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# IJGlobal

Project Finance & Infrastructure Journal



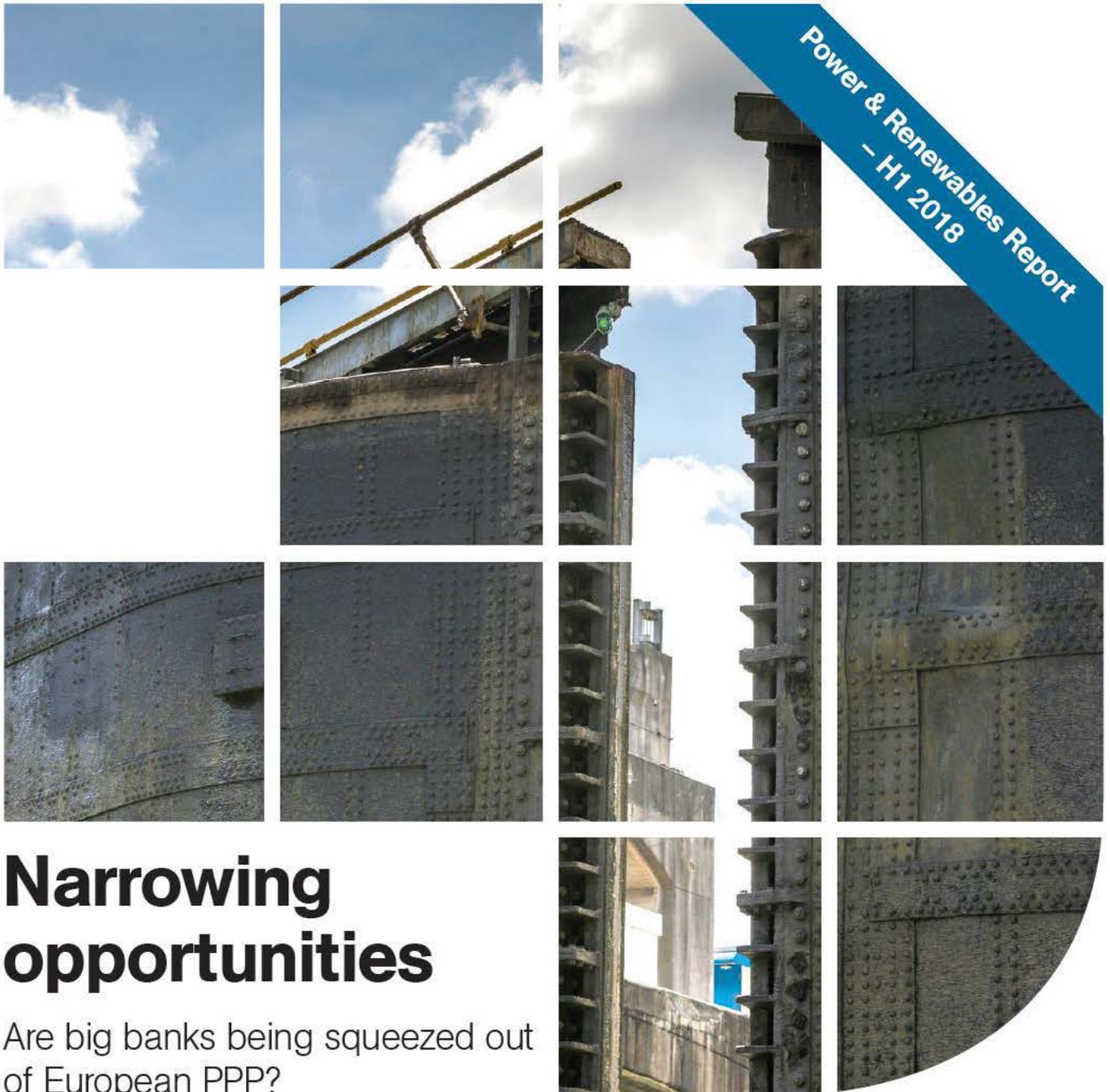
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Pricing the elements

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Corpus Christi 3 LNG, US

LATIN AMERICA  
Good hydro, gone bad

ASIA PACIFIC  
Belt & Road block

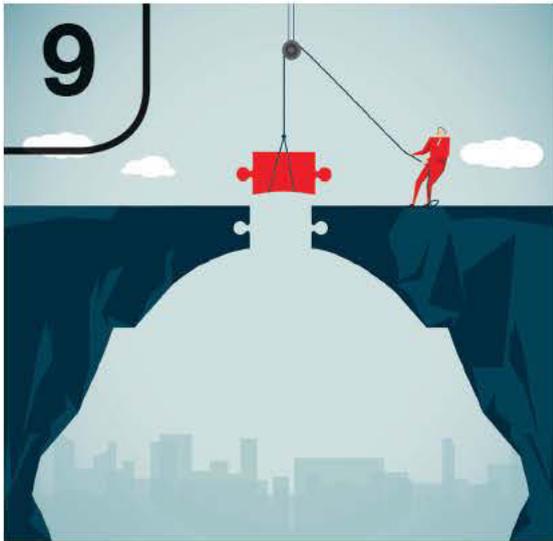


## Narrowing opportunities

Are big banks being squeezed out of European PPP?



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It is easy to be sceptical about the health of the infrastructure sector, but innovation abounds and new opportunities are close at hand.

# Rejecting pessimism

This letter is being written from a very dark place. No, not the underwater Tham Luang cave in Thailand – this gloom is purely metaphorical and far less life-threatening (though what a technical triumph it was getting those boys out alive).

Instead, this is being written a mere few hours after England has been dumped out of the FIFA World Cup at the semi-final stage. It is this which has dimmed the lights in this London office.

Football tournament exits hold a strong psychological hold over English fans, and I suspect fans from many other countries too. Only one team can win and odds are it won't be your one. But belief had been building and as is often said, it's the hope that kills you.

Best to take the advice of John Keats in his *Ode on Melancholy* and forget the pain by observing beauty in the world. And what could be more awe-inspiring than the co-operation of large numbers of people to overcome significant physical and intellectual challenges to create works which benefit whole communities.

But at this point in time, taking a brief glance across the infrastructure landscape does not immediately elicit much joy. In fact it is all too easy to fall into an even greater funk when observing the state of global project finance.

In these very pages you will read of a battle to drag a hydro project in normally investor-friendly Chile out of technical default, as well as the collapse of many of China's Belt & Road projects due to political change in recipient countries.

In fact, as reported extensively on [ijglobal.com](http://ijglobal.com) in recent months, greenfield project pipelines have been collapsing all over the world, mostly due to the toppling of incumbent political administrations.

Like Malaysia and its Belt & Road deals, a change of government has cast a shadow over Mexico's national infrastructure programme. Even if new President Andrés Manuel López Obrador (AMLO) seems keen to stress he is not the new Hugo Chávez, planned and approved projects will now come under fresh scrutiny and at the very least suffer delays.

Elsewhere a new bailout from the IMF has drained investor enthusiasm for Argentina's privatisation plans; France has tried to

bring more clarity to tariffs but its offshore wind sector remains a bit of a mess; oh and the rise to power of the Spanish Socialist Workers' Party has all but killed what was looking like a rather attractive roads programme in the Iberian nation.

Infrastructure finance is built on long-term investments in stable assets with predictable returns. Political upheaval and fast-changing markets are rarely helpful. And so you could even take fright at the level of technological disruption being introduced into various sectors, from electric vehicles to battery storage.

But it is at this point where a handbrake needs to be pulled, the vehicle sharply halted before it speeds off into a ravine of despair. Technological advances should be a reason for optimism.

For anyone prone to viewing a project as half uncompleted rather than well on the way to commissioning, I would highly recommend the Pessimist Archive podcast. It argues that the best antidote to fear of the new is looking back at fear of the old. It highlights such things as initial religious opposition to electricity, and how laws were passed in the 1980s banning people using a Walkman while walking the streets.

Fear of the new is typically illogical, even hysterical, and the technological changes being introduced into infrastructure have also sometimes been the cause of misplaced concern.

In this edition we explore advances in lifetime extension techniques in the renewable energy sector, the seemingly unstoppable international growth of offshore wind, and the strengthening of contractual structures for battery storage.

The only reason to fear these changes is if your company is not trying to change with them. Opportunities abound and markets can change quickly. It is easy to forget that until the launch of the iPhone in 2007, Finland's Nokia had been the biggest mobile phone company in the world for over a decade.

It is easy to become complacent but any market leader can be toppled by change. Exactly as it should be. Innovations will continue to abound and those that adapt will survive.

And as long as there is civilisation, there will always be a need for new infrastructure, just as there will always be a new tournament allowing football fans to believe once more. ■

Jon Whiteaker  
Editor

# Briefings

## FUNDS

### Ancala hits first close on Infrastructure Fund II

UK-based manager Ancala Partners has reached a €133 million (\$156 million) first close on its European mid-market infrastructure fund.

Ancala Infrastructure Fund II has a target size of €600 million and further closes are expected later this year. The vehicle is a 12-year closed-ended fund focused on small to mid-sized core infrastructure businesses across Europe.

The manager is targeting an IRR of 10-13% per year, including a cash yield of 5-6%. The fund has not made any investment yet, but hopes to close on its first deal within the next four to six weeks. It will be targeting investments of between \$15 million and \$150 million, and will be investing on its own and via co-investments.

Investors included European institutions and others from outside the region. Australian superannuation funds are understood to have taken part in the first close. No North American institutions participated, though they will be targeted for subsequent closes.

There is no hard deadline for final close but it should happen before the end of 2018.

### Thailand Future Fund launch set for September

The Thai government will launch the \$3 billion Thailand Future Fund to finance infrastructure investments in September 2018.

“The State Enterprise Policy Office has confirmed that the Thailand Future Fund process will be done this month and

it will be able to sell units in September,” Deputy Prime Minister Somkid Jatusripitak has said.

The fund was approved by the cabinet in June 2017 but its launch has been delayed several times. It will target both individual and institutional investors and will eventually be listed on the Stock Exchange of Thailand (SET).

Its investment mandate will target transport, telecommunication, energy and renewables assets in Thailand predominantly in the greenfield space.

### MIRA exceeds target with Super Core fund

Macquarie Infrastructure and Real Assets (MIRA) has reached final close on Series 1 of its Macquarie Super Core Infrastructure Fund (MSCIF), raising €2.5 billion.

MIRA launched Series 1 of the MSCIF platform in May 2017 with a €1.5 billion target. MSCIF will fundraise in series, meaning all capital is deployed before the next series is launched. The strategy has a total target of €7 billion in capital commitments.

MSCIF is designed to give smaller pension funds and insurance companies access to long-term investments in core regulated assets in Europe, as a complementary strategy to the Macquarie European Infrastructure Fund (MEIF) range.

MIRA says the investor mix of MSCIF includes new entrants and previous participants in the MEIF vehicles, with public and private pension plans, insurance companies, corporates and sovereign wealth funds all participating.

MSCIF has already invested in two seed assets, representing just under 60% of total capital raised: a 14.5% stake in UK gas distribution business Cadent; and 45% stake in Finnish electricity distribution and district heating company Elenia.

### LarrainVial and CMB Prime plot infra vehicles

Chilean financial services firm LarrainVial has announced a new partnership with Chile-based fund manager CMB Prime with the intention

to launch Latin America-focused infrastructure funds. The two companies will own any launched funds on a 50:50 basis. LarrainVial has said that the funds will be focused on Chile and the wider Latin American region, and will invest in the infrastructure businesses offering recurring and long-term revenues, including ports, roads, and healthcare assets.

The funds will be LarrainVial’s first direct move into infrastructure, though it has previously invested in energy assets such a Chilean butane business previously owned by Repsol.

CMB Prime, on the other hand, has previously launched two infrastructure funds for the Chilean market, though its definition of infrastructure is broad and encompasses commercial property. The fund manager has a total of three funds and current assets under management of around \$150 million.

### Starwood closes on third energy fund

Connecticut-based Starwood Energy Group has reached final close on its Starwood Energy Infrastructure Fund III (SEIF III) with total capital commitments of around \$1.2 billion.

SEIF III is an unlisted, closed-ended equity fund. It targets investments in gas-fired power, utilities, renewables and battery storage sectors in North America. The vehicle stood at \$989 million in the beginning of January, according to SEC filings.

Investors in the fund include sovereign wealth funds, pension funds, banking groups, insurance companies, fund of funds and family offices from across North America, Europe and Asia Pacific.

Campbell Lutyens is the vehicle’s placement agent. PwC is the fund’s auditor, while Kirkland & Ellis is providing legal advice. ■

More funds news at [ijglobal.com](http://ijglobal.com)

# Briefings

M&amp;A

## Dalmore completes Cory Riverside acquisition

A consortium led by Dalmore Capital closed on the acquisition of UK energy-from-waste (EfW) company Cory Riverside Energy at the end of June 2018, having been named preferred bidder earlier in the month.

The consortium acquired 100% of the business at an enterprise value of roughly £1.6 billion (\$1.85 billion), fending off competition from one other bid headed by an unknown Chinese investor. The winning group consisted of Dalmore Capital through its DCF3 fund (53%), Semperian Capital Management (20%), Fiera Infrastructure through Eaglecrest fund (15%), and Swiss Life Funds Global Infrastructure Opportunities II (10%).

Distressed investment firm Strategic Value Partners (SVP) was the main vendor, having become the majority shareholder following a debt-to-equity restructuring of the business in mid-2015. SVP and other shareholders following the restructuring, including Commerzbank and EQT Credit II, simplified the company, offloading an associated collections business and waste brokerage business.

The asset now consists of the 66MW EfW plant and 50 barges, five tugs and 1,500 containers for transporting waste via river. There are also plans to build a data centre to be powered by the EfW plant as well as a new mixed-generation energy park on adjacent land. A public consultation launched in May for the proposed Riverside Energy Park, a 96MW hub including EfW, anaerobic digestion, solar panels and battery storage.

## Green Frog Power sale collapses

InfraRed Capital Partners' sale of UK peaking power company Green Frog Power collapsed in June, after US-based fund manager I Squared Capital bid the highest in a competitive auction in January.

The record low prices bid in the UK capacity market auction in February are understood to left big holes in I Squared's modelling assumptions, meaning they could no longer stick to their original bid.

Sources close to the process have said that the complex governance structure in place at Green Frog has caused additional difficulties in closing the transaction. EPC, O&M, and trading units of the business are understood to have different and unaligned management incentives.

Green Frog closed raised a £100 million (\$133 million) debt facility on 8 May to finance 11 new gas-fired power stations. It currently operates 33 power plants across the UK and has been owned by the InfraRed Environmental Infrastructure Fund since 2011.

## EDF sells shares in UK wind farm portfolio

EDF Renewables has reduced its stake in a portfolio of 24 UK wind farms, selling a 49% stake to Dalmore Capital and Pensions Infrastructure Platform (PIP).

EDF – which will retain a 51% share in the portfolio, as well as continuing to operate, maintain and provide asset management services for the wind farms – will receive £701 million (\$926.3 million) in cash proceeds from the sale following completion. Meanwhile, on the buy-side, Dalmore will hold 75% of the acquired stake and PIP 25%.

The roughly 500MW portfolio consists of 22 onshore wind farms benefiting from renewable obligation certificates and one offshore wind farm with a renewable obligation certificate (ROC), which are all operational, and one onshore contract for difference (CfD) wind farm still under construction.

## Teaser out for Crossrail sale & leaseback

Transport for London (TfL) issued a teaser in July for the sale and lease-back of £1 billion (\$1.32 billion) worth of rolling stock to run the new Elizabeth Line (also known as Crossrail) in London and the surrounding areas.

Bombardier is manufacturing the 70 trains which will run on the line and holds a 32-year fleet maintenance contract. The full fleet is due to be delivered by 2019, with the first section of the route to open 12 months prior.

TfL intends to award the rolling stock contract in either late 2018 or early 2019, with proceeds used for agencies broad investment plans.

The route will be opened in stages but will eventually run from Reading in the west to Heathrow Airport and then under central London out to Abbey Wood and Shenfield in the east.

## AXA IM acquires European data assets

AXA Investment Managers - Real Assess has, on behalf of its client AXA France, taken full control of European data centres owner and operator DATA4. The deal sees AXA IM - Real Assets' clients increased their ownership of the platform from 37% to 100%, by acquiring the stake previously held by funds managed by Colony Capital.

DATA4 finances, designs, builds and operates data centres, currently providing a total of 27,100sqm of net technical space and more than 140MW of available power.

It operates 15 data centres across three sites in France, Italy and Luxembourg, 12 of which it owns, including Europe's largest and most powerful data centre campus, in Paris. ■

More M&A news at  
[ijglobal.com](http://ijglobal.com)

## Briefings

### CAPITAL MARKETS

#### M25 bond launches

A £880 million (\$1.2 billion) public bond refinancing for the M25 orbital motorway in the UK was launched as *IJGlobal* went to press. The bond is due on 31 March 2039, with pricing expected at an equivalent of 120bp over Libor.

The new debt will replace £1 billion in existing facilities, split between a £670 million senior debt tranche which this year stepped up from 250-300bp over Libor, and a £380 million EIB secondary facility.

The PPP to deliver upgrades to the M25 was closed in early 2009, with Balfour Beatty and Skanska as lead sponsors alongside Atkins and Egis Projects. The equity has changed several times since then and now consists of: Dalmore Capital, Equitix and GCM Grosvenor through the Edge vehicle (50%); Dalmore Capital (12.5%); Equitix (12.5%); Balfour Beatty (15%); DIF (9%); and Egis Investment Partners (1%).

#### Greencoat Renewables launches share issuance

Irish Stock Exchange-listed renewables fund Greencoat Renewables has announced a 12-month share issuance programme, with a roughly €101 million (\$118.6 million) initial placing launched in early July 2018.

The programme will allow the Greencoat Capital-managed vehicle to take advantage of “an increasingly active secondary market for wind assets in Ireland” by drawing on its revolving credit facility. Greencoat says that it has an acquisition pipeline of over 200MW under consideration.

In total, the programme could issue up to 250 million new shares in various tranches over the next 12 months.

The initial placing will consist of 100 million shares priced at €1.01 each. The proceeds from this first tranche will be used to refinance Greencoat Renewables’ revolving credit facility, allowing the vehicle to make acquisitions but maintain total gearing – currently around 43% – within the target range.

#### Fermaca refinances El Encino-La Laguna gas pipeline

Mexican energy developer Fermaca has completed a refinancing for the El Encino-La Laguna natural gas pipeline in Mexico.

Total facilities are understood to be slightly above \$800 million, and include: a \$450 million fully amortizing bond with a 23-year tenor; and a \$255 million fully amortizing term loan with a 14-year tenor.

The financing also includes a letter of credit to support project contingent and performance obligations. The size of the guarantee has not been disclosed, but it is thought to be in the region of \$100 million.

AllianzGI, on behalf of its clients, acted as lead investor in the \$450 million bond tranche. The bond, which was listed on the Singapore Stock Exchange on 22 June, has a 5.465% coupon.

Meanwhile, the \$255 million term loan was provided by a group of banks including: Nord LB; BNP Paribas; ING; Mizuho; Nord LB; Banco Sabadell; and Deutsche Bank.

Fermaca reached financial close on the project in 2015 and the El Encino-La Laguna pipeline has been operational since April 2018. The new financing package is replacing a mini-perm construction loan, with some banks that provided the original funding also participating in the term loan.

#### Celsia to issue green bonds for Colombian solar

Colombia’s Celsia’s Epsa will issue up to Ps420 billion (\$145 million) in green bonds to finance four solar projects in the

country with a total capacity of 186MW.

The bonds will be purchased in totality by the IFC and the Colombian development bank FDN. IFC and FDN are expected to acquire the green bonds on an equal basis. Financing will be issued across different tranches, each with a minimum investment of Ps50 billion each. The bonds will have 12-year tenors.

This is the first issue of green bonds in Colombia and the notes are certified within the Climate Bonds Standard & Certification Scheme.

#### Capital Dynamics refinances yieldco 8point3

Capital Dynamics’ Clean Energy Infrastructure (CEI) completed the acquisition of California-based yieldco 8point3 Energy in mid-June, and three days later signed a \$760 million long-term refinancing with a bond issued by AllianzGI.

Solar PV developers and manufacturers First Solar and SunPower Corporation established the yieldco as a joint venture in 2015. Last year they launched an auction process to sell 8point3, in which Capital Dynamics was selected and the definitive agreement for the acquisition was signed in February.

MUFG was then lead arranger and underwriter of a bridge loan to finance the acquisition. However, since the final contracts were only signed more than four months later, the bridge loan was only funded on 19 June, which means that the funds were actually in place for only three days.

On 22 June, AllianzGI closed a \$760 million, 26-year fully amortizing bond on behalf of its clients to refinance most of the bridge loan. This portion refers to a portfolio of 10 solar projects located in the US, across 47 facilities and totalling 718MWac of gross installed capacity. The assets have long-term contracts with 12 different off-takers. ■

More capital markets news at [ijglobal.com](http://ijglobal.com)

# Briefings

## POLICY & REGULATION

### Saudi Arabia publishes privatisation and PPP manual

The government of Saudi Arabia has released its project manual of guidelines for privatization and PPP projects in the kingdom. Publication of the project manual is being well received by the market, and supports the government's Vision 2030 initiative.

However, most sources in the Middle East – while welcoming this development – were eager to hear more about the projects themselves and when they will be brought to market. There has been a lot of movement on the renewable energy element of Vision 2030 and the market is keen to learn more about plans for developments on the social infrastructure side.

Further, there is enthusiasm from those on the ground to see a finalised PPP law that has long been promised.

### Japan raises renewables target

The Japanese government has increased its target for the share of total power generation contributed by renewables by 2030 from 15% to 22-24%.

In a paper published by the Ministry of Economy, Trade and Industry, the government also confirmed its commitment to reduce carbon emissions by 26% by 2030.

Using the “pre-2011 earthquake” numbers rather than 2018 as a baseline, the ministry's energy mix targets for 2030 are: renewables – 10% to 22-24%; nuclear – 25% to 20-22%; and fossil fuel – 65% to 56%.

In order to maintain the share of

nuclear at around 20%, the government would either need to accelerate drastically the restarting of mothballed nuclear power plants or build new ones. Of the 30 nuclear plants that were mothballed following the Fukushima accident after the earthquake in March 2011, just nine have been restarted as of July 2018.

If anything, the trend to decommission the nuclear plants that were built in the 1970s has been gaining pace. Around 22 nuclear reactors are scheduled to be decommissioned over the next few years.

### UK publishes first National Infrastructure Assessment

The UK's National Infrastructure Commission (NIC) has published its first National Infrastructure Assessment (NIA), setting targets and guidelines for achieving better digital connectivity, improved transport infrastructure, better flood and drought protection, and increased uptake of electric vehicles.

