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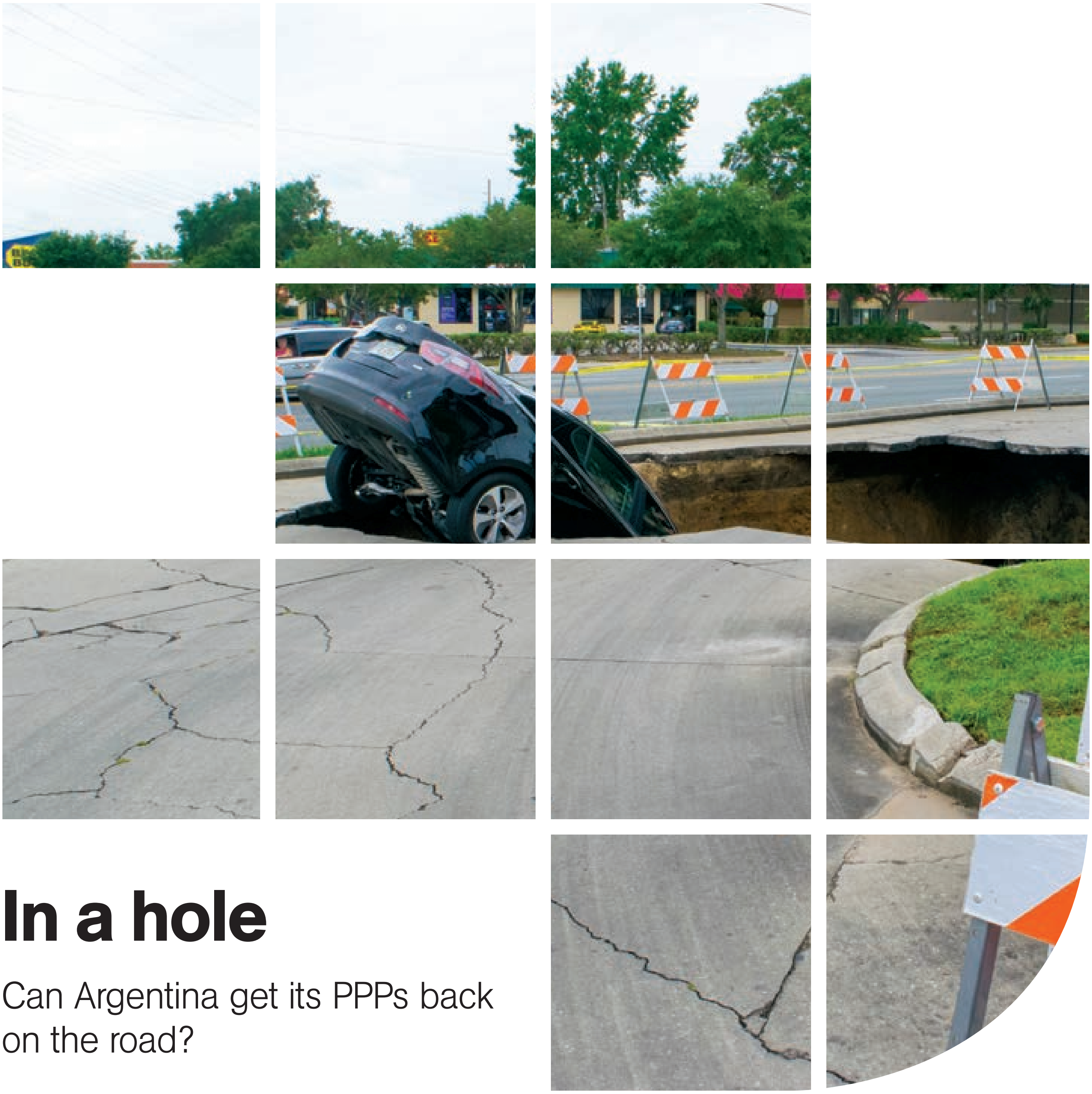

In a hole

Can Argentina get its PPPs back on the road?

