 million
- JP Morgan – \$26.67 million
- Natixis – \$16.67 million

The Saudi Industrial Development Fund (SIDF) arranged a \$1.25 billion SAR denominated loan which one source close to the deal says is one of its “standard financing products”.

The National Development Fund (NDF) – on behalf of the National Infrastructure Fund (NIF) – provided \$1.025 billion through an Islamic tranche) with a tenor of 29 years (out to 2052). It was funded by:

- Riyadh Bank – \$615 million
- SABB – \$410 million

The Facility B Islamic tranche amounted to \$625 million, matures in 2052 and was arranged by:

- Alinma Bank – \$350 million
- SABB – \$275 million



Nadhmi Al-Nasr

“At scale, this project is the first-of-its-kind internationally, leading the world in the hydrogen revolution. Harnessing the energy of NEOM’s abundant natural resources.”

The \$100 million loan was provided by Arab Petroleum Investments Corporation (APICORP) and it has a tenor that runs out to 2052.

National Infrastructure Fund (NIF) contributed a total of \$1.5 billion to the financing stack, the majority on the Islamic debt. However, it also arranged the \$475 million mezzanine tranche which has a tenor of 27 years (out to 2050).

The project

NEOM Green Hydrogen Company was greatly bolstered by having secured an exclusive 30-year off-take agreement with Air Products for all the green ammonia produced at the facility.

Nadhmi Al-Nasr, chairman of NEOM Green Hydrogen Company and chief executive of NEOM, said at the time of financial close: “This substantial financial backing from the investment community shows the unmatched potential of NGHC’s green hydrogen project.”

He added: “At scale, this project is the first-of-its-kind internationally, leading the world in the hydrogen revolution. Harnessing the energy of NEOM’s abundant natural resources, NGHC’s project will pave the way for the large-scale adoption of green hydrogen, while driving Saudi Vision 2030’s sustainable development goals.”

David Edmondson, chief executive of NGHC, said: “This is a historic moment as we drive large-scale adoption of green

hydrogen as the clean solution to the world’s growing energy demands. This has enabled us to also conclude the EPC agreements with Air Products for a value of \$6.7 billion. Today, we are already well underway building the world’s largest facility to produce green hydrogen at scale with production scheduled to begin by the end of 2026.”

Seifi Ghasemi – chair, president and chief executive at Air Products – added: “Air Products is the exclusive off-taker and will absorb the full production volume of the green hydrogen produced in the form of green ammonia at the NGHC facility to serve global mobility and industrial markets.

“Producing and exporting green ammonia supports the decarbonisation of these heavy-duty transportation and industrial sectors and will save the world about five million tonnes of carbon dioxide per year.”

Mohammad Abunayyan, chair of ACWA Power, said: “With the combined experience of our global utility scale renewable projects and innovative partners, we are making rapid strides towards the development of NGHC’s giga scale-plant, integrating up to 4GW of renewable power from solar and wind energy to supply green hydrogen to global markets at scale.

“This is a significant step forward in our shared purpose to accelerate the shift to clean energy and support the Kingdom’s decarbonization goals.”

Earlier this year (January 2023), Saudi Arabia’s Ministry of Industry and Mineral Resources awarded its first industrial operating license to NGHC, paving the way for the kingdom to become the world’s leading hydrogen producer, while maintaining its position as a key player in the energy sector.

Advisers

An impressive array of advisers was fielded to get this challenging deal over the line.

The sponsors were advised by:

- Lazard – financial
- White & Case – legal
- Sargent & Lundy – technical
- Mazars – model audit
- Air Products was advised by:
- Baker Botts – legal
- Grupo ABL – technical

Advisers to NEOM Company include:

- Shearman & Sterling – legal

Advisers to lenders – commercial banks, SIDF, NIF and Euler Hermes – include:

- Allen & Overy – legal ■



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