NIC is intended to counteract the lack of long-term strategic planning for the country's infrastructure sector, and as such its primary responsibility since its creation in October 2015 has been the development of the NIA.

The report – which will now be published every five years – was met with a positive response from industry participants, but doubts still remain around funding.

Publication of the NIA follows comments from the Public Administration and Constitutional Affairs Committee about whether private financing is the best strategy for delivering the A303 and Lower Thames Crossing projects, which had been earmarked for development under a revamped version of the PF2 model.

### Polish PPP law amendment approved

Poland's lower house of parliament has approved a long-awaited amendment to the country's PPP law, which is expected to encourage the delivery of a greater numbers of PPP projects. The amendment

was passed by the Sejm – the country's lower house of parliament – on 5 July and will now be sent to the Senate, which is scheduled to meet next on 25 July.

If approved by the Senate, the President will have to sign the amendment in August, with the legislation coming into force in September.

According to the changes, before tendering a project, the public entity will have to conduct a review comparing implementation of the project as a PPP against implementation via public funding.

This review is intended to ensure that more tenders reach a successful closing. It will take into account risk allocation, estimated lifecycle costs and the timetable for delivering the scheme. The public body will also be encouraged to submit the review to the Minister of Development for issuance of a positive opinion regarding the PPP project.

### Côte d'Ivoire publishes renewables goal

The IFC and Côte d'Ivoire have created a roadmap to achieve the country's Nationally Determined Contribution (NDC) target of 42% of power from renewable energy sources by 2030.

The country's Ministry of Petroleum, Energy, and Renewable Energy Development is leading national efforts to diversify energy sources and meet commitments made in the 2015 Paris Agreement.

According to the IFC, these NDCs represent \$23 trillion in global investment potential, and Côte d'Ivoire is the first country to analyse its commitments with the goal of identifying private sector investment opportunities. Alzbeta Klein, global head of IFC Climate Business, said: “With the right government policies in place, achieving the renewable energy target in full can create a \$9 billion investment opportunity by 2030.” ■

More policy & regulation news at [ijglobal.com](http://ijglobal.com)

# Briefings

## PEOPLE

### Multilaterals

Samaila Zubairu, a former chief financial officer at Dangote Cement, has been appointed as the new president and chief executive at development finance institution Africa Finance Corporation (AFC). Zubairu replaces Andrew Alli who has come to the end of his designated term, having led AFC since 2008. The appointment was announced on 2 July 2018 and Zubairu assumes the role with immediate effect. Zubairu has most recently served as chief executive at finance advisory firm Africapital Management. During his time at the firm he helped establish the Nigerian Infrastructure Investment Fund 1 in a joint venture with African Infrastructure Investment Managers (AIIM).



### Banks

Cantor Fitzgerald has raided Crédit Agricole and HSBC as it continues to build its London-based infrastructure investment banking business. In June Luis Tomas Gomez Palacio joined as a managing director from HSBC, while Paul Leece and his M&A advisory team came across from Crédit Agricole. Leece will also be a managing director, while Jeremi Martin joins as director, Daniel Allomen an associate, and Georgia Fotopoulou. All of the new hires will work closely with energy, power and infrastructure co-heads Kevin Phillips and Hari Chandra.

Senior power, renewables and infrastructure origination bankers Tony

Hable and Tarik Kapetanovic both left Lloyds in June ahead of starting at Japanese bank Mizuho. Hable and Kapetanovic, who are based in London, are understood to be part of a wider drive by Mizuho to ramp up its involvement in the primary financing of European infrastructure – perhaps with a leaning towards power and renewables.

### Funds/IIs

Industry veterans Ken Jesudian and Anthony Ferrari are launching a new boutique investment firm in Canada that will target high net worth investors. While there are no plans – at this stage – to launch an infrastructure fund, this strategy is being held in reserve by Toronto-based Crimson Asset Management as the founders scale up. Jesudian and Ferrari are former colleagues at Toronto-based investment-management firm Burgundy Asset Management, for which the former ultimately served as chief executive for almost five years.

Andrew Paulson has left the London Office of NatWest/RBS to join Global Infrastructure Partners (GIP) in a role focused on restructuring debt across all of GIP's European funds. Paulson was a managing director in the infrastructure team and had been at NatWest/RBS for over 13 years. His departure followed the exit of infrastructure finance director Floortje Brouwers, who is joining Singaporean sovereign wealth fund GIC. Another long-standing infrastructure managing director, Jaron Stallard, has also left the bank. He is returning home to his native Australia, though it is not known if he has a role lined up.

### Sponsors

David Ben Guigui is to join leading offshore wind developer Ørsted in London having left the energy team at Japanese bank SMBC. He starts at Ørsted in August, reporting to the company's head of partnerships and structure solutions. Ben Guigui will be focused on financing solutions for offshore wind developments across the globe.

Kriti Madan has joined the London office of Northleaf Capital Partners as a senior associate where she will be primarily focused on infrastructure investments. Madan joins Northleaf from KPMG where she has been working since 2013 as an associate director in the infrastructure corporate finance team in London. Prior to that, she had a similar role at KPMG in Melbourne. Before switching to the Big 4, Madan worked at ANZ Bank in Melbourne as part of the OTC Derivatives group.

Canadian independent power producer Northland Power has announced the upcoming retirement of chief executive



John Brace and that executive vice-president Mike Crawley will step into the role. Brace – who has been with the company for 30 years – will step down on 4 August. He was appointed to Northland's board on 4 April and will continue at the company as a director. Brace has been chief executive officer at Northland since 2005. Crawley joined Northland in 2015. Before that he spent five years as president of GDF Suez Canada, having overseen its acquisition of AIM PowerGen Corporation where he had previously served as president and chief executive.

### Advisers

James Pincus has started as a partner in the corporate finance team at PwC in London, heading the firm's infrastructure M&A advisory practice. Pincus has over 20 years' M&A experience having last been at HSBC where he was global head of advisory for the infrastructure and real estate group, having started his career at Clifford Chance as a corporate finance lawyer. He ultimately reports in to Richard Abadie, PwC's London-based global head of capital projects and the infrastructure group. ■

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# Narrowing opportunities

**Lenders to Dutch PPPs are increasingly likely to be regional or institutional, with big PF banks less active across Europe.  
By Beatrice Mavroleon.**



For a number of years, the Netherlands has been the poster child for Europe's PPP sector. The government counterparty is reliable, PPP revenues are predictable, and projects have been procured by a professional procurement agency, delivered under a bankable PPP model, and swiftly pushed through the various stages of procurement to financial close. Additionally, a number of Dutch projects have been sufficiently large to attract the attention of international lenders keen to exercise their balance sheets.

With activity in the Netherlands ramping up just as PFI activity in the UK – where the PPP model came of age – slowed down under the pressures of public and political opposition, the Dutch became an increasingly important market for infrastructure investors.

Within a short time, the Dutch market became the model for how PPP projects should be procured. Which is why changing dynamics in the Netherlands are important – it is likely they will be replicated across Europe.

Projects closed over recent years in the Netherlands include the A16 road PPP, the Afsluitdijk dyke project, the A27/A1 motorway PPP, the A6 road, a number of lock projects (2 Eefde locks, the smaller Limmel Lock, the Ijmuiden Lock, and the Princess Beatrix Sea Lock), among other schemes.

In terms of financing, a number of

smaller banks – including many Dutch and Belgian lenders, along with a handful of German landesbanks – have always been on the Dutch PPPs.

However, since before the 2008-2009 financial crisis (and – importantly – during the years that followed it) a number of big, international banks have also provided financing for Dutch PPPs. This group includes Japan's SMBC and MUFG Bank, Italy's UniCredit, the UK's RBS, and Société Générale, BNP Paribas and Crédit Agricole of France.

The French banks typically provided shorter-term debt, and have for the most part not figured significantly on the more recent projects. Meanwhile the UK's RBS, which required a state rescue during the financial crisis, has also long disappeared from this market. However, some of the other big, international lenders – including MUFG Bank, SMBC, and UniCredit – had

until recently been more or less regular fixtures on these deals.

Which is why the absence of all the large, international lenders from the recently closed Afsluitdijk dyke project was particularly notable. And on the A16 road project that followed it, only SMBC was present, a pattern that is expected to be repeated for the soon-to-close Blankenburg tunnel.

As a result, the recent closed deals reveal a refocusing of financing back towards the local lenders, but also – at the same time – to institutional debt investors.

A BAM-led consortium reached financial close on the Afsluitdijk PPP project on 29 May 2018. The multilateral EIB was joined in financing the project by Belfius Bank of Belgium, local lender Rabobank, and three German lenders (DekaBank, KfW IPEX, and Landesbank Baden-Württemberg).

A month later the Green Bow consortium – comprising Besix, Dura Vermeer, Van Oord, John Laing, RebelValley and TBI – closed on the €1 billion (\$1.2 billion) A16 road PPP.

Much of the debt for this scheme was fronted by a group of smaller commercial banks from Belgium, the Netherlands, and Germany. However, they were joined by Japan's SMBC and institutional investor MEAG.

MEAG has appeared on another transport project in the Netherlands – the Blankenburg Tunnel, which was nearing financial close as *IJGlobal* went to press. Belgium's KBC Bank and Germany's

## Major PPP financings in the Netherlands in recent years

Project	A16	Afsluitdijk	A27/A1	Amsterdam Courthouse	IJmond Lock	Breda Courthouse	A9	A1/A6 Phase I
Financial close	06/06/2018	29/05/2018	05/10/2016	06/07/2016	15/10/2015	30/06/2015	13/11/2014	27/02/2013
Debt providers	BNG Belfius Helaba KBC Bank KfW IPEX LBBW MEAG NWB SMBC	EIB KfW IPEX DekaBank LBBW Belfius Rabobank	NWB KBC Bank ING Group SMBC DZ Bank	ERGO Insurance MUFG SMBC NWB	EIB MUFG SMBC UniCredit KfW DZ Bank	SMBC BNG MEAG	EIB Société Générale SMBC KBC Bank ING Group DZ Bank BNG	KfW MUFG Crédit Agricole UniCredit SMBC EIB Helaba LBBW NordLB

Source: *IJGlobal* \*Major international banks highlighted

KfW IPEX, both of which also lent on A16, are also on this deal, while Natixis has managed to muscle in alongside SMBC. But those big banks are again outnumbered in the lending group, with two development banks present and Samsung Life another institutional participating. And institutional investor participation on these deals is bigger than it seems – debt from these organisations was behind the contributions of some of the banks.

**What’s behind the shift?**

For one, many European banks have benefitted from the European Central Bank’s quantitative easing programme, which has kept the banking sector awash with liquidity.

This impacts the comparative lending capability of Japanese banks such as MUFG Bank, possibly the most notable absence from the recent deals.

However, it must be noted that MUFG Bank did back two unsuccessful bidders on the Afsluitdijk project and one on the Blankenburg tunnel.

And the bank’s direct competitor SMBC was on the A16 and is expected to be lending to the Blankenburg tunnel, although that debt is likely to have ended up on the balance sheets of their institutional investor partners.

So it is the activity of these institutionals which is having perhaps the biggest impact.

With pricing margins falling close to 100bp over Euribor and tenors stretching far out into the 25-plus-year year timeframe, it is getting harder for lenders to compete without tapping the institutional market. Because although quantitative easing has been providing banks with extra liquidity, Basel III and so-called Basel IV banking regulations are penalising banks for longer-term lending.

As a result, the larger banks often find these deals too costly and time consuming to be worthwhile – especially if they are simply going to pass them on to pension funds and insurers.

“The Dutch market is one the most



Darryl D’Souza

sophisticated PPP markets in Europe, and one where institutional investors have been acting independently of banks for some time, which means that for us there really isn’t an angle to bring in institutional investors,” said Darryl D’Souza, head of financial sponsors, structured finance, EMEA at MUFG Bank.

However, for some of the smaller, regional banks, institutional debt provides

**“Project finance and PPP are still very core to our business, but we are being more selective. In the Dutch market, for example, we are just not able to compete with the local banks”**

opportunities to stretch tenors and shrink pricing margins beyond their own capacity while employing their sector knowledge and structuring expertise.

**Other sectors**

“Project finance and PPP are still very core to our business, but we are being more selective. In the Dutch market, for example, we are just not able to compete with the local banks. So we’re not going

to have a race to the bottom in terms of margins,” D’Souza said.

Much of the focus for MUFG Bank currently is on renewables, energy from waste, rail, housing finance, digital infrastructure – including telecoms towers, broadband and datacentres – leveraging off the bank’s advisory business, infrastructure M&A, and debt capital markets, he explained.

“And Europe is still very core, and we remain very active in the Middle East, but we are now also considering Africa on a very selective basis.”

Various lenders have also pointed to so-called core-plus and core-plus-plus deals, which are stretching the definition of infrastructure – as key areas of interest.

And for many banks it is easier to lend to renewables projects – where tenors under 20 years match project lifecycles – than to PPPs, where concessions are typically closer to 30 years, another source said.

Meanwhile, the banks’ advisory work has seen its importance grow as constraints have weighed on lending activity.

Ultimately, it all signals underlying caution about where the PPP market is going. “With margins still coming down, is this an asset class I want to invest in?” asked another banking source. Many are now more interested in regulated utilities, airports, and renewables, he said.

**Capital reserve (and other) constraints**

With the full impact of Basel III and Basel IV on capital allocation still not completely clear, this is clearly also impacting lending decisions.

One source even refused to discuss the topic, as coverage from *IJGlobal* will add to the stream of market chatter acting as a “self-fulfilling prophesy” to stem debt flows, he said.

Meanwhile, today’s borrowers’ market means sponsors are pushing banks as far as they will go (or not go, as the case might be) in terms of high gearing ratios and long tenors, and also in other areas. This includes security packages and

cover ratios, all of which puts pressure on banks, making it harder for them to lend.

In any case, beyond acting as a conduit for institutional money, smaller banks are taking advantage of their competitive edge.

“The key advantage is that specialised banks are much more agile and flexible. Hierarchies are much flatter, we have no silo mentality and can turn around approvals pretty quickly,” noted John Philip Weiland, head of banking at Austria’s Kommunalkredit, which has appeared on a number of deals over recent months. While larger banks will typically only be interested in deals where they can take on larger debt tickets, this is not as much of an issue for the smaller players, Weiland added.

Which means some smaller players have been popping up in unexpected places.

Kommunalkredit recently hired a number of senior bankers from Deutsche Bank – including Bernd Fislage and John Philip Weiland – as part of its drive to boost its project financing expertise. The bank was a lender on the 2017 refinancing of the Tranvia de Zaragoza tram PPP in Spain, as well as for the A2 road PPP refinancing in Poland, with other deals on the cards.

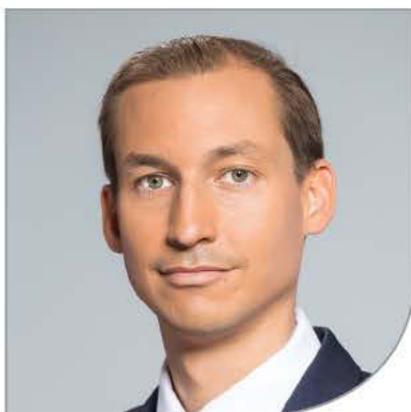
“While we are a dedicated real asset player with a particular focus on infrastructure and energy deals at the moment, we are open in terms of how we finance the deals, whether its acquisition finance, or project finance. And we can do core plus, core plus-plus. That is much harder in larger institutions,” Weiland said.

### Regional lenders in other markets

Regional lenders are crowding out competitors from further afield in an increasing number of European markets.

“In France this has happened a lot,” pointed out one source, arguing that local lenders often behave like cartels in their efforts to protect their home markets from foreign lenders.

And Norway seems to be going the same way, with the Rv3/Rv25 – the first



John Philip Weiland

road in the country’s current road PPP programme – brought to financial close by Skanska in late May (2018) with debt largely provided by SEB.

However, this was admittedly a relatively small project, costing around Nkr2.6 billion (\$316 million). So the upcoming Nkr8.9 billion Rv555 project with its much greater

“The key advantage is that specialised banks are much more agile and flexible. Hierarchies are much flatter, we have no silo mentality and can turn around approvals pretty quickly”

complexity (think multiple bridges across numerous waterways in a densely populated area) may be a better bellwether for financing trends.

Local banks that are able to lend in local currency without taking on costs associated with currency swaps obviously have an advantage in Norway. But the Strabag-led consortium, which was unsuccessful in its bid for the Rv3/Rv25, did have around seven banks – mainly

from Germany – backing its bid.

In any case, the Norwegian road projects reveal how the introduction of a new PPP model can also encourage greater dependence on local lenders.

Norway has limited experience of PPPs. In terms of roads, this includes only the E18 Grimstad-Kristiansand motorway, the E39 Lyngdal-Flekkefjord road, and the E39 Klett-Bardshaug road highway – all of which reached financial close between 2003 and 2006.

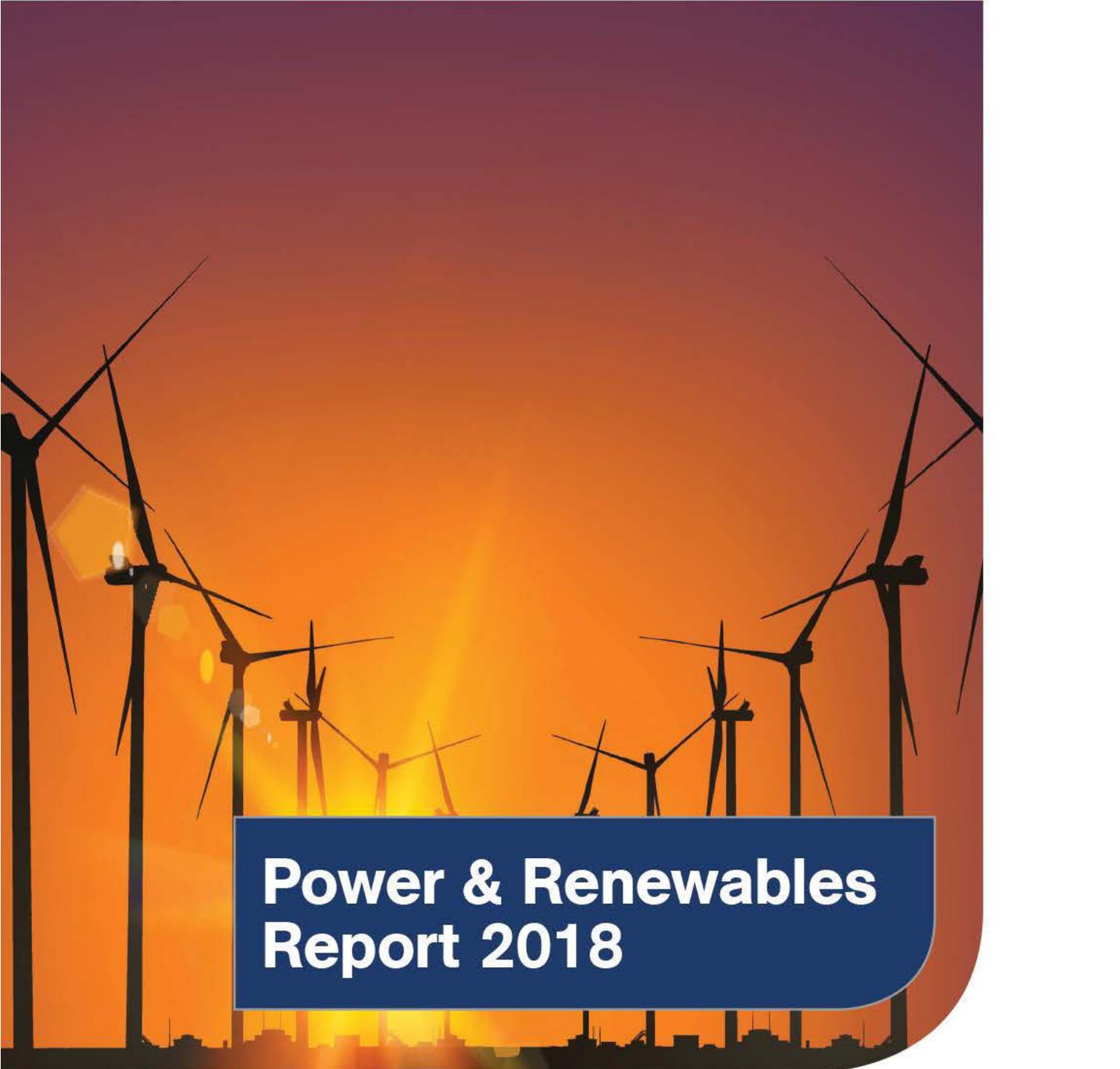
The model used for these schemes featured availability payments spread out across concession periods but no significant lump sum payment at construction completion. The deals faced criticisms over excessively high financing costs, particularly given the government’s deep pockets.

As a result, under a revamped Norwegian PPP model, a provision was introduced which states that half of a project’s construction costs will be paid by the government at completion.

However, this reduced dependence on long-term debt means the Norwegian road projects are less appealing to the wider European banking sector than they could have been otherwise.

Beyond the Rv555, there will be another project – E10/RV85 Tjeldsund–Gullesfjordbotn in Nordland and Troms County – which is guaranteed to be a PPP, and a number of other road projects that may yet turn out to be privately financed too, so it remains to be seen which banks will be involved in these deals.

Meanwhile, with what few pipelines existed in Europe now drying up altogether (observe Spain, which had provided hope to PPP hopefuls with a €5 billion road programme, which a new government has just shelved), it remains to be seen whether the Netherlands and Norway will set the tone for whatever greenfield deals do emerge across the continent. If they do, expect to see more deals financed on an increasingly local basis, as larger banks shift their focus away from project finance. ■

A photograph of several wind turbines silhouetted against a bright orange and yellow sunset sky. The turbines are arranged in a line, receding into the distance. The overall mood is serene and focused on renewable energy.

# Power & Renewables Report 2018

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# Far from retirement

Renewable energy assets can go beyond planned operational periods, and lifetime extensions are becoming particularly popular for wind farms and solar plants.

By Carlos Alberro, Global Segment Leader – Finance, DNV GL

A lot has changed in the last 20 years, not least in the power generation sector. When the first commercial wind farms were developed few would have predicted how quickly renewable energy technologies would become established, how widely they would be adopted, and how far their costs would fall.

Those first projects are now reaching or have just passed their certification periods. When completed two decades ago, the plan might have been to decommission them at the end of their contracted life. Asset owners just needed to consider how best to decommission and what value they could extract from the leftover hardware.

It might not always be the smartest option to decommission existing wind and solar projects, as there are benefits of extending the lifetimes of their projects.