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Governments, and developers, could do more to increase public support for major infrastructure projects.

Winning the PR battle

Conferences are ideal forums for frank and candid exchanges. These rarely occur on stage but proliferate in the corridors, coffee areas, restaurants and bars frequented by delegates over the duration of an event.

The gripes and frustrations hinted at during panel discussions become full-on moans and complaints in the more private conversations which follow. A typical scenario will see private sector players biting their lips in the presence of government representatives, only for dammed-up discontent to burst forth once the minister or civil servant is out of earshot.

No one wants to mess up the chance of a future mandate by being a bit too honest with potential public side employers.

At *IJGlobal*'s recent World Energy & Infrastructure Summit in Amsterdam, we were able to flip this typical scenario on its head.

We held the first in a series of our Infrastructure Leadership Council roundtables, which brought together a host of public sector parties from across the globe. Without anyone from the private sector in attendance, the meeting allowed them to discuss best practice, share experience, and air their own grievances.

Essential to these sessions is the rule that all discussions are off the record. So I will not use this space to relay details of the discussion, though I can say some eyebrows were raised when advisory fees were compared!

One less contentious, though no less important, topic broached during the session was the challenge of countering bad press coverage of privately-led infrastructure projects.

This is a topic covered numerous times in these pages previously. In many Western countries politicians seem to have abandoned attempts to defend the use of PPP and similar models, leaving a vacuum in the public debate too often filled with misinformation.

As one of the roundtable participants observed, there is a perceived choice between public and private sector – despite private companies undertaking the work whichever procurement model is chosen.

News coverage for any major infrastructure project will tend to focus on the costs, without properly detailing the benefits. No one should be surprised by this – bad news attracts readers. Also the costs (or at least the expected costs) are known long before any benefits become tangible to end users.

But that doesn't mean governments, procurement authorities, PPP units, or in fact developers shouldn't do more to promote why all that money is being spent in the first place.

Which was why it was surprising that the roundtable participants struggled to identify any successful marketing campaigns for projects. It seems rich of government officials to complain about public perception if they are not doing much to shape it themselves.

One roundtable participant spoke of the pride felt at seeing a large billboard advert at a train station promoting a new bridge they had worked on. Their ego was quickly pricked though by the overheard grumblings of fellow commuters who doubted the need for it.

Should project proponents be doing more to win this PR battle, and are there more innovative ways to get your message across?

I was impressed by the recent BBC documentary in the UK about the Thames Tideway Tunnel (TTT) development in London. Reaching financial close in 2015, this huge project has a highly complex structure, is being regulated under a bespoke regime, and has a colossal cost.

And while the title of the BBC's 'The Five Billion Pound Super Sewer' makes that cost clear, its main focus is the considerable engineering feat required to deal with the 39 million tonnes of waste pumped into the River Thames every year.

The three-part series follows construction workers for the sewer, giving a human face to the project. It makes a compelling case for the necessity of the work, and press coverage of the series has on the whole been positive.

I have long wondered whether public attitudes will turn against TTT once Thames Water customers start to notice the increase in their water bills, particularly as these are set to rise by an estimated £70-80 per month in the late 2020s. But allowing cameras into the construction site seems like a pretty good pre-emptive strategy for building public support.

As we could come up with so few examples of effectively deployed marketing strategies for infrastructure projects at the roundtable, I am keen to hear from others about instances where authorities have got their promotion efforts right. Answers on a postcard please. ■

Jon Whiteaker
Editor


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Briefings

FUNDS

First close for Aviva's European infra debt fund

Aviva Investors reached a €170 million ($197 million) first close on its European infrastructure debt fund after crowding in five European insurance companies.

The euro-denominated Aviva European Infrastructure Debt Fund will invest in a range of energy and infrastructure assets and has a gross target of 180-220bp over Euribor/mid-swaps. The fund has a total fundraising target of €500 million.

The vehicle is being led by Paris-based fund manager Florent del Picchia and London-based senior portfolio manager Sarah Wall. DC Placement Advisors is placement agent for the fund.

Aviva Investors is a long-standing investor in European infrastructure assets. It has recently taken debt tickets in a number of Building Schools for the Future UK PFIs, and in the May 2018 it had £100 million ($131 million) in green bonds placed with it for the Thames Tideway Tunnel super-sewer project in London.

Dalmore 3 hits final close

While it was entering a joint bid to take over the John Laing Infrastructure Fund alongside Equitix, Dalmore Capital has found time to reached final close on its latest closed-ended infrastructure vehicle.

The 15-year Dalmore Capital Fund 3 hit its hard cap of £950 million in mid-September having attracted new and existing investors from across the UK, Germany and Asia.

Dalmore started fundraising for the vehicle in January 2017 and hit a first close of £400 million in October of that year. It targets low volatility infrastructure assets, mostly in the UK, and has already completed investments in Anglian Water Group; Cadent Gas; Cory Riverside Energy; and the M25 motorway.

Atlantic-Pacific Capital was placement agent; Weil, Gotshal & Manges was legal counsel; and PwC was auditor for the fund.

InfraVia closes Fund IV at hard cap

InfraVia Capital Partners reached final close on its fourth European fund in September, hitting its hard cap and doubling the size of fundraising achieved by its predecessor fund.

InfraVia European Fund IV hit its €2 billion hard cap less than a year after fundraising was formally announced. The fund is targeting European mid-cap companies in the energy; social infrastructure; telecoms; transport; or utilities sectors.

The fund is planning 10-12 investments in total, the first of which was the acquisition of private hospital group Mater Private in Ireland – a deal which was concluded in August. InfraVia's third infrastructure fund reached a €1 billion final close in September 2016.

UBS closes second infra fund of funds

A joint venture between UBS Global Asset Management – Alternative Fund Advisory and German investment specialist Solutio closed on a second infrastructure-focused fund of funds in late August.

The 15-year, closed-ended APPIA II Global Infrastructure Portfolio raised a total of €367.7 million at final close. The fund is invested in a total of 65 infrastructure assets to date.

It is a follow-on fund from APPIA I Global Infrastructure Portfolio which launched in 2010 and raised a total of €237 million.

Like its predecessor, APPIA GIP II targets core and core+ infrastructure assets, primarily brownfield, and is specifically tailored to German and Austrian institutional investors. Investments are limited to OECD countries with the majority in Europe and North America, with up to 10% in other markets.

IFM launches open-ended debt fund

Giant Australian investment manager IFM Investors launched its first ever open-ended infrastructure debt fund at the end of August. It has set a target of raising as much as $500 million per year through the fund.

Before this vehicle IFM had only raised debt through an Australian fund, separate managed accounts, and funds for specific investors. The new fund is global in focus, though IFM has said that it sees most opportunities in the US market. It will target senior-secured, floating rate loans.

An initial fundraising of $500 million has already been completed. Among the initial investors is Virginia Retirement System which has made a commitment of $100 million.

Foresight eyes next UK acquisition

London-listed Foresight Solar Fund Limited (FSFL) is plotting the acquisition of a 72MW portfolio of 10 UK operational solar assets but must first raise additional capital to fund the deal.

The assets, which the fund has exclusivity over, are the last of a pool of solar assets which are owned by funds managed by Foresight Group and are expected to transfer over to FSF. The assets form part of a 300MW acquisition pipeline.

The acquisition is expected in Q4 2018, after FSFL has raised additional capital. Its existing revolving credit facility is now fully deployed following recent acquisitions.

FSFL completed the purchase of an 114MW portfolio of 15 UK operational solar plants, all of which benefit from the UK's Renewable Obligation scheme, for a consideration of £47 million in August.

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M&A

GIP prepares Gode 1 offshore wind disposal

US-headquartered fund manager Global Infrastructure Partners (GIP) is preparing to launch a sale process to dispose of its 50% shareholding in the 330MW German offshore wind farm Gode Wind 1.

The advisers to GIP are understood to be Macquarie Capital, Clifford Chance and Hengeler Mueller. Sources expect an auction process.