The principal resources for renewable energy generation – wind and sunlight – persist beyond the end of existing contracts, and the oldest sites are usually the best ones. Some hardware may need replacing, but keeping an existing plant operational is likely to be far more profitable than building a new one. Not least because project debt facilities should have been repaid, meaning any further income is pure revenue.

Asset owners also benefit from knowing the site conditions, with extensive operational performance data making it easier to project future outputs, and experience of how hardware ages in those conditions. Additionally, extending necessary environmental permits and land rights is usually achievable, and the plant will already be connected to the grid.

The lifetime extension model has been established by hydropower plants, with some operating for over a century

now thanks to periodic upgrades and hardware replacements.

There are a range of different options available for extending the life of your project, but a number of issues need to be considered.

### Assessing health

The performance of the project to date will inform lifetime extension decisions, but this requires extremely detailed analysis.

- **Environment:** The speed at which equipment has been degraded and how long its life can be safely extended for is dependent on the specific environmental conditions at each project site. Actual conditions since project commissioning must be compared against predicted conditions pre-construction. If a project has been operating in conditions it was not designed for, this could significantly limit lifetime extension opportunities.

For wind farms this means analysing data including average wind speeds, extreme events, and the turbulence intensity at the site. For solar PV plants, data such as ultraviolet radiation, ammonia, humidity and salt levels need to be assessed, as do local wind speeds and the prevalence of mist.

- **Maintenance:** As well as natural factors, the level of maintenance enjoyed by the project over its life is also important to assess. Predictive, preventive and corrective maintenance must be carried out to the highest standards and accurately monitored to enable realistic lifetime assessments.
- **Operation:** Depending on the resource availability and connection circumstances at the site and its ancillary equipment, the effects of the asset's operation can vary.

Assessment can be made either through direct inspections (visual, videoscope and vibrations) or through data analysis.

- **Design:** Understanding the design, manufacture and installation of the asset is also crucial. Each stage can create issues related to lifetime extension but by tightly controlling processes, quality problems can be avoided.

Information availability is key. No matter if the asset has been changing hands, there is information, such as resource availability, maintenance, root cause analysis, and serial defect reports, which needs to be available for this process. Some information might be sourced out separately, but if it does not come from the site, it increases the uncertainty of the process. Another concern is the drive to reduce the levelized cost of energy during bidding processes as we are seeing in many markets these days, leading to designs which can limit the possibilities for lifetime extension. This will surely impact the life extension processes of the future.

- **Manufacturing:** Ideally you want to be able to track each component from drawing board, through factory and transportation, to construction. In our experience, these are just a few checklists that have been kept from the purchase period. Knowing the market, its practices and where the components were manufactured is the best information we can have at this point. DNV GL has been present in these processes in markets all over the world, and we are aware of the different issues and impacts.

Every manufacturer has their own criteria, practices and safety tolerances,

and processes can range from high manual, such as manufacturing wind turbine blades, to tighter controlled machining and welding, as well as PV panels or inverters.

Being able to assess this process from drawing board to installation becomes increasingly important due to ongoing pressures to reduce costs. For example, new tower foundation designs, which use less concrete and steel, are becoming increasingly prevalent. These designs create much higher requirements on materials and therefore stricter control of the onsite conditions for the concrete plants and closer monitoring of the steel bars arriving at the site.

## Outside forces

While you may be satisfied that the physical condition of the asset allows for lifetime extension, other factors also need to be considered.

Not least of these is the regulatory environment, which may have changed

since the project was originally developed. This may mean any refurbishment, retrofit or expansion requires new permits.

In most markets rental contracts are easily extended and interconnection permits have no expiry date but environmental impact assessments (EIAs) can be more problematic, as the last two decades have seen significant changes in environmental regulations.

For example, regulations may have tightened so much that it would be impossible to erect wind turbines today at existing wind farm sites. In such circumstances, extending the life of the existing infrastructure, rather than new construction, may be the only option.

Either way, a new EIA could be needed and this would need to be completed before the end of the existing project's planned life. This enables swift execution of extension plans.

Extended assets are also likely to be more exposed to merchant risk. Any existing power purchase agreements

(PPAs) will probably expire after year 20 of the asset's life, removing certainty of revenues. New PPAs could be negotiated – with a corporate offtaker, for example – but if not the asset will be exposed to the open market and power price volatility.

Extended projects are partially protected from these risks by being debt free, but the need to understand and stress test a project's financial model is essential.

Before any investment in an asset, inputs from tax, technical and legal advisers will be used by the project's financial team to create its long-term financial model. This model needs to be tested against all of the assessments on the project's health described above, and benchmarked against similar assets of the same age, for their likely impact on its future economic performance.

While lifetime extension is a live issue for that first generation of renewable projects, assets owners of newer projects would be smart to prepare for the end of planned commercial operation periods. ■



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# Importing experience

How European experience can be used in the upcoming round of US offshore wind projects. By Crédit Agricole CIB managing directors Jim Guidera, Eugene Kasozi, and Jerry Vincitore.

Offshore wind projects are coming to the North American project finance market. Sites have been obtained, and importantly revenue-sources have been awarded to support major investments in several developments on the Northeastern seaboard. The next round of US offshore wind project finance could begin later this year or early next. A template for these deals is certain to be informed by the extensive experience among the European players.

The first, and so far only, US offshore wind project was the modest-sized 30MW Deepwater Wind's Block Island Wind project off the Rhode Island coast which was financed in 2015 and started up operations in late 2016. There have been no further US projects since then, but projects off the coasts of Massachusetts, Maryland, Rhode Island and Long Island, New York have been passing milestones that should lead to financial closings in 2019.

These states, along with New Jersey and Maine, all have ambitious goals for offshore wind capacity in the next decade.

### The coming projects

In Maryland, two major projects are in development offshore Ocean City. The 750MW US Wind project would be built in phases with costs estimated at around \$2.5 billion. Deepwater Wind's Skipjack project would be a smaller \$720 million project. The two projects have been awarded ocean renewable energy credits (OREC) purchase agreements in 2017 that would generate revenues at \$167 per MWh for each project for 20 years, starting in 2021 for the US Wind project and at an inflating price in 2023 for Skipjack. US Wind has projected that its first 250MW phase would be completed in time for the OREC



Gerard Vincitore

entitlement, so a financing is expected in the beginning of 2019.

In May this year, a Massachusetts-run procurement process settled on the 800MW Vineyard Wind Project proposed by a joint venture of Avangrid Renewables and Copenhagen Infrastructure Partners (CIP). The selection of the Vineyard Wind project allows the sponsors to go forward with negotiations for transmission services and PPAs. Permitting applications are in process to position this project for a construction start in late 2019 and operations in 2021.

At the same time, Rhode Island selected Deepwater Wind's 400MW Revolution Project in a parallel procurement process that paves the way for the Revolution Wind developer to negotiate a services and power sales with National Grid that will ultimately be reviewed by the Rhode Island Public Utilities Commission. Deepwater hopes to be in a position to start construction in 2020 with start-up expected in 2023. Shortly after Rhode Island's offshore wind award announcement, Connecticut also selected Deepwater's Revolution Project to supply an incremental 200MW of wind

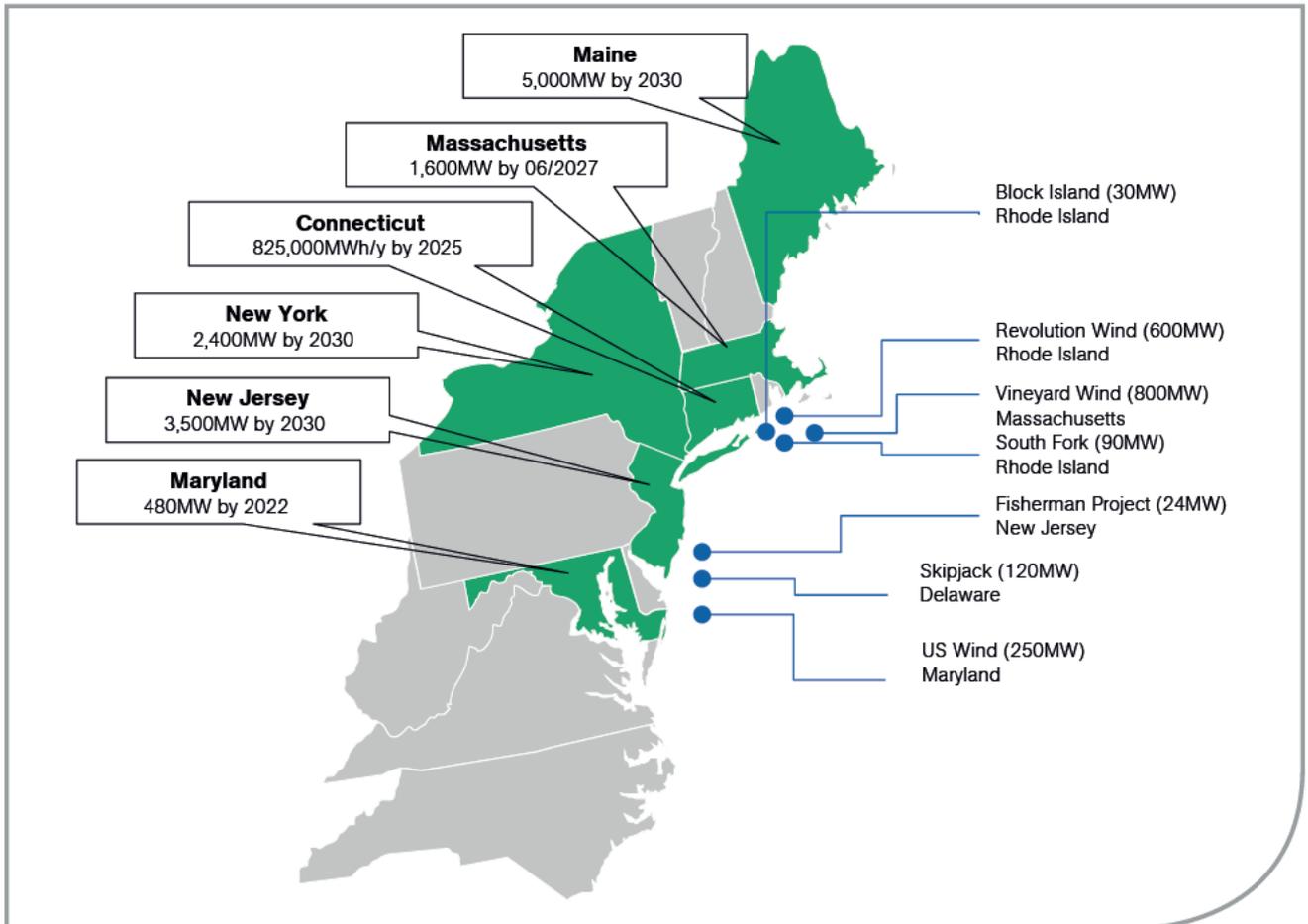
energy to the state. Deepwater Wind will negotiate with two Connecticut electric distribution utilities, Eversource and United Illuminating, to reach agreement on 20-year contracts. If successful, the contracts will be brought to Connecticut's Public Utility Regulatory Authority (PURA) for final approval.

In New York State, Deepwater Wind was awarded a 20-year PPA with the state-owned Long Island Power Authority (LIPA) for its 90MW South Fork project proposed for the south eastern shore of Long Island. Deepwater is currently working with the local town board on obtaining transmission easement rights and hopes to commence construction on its Long Island project in 2021, with start-up planned for 2022.

In New Jersey, the new Gov. Murphy administration has refocused on incentivizing offshore wind projects. Virginia is another mid-Atlantic state with ambitions for an offshore wind industry to take hold, and recently ran an RFP for consulting expertise to analyze maritime infrastructure and assets with the goal of informing the state's policy related to the OSW industry.

### European experience

While new to the US, offshore wind projects have been a regular source of investment and project finance activity in the European market for almost 20 years. The first offshore wind turbines were installed off the Danish and Dutch coast in the 1990's by Denmark's DONG Energy (now named Ørsted). The first utility-scale offshore wind installation was the 40MW Middelgrunden project in Danish waters in 2001. Offshore wind projects were increasingly deployed in the North Sea and Baltic waters throughout



Source: *Crédit Agricole CIB*

the first decade of the 21st century with capacity additions materially accelerating after 2010. Along the way, individual turbine sizes and capacities have continued to grow from the 1MW turbines employed in the earliest deployments to 3MW turbines and 5MW turbines by 2017, with latest turbines now approaching 12.5MW. Along with higher capacity factors, the offshore locations can accommodate larger turbine sizes. The technology has also advanced to permit deployment up to 60km offshore in waters 20-60 meters deep.

Asian markets, such as Taiwan, have also seen significant deployment in offshore wind, and lessons learned in prior European and Asian offshore wind project finance are likely to be brought to the upcoming round of US projects. Ørsted, CIP, and Avangrid arrive in the US market with a wealth of experience from their European developments while many of the leading

project finance banks in the US already are institutionally quite experienced in financing offshore wind in other geographies.

### Completion risk mitigation

The European experience indicates that completion risk will be a primary project finance issue. In the history of Europe's build-out, completion delays and cost overruns presented challenges to early projects. In the first phase of utility-scale installations in the 2001-07 period, joint ventures of construction companies and marine companies would typically offer single turnkey equipment, procurement supply and installation contracts. However, many of these joint ventures absorbed material overrun costs, and the single turnkey EPC became scarce in the early part of the present decade.

The completion risk made it impractical for developers to obtain the fixed-price turnkey contracts that

have been the standard completion risk mitigation for onshore wind projects. Frequently, offshore wind projects were constructed on-balance sheet with project finance being introduced at the completion stage. Ørsted typically builds its projects using its own funding and recruits a financial partner that uses non-recourse finance for its investment.

While many developers elect to equity finance their projects during construction, non-recourse construction finance has also become available for offshore projects installed under the multi-contracting approach without a construction wrap. Multi-contracting involves sub-dividing the construction process into a number of manageable sub-contracts. Typically, this involves a total of five to 10 contracts in areas such as civil works, turbine erection and substations. These would be coordinated by an experienced sponsor or owner's engineer.

One advantage to this approach is it allows for area specialists with individually negotiated cost quotes, often leading to an overall lower cost compared to a fully-wrapped EPC contract.

A significant risk that arises under a multi-contracting or EPCI approach without a wrap is interface risk. In order to minimize this risk, developers generally seek to procure a limited number of EPCI contracts. For example, based on the European experience, projects have utilized three broad construction packages covering: 1) turbine design, supply, installation and commissioning; 2) foundation design, supply, installation and commissioning; and 3) balance of plant design, manufacturing, installation and commissioning, including inter-array cables, foundations, and offshore substation platforms. This approach achieves a good balance between limiting the number of contracts and selecting competent contractors for their relevant areas of expertise.

Leading European project finance banks have become comfortable with offshore construction arrangements without a wrap. These lenders closely examine the interface risks to ensure no contractual or physical gaps exist between contracts. Comfort is derived from sponsors that pro-actively manage the interfaces between contractors to assure the contracts are proceeding on the same project schedule. For such projects, lower leverage levels, well-sized contingency reserves and contingent equity have become routine for completion risk mitigation.

In the last few years, as the supply chain and installation techniques have become more flexible and reliable, some sponsors are now giving completion guarantees.

Ørsted's £1.3 billion, 660MW Walney Project in 2017 was financed at competitive rates in consideration of the completion guarantee provided by that developer, and its 1,300MW Hornsea 1 financing is in the 2018 market also

supported by the developer's completion guarantee. However, other projects in the European market are still being financed under an EPCI approach.

What is not yet certain is whether EPCI contracts without a wrap will be required, or can be found, for the early US offshore projects. Specialized shipping, rigs and the rest of the required marine infrastructure will need to be built out to enable the US offshore installations achieve the relatively lower costs and predictability of European marine construction projects now have.

## Revenue support

The build-out of the European offshore wind industry has been subsidised by above-market revenues assured by long-term PPAs or RECs.

European tariffs have been declining in recent years, down from €200 per MWh for contracts awarded in the 2010-12 timeframe to more recent LCOE estimates in the €50-70 per MWh range.

The US's only offshore wind project Block Island was supported by a PPA priced at \$244 per MWh sourced before 2016, while the more recent contracts for the Ocean City and Skipjack projects have pricing starting at \$167 per MWh in 2021.

Although these lower prices are due to the significant reduction in the cost of wind projects, they still represent a material increase over the wholesale power prices in these regional markets. The public policies adopted in the North Atlantic states aim to establish offshore wind as a job-generating industry so the early rounds of US offshore wind projects will likely benefit from above-market rates.

## Capital sources

The US project finance debt market is already led by major European and Japanese banks that can import their global experience to finance the coming round of projects. Other US capital market participants, such as rating agencies and institutional investors, can be expected to catch up.

The other capital providers common to European projects are export credit agencies, particularly Denmark's EKF which is regularly involved in offshore projects employing Vestas or Siemens equipment. Export credit agencies have only occasionally appeared in US project finance, but given the large amounts of capital to be raised among the upcoming US offshore wind projects, a place may be found for experienced debt providers who can hold large tickets.

A class of capital providers unique to the US renewables finance market have been the tax-equity sources: investors whose returns are largely met by tax-savings generated from the tax credits and accelerated depreciation that comes with renewables investments. The investment tax credit is scheduled to phase out in 2020, so this capital subsidy may not be available for projects beyond those that may be grandfathered by equipment purchased in 2018-19. However, if not properly managed, advance equipment/component purchases to grandfather tax benefits may be at odds with obtaining the latest and cheapest technologies.

The presence of tax-equity sources has made tax-equity bridge loans and back-leveraging partial partnership shares common features in US renewables finance, and they are expected to feature in early US offshore wind projects as well. Since tax-equity sources only become available once projects become operational, commercial banks are called upon to bridge the tax-equity commitments during the construction periods.

## A US template

A template for structuring US offshore wind projects will likely emerge among the first of the upcoming projects drawing on the capital sources and elements unique to the US market, as well as the lessons learned in Europe and Asia. European developers and lenders are in the best position to set the standards for US offshore wind finance. ■

# What's in storage?

In the evolving sector of battery storage, where predicting future developments is difficult, the importance of contractual structures and the ability to validate them is significant. By Paul Gardner, Global Segment Leader – Energy Storage, DNV GL

New technology can be exciting and often revolutionary, but it can also be unpredictable and short-lived. Early adopters can be left with products that are soon out-of-date or markedly more expensive than later iterations. If you are really unlucky you can end up sinking a lot of money into a technological dead-end – like a MiniDisc player, Sinclair C5, or Betamax cassette (depending on your age).

While conventional and renewable generation, along with distribution and transmission assets, have mature supply chains and standardised processes, stationary battery storage is still very much a new technology, with much greater variety in development process, business models, financing and procurement. The industry is still very young and developing fast, with various options open to investors and developers.

Differences among actual hardware is just one variable. Picking the right contractual structures, with the necessary guarantees, is also essential for a successful battery storage project, but the vast array of options can be bewildering.

And the speed at which the market is developing makes it harder still to keep track of. Utility scale battery storage projects are now being developed across a range of jurisdictions and markets, and are progressively increasing in size.

At the start of 2017, AltaGas and Tesla were unveiling 80MWh projects in California and by the end of the year the latter had delivered the 129MWh Tesla South Australia battery storage project.

The first Enhanced Frequency Response (EFR) battery projects in the UK have been constructed over the last 12 months. They were awarded



Paul Gardner

in a pilot auction in 2016, resulting in surprisingly low prices. The market has now moved on: future contracts for similar frequency-response services will be specified differently.

This speed of development and change can be daunting but it also means precedents are being set, and the growing collective experience of DNV GL's team makes it perfectly placed to advise on the sector.

The lifetime performance of a battery storage project can be highly unpredictable for a variety of reasons

## Contractual structures

There is some consensus on contract structure for battery storage projects, with a number of common features to be found. These include performance guarantees,

liquidated damages assessments, and lifetime estimation and warranty. You would also expect to see a flow-down of an EPC wrap to supplier warranties and guarantees, which makes the role of an EPC contractor with sufficient balance sheet critical. Experienced EPC contractors are also, in our experience, a route to lower costs.

In addition to these recurring features, there are also a number of special considerations that any developer needs to bear in mind:

- *Is it utility scale?* A utility scale contract may require specific guarantees related to one or more contracted revenue streams.
- *Is it co-located with solar or wind generation?* Specific attention needs to be paid to grid connection requirements, and round-trip efficiency. There may also be a reliance on combined operation of the wind or solar plant controller and the storage control system in order to meet specific conditions of the connection agreement.
- *Is it located 'behind the meter' on an industrial or commercial site?* There may be a need for a guarantee for peak demand reduction, or other issues critical for the business case.

## Principal contractual guarantees

The lifetime performance of a battery storage project can be highly unpredictable for a variety of reasons, and developers will want some level of guarantee in the contract to protect against all of the following:

- *Lifetime/capacity degradation* – The power and energy capabilities of a battery will degrade over its lifetime. It is important to understand not just

# BATTERY STORAGE

how quickly this will happen but also the major influencing factors. Some guarantees will not provide the protection you imagine, if usage in the real application is different from the (usually simple) charge/discharge cycle assumed in the supplier's guarantee.

- **Availability** – Depending on application, it may be desirable to specify higher availability at some times of year, or time of day (for example, for peak shaving). This could drive the supplier to schedule planned maintenance accordingly, or to increase the spares holdings on site.
- **Round-trip efficiency** – This is the ratio of energy retrieved to the energy put into the storage system. There can be great variety between broad technology types and specific products. Losses occur in the batteries, in the power electronics, and in any external transformer, and will depend on the application: for certain applications, the form of the guarantee may need to be

written carefully, in order to provide the required protection.

- **Location environment** – The environment the asset will be operating in is important. The batteries may be required to operate in high ambient temperatures. If exposed to high temperatures, the performance of cooling system will also need to be tested. Industrial sites may require guarantees on corrosion or dust ingress, for example. The environment also includes conditions on the electricity system: robustness against harmonic currents and voltage transients may be important. Performance guarantees are typically formula-based to determine liquidated damages. It is possible for the supplier to earn a performance bonus if the equipment performs better than expected.

## Future developments

Very large investments are being made in battery R&D, and further

substantial technology development is expected. However, gradual evolution of preferred contractual structures and guarantees are more likely than major changes. This evolution will be helped by the development of 'best practice'. An example is the GRIDSTOR Recommended Practice RP-0043, developed by an industry consortium led by DNV GL.