GIP acquired the shares from Ørsted in September 2015. The wind farm was fully commissioned in June 2017 with 55 Siemens turbines of 6MW capacity each.

Portugal's grid concessions to tender in 2019

Portugal's 300 municipalities are in the process of forming groups as they prepare to put concessions to operate their low-voltage electricity grids out to tender in 2019, ending Energias de Portugal (EDP)'s monopoly operator position.

As things stand, EDP Distribuição operates networks across more or less the entire country under maturing concessions. Nationally the concessions are due for synchronised competitive tenders in 2019, launching as soon as Q1. EDP is allowed to bid, but importantly so are other operators and financial investors.

The number of tenders is not confirmed yet, some expect five concessions but there could be as few as two. Some of the largest municipalities could tender alone.

EDP generates around €250-300 million ($292-350 million) of revenues annually for operating these low-voltage networks.

Yorkshire Water auction shortlist nears

The sale by Corsair Infrastructure Partners and DWS (formerly Deutsche Asset Management) of their combined 53.69% shareholding in UK water utility Yorkshire Water is entering the second round.

The second round is due to launch as soon as September, after indicative non-binding bids were submitted at the start of August. Sources say that the UK's Equitix and Canada's Public Sector Pension Investment Board have placed bids. Blackstone was involved, but has withdrawn.

The reasons for selling are that DWS' fund is nearing maturity, with extension options only until 2020. Meanwhile, Corsair's fund has a portfolio now focused on the transport sector.

The sale's timing is difficult, as regulator Ofwat is reducing allowed returns and becoming more stringent on efficiency for the 2020-2025 regulatory period.

GIA in partial exit from Chilean hospital PPP

Mexico-based sponsor Constructora y Edificadora GIA+A (GIA) is planning a partial exit from its shareholding in the New Salvador Hospital and National Geriatric Institute in Chile.

Santander is financial adviser to GIA and has launched a sale process, *IJGlobal* has learned.

GIA's consortium, including now bankrupt Assignia Infraestructuras from Spain and local company Constructora Cosal, won the PPP concession in 2014. The estimated project cost was around $400 million. Construction has been significantly delayed, eventually starting in late 2017 and due to last three years.

A source said GIA is selling because it has had to invest additional equity after a partner dropped out.

Chile has a limited track record for healthcare PPPs. There was a strong pipeline of healthcare PPPs under Sebastián Piñera's presidency, but President Bacheleto's government put many projects on ice in 2014.

Macquarie to sell North American terminals

Macquarie Infrastructure and Real Assets is considering a sale of its 100% shareholdings in three terminal assets in North America, from its maturing Macquarie Infrastructure Partners (MIP) fund.

The port terminals are: Halterm Container Terminal in the Port of Halifax, on Canada's east coast; Fraser Surrey Docks multipurpose terminal in Port Metro Vancouver on Canada's west coast; and Penn Terminals multipurpose terminal in Eddystone, Pennsylvania, on the US east coast.

MIP, a 2006/2007 vintage fund, acquired the assets in 2007 and 2008.

MIP divested the A25 Highway concession in Canada in June and shares in Puget Sound Energy, an electricity and gas utility in Washington State, US in August.

Transurban cements toll road dominance in NSW

A Transurban-led consortium emerged as preferred bidder to buy a 51% shareholding in the WestConnex toll road's operator from the New South Wales Government on 31 August, with a bid to pay A$9.3 billion ($6.72 billion).

Transurban's bid cleared particularly tough scrutiny from Australia's competition commission. WestConnex will be the company's eighth NSW toll road asset, out of the state's nine. To convince the commission, Transurban agreed to publish detailed traffic data on its portfolio.

Sydney Transport Partners, which comprises Transurban, AustralianSuper, Canada Pension Plan Investment Board and Abu Dhabi Investment Authority, beat an IFM Investors-led team.

To fund the upfront payment, Sydney Transport Partners raised A$1.1 billion debt, to be repaid upon the A$4.6 billion financial close on the whole project.