One exception could be the emergence of mass-market household storage as a consumer product, possibly in conjunction with residential PV. If this becomes popular, and if aggregators develop business models to make use of the combined storage capacity to provide services to energy suppliers, generators and network operators, then it could displace the need for utility-scale storage. The contractual arrangements for such small devices will be those appropriate for consumer products. The aggregators' obligations to provide services will rely on the 'portfolio effect' of multiple similar devices. ■



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# INFRASTRUCTURE FINANCE POWER LEAGUE TABLES – H1 2018

## MLAs

Rank 2018	2017	Company	Value (USDm)	
			2018	2017
1	2	Mitsubishi UFJ Financial Group	1,173	2,151
2	3	Sumitomo Mitsui Financial Group	1,105	1,825
3	7	Mizuho Financial Group	930	989
4	N/A	Standard Chartered Bank	814	N/A
5	32	Citigroup	725	258
6	1	ICBC	694	4,326
7	17	HSBC	584	493
8	6	BNP Paribas	562	1,031
9	11	JPMorgan	400	864
10	8	Deutsche Bank	392	953
11	19	Groupe BPCE	370	433
12	4	Crédit Agricole Group	347	1,232
13	12	Morgan Stanley	345	761
14	14	ING Group	338	703
15	N/A	First Abu Dhabi Bank	325	N/A
16	28	Bank of Communications	300	260
17	13	Santander	286	710
18	41	Société Générale	278	170
19	56	Bank Hapoalim	263	65
20	N/A	Beal Bank	251	N/A

## Financial Advisers

Rank 2018	2017	Company	Value (USDm)	
			2018	2017
1	N/A	Bank of America	6,422	N/A
2	N/A	Moelis & Company	5,066	N/A
3	5	Royal Bank of Canada	3,693	3,645
4	6	Morgan Stanley	1,900	3,300
5	N/A	Barclays	1,879	N/A
6	N/A	PFR Advisors	1,830	N/A
7	N/A	Scotiabank	1,357	N/A
8	15	KPMG	1,106	901
9	14	Rothschild	930	985
10	N/A	Lazard	795	N/A
11	N/A	Leucadia National Corporation	735	N/A
=	19	JPMorgan	735	446
13	2	Macquarie	726	5,751
14	N/A	E3 Consulting (USA)	408	N/A
15	10	Crédit Agricole Group	331	1,177
16	18	Ernst & Young	282	703
17	N/A	Black & Veatch	268	N/A
18	N/A	Ironstone Capital	236	N/A
19	N/A	Mitsubishi UFJ Financial Group	233	N/A
20	N/A	General Electric	153	N/A

## Legal Advisers

Rank 2018	2017	Company	Value (USDm)	
			2018	2017
1	N/A	Kirkland & Ellis	5,801	N/A
2	N/A	Bracewell	5,333	N/A
3	5	White & Case	5,327	6,061
4	14	Linklaters	4,588	3,586
5	2	Milbank Tweed Hadley & McCloy	4,144	13,336
6	N/A	Herbert Smith Freehills	4,119	N/A
7	9	Allen & Overy	4,046	5,623
8	N/A	Gilbert & Tobin	4,018	N/A
9	27	Morgan Lewis & Bockius	3,613	1,584
10	3	Shearman & Sterling	2,909	8,674
11	14	Simpson Thacher & Bartlett	2,362	3,598
12	1	Latham & Watkins	2,128	13,651
13	N/A	Machado Meyer Sendacz e Opice Advogados	1,830	N/A
=	N/A	Stocche Forbes	1,830	N/A
15	4	Clifford Chance	1,519	7,328
16	10	Norton Rose Fulbright	1,378	4,743
17	N/A	Galia Abogados	1,357	N/A
=	N/A	Gonzalez Calvillo	1,357	N/A
19	N/A	Pinsent Masons	1,280	N/A
20	11	Pillsbury Winthrop Shaw Pittman	1,261	4,300

## Sponsors

Rank 2018	2017	Company	Value (USDm)	
			2018	2017
1	N/A	Sempra Energy	10,430	N/A
2	N/A	Hydro One	5,178	N/A
3	N/A	CVC Capital Partners	4,585	N/A
4	N/A	Fortum Oyj	4,452	N/A
5	62	State Grid Corporation of China	2,790	280
6	N/A	EDP Group	2,781	N/A
7	N/A	Saudi Electricity Company (SEC)	2,600	N/A
8	N/A	San Miguel Corporation	1,900	N/A
9	N/A	NextEra Energy	1,594	N/A
10	23	Enel	1,493	819
11	114	State Power Investment Corporation (SPIC)	1,480	44
12	N/A	China Southern Power Grid	1,300	N/A
13	N/A	Edison International	1,250	N/A
14	N/A	Elia	1,189	N/A
15	N/A	Zimbabwe Electricity Supply Authority	1,106	N/A
16	N/A	Engie	1,103	N/A
17	N/A	SGN	1,060	N/A
18	N/A	Gas Natural Fenosa	1,055	N/A
19	49	Brookfield Asset Management	1,002	359
20	N/A	Australian Super	1,000	N/A
=	N/A	Israel Electric Corporation	1,000	N/A

# INFRASTRUCTURE FINANCE RENEWABLES LEAGUE TABLES – H1 2018

## MLAs

Rank 2018	Rank 2017	Company	Value (USDm)	
			2018	2017
1	3	Sumitomo Mitsui Financial Group	1,554	1,157
2	1	Mitsubishi UFJ Financial Group	1,264	1,441
3	6	ING Group	1,249	784
4	8	BNP Paribas	1,220	746
5	4	Société Générale	877	861
6	5	Crédit Agricole Group	803	832
7	11	Rabobank	644	622
8	2	Santander	644	1,223
9	22	HSBC	536	311
10	23	Commonwealth Bank of Australia	494	298
11	15	Deutsche Bank	458	516
12	7	Mizuho Financial Group	445	764
13	10	NordLB	436	634
14	45	JPMorgan	430	153
15	N/A	Citigroup	429	N/A
16	55	Goldman Sachs	414	113
17	24	Morgan Stanley	388	269
18	18	National Australia Bank	369	383
19	34	Siemens	349	189
20	36	Key Bank	338	180

## Financial Advisers

Rank 2018	Rank 2017	Company	Value (USDm)	
			2018	2017
1	1	KPMG	3,714	2,226
2	13	Bank of America	2,557	799
3	34	Société Générale	2,038	179
4	2	Macquarie	1,712	1,972
5	5	Green Giraffe	1,664	1,311
6	41	Barclays	1,357	91
=	N/A	Scotiabank	1,357	N/A
8	16	Astris Finance	1,300	705
9	22	HSBC	1,250	475
10	17	Credit Suisse	1,200	660
11	N/A	Royal Bank of Canada	1,036	N/A
12	31	BNP Paribas	1,003	221
13	44	Marathon Capital	610	44
14	7	Ernst & Young	597	1,246
15	20	Mizuho Financial Group	540	588
16	N/A	Lazard	469	N/A
17	N/A	Eaglestone	376	N/A
18	11	Crédit Agricole Group	345	889
=	N/A	CaixaBank	345	N/A
=	9	Santander	345	916

## Legal Advisers

Rank 2018	Rank 2017	Company	Value (USDm)	
			2018	2017
1	8	Clifford Chance	8,726	3,167
2	1	Norton Rose Fulbright	6,933	6,368
3	16	White & Case	4,626	1,216
4	7	Allen & Overy	4,502	4,207
5	3	Milbank Tweed Hadley & McCloy	4,413	5,551
6	10	Herbert Smith Freehills	2,329	2,374
7	2	Linklaters	2,275	6,081
8	5	Latham & Watkins	2,155	4,467
9	29	Cuatrecasas	2,023	799
10	N/A	Galicía Abogados	1,937	N/A
11	6	Shearman & Sterling	1,801	4,386
12	14	DLA Piper	1,794	1,245
13	9	Ashurst	1,679	2,456
14	45	Mayer Brown	1,567	476
15	76	CMS	1,358	182
16	N/A	Gonzalez Calvillo	1,357	N/A
17	11	Allens	1,328	1,624
18	27	King & Wood Mallesons	1,314	849
19	63	Bonelli Erede Pappalardo	1,260	273
20	41	Assegaf Hamzah & Partners	1,250	588
=	N/A	AZP Legal Consultants	1,250	N/A

## Sponsors

Rank 2018	Rank 2017	Company	Value (USDm)	
			2018	2017
1	27	Macquarie	3,638	367
2	4	Capital Dynamics	2,640	1,091
3	7	Enel	2,503	830
4	N/A	First Pacific Company	1,600	N/A
5	1	Engie	1,411	1,912
6	N/A	China Investment Corporation	1,240	N/A
6	N/A	Public Sector Pension Investment Board	1,240	N/A
8	21	Brookfield Asset Management	1,200	437
9	N/A	I Squared Capital	1,054	N/A
10	N/A	ContourGlobal	1,036	N/A
11	41	EDF	1,017	292
12	N/A	Canada Pension Plan Investment Board	996	N/A
13	N/A	Louis Dreyfus	954	N/A
14	35	Goldwind Global	954	328
15	N/A	TPG Capital	953	N/A
16	N/A	Proman Group	825	N/A
17	N/A	Partners Group	801	N/A
18	N/A	China Resources Holdings	778	N/A
19	N/A	EIG Global Energy Partners	758	N/A
20	N/A	General Electric	704	N/A

# Europe

INSIDE

Discounts available: hit the sales  
 Buoyant European market  
 Acquisition of Cory Riverside, UK  
 Borssele III/IV, Netherlands  
 Afsluitdijk PPP, Netherlands

## Pipeline & procurement deals



## Projects with recent tender updates

- Wylfa Newydd Nuclear Power Plant
- Dunkirk Offshore Wind Farm
- Swansea Bay Tidal Lagoon Power Plant
- UK Grid-Scale Batteries and EV Charging
- RCEA Road Widening
- Privatisation of Hellenic Petroleum
- Port of Zemun Passenger Terminal
- Athens Biomedical Research Centre
- Egnatia Motorway Privatisation

## Closed deal values by sector

**Transport:** \$58.04 billion

**Power:** \$13.05 billion

**Renewables:** \$9.23 billion

**Telecoms:** \$7.85 billion

**Oil & Gas:** \$5.83 billion

**Social & Defence:** \$2.50 billion

**Mining:** \$2.42 billion

## Countries with highest closed deal values

Spain	\$55.01 billion	14
Germany	\$9.05 billion	5
United Kingdom	\$7.62 billion	45
Netherlands	\$6.04 billion	13
France	\$4.38 billion	9
Turkey	\$4.33 billion	6
Italy	\$4.2 billion	12
Ukraine	\$2.11 billion	1
Norway	\$1.15 billion	6
Switzerland	\$1.03 billion	2
Portugal	\$931 million	2
Czech Republic, Slovakia	\$913 million	1
Poland	\$687 million	3
Russia	\$561 million	4
Estonia	\$444 million	2
Ireland	\$370 million	4
Greece	\$328 million	1
France, Netherlands	\$184 million	1
Finland	\$126 million	4
Denmark	\$46 million	1

## Transactions that reached financial close



Source: IJGlobal, from 1 April 2018 – 30 June 2018.

# Discounts available: hit the sales

London-listed infrastructure funds have suffered periods of trading at discounts in 2018 – one dropped out of a trophy M&A auction, and various asset sales are predicted. By Alexandra Dockrey.

Until very recently, the UK-listed core infrastructure fund space was reassuringly boring. A small group of established funds had enjoyed healthy share prices as long as anyone in the industry could care to remember.

These listed funds had benefitted from steady yields on the back of stable cash flows from the large number of PFIs, PPPs and, more recently, regulated utilities which they are invested in.

But things have got more interesting over the last six months or so. For some of them, a change in investor sentiment has pushed share prices below the net asset values (NAV) of their portfolios.

The opposition Labour Party rhetoric, the collapse of a leading British contractor, heavy-handed regulations in the utility space and ongoing Brexit negotiations have all been pointed to as causes.

If the trend continues, the managers of the funds will have to find different ways to raise capital – aside from the usual tap issuances of shares – with increased asset disposals expected.

## The fallout

Listed infrastructure funds form a very small group within the UK's investment trust universe, with most vehicles in this space focused on equities and bond strategies. It is not unusual for trust vehicles to bob up and down from a discount to NAV to a premium.

According to Numis Securities, there are 12 London-listed infrastructure funds investing across three sub-sectors: PPP/core; PE infrastructure; and renewables. On 29 January 2018, their rough aggregate value was £13 billion (\$17 billion), according to Numis. The most mature sub-sector (PPP/core) comprises four listed vehicles:

BBGI; HICL Infrastructure; International Public Partnerships (INPP); and John Laing Infrastructure Fund (JLIF).

The London-listed infrastructure funds have performed differently to other listed funds, having been at a premium most of their lives.

Colette Ord, director, investment companies research (property & infrastructure) at Numis Securities told *IJGlobal*: “Back in the global financial crisis there was a brief window when they traded on discount... The last time was 2008/9.” Numis’ most recent outlook report *Listed infrastructure funds – opportunities* in 2018, published in January 2018, said these four PPP/core funds have built a strong track record over 10 years, with total returns in line or better than stated targets (7-9% per

annum) driven by predictable inflation linked cash flows, gradually declining discount rates and opportunistic profitable disposals.

However, in Q4 2017 JLIF began trading at a discount. By 11 July 2018, HICL was trading at a discount of -2.02% and JLIF at a discount of -3.63%. INPP, meanwhile, had recovered to a premium of 2.25%, after a period from 22 March to 18 April at a discount.

HICL’s share price initially sunk below NAV from 25 January 2018, with the the largest discount (around 9%) on 9 April. JLIF’s discount began on 8 November 2017, with the largest discounts in March and early April (around 10%).

BBGI has been maintaining a premium on the other hand (7.98% on 11 July). Analysts point out that it has around two-thirds of its assets outside the UK.

One listed fund manager in the infrastructure sector told *IJGlobal*: “If a fund continues to have a supportive shareholder base, trading at a discount need not be a fundamental problem.” The larger part of their investor bases tend to be institutions with a long-term outlook, they said, and the retail investors often also have a long-term intention to hold. Cash flows of the assets should continue to provide the predictable yield they invested for. HICL’s retail to institutional investor ratio is around 50:50.

But there has already been some fallouts from share prices spending time below the NAV.

INPP’s manager Amber Infrastructure took part in the auction of Cory Riverside, a London-based energy-from-waste business put up for sale by Strategic Value Partners. Amber was

- HICL Infrastructure Company – PPP/core
- International Public Partnerships – PPP/core
- 3i Infrastructure – PE infrastructure
- UK Greencoat Wind – renewables
- John Laing Infrastructure Fund – PPP/core
- The Renewables Infrastructure Group – renewables
- BBGI – PPP/core
- NextEnergy Solar – renewables
- Foresight Solar Fund – renewables
- Bluefield Solar Income Fund – renewables
- John Laing Environmental Assets Group – renewables
- Greencoat Renewables – renewables

partnered with Dalmore Capital, a regular partner of Amber's on UK infrastructure auctions. Cory was deserving of the 'trophy asset' label, with infrastructure heavyweights CKI and QIC among the large foreign rival bidders. However, Amber Infrastructure unexpectedly exited the auction midway through the process.

Three sources involved tell *IJGlobal* that the reason was INPP could not raise the hundreds of millions of equity capital through a share issuance. One source involved with this team said that bidding would have raised questions with their existing investors around bid valuation, especially on a trophy deal where large multiples needed to be paid to win.

If the managers were to issue shares at a discount to NAV, shareholders' positions would be being diluted. A manager might suggest they could buy more to avoid this dilution, but shareholders are hearing a different message to the usual outperformance.

Dalmore eventually found new investors to team with, going on to win at a valuation around 21x EBITDA.

If listed funds are unable to raise capital through share issuances because of trading value, there is always another way to fund new investments.

### Asset sales

HICL agreed to sell off its 100% stake of the Highlands Schools PFI in April for £56.2 million, and then just over a month later announced these proceeds will fund an accretive purchase of 7.2% of the A63 toll road in France for €62 million (\$73.2 million).

A market source told *IJGlobal* that INPP is considering the sale of some UK schools PFI investments in its portfolio.

Meanwhile, JLIF is the 15% shareholder of IEP 1, a rolling stock PPP in the UK, having built up the stake through buying John Laing's shares in the concession between 2016 and 2017. JLIF is already considering an exit, according to sources. AXA invested earlier this year, paying £227.5 million for 15%, whereas

JLIF invested £146.4 million equity to build up its own 15% position, showing potential for substantial returns.

As a manager of another listed infrastructure fund told *IJGlobal*, managers will opt to sell the assets that are easiest. This could be where there was a recent sale for the asset, or where co-shareholders are interested in a buy-out.

Another way for a listed infrastructure investment trust to raise capital would be to gear up cash flows further. With most of the asset-level project companies of these funds already geared, they could add more debt for the fund.

**“If a fund continues to have a supportive shareholder base, trading at a discount need not be a fundamental problem.”**

### Private managers seize opportunity

Manager JLCM has recently appointed KPMG as adviser for a review of JLIF's portfolio, suggesting more action could come. JLIF has a portfolio of 65 assets, and the review is understood to include looking at possible divestments.

As *IJGlobal* went to press, private infrastructure fund managers Equitix and Dalmore Capital on 16 July announced an offer to buy all shares of JLIF. They have offered to pay a roughly 20% premium to the latest closing share price.

The private infrastructure funds market has long had plenty of dry powder. Dalmore and Equitix's cash offer shows an eager appetite for this sizeable, cash-yielding portfolio of core infrastructure assets.

*IJGlobal's* closely involved source says the offer has indeed arisen out of the discount to NAV position.

### Concerns converge

The infrastructure funds invested in PFIs, PPPs and regulated assets have been buffeted by a variety of UK specific events converging.

Carillion's collapse into bankruptcy in January 2018 led to a number of statements from the trusts regarding their PPP contracts involving Carillion as contractor.

JLIF stated it needed to replace Carillion as the facilities management (FM) contractor on nine of its assets, incurring £3 million advisory and transaction costs. There was only one JLIF project where Carillion was still liable for construction defects and JLIF assured there should be “no material impact on the company” nor its dividend policy.

INPP said on 1 June 2018 that Carillion's collapse affected 24 facilities and that 22 of them now transitioned to new providers on substantially the same terms, incurring a cost of transfer of less than £1.5 million.

Cracks appearing in the water sector have been harder to seal, however.

HICL invested £250 million capital to buy a 33.2% stake in Affinity Water in May 2017 (its largest holding at the time). But just 12 months later HICL has lowered its valuation of the company by £34 million and warned of potential reductions dependent on regulator Ofwat's ongoing Price Review 19 for the next regulatory period. Ofwat is proposing clawing back high gearing outperformance of water companies across the entire capital structure including holdcos, by including floating rate debt in their cost of capital calculations. HICL said Ofwat's spending targets were “challenging”.

And the UK political environment could prove a longer-term problem.

Ord told *IJGlobal*: “The main driver of the de-rating in shares is the perception of political risk. Those perceived to be more politically exposed have a wider discount... The quite aggressive rhetoric was particular logged at the health sector, at the PFIs and acute hospitals especially.”

In September 2017, shadow-chancellor John McDonnell said he intended to abandon PFI for future projects and bring existing PFI contracts under government control if Labour won the next UK general election. Concerned managers were given a mere crumb of comfort when he then partially backtracked to suggest only those contracts not deemed to provide value for money would be renationalised.

In November 2017, JLIF said the compensation for voluntary termination is expected to be 86% of UK portfolio value, and that the UK portfolio accounts for 71% of the entire portfolio. Numis said in its January 2018 outlook report. “All else equal we calculate this would reduce NAV by circa 10%.”

INPP responded to say that only 8.2% of its portfolio is equity investments in “classic PFIs”, with 3.8% in senior debt for classic PFIs, plus 10.2% is equity in “building schools for the future” projects, meaning it has only “relatively modest” exposure.

Even so, this perceived political risk has added potholes to what was until recently a very smooth road with few sharp turns.

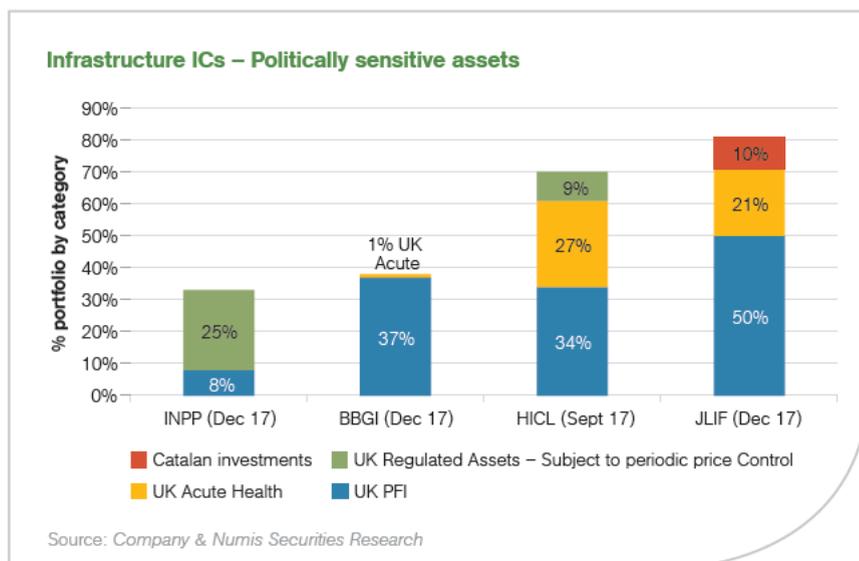
And the uncertainty surrounding Brexit has not helped.

## Taken off the shelf

Several recent opportunities for this London-listed infrastructure funds market to widen were written-off.

In 2017-18 prospectuses emerged for three new listed infrastructure investment companies’, looking to take advantage of these vehicles’ long reputation of premiums and steady yields.

HICL’s former lead Andrew Charlesworth was ready to bring the Tri-Pillar Infrastructure Fund to the London Stock Exchange to raise £200 million, for equity and sub-debt investments. North America was the particular focus, with mainland Europe also a target. The aim was to do something different to the existing players, to achieve value by targeting utilities and assets and concessions



with usage or third party-based revenues rather than government availability payments, and to invest with construction or refurbishment risk. The IPO was called off as a significant acquisition opportunity was not advancing definitively.

Greensphere Capital was due to launch a \$500 million dollar-denominated London-listed vehicle, targeting North

“The main driver of the de-rating in shares is the perception of political risk. Those perceived to be more politically exposed have a wider discount”

American, Western European and Nordic countries listed and private sustainable infrastructure investments. But when it was pulled, Greensphere said the cancellation was to accommodate cornerstone investors.

Gravis Capital Management also cancelled an IPO more recently in April 2018. Its planned £200 million Global Diversified Infrastructure Fund was pulled with around £75 million in soft commitments. The manager issued

a statement on the UK market that “current market conditions represent a challenging background in which to raise equity capital”.

None have since returned to the market. Greensphere tells *IJGlobal* it is evaluating options with cornerstone investors still and can provide no further update.

## Reason to buy

But while there are discounts and retail investors have been reading the inflammatory headlines, some institutions see this as an attractive time to buy into the existing funds.

Conservative valuations should limit the potential for persistent discounts, Numis’ latest Q1 2018 report said.

Ord said: “Some institutional investors looking see two very appealing trends. The cashflows which pay the dividends are firmly protected in law and are attractive compared to other government backed income streams. These are hard to replicate. And, as the particular assets they own continue to be traded at valuations higher than the NAV, [showing] conservative valuations, it becomes a relatively attractive entry point.”

The private infrastructure funds chasing JLIF are confident of the long-term value of its primarily PPP asset portfolio. The outcome of Dalmore and Equitix’s offer could well ignite further developments in the listed infrastructure funds space. ■

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**DATA ANALYSIS:** Following the success of the Hywind project, the future looks bright for European floating offshore wind. By Sophia Radeva & Nikola Yankulov.

## A buoyant market

Renewable energy reached a major milestone in October 2017 when the world's first floating offshore wind farm started generating electricity. The 30MW Hywind Scotland pilot park offshore Peterhead in Aberdeenshire was developed by energy majors Statoil and Masdar.

Hywind Scotland achieved a 65% capacity factor in its first three months of generation, compared to the average 40-60% achieved by bottom fixed offshore wind installations. With deep-water locations often having the largest and most consistent wind resources, Hywind Scotland goes some way in proving that turbines located farther out at sea are more efficient.

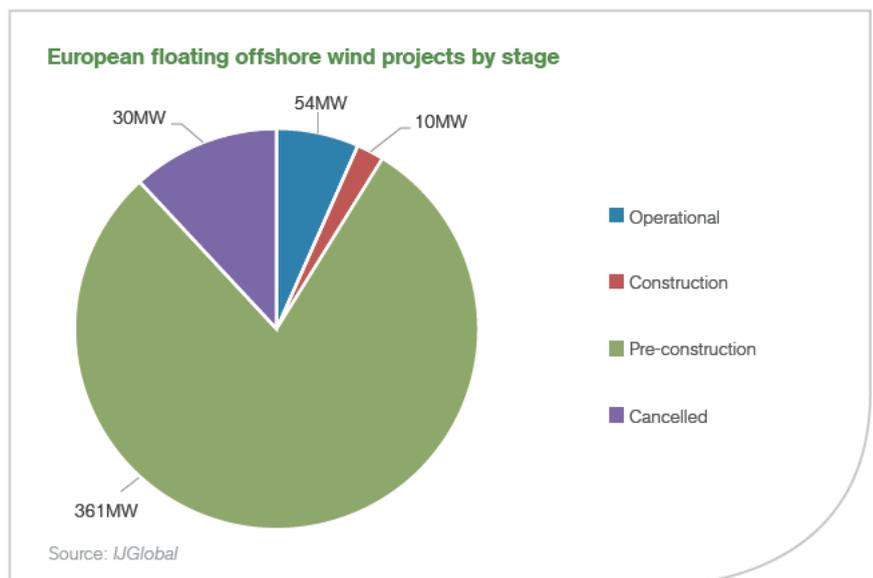
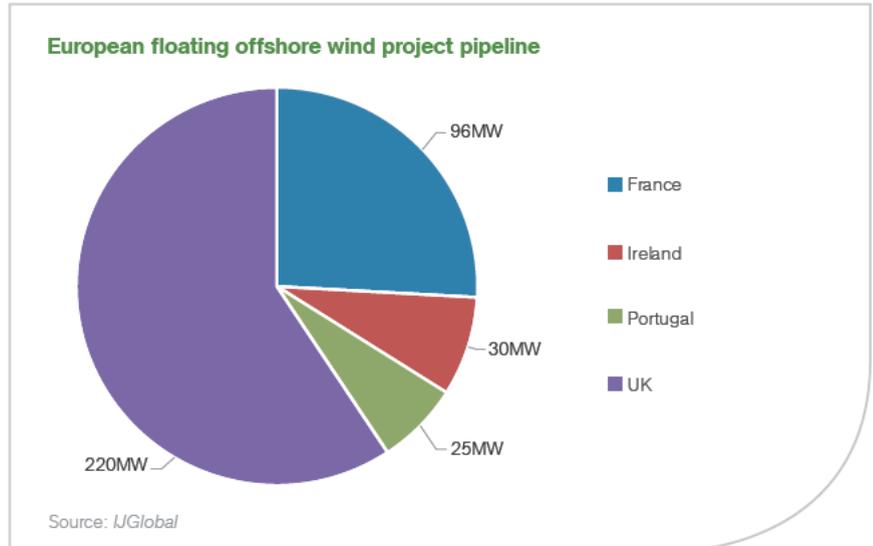
A number of European countries have floating offshore wind plans, and there is a growing pipeline of projects. *IJGlobal* data shows that the majority of planned projects are located in French and UK waters, but the two countries seem to have different sets of priorities.

Unlike Ofgem's rigid regulations, which is endangering the development of two UK floating offshore projects, France is fast-tracking its offshore wind farms in order to catch up with its neighbours. The country's multi-annual energy plan proposes up to 2GW of floating wind and tidal capacity, in addition to the four 24MW of projects selected in a 2015 tender.

### The next big thing

Europe could see some 361MW of floating offshore wind capacity installed in the coming years if all projects are delivered as planned. These pilot projects are expected to lead to larger developments once the technology has been proven.

Floating offshore wind could have a number of advantages over fixed offshore wind. More efficient turbines with improved design, which can be assembled



close to the shore before being pulled offshore by low-cost ships, are expected to drive down costs.

Moreover, shortening the timeline for construction and commissioning of floating wind farms would allow companies to bring costs for offshore developments close to onshore turbines. Statoil and Masdar already plan to reduce the costs of energy generated at the

Hywind Scotland site to €40-60 per MWh by 2030, making the asset cost competitive with other renewable energy sources.

As shown by estimates from the European Wind Energy Association (EWEA), floating offshore wind could meet the EU's electricity consumption four times over, so this technology should be expected to be the focus of renewable developments across Europe over the next decade and beyond. ■

**DEAL ANALYSIS:** A consortium marked by exits sees off Australian, Chinese and European rivals to take UK trophy asset. By Alexandra Dockrey.

# Acquisition of Cory Riverside

A consortium led by London-based Dalmore Capital on 28 June 2018 completed the acquisition of the UK energy-from-waste (EfW) company Cory Riverside Energy which owns the country's largest EfW plant, the 66MW Riverside Resource Recovery Facility.

## Buyers and sellers

Members of the winning consortium and their approximate shareholdings are Dalmore Capital, through its DCF3 fund, alongside co-investors from the UK and South Korea (55%); Semperian Capital Management, on behalf of Semperian PPP Investment Partners and Tfl Pension Fund (20%); Fiera Infrastructure, through Eaglecrest fund (15%); and Swiss Life Asset Managers, through fund Swiss Life Funds (Lux) Global Infrastructure Opportunities II (10%).

SVP had been the controlling shareholder of Cory Riverside Energy, along with numerous other shareholders including Commerzbank and EQT Credit II. Details were emerging from documents even up to a couple of days before final bids, one source advising one of the bidders said.

## Valuation

*IJGlobal* understands that Dalmore's consortium valued Cory Riverside Energy's equity at around £1.1 billion (\$1.5 billion). The assumed debt, meanwhile, comprises roughly £413 million outstanding senior debt at the

Riverside plant operating company level and around £98 million of mezzanine debt owed to former shareholders.

The enterprise value would be around £1.6 billion. And as the company's EBITDA for 2017 was £76 million, the valuation would be as high as 21x the 2017 EBITDA.

Existing interest swaps on the debt could incur breakage costs of around £100 million as they are out of the money, sources say, though they have not been broken and the debt remains in place.

The sellers are said to have made more than 4x their investment.

## Refinancing plans

A refinancing could take place within months sources say. Final decisions have not been taken on what form the potential refinancing would take, however BNP Paribas has made commitments to underwrite a long-term refinancing in full and also syndicate it. This option could potentially replace both the existing Riverside plant debt and the mezzanine debt. Sources suggest pricing could be around 200bp and a tenor in the region of 20 years.

At the outset of the auction, sell-side financial advisers were sounding out existing lenders and the wider market to ascertain if they could offer improved terms on the debt. However, they were not raising a stapled financing.

## The auction

SVP launched the auction on 8 February

2018 with the release of information memoranda. However, some prospective bidders had started preparing soon after a February 2017 refinancing.

Sources close to Dalmore said the auction was "a challenging process" due to a number of partners exiting the consortium under the bidding process. Amber Infrastructure dropped out early on, which various sources say was because of difficulty for its listed fund INPP to raise capital for a trophy deal after it had been trading at a discount. DIF then exited in the second round.

There had also been some briefer, less formal talks with BlackRock and Basalt Infrastructure Partners, sources said. Macquarie was in talks to provide an equity bridge at one point, though this was not needed.

Two other final binding bids were submitted on 4 June from Cheung Kong Infrastructure (CKI), advised by RBC and KPMG; and a consortium of Equitix, QIC and MEAG, advised by HSBC.

OMERS Infrastructure and Singapore Power are said to have dropped out after making the shortlist. The earlier indicative phase is understood to have also drawn offers from Pennon Group and Arcus Infrastructure Partners.

Buy-side advisers were Macquarie Capital (financial), Rothschild (financial), Ashurst (legal) and Mott MacDonald (technical), while sell-side advisers included Credit Suisse (financial), JP Morgan (financial) and Linklaters (legal). ■

## Timeline



**DEAL ANALYSIS:** This is the largest project financing of a greenfield offshore wind farm to date to reach financial close. By Angus Leslie Melville.

# Borssele III/IV, Netherlands

Blauwwind II reached financial close on Dutch offshore wind farms Borssele III/IV on 28 June 2018, concluding the two-year procurement on the €1.439 billion (\$1.7 billion) greenfield deal that stands out for achievements on many levels.

Borssele III/IV is the largest project financing of a greenfield offshore wind farm to date to have made it to financial close, successfully arranging €1.034 billion of PF debt with 12 lenders, achieving impressively-low pricing. Beyond that, the speed of procurement – from bid to financial close, including equity sell-down – was “intense” according to one source close to the deal, having progressed from launch in 2016 to close just before the midpoint of 2018.

From a project perspective, one of the most interesting elements has to be the adoption of cutting-edge turbine technology, powering the wind farms with 9.5MW MHI Vestas model – the first project to do so, though not likely to be the first deployed as it is slated for operations in late 2019.

The 9.5MW turbine received its Rotor-Nacelle-Assembly Component Certificate towards the end of June, clearing the way for the deal to close.

As Vestas head of product management Henrik Baek Jorgensen says: “Announcing the world’s most powerful turbine and then receiving final certification one year later is no small achievement. This is a very important chapter in the growing legacy of the V164.”

Vestas says that scaling up the V164 involved minimal design modifications and it is a significant step towards double-digit units, a key development as the largest turbines currently being deployed weigh in at 8MW.

### The project

MHI Vestas and Van Oord led the consortium to win Borssele III/IV from inception, joined later by Royal Dutch Shell and Diamond Generating Europe (DGE), and then Eneco, to close the 731.5MW offshore wind farm that will be powered by 77 of Vestas’ 9.5MW V164 turbines.

The project was brought to market in 2016 and the Dutch Government awarded it to the Blauwwind Consortium on 12 December the same year. The initial consortium – Vestas and Van Oord – won the right to develop, construct and operate Borssele III/IV under a 30-year lease, and assumed 25-year operational life after construction.

The main construction work is due to start in Q4 2019, with commercial production expected in early 2021. Total output will amount to 3,000GWh per year, powering more than 515,000 homes. The rotor diameter is 164 metres and the shaft is monopole. The water depth range (according to the developer) is 15-37 metres.

Shell and Eneco Group signed a 15-year PPA to offtake energy generated, under which they each buy 50%. Van Oord will execute the “balance of plant”

for the project: EPC of the foundations and inter array cables.

The grid connections and offshore substation, Borssele Beta, are being designed and constructed by TSO TenneT.

During the first 15 years of operation, Blauwwind will receive a guaranteed price of €54.49 per MWh under the Dutch SDE+ scheme, after which the power will be sold at prevailing rates in the wholesale power market.

The Borssele Wind Farm Zone (BWFZ) is located 22km off the coast of Zeeland at the southern border of the Netherlands’ Exclusive Economic Zone.

### The consortium/equity

The project was won and taken to preferred bidder by the original SPV team members beating off competition from 26 applications submitted to the Netherlands Enterprise Agency (NVO). They were joined later by Shell and Mitsubishi subsidiary DGE, and then Eneco Group.

Five months before financial close, Partners Group bought in to the deal, acquiring 45% of the equity from across the original team for around €300 million (\$375 million). At financial close the equity split on Blauwwind II was Partners Group (45%), Shell (20%), DGE (15%), Eneco (10%) and Van Oord (10%).

Prior to the equity sell-down, the split had been Shell (40%), DGE (30%), Eneco (20%) and Van Oord (10%).

### Project finance debt

## Timeline



The lending team initially included 13 banks, but this was reduced to 12 when Mitsubishi UFJ Trust and Banking Corporation earlier this year was merged into the parent MUFG Bank.

Sources close to the deal say that the debt was divided “fairly evenly” among the 12 MLAs that made it through to financial close: ABN Amro, Bank of China, BNG, BNP Paribas, ICBC, ING, Mizuho, MUFG Bank, Rabobank, SMBC, Sumitomo Mitsui Trust Bank and Société Générale.

The debt was arranged over three packages with the long-tenor senior debt amounting to €1.07 billion with a tenor that runs out to 2035, but a legal maturity on to 2038.

It is understood that two letter of credit facilities, with a total value of €180 million, were arranged and went to the Dutch lenders.

Green Giraffe and SocGen – in their dual role as financial advisers to the consortium – maintained competitive tension among the lenders, building from

a core group of banks in the early stages of the deal to a round-dozen at financial close.

Shell leveraged strong relationships and brought to table an interesting spread of banks from China, the Netherlands, Japan and France.

It was particularly impressive to see two Chinese banks – Bank of China and ICBC – appear for the first time on the primary financing of a greenfield offshore wind farm in Europe. Meanwhile, it came as no surprise to see Dutch banks – ABN Amro, BNG, ING and Rabobank – fielded for a home transaction, supporting a headline national deal.

Japanese banks – Mizuho, MUFG, SMBC and SMTB – have long been comfortable with offshore wind though, arguably (like all other lenders), they have been driven up the risk curve by lack of opportunity and were happy for an opportunity to lend.

The two French banks – BNP Paribas and Société Générale – are comfortable with lending to offshore wind,

while SocGen may have felt pressure to be involved thanks to its financial advisory role on the deal. With the French offshore wind programme gathering pace, it will stand them in good stead to have notched up this experience on such a landmark deal.

The debt package amounts to €1.35 billion and priced over Euribor at: 155bp – up to construction completion (early 2021); 135bp – operation years 1-5; 145bp – years 6-10; 155bp – years 11-15; and 175bp – for the remaining years, with a target maturity date of 2035.

The European Investment Bank (EIB) had long been associate with this deal, but it is understood that the multilateral was edged out by relationship banks and lively competition.

Advisers on the deal comprise Allen & Overy (lender legal), Clifford Chance (SPV legal), Société Générale and Green Giraffe (SPV financial), Mott McDonald (technical), JCRA Group (sole hedging adviser), and Marsh (insurance adviser to Partners Group). ■

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**DEAL ANALYSIS:** Regional banks step up to bring this major Dutch landmark renovation project to financial close. By Beatrice Mavroleon.

## Afsluitdijk PPP, Netherlands

The Netherlands' Afsluitdijk PPP project – brought to financial close by a BAM-led consortium on 29 May 2018 – reveals the extent to which banks from beyond the surrounding region are shying away from Dutch infrastructure projects.

### The Afsluitdijk

On 26 February, Dutch procurement agency Rijkswaterstaat selected the Level consortium – comprising BAM PPP PGGM (46%); Van Oord, Aberdeen Standard Investments and APG Group (46%); and Rebel Group and EPICo (8%) – for the project. Commercial close took place on 25 April.

The Afsluitdijk project consists of the design, reconstruction, financing, operation and maintenance of a 32km dyke that runs between Friesland and Den Oever in North Holland. The existing structure is over 85 years old and is an important Dutch landmark. However, its flood control capacity does not meet modern standards.

The project will result in the top layer of the Afsluitdijk being reinforced, and an extra water barrier in front of existing locks at both ends of the dam – at Kornwerderzand and Den Oever – being installed to protect against high sea water levels.

On the Wadden Sea side, the causeway will be raised and reinforced with new facing. For this work, the consortium will use 'Level-blocs', concrete elements that have been developed specially for the

Afsluitdijk, it said.

Meanwhile, the drainage locks at Den Oever will be expanded, and two large pumping stations and extra discharge capacity will be built.

At the same time, the A7 road which runs along the top of the dyke will gain wider emergency lanes. Special pumps and sluices will also re-establish fish migration through the barrier.

BAM Infra will provide the design, construction and long term maintenance for the 25-year contract, in conjunction with Van Oord Nederland.

Construction is scheduled to be completed in 2022.

Other consortia that bid for the project include Fluor with Société Générale as financial adviser, and VolkerWessels and Boskalis with Crédit Agricole as financial adviser.

### Financing

Total funding for the project amounts to roughly €835 million (\$974 million). Lenders will provide around €815 million, guaranteed by the European Fund for Strategic Investments (EFSI). Long-term debt amounts to €660 million, of which the European Investment Bank (EIB) will provide €330 million under a 30-year facility.

Additionally, there are two milestone facilities for a total of €100 million, and an equity bridge loan of about €60 million.

The lenders on the deal comprise

Belfius Bank, DekaBank, EIB, KfW IPEX-Bank, LBBW and Rabobank.

KfW IPEX-Bank will provide about €124 million, with DekaBank and LBBW lending similar amounts. Contributions from Belfius Bank and Rabobank are smaller.

Rabobank will not provide long-term debt.

Pricing on the debt is partly fixed and partly floating, with the floating-rate portion covered by interest rate swaps. Pricing on the long-term debt for this availability-based scheme is thought to be between 100bp and 110bp over Euribor.

This level was considered too low for many of the banks which have provided debt for Dutch infrastructure PPPs in the past, meaning they did not lend on this deal and are unlikely to be involved in the upcoming transactions, some have said.

The tenor on long-term commercial debt is 25 years post construction, or around 30 years in total.

While no institutional investors are lending to the project, a limited sell down of debt is envisaged for after financial close with German institutional investors expected to take interest. However, this is not expected to amount to a substantial proportion of the overall debt, one source said.

Advisers on the deal include Rebel Group (financial), De Brauw (sponsors' legal), NautaDutilh (lenders' legal), Atkins (technical), BDO (model auditor), AON (insurance), Allen & Overy (adviser to the EIB) and J C Rathbone Associates (hedging adviser). ■

### Timeline

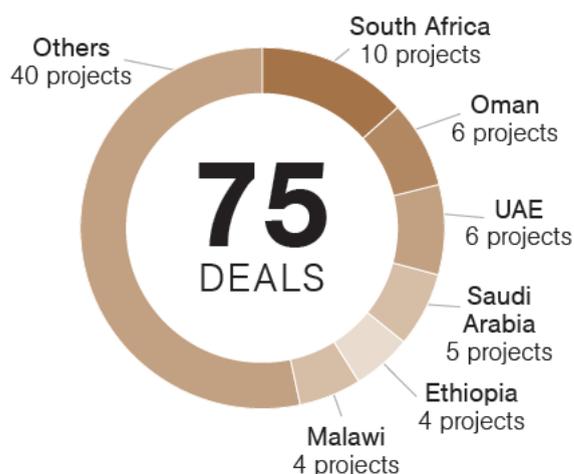


# Middle East & Africa

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Pricing the elements  
DFI lending in Rwanda

## Pipeline & procurement deals



## Projects with recent tender updates

- Noor Midelt CSP-PV Complex I
- Cairo Metro Line 1 Rehabilitation
- Kampala-Jinja Expressway
- Jubail 3 IWPP PPP
- Rufiji Hydropower Plant
- Port of Mombasa LPG Terminal
- Oman's OPWP Coal-Fired IPP
- Kahramaa Solar PV Plant

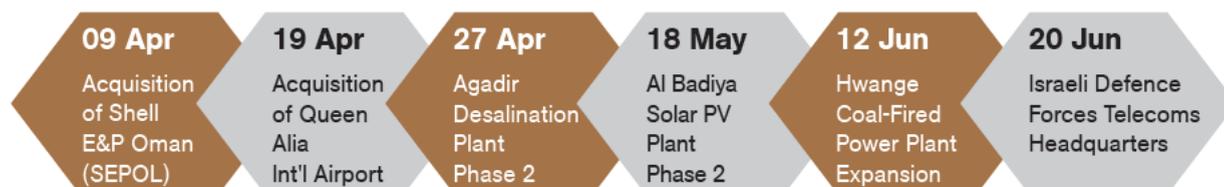
## Closed deal values by sector

- Oil & Gas:** \$2.28 billion
- Renewables:** \$1.5 billion
- Power:** \$1.11 billion
- Social & Defence:** \$705 million
- Transport:** \$682 million
- Water:** \$240 million

## Closed deals by country

United Arab Emirates	\$3.40 billion	3
South Africa	\$1.57 billion	6
Zimbabwe	\$1.11 billion	2
Israel	\$550 million	1
Jordan	\$546 million	2
Oman	\$359 million	2
Morocco	\$240 million	1
Qatar	\$220 million	1
Egypt	\$200 million	1
Kenya	\$136 million	1
Ghana	\$100 million	1
Iraq	\$100 million	1
Namibia	\$7 million	1

## Transactions that reached financial close



Source: IJGlobal, from 1 April 2018 – 30 June 2018.

**DATA ANALYSIS:** The kingdom promotes renewable energy, but only a few projects have made it past the finish line so far. By Lyudmila Zlateva.

# Pricing the elements

Saudi Arabia announced ambitious new plans early this year to promote renewable energy as part of the kingdom’s long-term strategy to diversify its economy. The kingdom is planning to tender a total of 3.3GW of solar capacity and 800MW of wind capacity this year, Turki Al Shehri, head of the Renewable Energy Project Development Office (REPDO), confirmed to *IJGlobal* in January 2018.

### Kick-starting NREP

As *IJGlobal* data shows, the vast majority of the kingdom’s renewable energy projects are still in the pre-construction phase, and only a few projects have reached financial close so far.