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Briefings

CAPITAL MARKETS

Esparity Solar agrees surety bond

Newly formed Iberia-focused solar developer Esparity has obtained a surety bond facility from Abarca Seguros to fund bonding requirements for the Spanish grid connection process.

Esparity Solar is targeting a 1GW project portfolio, mostly in Spain but also in Portugal, in utility-scale solar PV which has a total investment value of roughly €1 billion ($1.17 billion). It is targeting early-stage co-investments with the intention of raising third party debt and equity ahead of financial close.

The facility, which is understood to be permanent capital, will finance 100% of the obligations required to request a change connection point (€10,000 per MW) in Spain.

Abarca Seguros is a Portugal-based surety bonds specialist, positioned as a solvent and effective insurer in the sector. It has a B+ credit rating from the US-based A.M. BEST rating agency.

Advantech targets Tokyo IPO for solar assets

Taiwanese computer maker Advantech has received approval to list its solar power assets on the Tokyo Stock Market's infrastructure fund market.

The fund – which will be called Tokyo Infra Energy Infrastructure Fund – will include five solar parks with a combined capacity of around 20MW with a valuation of ¥8.5 billion ($77 million).

The indicative IPO price for the 45,570 share offering has been set at ¥100,000, or a total valuation of ¥4.5 billion. The price was due to be set as *IJGlobal* went to press, with a launch date of 27 September.

Nomura is the bookrunner and SMBC is the co-manager on the IPO.

UK's M25 public bond closes

The sponsors of London's M25 orbital motorway swallowed the significant expense of novating and breaking swaps to close on an £899 million ($1.2 billion) bond refinancing in late July.

Pricing came in tighter than 120bp over relevant gilts for the notes, which are due on 31 March 2039. Around 90% of the notes were taken by UK-based institutional investors, with around 25 investors in total.

The deal leaves £383.3 million in EIB debt in place – dispelling market rumours that the multilateral was looking to exit.

Shareholders in the project have chopped and changed a fair amount since the project reached financial close in early 2009. Equitix and Dalmore Capital are now the largest stakeholders following the sale of equity by now minority shareholder Balfour Beatty.

HSBC, Lloyds and Barclays helped to structure the transaction.

Infra yield fund launched in Australia

BNY Mellon Investment Management and Pinnacle Investment Management launched an Australia-domiciled global infrastructure yield fund in early August.

The Pinnacle BNY Mellon Global Infrastructure Yield Fund is due to hold around 20-40 listed infrastructure equities. It will target a gross yield of 6% per year, and the suggested investment period is 5-7 years. The management fee is 1.15% per year.

It will target sectors, including telecom services, hospitals, senior care homes, utilities, energy, industrials and materials.

Pinnacle will be acting as the responsible entity of the new retail vehicle, with BNY Mellon IM as fund manager.

The new fund is due to invest with broadly the same approach as existing offshore portfolios the infrastructure team has in the US. The team is managing around $1.7 billion of assets.

CIFI issues El Salvador bonds

Panama-based non-bank finance institution the Inter-American Corporation for Infrastructure Financing (CIFI) has placed $60 million in medium-term bonds with two pension funds local to El Salvador. The bonds are part of an ongoing fundraising programme by the bank.

The issuance is split between two tranches: $45 million in six-year bonds with a 6.08% coupon; and $15 million in seven-year notes carrying a coupon of 6.25%.

This is the first time CIFI has raised funds in El Salvador, but across all fundraising it has now raised a total of $120 million in 2018 to date. It had an initial target of $145 million for this year but now expects to raise another $35-40 million before the end of December.

Medium-term notes make up 30% of its funds raised to date.

Actis issues Brazilian wind bonds

A Brazilian subsidiary of UK fund manager Actis closed on the final part of the financing for the 207MW Santa Vitoria do Palmar wind farm through the issuance of R105 billion ($25 million) in debentures.

The R1.4 billion wind farm has been fully operational since 2017, and most of the debt and equity for the project was closed last year. The final tranche of the financing consists of 13.5-year debentures which priced at a premium to the Brazilian national treasury bond NTN-B.