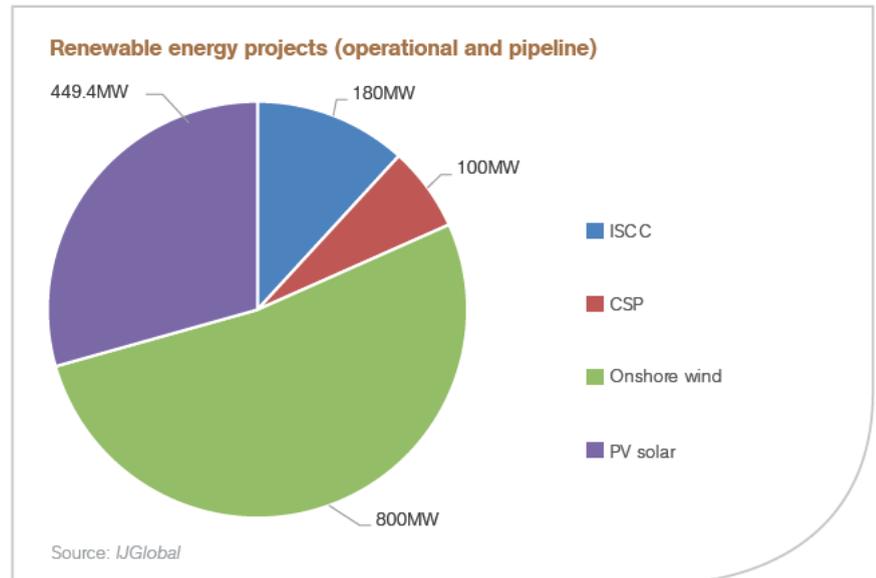
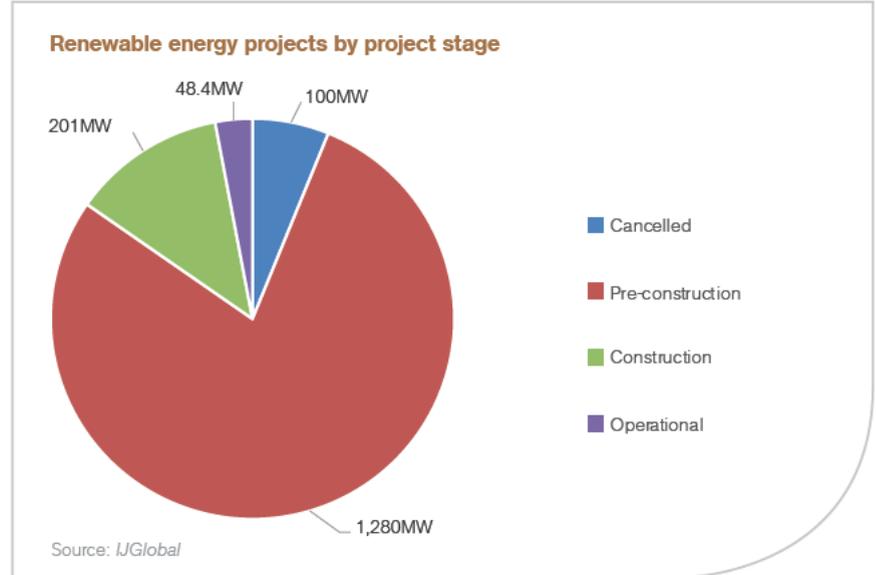
A programme of renewable energy tenders has long been anticipated in Saudi Arabia, but the National Renewable Energy Program (NREP) only really got started in April 2017 with the RFP was issued for the 300MW Sakaka solar PV project in the Al Jouf region.

The first project to be tendered under the NREP, sponsor ACWA Power is expected to reach financial close on the facility in the coming months. Sakaka is scheduled to enter commercial operations in August 2019.

### ISCC projects

As well as standalone solar PV projects, Saudi Arabia is also developing integrated solar combined cycle (ISCC) power plants.

After years of uncertainty the kingdom is now pushing ahead with the 605MW Duba 1 ISCC power plant. Duba 1 will be primarily powered by gas turbines, with concentrated solar power (CSP) generated via a parabolic trough collector delivering just 50MW of the



plant’s total capacity.

Unsurprisingly, the Saudi flagship ISCC project has attracted major international players. SEC in 2015 signed SR2.5 billion in contracts for Duba 1’s construction and operation with Spanish Initec Energia and SSEM, The facility is due to become operational in 2018.

### Wind farms

Wind power also features in Saudi Arabia’s plans. These projects have been slower to advance, though two sizable wind farm are scheduled to be financed by the end of the decade. The 400MW Dumat Al Jandal will be the kingdom’s first utility-scale wind project, with operations planned to begin in mid-2020. ■

**DATA ANALYSIS:** Rwanda looks to DFI funding to attract private investment in the country’s infrastructure projects. By Nikola Yankulov.

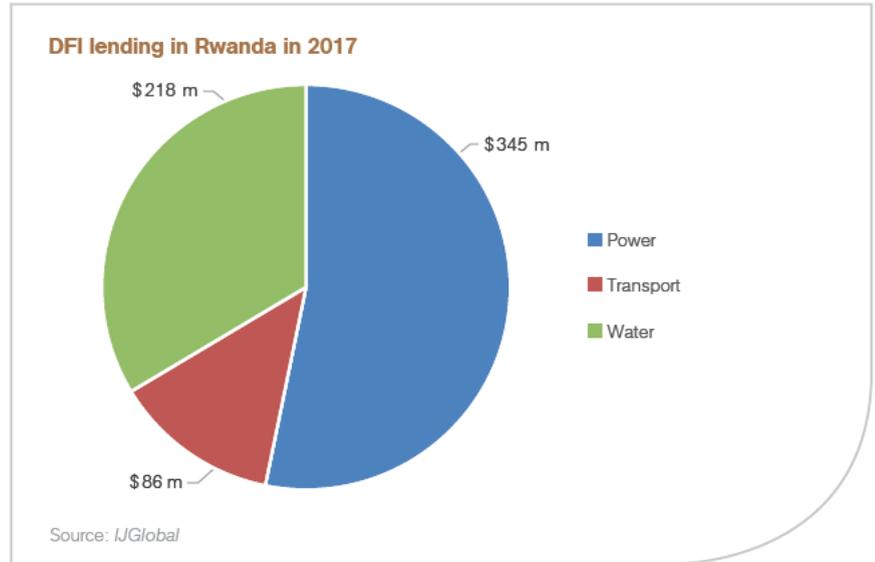
# DFI lending in Rwanda

Substantial progress has been made on improving Rwanda’s infrastructure since President Paul Kagame launched the country’s Vision 2020 development plan in 2000.

Rwanda looks to achieve its goals through commercially financed projects, reducing its reliance on the international donor community. This was evident in 2017, when two landmark PPP projects in the country reached financial close.

In February 2017, Turkey’s Hakan Mining and UK-based Quantum Power arranged the financing for an 80MW peat-fired power plant in Rwanda’s Akanyaru Valley. Then in November, water management company Metito announced that it had reached financial close on the Kigali bulk water supply plant in south east Kigali. Winner of the *IJGlobal* African Water Deal of the Year award, Kigali bulk water PPP project was the first integrated water project in Rwanda and the first bulk surface PPP in Sub-Saharan Africa.

Both projects were brought to completion through the support of DFIs. Metito’s \$80 million Kigali project was



backed by multilaterals such as the African Development Bank (AfDB), Emerging Africa Infrastructure Fund, and PIDG’s Technical Assistance Facility.

Meanwhile, Hakan’s peat-fired plant was financed by a group of DFIs comprising Africa Finance Corporation, African Export-Import Bank, Development Bank of Rwanda,

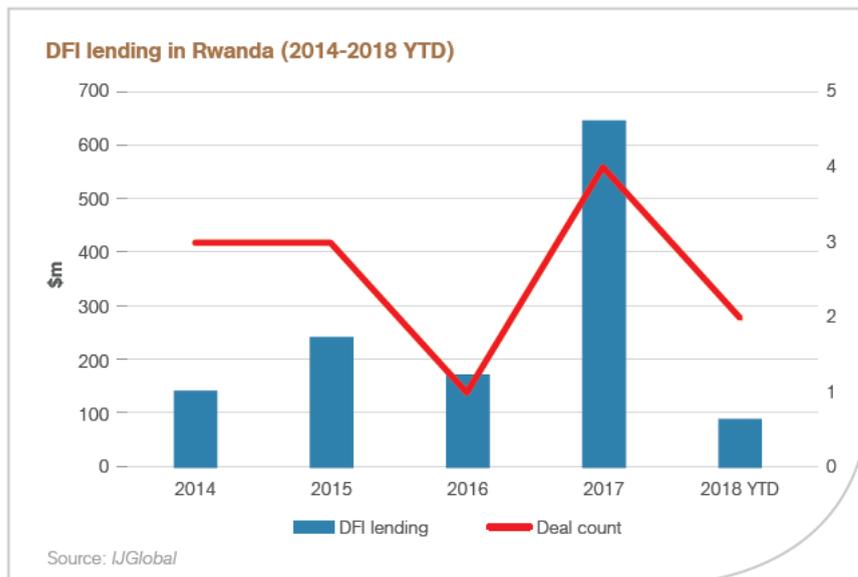
Eastern and Southern African Trade and Development Bank, Export-Import Bank of India, and Finnfund.

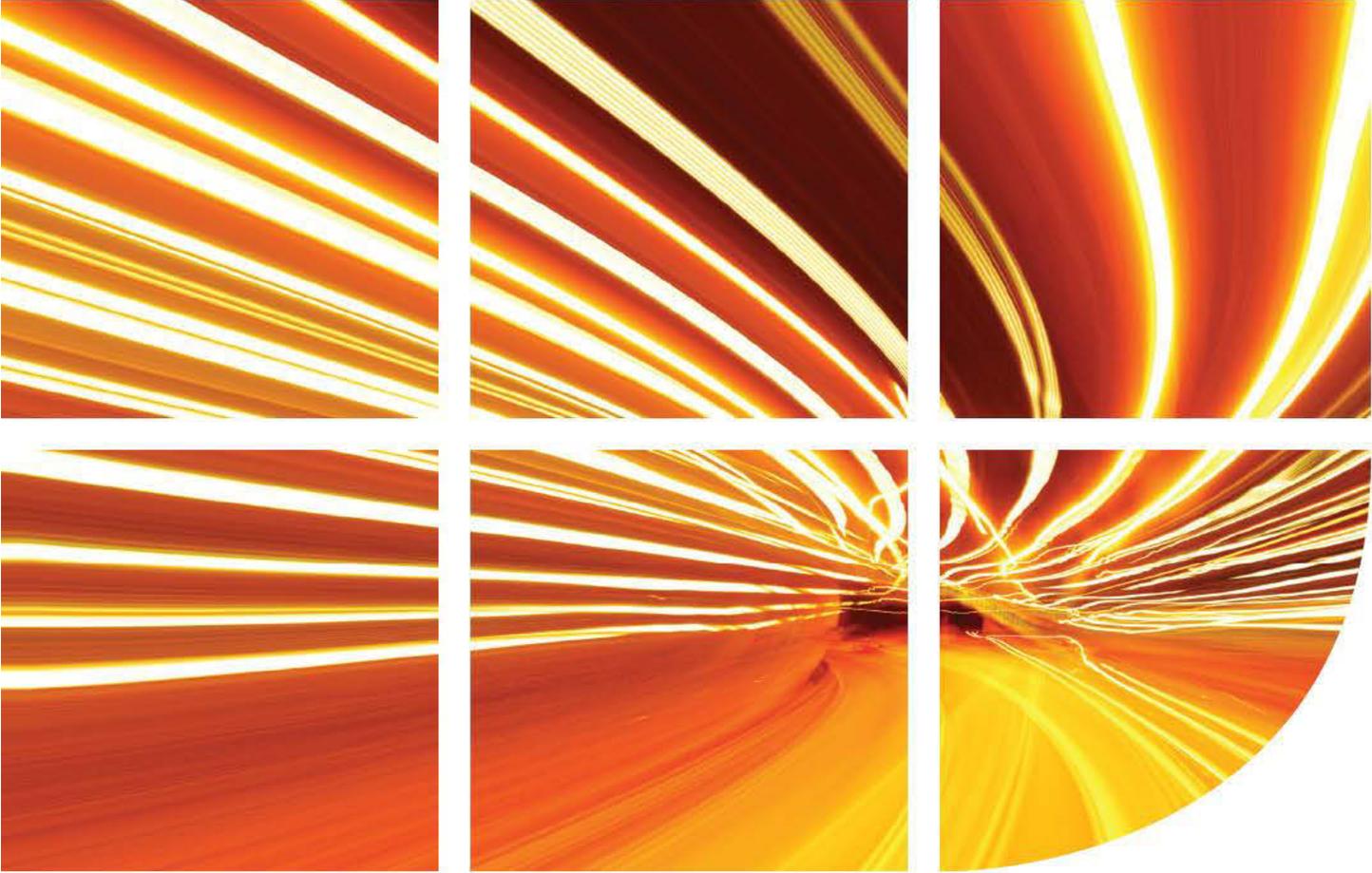
*IJGlobal* data shows a surge of DFI investment in Rwanda’s infrastructure. Last year, the country received around \$649 million from multilaterals, development banks and export credit agencies. The sectors receiving the largest share of DFI support in this period were power and water.

It is no surprise that the AfDB proves to be the biggest DFI lender to Rwandan infrastructure projects; not only for 2017, but for the last five years. The AfDB is one of Rwanda’s key development partners and has provided support across multiple sectors.

This commitment is crucial for lowering costs of doing business in the country to attract both domestic and foreign investment.

And by financing infrastructure projects, DFIs are helping Rwanda to create a favourable environment for private investment, boosting private sector-led growth. ■





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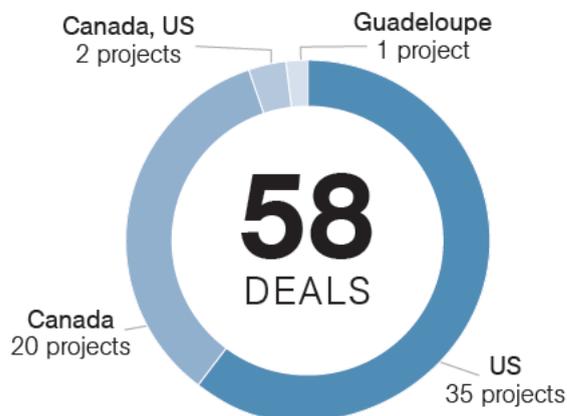
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# North America

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Corpus Christi 3 LNG, US  
A30 toll road refinancing, Canada  
New York sees green

## Pipeline & procurement deals



## Projects with recent tender updates

- New England Clean Energy Connect
- Acquisition of Wind Catcher
- Guadeloupe Fiber-To-The-Home Network
- Orleans Health Hub
- Constitution Offshore Wind Farm
- Surrey-Newton-Guildford LRT
- Surrey-Langley Rapid Transit
- I-64 Hampton Roads Bridge-Tunnel

## Closed deal values by sector

**Oil & Gas:** \$30.30 billion

**Power:** \$11.94 billion

**Renewables:** \$5.75 billion

**Transport:** \$5.69 billion

**Mining:** \$1.16 billion

**Social & Defence:** \$750 million

**Telecoms:** \$500 million

## Closed deals by country

United States	\$45.72 billion	71
Canada	\$9.45 billion	16
Canada, United States	\$819 million	1
Puerto Rico	\$315 million	1
Jamaica	\$64 million	1
Dominican Republic	\$56 million	1

## Transactions that reached financial close



Source: IJGlobal, from 1 April 2018 – 30 June 2018.

**DEAL ANALYSIS:** The highly oversubscribed deal reveals an appetite among lenders for first class LNG projects. By Juliana Ennes.

# Corpus Christi 3 LNG, US

In May 2018, the expansion of the Corpus Christi LNG project in Texas became the first new LNG development to move forward in the US since 2015. The sponsor Cheniere Energy received backing from 46 financial institutions to raise \$6.1 billion to reach financial close.

Awarded just 14% of the offered amounts, *IJGlobal* understands that the only complaints on the deal came from the lenders wanting a bigger piece of the pie.

Cheniere Energy is understood to have undertaken most of the bank coordination itself. Using its existing relations with lenders, the company did not appoint MLAs for the transaction. Consensus seems to be that the developer “treats the banks it works with very well”.

## The financing

A traditional project financing, debt for the construction of a third LNG train at Corpus Christi was on asset-level and included independent engineers, off-take agreements and project cash flows from the two LNG trains already under construction.

“It was the sweet spot to be,” said one banker on the transaction. “Every bank with a project finance desk has participated on it,” said another.

Competition to be part of the deal led to tight prices and low margins, and some unusual lenders such as the Korean Woori Bank and North American Apple Bank.

The debt financing includes amended credit facilities, which were

upsized from \$4.8 billion to \$6.1 billion under the terms of the deal. Tickets for each lender are said to have ranged from as small as \$20 million to a few \$100 million. *IJGlobal* understands that Société Générale acted as financial adviser to raise the seven-year debt.

The debt/equity ratio is said to be 80:20, as is normal for LNG projects, according to a person close to the negotiations.

The Corpus Christi LNG project has recently signed SPAs with Trafigura Group and PetroChina. The agreements – which have 12- and 20-year tenors, respectively – are tied to the planned third LNG train. Each SPA provides fixed payments that are payable regardless of whether LNG cargoes are lifted or not.

Cheniere Energy will fund the remaining project cost under an equity contribution agreement with its wholly-owned subsidiary Corpus Christi Holdings (CCH). Cash flows generated by trains 1 and 2 after they commence operations will also help finance the expansion.

Sullivan & Cromwell was legal adviser to CCH for the amendment of the credit facilities.

## The project

The Corpus Christi LNG project was planned as a three-train complex, with the first two trains already under construction. On the same day of the debt raise, Cheniere Energy signed the final investment decision for what the

construction of the third train.

According to Cheniere Energy, the amended credit facilities will be used to “fund a portion of the costs of developing, constructing, and placing into service trains 1, 2, and 3” and the associated pipeline and other infrastructure at or near the project.

## The 46 banks

Lenders on the Corpus Christi 3 deal comprised ABN Amro Capital USA, Apple Bank for Savings, BBVA, Banco de Sabadell, Bank of America, Bank of China, Bank of Nova Scotia, CaixaBank, Canadian Imperial Bank of Commerce, China Merchants Bank, CIT Finance, Citibank, Commonwealth Bank of Australia, Crédit Agricole Corporate and Investment Bank, Credit Industriel et Commercial, Credit Suisse, DBS Bank, FirstBank Puerto Rico, Goldman Sachs Bank, HSBC Bank USA National Association, Industrial and Commercial Bank of China, ING Capital, Intesa Sanpaolo, JP Morgan Chase Bank, KEB Hana Global Finance and KEB Hana Bank, KfW IPEX-Bank, LBBW, Lloyds Bank, Mizuho Bank, Morgan Stanley and Morgan Stanley Senior Funding, MUFG Bank, National Australia Bank, Raymond James Bank, Royal Bank of Canada, Santander Bank, Siemens Financial Services, Société Générale, Standard Chartered Bank, SMBC, The Korea Development Bank and The Korea Development Bank, Wells Fargo Bank, Woori Bank and Woori Global Markets Agency. ■

## Timeline



**DEAL ANALYSIS:** This refinancing has steered a load of Canadian papers across the southern border. By Jon Whiteaker.

# A30 toll road refi, Canada

A sponsor consortium led by Northleaf Capital Partners has raised \$1.22 billion in bonds to refinance the A30 toll road project in Québec. The bonds priced on 5 June 2018 and the transaction reached financial close on 14 June.

The refinancing replaces construction loans and covers the cost of an interest rate swap termination fee from the project's original long-term financing closed in 2008.

The proceeds will also cover financing costs, fund certain reserves, and provide residual cash flow to the equity sponsors.

Around C\$771 million (\$594 million) of the original construction stage debt was left outstanding before the refinancing.

## Crossing borders

Royal Bank of Canada, HSBC and CIBC were all joint lead arrangers and joint bookrunners on the deal. These three banks also acted as inflation hedge providers.

The refinancing is noteworthy for the significant interest shown by US investors, which has set a benchmark for infrastructure refinancings in Canada. While earlier deals have attracted US pension funds and insurance companies, it has not been to the same scale as the A30.

US investors provided 20% of the \$2.2 billion debt raised. The offering was heavily oversubscribed, with interested investors offering a total of \$3.5 billion which then needed to be scaled back.

## Financing

Nouvelle Autoroute 30 Financement issued the bonds on behalf of project company Nouvelle Autoroute 30.

The issuance was split between four tranches: \$382.7 million series A senior secured bonds due June 2042; \$445.6 million series B senior secured bonds due March 2042; \$211.2 million series C senior secured bonds due March 2033; and \$179.2 million series D senior secured bonds due December 2032.

The bonds are understood to have priced with weighted average yields of around 4%. Fitch has rated the bonds BBB+ with a base case average DSCR of 1.33x, a minimum DSCR of 1.25x, minimum PLCR of 1.39x, and five-year leverage of 13.6x. S&P also rated the bonds BBB+.

The original construction was financed with a C\$804 million, 30-year term loan provided by Banco Popular, Banesto, Bank of Scotland, BBVA, Caja Madrid, CaixaBank, DekaBank, Haitong Bank, Instituto de Crédito Oficial, Royal Bank of Canada, Scotiabank, Société Générale and UniCredit.

## The project

The A30 toll road benefits from the majority of its revenues coming in the form of availability payments provided by the Province of Québec.

It is a four-lane, 74km highway on the south shore of Montreal. The original concession covered management of an existing 32km highway to the east and a

42km greenfield stretch to the west which included a new bridge. The bridge is the only tolled element of the road.

The original sponsors of the project were Acciona and ACS, each holding 50% equity. Both reduced their equity stakes in 2015 but continue to manage the asset. The current shareholding is understood to be Northleaf Capital Partners (45%), Teachers Insurance and Annuity Association of America (37.5%), ACS (12.5%) and Acciona (5%).

Availability payments cover the majority of revenues, up to 75% each year and on average 67%, dependent on traffic volumes. A revenue-sharing agreement with Québec limits upside revenue potential but also provides a downside cushion.

Fitch rates the Province of Québec at AA-, while Moody's gives it a rating of Aa2. As availability payments from the province supplement lower toll revenues, the project is in a strong credit position.

## Advisers

Advisers on the refinancing and contractors on the project include Agentis Capital (financial), McCarthy Tétrault (issuer's local legal), Skadden (issuer's US legal), Blake, Cassels & Graydon (lenders' legal), Paul Weiss (bondholders' legal), Indra Sistemas (electronic tolling system maintenance contractor until February 2019), DBi Services (O&M contractor until October 2023), Steer Davies Gleave (sponsors' traffic and revenue) and Capita (lenders' technical). ■

## Timeline



**DATA ANALYSIS:** New York State turns away from coal with a chunky renewables project pipeline and ambitious clean energy targets. By Yavor Guerdjikov.

# New York sees green

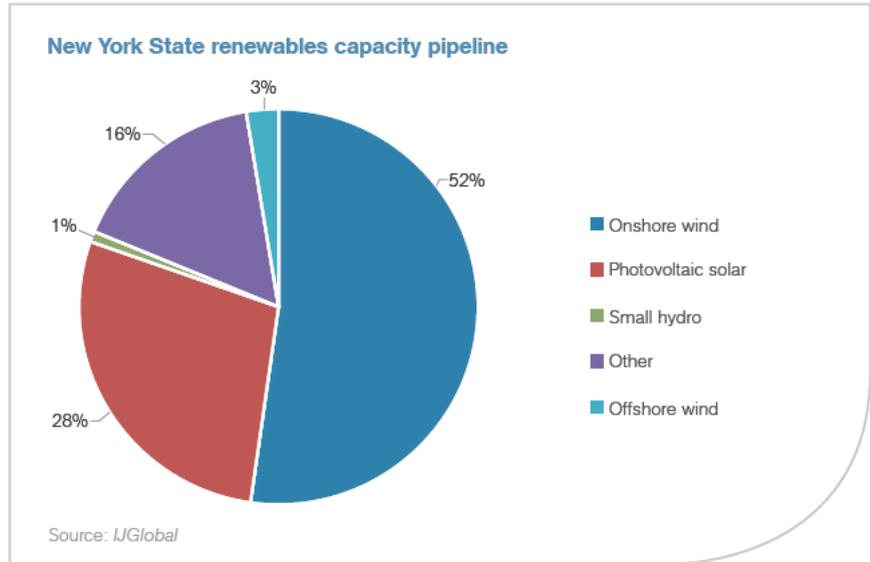
New York State made its priorities clear when it in March 2018 announced that it was awarding 26 large-scale renewables projects worth \$1.4 billion, and that it had requested to be excluded from the federal offshore oil and gas drilling programme.

The awarded projects comprised 22 utility-scale solar farms, three wind parks and one hydroelectric facility. All projects are expected to be fully operational by 2022.

The state's Governor Andrew M Cuomo has since announced a second solicitation for the mobilisation of \$1.5 billion in private investment for 20 large-scale projects.

According to figures from the US Energy Information Administration, in 2016 renewables made up 24% of New York State's total energy generation, an increase from 19% in 2011. Hydroelectric plants provide the bulk, roughly 80%, of this capacity.

New York State is now turning its attention to wind and, in particular, solar due to plummeting technology costs. The



Governor's Reforming the Energy Vision 2030 scheme, launched in 2014, has the ambitious goal of reducing the state's greenhouse gas emissions by 40% and for New York State to generate 50% of its electricity from renewable sources by 2030. As part of the initiative, the state is to phase out coal power plants by 2020.

IJGlobal data shows that the state

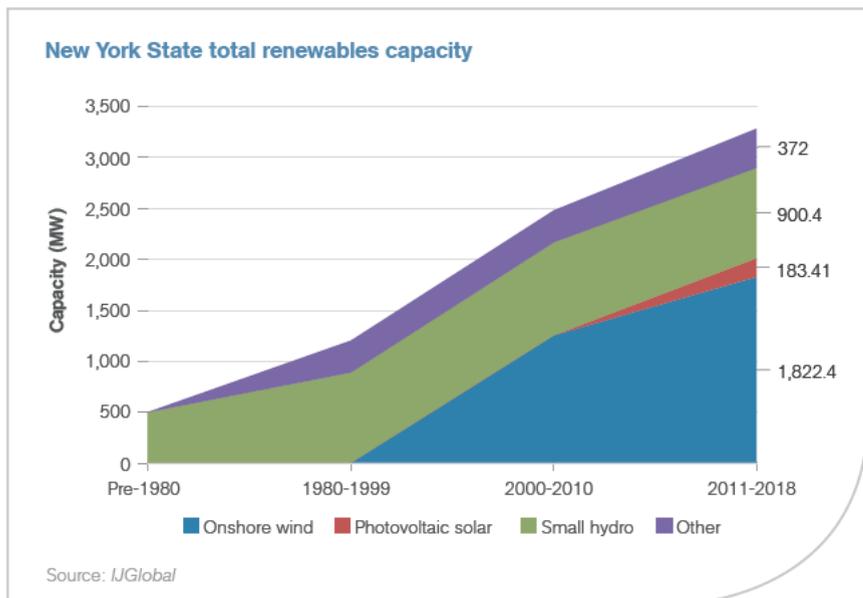
of New York has been gradually moving towards renewable energy generation over the past 20 years.

Currently the renewable energy mix contains operational assets mainly in two sub-categories: onshore wind and small hydro of up to 20MW of capacity. Remaining generation is mostly provided by waste-to-energy, landfill-gas-to-energy and biomass plants.

IJGlobal pipeline data shows that the solar sub-sector in the state is seeing the largest portion of growth. The largest operational solar farm to date is the 32MW Long Island project, commissioned in 2011. Newly-awarded projects in the pipeline have similar or even larger capacities, completely dwarfing some existing solar facilities.

The planned investments in large-scale solar and wind projects are essential to New York's ambition to become a leading US state in terms of clean energy generation. Achieving Governor Cuomo's scheme pivots on attracting sufficient private sector investor interest.

All eyes will be on the responses to the Governor's latest request for proposals. ■



# Latin America

INSIDE

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## Pipeline & procurement deals



## Projects with recent tender updates

- Huancayo-Huancavelica Railway Rehabilitation
- Carabayllo-Chimbote-Trujillo Transmission
- Acquisition of Renova Energia Brazilian Wind
- Quito Metro Line 1
- Argentina Housing Development Programme
- Bogota Bus Rapid Transit System Phase III
- Ituango Hydropower Plant
- Cartagena de Indias Airport

## Closed deal values by sector

**Oil & Gas:** \$4.41 billion

**Power:** \$4.05 billion

**Renewables:** \$3.57 billion

**Transport:** \$1.41 billion

**Water:** \$1.16 billion

**Mining:** \$637 million

## Closed deals by country

Brazil	\$6.43 billion	9
Mexico	\$4.66 billion	10
Chile	\$2.57 billion	7
Colombia	\$1.29 billion	4
Peru	\$1.27 billion	5
Argentina	\$1.27 billion	7
Panama	\$291 million	2

## Transactions that reached financial close



Source: IJGlobal, from 1 April 2018 – 30 June 2018.

# Good hydro, gone bad

A second restructuring for the 531MW Alto Maipo has saved a hydro project which has faced engineering challenges, several delays, environmental opposition, and changes in equity. By Juliana Ennes.

**T**he Alto Maipo hydropower project in Chile makes people cagey. If you request to talk to those involved about its tangled history, you are likely to be told it “is a strict no-comment deal.”

If all you knew about the project was the announcement on 8 May 2018 by AES Gener about the financial restructuring of the 531MW power facility, you would be missing the full picture.

The recent financing is seemingly a happy ending for a project which had appeared to be drawn in to a perfect storm. This was the third major financing for the project – and the second restructuring in a little more than a year.

It was completed amid billion dollar cost overruns; changes of equity ownership; modifications to the list of original lenders, huge haircuts on the debt book; and a technical default.

This is despite the underlying asset have many attractive features: it is located just 50km southeast of Chile’s capital, Santiago, reducing transmission costs; its waterways towards the turbine rooms are in great part underground, reducing flooded areas; and it has received support from the government to supply zero-emission electricity to the country’s center of power.

## The equity

There are plenty of important details which were missing from the May restructuring announcement. For one is a vastly inflated project cost, rising from an original construction budget of \$2 billion to a cost of \$3.4 billion.

Equity is now divided between AES Gener (93%) and Strabag AG (7%). Strabag has entered the project as an EPC contractor, but the contract has peculiarities. It became the minority

sponsor as it received shares of the project as part of its payment for its EPC contract.

More bizarrely, Strabag has also become a lender on the project. Its Chilean subsidiary was initially awarded a contract to build part of the hydropower complex in 2012. After difficult technical conditions and the withdrawal of a contractor, Strabag got an additional contract valued at €800 million (\$930 million), increasing its contract size to a total €1.5 billion.

The civil works agreement includes the construction of 73km of tunnels on a lump sum fixed price contract that covers both the work that has already been undertaken as well as all future work provided by the contractor, which reduces geological and construction risk associated with the project for AES Gener.

The total required equity contribution has increased from \$800 million to \$1.45 billion. Part of that amount is said to be already available for the repayment of part of the debt.

According to AES Gener, up to \$400 million of equity commitments will be funded with cash from operations, reducing the pressure on sponsors.

## The debt

Around \$2 billion in debt was closed in May 2018, including Strabag’s participation as a lender. The EPC contractor will back-up its obligations with standby letters of credit totaling \$300 million in addition to a corporate guarantee provided by its parent company Strabag SE.

Bank-syndicated debt was increased from around \$1.3 billion to \$1.6 billion.

Originally agreed with IDB, IFC, OPIC, KfW, DNB Bank, BancoEstado,

BCI and Itaú CorpBanca, the second restructuring saw this list of participant lenders shrink.

*IJGlobal* has confirmed with different sources that IFC and KfW have both dropped the project and that Itaú CorpBanca and BancoEstado have reduced their share in the transaction. Deutsche Bank and Vial subsidiary Santana saw the opportunity to acquire the participation on the debt book from the four players for a bargain and helped the sponsors close the deal with the remaining financial institutions.

Before leaving, IFC’s participation in the programme was estimated at \$150 million, while IDB had \$200 million and OPIC \$245 million. Other tickets have not been disclosed.

Mizuho had already withdrawn from Alto Maipo even before the second restructuring. The Japanese bank left the project in September 2017, writing-off about \$20 million it had already disbursed. The bank feared the project’s financial viability, after several cost overruns.

In January 2018, IDB had “recommended an investigation” about whether the institution should continue to participate in the project or not. The analysis focused on environmental and social impacts, and ultimately it remained.

The new debt package will be repaid in 20 years after completion of the project, which is expected for 2020.

## History

To understand the importance of some items from the second restructuring package, such as risk allocation and construction deadlines, you have got to know the history of the project.

The developers originally submitted

an environmental impact statement for the plant in 2006 but had to resubmit a revised version following complaints in 2008. It received approval in 2009, but a larger investigation into Alto Maipo's water rights agreement with Aguas Andinas by the National Sanitation Service Authority was still pending – and only approved in 2012.

A first financing package was signed in 2013. At that time the project sponsors were AES Gener (60%) and Antofagasta Minerals' Minera Los Pelambres (40%). In the initial structure, Gener committed \$562 million in capital, while the minority shareholder committed \$334 million. Of the overall sponsor contributions, 30% corresponded to equity and 70% to subordinate debt.

After several delays, cost overruns and engineering challenges, Antofagasta, owned by Chilean conglomerate Luksic, dropped out of Alto Maipo in January 2017, after having already invested around \$350 million towards construction.

Gener assumed Los Pelambre's 40% equity stake for a symbolic amount. In return, the cost of electricity produced at Alto Maipo to be sold under a power purchase agreement (PPA) to the Los Pelambres mine was reduced by 15%. The 20-year agreement was amended to remove all termination options.

With costs mounting and with the exit of a large sponsor, Alto Maipo was restructured for the first time in March 2017.

But it was not the end of its problems. The hydropower project's future was put into serious jeopardy when AES Gener fired its contractor Constructora Nuevo Maipo (CNM) in June 2017. The cancellation of CNM's contract put the project into technical default.

That situation, coupled with lower productivity than required by construction contracts, led to further cost increases for a project already well over budget.

At that point, however, the power plant was 54% complete and faced debt liabilities of \$613 million. It made more sense to move forward than abandon Alto Maipo completely.

Strabag, who was already in the project, got CNM's share of the construction, a move that helped close the second restructuring on 8 May 2018, despite the cost overruns going from an additional 10-20% expected at the first restructuring to an extra 60%.

With increased financial requirements, sources told *IJGlobal* that, in parallel to the negotiations with lenders and new EPC contractor, AES Gener was still looking for equity relief.

State-owned Empresa Nacional del Petróleo (Enap) started conversations with AES Gener at the end of 2017 to provide gas to gas-fired power stations from the electricity company. These discussions evolved to a possibility of Enap joining Alto Maipo as a minority sponsor.

It never materialized, however. On 29 May 2018 – after the second restructuring had closed – Enap officially gave up the idea, allegedly to focus on core investments related to oil & gas exploration and production, although rumors say it is still involved with other energy projects.

### Advisers

With so many players involved, the project has also seen quite a troupe of legal advisers.

Baker Botts has advised Alto Maipo SpA. Claro & Cia has advised AES Gener. When still on the deal, Antofagasta Minerals used the services from Bofill Mir & Álvarez Jana Abogados.

On the banking side, Carey has worked from Chile with IDB, IFC, OPIC, Banco de Crédito e Inversiones (BIC), BancoEstado, Itaú Corpbanca, KfW IPEX Bank GmbH and DNB Bank. From the United States, the institutions worked with Chadbourne & Parke.

EPC contractor Strabag was advised by Eyzaguirre, in Chile, and by Pepper Hamilton as NY counsel.

### The problems

Alto Maipo includes two run-of-river facilities, the 275MW Alfalfal II in the Colorado River sub-basin and 256MW Las

Lajas on the Maipo River, west of Santiago. Even with delays, it has progressed and, to date, reached 65% of completion.

The project includes a vast array of tunnels running deep under the Andes Mountains. The biggest problem the project has faced is that the geological formation of rock these tunnel pass through is different from that anticipated in the pre-construction studies. This means the tunnel would take longer and cost more to build.

Market conditions in Chile have also changed since the beginning of the project, with energy costs dramatically dropping in the country.

Already facing delays, increased costs and lower projected revenues, an exit of sponsors and lenders added insult to injury.

From the financing perspective, bankers believe that one of the main mistakes on this project was to allow geological and construction risks to be taken by the developer and, as a consequence, by the lenders. It should have had an EPC contractor taking construction risk, as now Strabag is doing, from beginning.

Additional delays are now protected as well, by a corporate guarantee in letters of credit amounting to \$300 million. The restructuring has also included incentives for early completion of the project.

Financiers also regret not being more firm about the necessity of having the project fully contracted with long-term PPAs – only a fraction of total capacity is contracted with Los Pelambres.

While bankers try to make their *mea culpa* and understand what they would have done differently, some people involved with the sponsors say that the banks didn't take any exposure they wouldn't take in other competitive markets. Part of the game or not, the project that is taking more than 10 years to become a reality has certainly left behind some traumatized bankers.

One of them is not completely convinced that this second restructuring will sustain the project long-term. He believes that, after construction completion, Alto Maipo will have to go the market for debt once again. ■

**DEAL ANALYSIS:** This deal shows a growing trend in Argentinian infrastructure to fund developments through project finance. By Juliana Ennes.

## Arroyo Seco and Timbúes CHPs

After a long dry spell, project financing seems to finally be taking off in Argentina’s energy sector. *IJGlobal* in May 2018 revealed that the country’s second-largest energy producer, Albanesi Energia, had closed on the financing for two cogeneration heat and power (CHP) plant projects in Santa Fe, raising \$395 million in debt for the construction of the 133MW Arroyo Seco project and the refinancing of the 170MW Timbúes power plant.

This deal not only represents a project finance transaction tapping international banks, but one making a case for project bonds for funding thermal energy projects in the country.

### A co-borrower structure

The transaction saw two separate entities as co-borrowers to achieve critical mass and create efficiencies in the financing costs. Albanesi Energia served as the borrower for Timbúes, while the special purpose vehicle Generacion Centro was the borrower for Arroyo Seco.

The Timbúes plant – already under construction – had a previous debt with UBS totalling \$170 million from 2017, which will now be refinanced through the new loan. Remaining funds will be used for the development of Arroyo Seco.

The projects were awarded in August 2017 by Argentina’s Ministry of Energy and Mines (MINEM) in a tender that yielded 40 proposals with a total generating capacity of 4.6GWh.

The Timbúes and Arroyo Seco projects are considered cogeneration plants as they generate both power and steam. The generated electricity will be sold to Argentina’s wholesale electricity market administrator Cammesa under a 15-year PPA. The units also have PPAs to supply electricity and steam to the merchant and processor of agricultural goods Louis Dreyfus Company, as well as to Renova.

### A dual-tranche loan

UBS and Credit Suisse were joint lead arrangers for the deal, as well as lenders on the new facility.

The \$395 million loan was syndicated with a group of local banks including Banco Hipotecario, Banco de Crédito y Securitización (BACS) and Banco de Inversión y Comercio Exterior (BICE).

The financing was structured in two parts comprising senior secured debt with a five-year tenor and subordinated secured debt with a six-year tenor. *IJGlobal* understands that the subordinated tranche has a payment in kind (PIK) feature.

In dividing the loan into tranches, the financing allowed for a larger pool of investors and risk profiles.

Clifford Chance and Salaverri were the legal advisers to Albanesi Energia in the US and Argentina, respectively. Meanwhile, the banks’ legal advisory team included Skadden in the US and Tavarone in Argentina.

### Almost-project finance

Although the financing displays some typical project finance features, it cannot be considered project finance in a strict sense as a guarantee by Albanesi Group subsidiary Rafael G Albanesi was included in the structure at project completion.

But the relative value of the guarantee – which has not been disclosed – in comparison to the total size of the financing highlights a growing trend in Argentina for developments to rely on pure project finance.

“A loan of this size in a project finance-like structure for thermal energy assets is really important to Argentina, and shows a renewed trend in the country that began last year with the combined project financing of the Tucuman and Loma Campana projects after more than a decade without project finance in Argentina,” said Clifford Chance’s associate, Guido Liniado, who worked on the deal.

“Combining thermal projects such as these to achieve critical mass opens the door for project bond solutions in the thermal energy market in the near future,” he added.

The financing for Albanesi Energia’s Timbúes and Arroyo Seco projects stands out, however, as the first to receive funding exclusively through commercial lenders with the support of neither development bank nor export agency. ■

### Timeline





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**NEWS ANALYSIS:** In the aftermath of disaster, project sponsor EPM fights to save the Ituango dam in Colombia. By Juliana Ennes.

# Damned if you do...

Where there is crisis, there is usually opportunity. The disaster that hit the Ituango hydroelectric dam project in Colombia is turning on a light at the end of the tunnel for renewable energy projects in the country.

Developed by local Empresas Públicas de Medellín (EPM), the gigantic 2.4GW hydropower project was supposed to provide 17% of total electricity generation in Colombia by year-end 2018. But after a succession of problems, there is now little hope that the project will ever become a reality.

International investors are now hoping this will give a much needed boost to the country's renewable energy sector – as without the speedy construction of new generation assets to plug the gap left by Ituango's failure, the country risks blackouts.

### Renewables' scenario

Colombia is well-suited geographically for renewable energy generation, particularly solar, with some regions receiving on average over 12 hours of sunlight per day.

However, unconventional renewable energy is today almost nonexistent in the country, with only 19MW of wind and 35MW of solar, representing less than 1% of the energy mix. Meanwhile, 70% comes from hydropower and 30% from gas and coal.

The country has made progress in building up the necessary regulatory framework for renewables projects. In March, the Ministry of Mines and Energy issued a new decree (number 0570) establishing guidelines for long-term renewable power generation contracts.

Colombia now has 299 projects registered in the planning unit of the Ministry of Energy to participate at an eventual auction, comprising 255 solar, 18

small hydro, 10 biomass, eight CHP, six wind, one geothermal and one hybrid.

The government has also announced a project to build a 1,360MW wind power transmission line in the country's La Guajira department, scheduled to enter operation in November 2022.

The recently-elected Colombian president Iván Duque has said he will promote a diversification of the energy mix by boosting the use of renewables.

### Understand the disaster

The Ituango dam is located over the Cauca River, the second largest river in the country, about 175km north of Medellín. It was just months away from being completed when disaster struck.

To understand what happened, it is important to know how a dam is built. This process includes the construction of different tunnels to divert the water while raising the dam. As the project neared completion, EPM closed two of the three tunnels it had built.

On 28 April, a landslide near the site blocked the remaining tunnel. With rain and new landslides, water rose to critical levels.

That led EPM to what would be only one of a series of hard decisions: on 10 May, the company flooded the dam's turbine rooms to release the pressure being exerted on the structure by the river. Water levels were reduced, but all the equipment that had already been installed suffered irreversible damage.

Two days later, one of the sealed tunnels ceded the pressure, unblocked and caused flash floods downstream.

Over 113,000 people living downstream of the dam have already been evacuated, due to the risk of a collapse.

Even today, the risk of new landslides

from nearby mountains still remain, which could potentially compromise the integrity of the entire project.

The attempt to save the dam includes the construction of a new project tunnel to reduce the levels of the flooded river, which would take several months.

### The financing

In January, after almost two years of negotiations, EPM signed a \$1 billion senior, unsecured A/B loan package to help build the Ps11.4 trillion (\$3.9 billion) Ituango hydropower plant.

The financing package included \$300 million A loan from the IDB Group, \$50 million co-loan from the China Co-Financing Fund for Latin America (administered by IDB Invest), and \$650 million B loan from international commercial banks and institutional investors.

The following banks underwrote the B loan: BBVA, BNP Paribas, CDPQ, ICBC, KfW IPEX, Santander and SMBC.

EMP says it is still working to “regain control over the project.” It means that the project is still under development, although with unpredictable delays.

IDB Invest issued a statement on 8 June saying it is working on support for the affected families and that the group's goal “is to support EPM to ensure that the project will generate clean and affordable electricity.”

It is unclear what will happen with the financing if the project reaches a point of no return, however *IJGlobal* has learnt that EPM is trying to sell other assets to raise cash in an attempt to save Ituango.

EPM's general manager, Jorge Londoño De la Cuesta, said during a visit of President Duque to Ituango that the company expects to have control of the project by October. ■

**DATA ANALYSIS:** Argentina’s troubled macroeconomic situation casts a long shadow over the country’s first round of PPPs. By Nikola Yankulov & Sophia Radeva.

# A rocky road ahead

The recent award of six toll roads in Argentina should have been a moment of triumph for President Mauricio Macri’s government. But despite the government making increased infrastructure investment a priority, few major international road operators were among the successful bidders in the auction, undoubtedly deterred by the instability of the Argentinian economy.

The six roads were awarded in the first round of planned PPP project auctions, expected to total \$26.5 billion in investments through to 2022 – with transport and energy projects as main pillars, but also including healthcare, social infrastructure and water schemes.

Argentina has suffered decades of under-investment in infrastructure, not least because of the long aftermath of the 2001 economic crisis which required a bailout from the IMF. The crisis, and the economic policies that followed, destroyed investor confidence in the country.