Bradesco, Itau BBA, and XP Investimentos were underwriters on the deal, and IDB Invest has provided a R125 million total credit guarantee to cover the issuance.

Investors included private banking institutions, high net worth individuals within private banks, multifamily offices and the trading desks of major banks.

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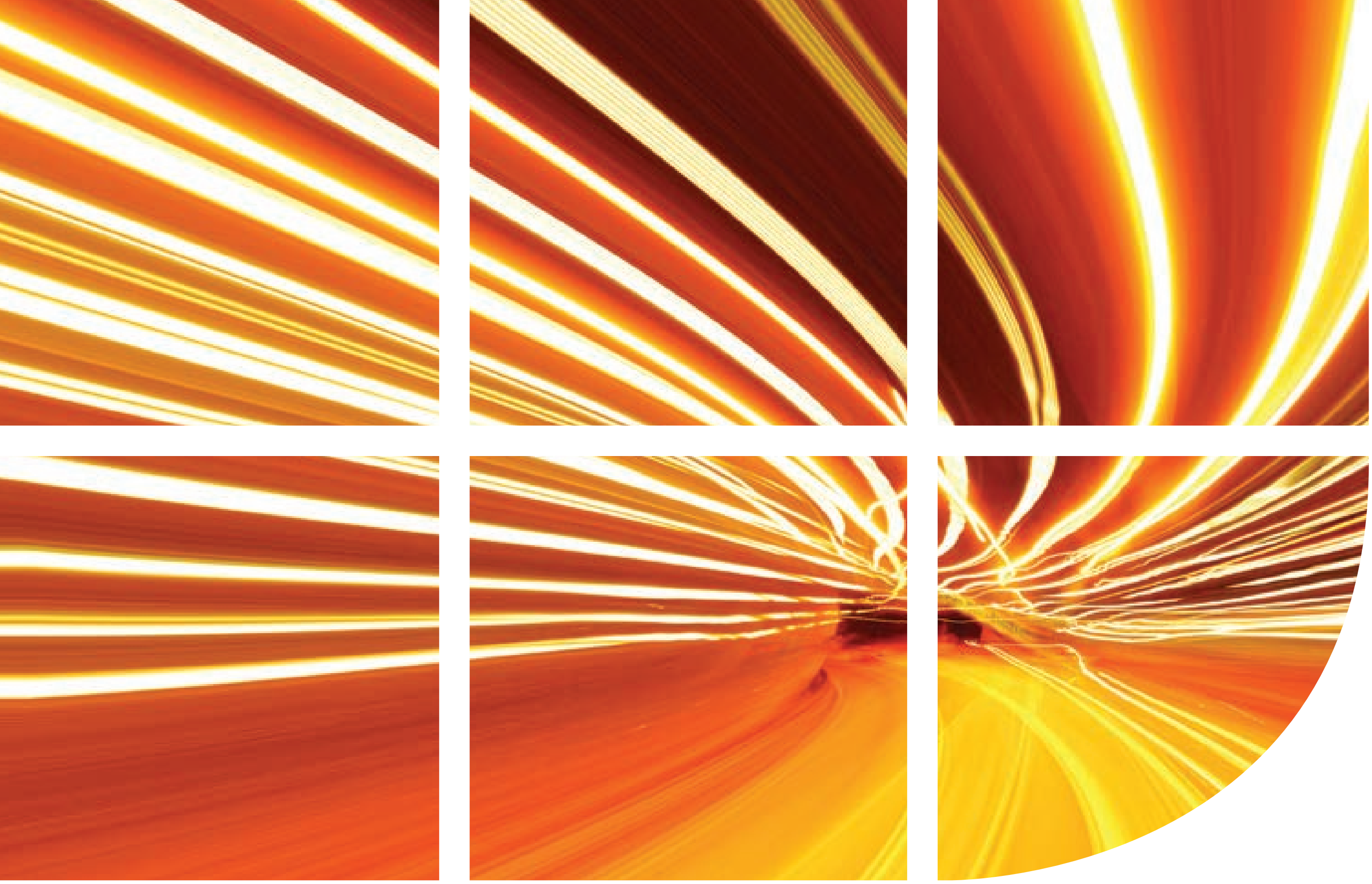