Macri’s administration has slowly

rebuilt investor confidence since coming to power in 2015. The government had aimed to cut its gaping fiscal deficit to 2.2% of GDP in 2019, with PPPs and private investment playing essential parts in meeting Argentina’s infrastructure targets. As a result, cautious interest started to grow in the country’s substantial PPP pipeline.

And then Macri announced in May that Argentina would again be seeking aid from the IMF, following a series of interest rate rises failed to halt a plummeting peso.

Now that PPP pipeline looks precarious. Even the six road projects awarded in June will face a challenge to reach financial close.

## A missed opportunity

Argentina approved a highly ambitious national transport infrastructure plan in September 2016. A PPP law was passed in November that year, establishing a legal framework to regulate the essential aspects of PPP contracts. According

to the framework, the government would issue companies quarterly certificates entitling them to US dollar payments based on construction progress, which the companies could then use as collateral to raise funds. The government also issued a decree exempting PPP operators from value-added tax and allowing the operators to collect tolls.

The Argentine Highways and Safe Roads PPP initiative consists of three phases with a target of 7,000km of roads to be built or renovated over 15 years for a total investment of \$16.7 billion. The roadworks will be financed through a tax on diesel and income from tolls.

The six road projects of the first stage of the programme comprise over 3,000km, and will require \$7.9 billion in investment. The second and third phases of the roads’ concessions have been planned to follow later this year with investments of \$6.8 billion and \$1.9 billion, respectively.

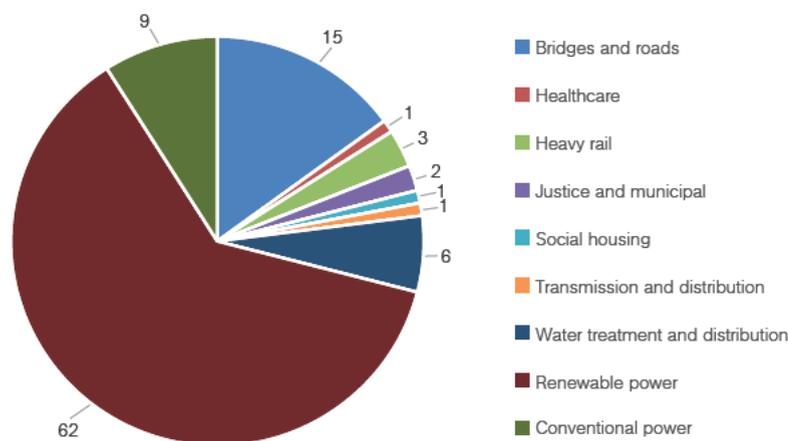
Along with road projects, another important focal point of the Macri government is the renewable energy bidding process. Launched in 2016, the RenovAr programme has had three rounds – RenovAr 1, RenovAr 1.5 and RenovAr 2 – in which over 5GW of capacity was awarded.

## Funding challenges

Given the instability of the Argentinian economy, project sponsors will have to rely on debt from DFIs as commercial lenders are unlikely to be comfortable with the government as counterparty.

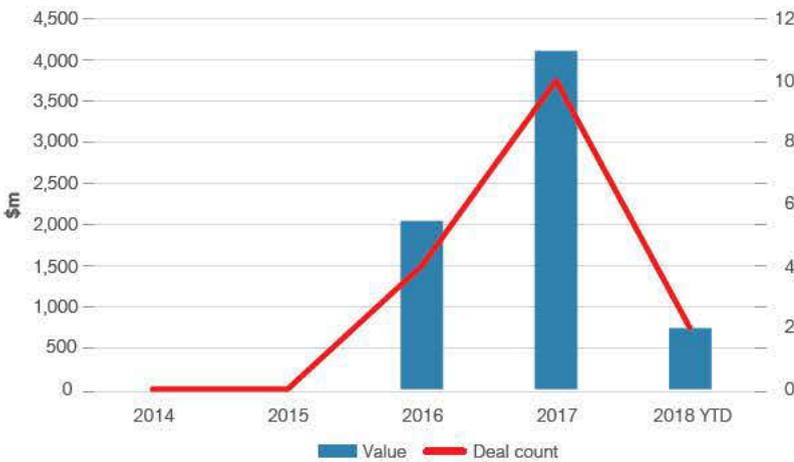
In March, the Inter-American Development Bank (IDB) approved in a \$500 million investment guarantee

Argentina’s project pipeline by sub-sector



Source: IJGlobal

Infrastructure corporate bond issues in Argentina



Source: IJGlobal

facility which should help attract private investment. Under the programme, the IDB will issue partial risk guarantees and political risk guarantees to qualified investors participating in PPP projects across Argentina.

One significant consequence of the \$50 billion IMF bailout agreed in June may be any resultant impact on Argentina's credit rating. The country's sovereign credit rating had been improving steadily over the last few years,

which led to a rise in corporate bond issuance. It was hoped that corporate bonds would cover some of the funding requirement for Argentina's hefty road infrastructure pipeline.

IJGlobal data shows that \$4.1 billion of bonds were issued by corporate entities last year, and used at least in part to support infrastructure projects. Favourable market conditions led to this spur in bond issuances.

There haven't been any recent issuances of infrastructure projects bonds, however, and the Argentinian market remains underdeveloped for foreign and local currency bonds.

Market observers suggest that the underlying projects in Argentina's infrastructure pipeline are attractive, but even with the best PPP framework in the world, a highly volatile economy will scare off most investors.

No one is quite sure where this road is heading and many investors, at least for now, seem keen to take another route. ■

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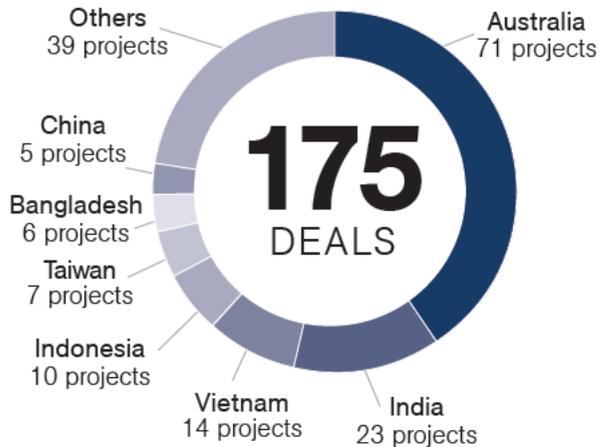


# Asia-Pacific

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## Pipeline & procurement deals



## Projects with recent tender updates

- Aldoga PV Solar Farm
- Bac Lieu LNG Power Plant
- Bangladesh-India Cross-Border Oil Pipeline
- Budhi Gandaki Hydropower Plant
- Dholera PV Solar Farm Phase 1
- Guanyin and Yunlin Offshore Wind Farms
- Kuala Lumpur-Singapore High-Speed Rail
- Son My 1 Gas-Fired Power Plant
- Trung Luong-My Thuan Expressway

## Closed deal values by sector

**Transport:** \$7.86 billion

**Renewables:** \$6.80 billion

**Oil & Gas:** \$3.73 billion

**Power:** \$1.99 billion

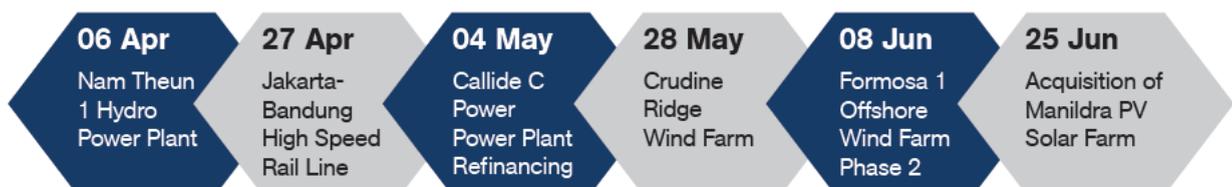
**Social & Defence:** \$1.82 billion

**Mining:** \$1.63 billion

## Countries with highest closed deal values

Australia	\$11.84 billion	29
Indonesia	\$6.62 billion	4
India	\$1.90 billion	4
Singapore	\$1.37 billion	1
Laos	\$935 million	1
Thailand	\$750 million	1
Uzbekistan	\$660 million	1
Taiwan	\$628 million	2
Bangladesh	\$323 million	1
Japan	\$112 million	2
Pakistan	\$75 million	1

## Transactions that reached financial close



Source: IJGlobal, from 1 April 2018 – 30 June 2018.

# Belt & Road block

One of the key pillars of China's Belt & Road initiative has run into what was once a hypothetical political risk – the possibility of regime change in the recipient country.

By Mia Tahara-Stubbs.

Chinese President Xi Jinping's \$4 trillion Belt & Road initiative, launched in 2013, had already been coming under increasing criticism as "debt book diplomacy". In April, International Monetary Fund managing director Christine Lagarde warned in a speech in Beijing that Belt & Road initiatives could lead to a "problematic" increase in debt for the recipient country.

Then main opposition party Pakatan Harapan (PH), led by former Prime Minister Mahathir Mohamad, won a surprise victory in Malaysia's general election in May this year. Support for PH was in part provoked by resentment over Chinese infrastructure investments. In 2017, Malaysia was the fourth largest recipient of Chinese investment, with Belt & Road financial commitments estimated at around \$34 billion.

Keeping to his campaign promises, Mahathir pledged to review all infrastructure deals negotiated by his predecessor Najib Razak in an effort to cut the country's debt burden. "I've been informed that our debt is actually \$250 billion, but today we were able to study and look for ways to reduce this debt," Mahathir said shortly after taking office in late May.

By early July, Mahathir had canned all the major infrastructure projects in the pipeline, including the Belt & Road ones.

First to be shelved, at least for the foreseeable future, were the Kuala Lumpur – Singapore high speed railway and the MRT3 line in Kuala Lumpur.

Mahathir also ordered construction to be suspended on the \$8 billion East Coast Rail Link (ECRL), as well as two gas pipelines worth over \$2 billion. The value of the two gas pipeline contracts were also almost entirely paid in advance

before any work was completed, raising further questions about the nature of the agreements.

## The regime change risk

The contract for ECRL, part of a wider Belt & Road venture to link Port Klang on the west coast to a deep sea port being developed in Kuantan on the east coast, had been controversial since the outset.

Shortly after the contract and soft loan with China were announced, whistleblower site Sarawak Report published the term sheet of the deal, alleging construction costs had been doubled.

In addition, China's state-owned CCCC, which had won the contract without a tender being held, had allegedly agreed to assume nearly \$5 billion of the debts of scandal-plagued state infrastructure investment fund 1Malaysia Development (1MDB). Questions were also raised about the unusually high interest rate for the soft loan.

The 1MDB scandal, which is credited with fuelling the opposition's surprise victory despite chronic gerrymandering, has quickly become undone. Former Prime Minister Najib Razak has now been arrested and the new government has claimed it has almost completed its investigation in Malaysia. Najib has pled not guilty.

Mahathir has been openly critical of the "unfair" terms of contracts. "There are several issues to be brought up, among which is the unfairness of the terms of the contracts and also of the loans," he told reporters in Kuala Lumpur in early July.

Mahathir is set to visit Beijing in August, but other Belt & Road initiatives in Malaysia appear certain to be cancelled regardless of the Chinese government's

position, including the nearly \$11 billion Malacca Gateway port development, awarded to Malaysia's KAJ Development and PowerChina to build four new terminals off the coast of Malacca.

All of which would leave the Malaysian leg of Belt & Road, one of the pillars of China's strategy to reduce its dependence of its trade through Singapore's port in the Malacca Straits, back at the drawing board.

"The Chinese government will also take concrete measures to safeguard the interests and rights of Chinese enterprises," China's *Global Times*, a state-owned tabloid which is widely considered to be advocating the government's position, said in a comment published on the Malaysia issue in June.

## Ceylon blues

Meanwhile, another controversial Belt & Road initiative has come under new scrutiny.

The Port of Hambantota on the south eastern coast of Sri Lanka was built with Chinese soft loans despite feasibility studies showing no demand for cargo, even though the site is on the main shipping route from Asia to Europe.

Former Prime Minister Mahinda Rajapaksa, who had become increasingly dependent on China for financial and military support in the last years of the civil war, agreed terms with Chinese entities on the port in 2008.

Sri Lanka in 2008 took on a \$300 million loan from Exim Bank of China and gave the contract to build the deep sea port, without a tender, to state-owned China Harbor. In 2012, Rajapaksa agreed to take on another loan, of nearly \$800 million, at an annual interest rate of 6.3%. Since then, the debt burden on the

development has ballooned to \$1.3 billion.

Rajapaksa lost power to Ranil Wickremesinghe in 2015 but Sri Lanka has continued to be held to the terms of the debt. Wickremesinghe has sought to move closer to India and Japan, but China has turned out to be an unforgiving lender.

Unable to meet the payments on Hambantota port, Wickremesinghe's government agreed to a contentious restructuring which ceded control of the Port of Hambantota on a 99-year lease to the operator of the port, China Merchants Port.

Under the agreement, China Merchants Port will pay the government \$1.1 billion for an 85% share in the asset. In return, China Merchants Port will have full control of the development of the port, along with managing all of its operations.

The deal, signed in July 2017, provoked widespread street protests for ceding sovereign control over the island's territory.

The agreement has drawn renewed scrutiny after a *New York Times* investigation published in late June 2018 alleged the Chinese government had demanded that Sri Lanka cede control of the port to either China Harbor or China Merchants Port in return for writing down some of the debt.

China Merchants Port also demanded, and was granted, rights to 15,000 acres of land around the port, according to the report.

Beijing for its part has dismissed the allegations. "According to the needs of Sri Lanka, Chinese financial institutions have provided support to Sri Lanka in solving the financing gap. Later, the Chinese side made efforts to adjust relevant asset allocation according to the wishes of the Sri Lankan side," Foreign Ministry spokesperson Lu Kang said in response to the *New York Times* report.

The Sri Lankan government is struggling to extricate itself from other China-backed projects. Colombo is reportedly in talks with India to sell 70% of the 40-year concession to operate Mattala airport for \$300 million.

The Mattala airport, 30km inland

from Hambantota port and often dubbed "the world's emptiest international airport", currently has no scheduled daily flights after FlyDubai cancelled its last service in early June 2018.

### More election risk

One country where Belt & Road does not appear to be exposed to election risk is Pakistan, which will go to the polls in late July 2018. The China-Pakistan Economic Corridor (CPEC) is China's largest Belt & Road commitment to date.

CPEC is a collection of infrastructure projects being developed across Pakistan, with the backing of investment by Chinese entities. Originally valued at \$46 billion, the collective value of CPEC has now swelled to over \$62 billion.

CPEC's long-term plan through to 2030, published in December 2017, remains rather vague, citing "a growth axis and a development belt", with "the comprehensive transportation corridor and industrial cooperation between Pakistan and China as the main axis".

The terms of most of the CPEC projects have been kept secret. One exception has been Gwadar Port, which was officially leased in 2015 to China Overseas Port for 43 years, until 2059. China Overseas Port has also been awarded \$1 billion worth of expansion contracts.

In November 2017, then federal minister for ports and fisheries Hasil Bizenjo revealed in a briefing to the Senate that China would receive 91% of the port-generated revenues for the duration of the concession, while the federal government-controlled Gwadar Port Authority would receive the remaining 9%.

Questions have been raised about the economic viability of Gwadar Port, which includes the development of a 290,000-acre free trade zone, but the government remains bullish. "CPEC is turning into a reality today which will change the fate of the region," Pakistani Prime Minister Shahid Khaqan Abbasi said at the opening ceremony for the first phase of the free trade zone in January 2018.

All three of Pakistan's major

political parties, the Pakistan Muslim League, the Pakistan People's Party and former cricket player Imran Khan's PML, have remained broadly supportive of CPEC despite criticism, mostly from western countries over the rising debt levels and lack of transparency.

"While it is too early to assess if CPEC can deliver the economic gains Islamabad promises, the project risks inflaming longstanding tensions between the centre and smaller federal units and within provinces over inequitable economic development and resource distribution," International Crisis Group warned in a recent report.

While the political class may be supportive, with a record external account deficit of up to \$18 billion and central bank reserves of less than \$10 billion, Pakistan may be facing another International Monetary Fund bailout after the July elections.

"Further and considerable policy efforts would be required to stabilise the external position, and a new government has limited time to act after the 25 July elections as external debt obligations will pick up more rapidly in 2019," Fitch Ratings warned in a report.

China has already provided loans of \$5 billion to Pakistan in the past year and has also provided it a trade facility of \$1.5 billion. But analysts don't expect Beijing to stabilise Pakistan.

The IFM is certain to require disclosure of Pakistan's debt obligations, including for Belt & Road, and Pakistani officials are reportedly already worried that projects will be cancelled.

With the future of Belt & Road in two of its largest flagship countries now under a cloud, some analysts have begun to question whether Beijing needs to change tactics, perhaps by embracing a more multilateral approach. Whether it can remain to be seen.

"Will Belt & Road bend to the will of existing multilateral norms and standards?" concluded a recent Center for Global Development report on Belt & Road's debt sustainability. ■

**DATA ANALYSIS:** Indonesia is working hard to promote PPPs. Now it just needs to walk the walk... and close more deals. By Sophia Radeva.

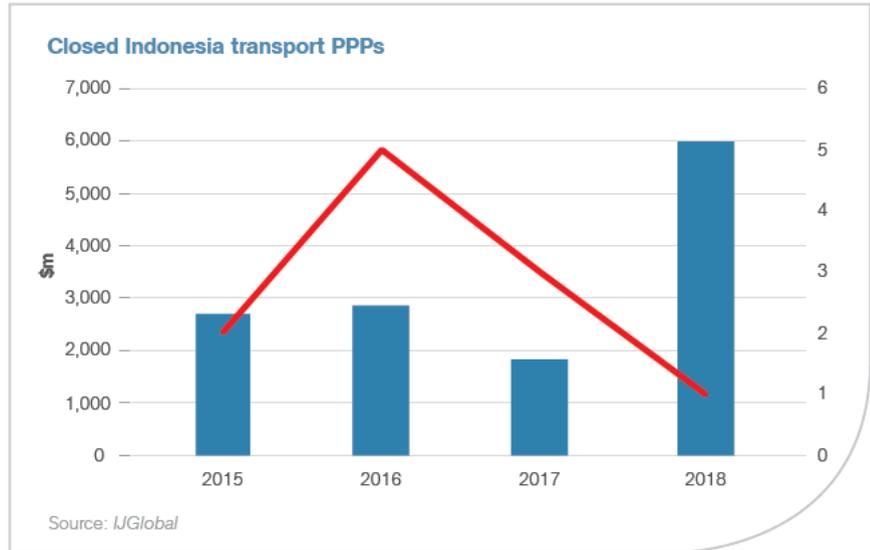
# Talking the PPP talk

Indonesia's National Development Planning Agency (Bappenas) recently announced that it has committed Rp55.6 trillion (\$3.4 billion) in state funds for infrastructure investment in 2019. The budget covers PPPs and other projects in the power and transport sectors.

According to the country's Ministry of Transportation, the total investment required for the transport sector alone is \$190 billion. The funding needed is estimated at \$20-37 billion per year.

Indonesia has to find significant private capital to plug the gap between budgeted state funds and required investment, as government funding is expected to cover just 30% of the total capital expenditure of planned projects.

And so Bappenas in May 2018 announced its ambition to facilitate the investment of Rp14.5 trillion in PPPs next year via its non-governmental budget equity financing (PINA) scheme, in an attempt to attract more private capital into Indonesian infrastructure by offering pre-structured projects to financial investors.



PPP schemes are the core of the Masterplan for Acceleration and Expansion of Indonesia's Economic Development (MP3EI), which seeks a high degree of cooperation between the central government, local governments, state-owned enterprises and the private sector.

The Government of Indonesia has refined PPP policies and its regulatory

framework in order to improve the attractiveness of projects. It has attempted to make guidelines clearer on the treatment of unsolicited proposals, the availability payment model was introduced, and clarifications were made on government support and/or guarantees for PPPs.

The government also set up a guarantee mechanism to fix the rate of return for investors. It created Sarana Multi Infrastruktur (SMI) to help channel private funds into ready-to-build projects, and established Penjaminan Infrastruktur Indonesia (Persero) to provide guarantees.

IJGlobal data shows 21 transport PPP projects awarded but not yet at financial close. The total value of these projects is \$18.5 billion.

Although the number of projects now working towards financial close gives reason for optimism, the government's drive to increase PPP financings has yet to pay off. Over the last two years, the number of PPPs financed per year has declined, though funding of the Jakarta-Bandung HSR earlier this year gave a big boost to the total value of investment. ■



# World Events Calendar 2018/19

## 2018 EVENTS

Sept 4th	<b>Indonesia Infrastructure Forum</b>	Jakarta
Sept 10th	<b>European Transport Investment Summit</b>	Amsterdam
Sept 11-12th	<b>World Infrastructure Summit</b>	Amsterdam
Sept 12-13th	<b>North American Infrastructure &amp; Energy Finance</b>	New York
Sept 25th	<b>Peruvian Energy &amp; Infrastructure Finance Forum</b>	Lima
Nov 8-9th	<b>Brazilian Energy &amp; Infrastructure Finance Forum</b>	Sao Paulo
Nov 13th	<b>Philippines Infrastructure Finance Forum</b>	Manila
Dec 4-5th	<b>Caribbean Infrastructure Finance Forum</b>	Bahamas

## 2019 EVENTS

Jan 24-25th	<b>Canadian Power Finance</b>	Toronto
Feb 1st	<b>Central American Energy &amp; Infrastructure Congress</b>	Costa Rica
March 1st	<b>IJ APAC Forum</b>	Singapore
March 1st	<b>IJ Asia Awards Dinner</b>	Singapore
March 11th	<b>REFF Latin America</b>	Miami
March 12-13th	<b>Latin American Energy &amp; Infrastructure Finance Forum</b>	Miami
March 13th	<b>IJ MENA Awards Dinner</b>	Dubai
March 14th	<b>IJ Americas Awards Dinner</b>	New York
March 21st	<b>IJ Europe &amp; Africa Awards Dinner</b>	London
March 27-28th	<b>OGF Amsterdam</b>	Amsterdam
May*	<b>Chile Energy &amp; Infrastructure Finance Forum</b>	Santiago
June*	<b>Mexico Energy &amp; Infrastructure Finance Forum</b>	Mexico City
June*	<b>Argentina Energy &amp; Infrastructure Finance Forum</b>	Buenos Aires
September*	<b>World Energy &amp; Infrastructure Summit</b>	TBC
September*	<b>European Transport Investment Summit</b>	TBC
September*	<b>Peru Energy &amp; Infrastructure Finance Forum</b>	Lima

Note: World events calendar subject to change

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