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PEOPLE

Banks

RBC has seen yet more of its infrastructure team depart over the summer. **Greg Falzon** is joining **Bank of Montreal**, after completing a period of gardening leave, where he will be heading up a team in London to build the bank's European presence. Bank of Montreal's investment arm, **BMO Capital Markets**, has also hired a number of senior bankers from RBC – **Paul McNutt, Andrew Rosenbaum** and **Andriy Falenchuk.** McNutt has joined as head of power, utilities and infrastructure investment and corporate banking, Rosenbaum joins as managing director of that division, and Falenchuk becomes managing director for M&A.

Peter Rawlings has been put on gardening leave from his role at Deutsche Bank as director and head of its EMEA energy and infrastructure structuring business. Rawlings is due to join **Jefferies** where he will be head of debt solutions EMEA. He had been with Deutsche Bank since 2015.

National Bank of Australia has hired **Bastian Schachtner** as it looks to expand its European renewable energy business. Schachtner will join the bank from MUFG in October as a director focused on renewables origination and execution. It is understood NAB is looking to make one more director-level hire to work alongside Schachtner who will be focused on infrastructure.

NordLB has reshuffled its top team after **Christoph Trestler** retired in September after 16 years at the bank. **Heiko Ludwig is** stepping up to replace him on an interim basis from his role as managing director and head of energy.

Funds/IIs

Former KKR head **Jesus Olmos** has set up a new €1 billion ($1.1 billion) fund called **Asterion Industrial**, which will target returns in the low to mid-teens in energy, telecoms and transport investments. Meanwhile **KKR** has appointed former **Macquarie** vice-president **James Gordon** to be an investment director at the company.

Two John Laing directors, **Sue Peart** and **John Stevens** have parted ways with the fund manager to start their own renewable investment platform called **Neovela Group**. The platform will provide investment and asset management services to investors in renewables.

AMP Capital has hired **Michele Debs** as a portfolio manager/analyst on the global listed infrastructure team. Debs joined from Citi where he was director of the utilities research team, covering multinational energy providers. He will be responsible for analysing and recommending investment opportunities within the utilities infrastructure sector across Europe and Asia, reporting to head of global listed infrastructure Giuseppe Corona.

Cube Infrastructure Managers has hired investment director **Simon Rozas** from HSBC who will help its Connecting Europe Broadband Fund (CEBF) invest in fibre broadband networks across Europe. The firm has also hired two analysts **Xiaoying Huang** and **Ayaz Alakbarov**.

Sponsors

Former US government adviser **DJ Gribbin** has joined **Stonepeak Partners** as senior operating partner. Gribbin recently founded his own infrastructure consultancy business Madrus which will remain operational. He will be part of an 11-strong highly credentialed team of operating partners and senior advisers.

Green Investment Group has appointed a new vice-president **Tomas Tuominen**. He joins from GE where he was a PPA director for Europe and SSA. His new role at GIG is vice-president focused on the origination and structuring of PPAs for renewable energy projects.

Gillian Brown and **Stephen McLennan** have joined **Ontario Teachers Pension Plan** as senior managing director of capital markets and senior managing director of total fund management. Both are internal hires and are veterans at the company with Brown originally joining in 1995.

Advisers

Brendan Moylan and **Conrad Andersen** have been appointed by **Latham & Watkins** as infrastructure partners in London. Moylan specialises in advising clients on acquisitions and divestments in the UK and joins from Clifford Chance. Anderson, who joins from Allen & Overy, has a broader practice area which encompasses all types of energy and infrastructure transactions.

Regulators

Euan McVicar has left his role as head of transaction structuring at Macquarie-owned Green Investment Group to join UK regulator **Ofgem** as general counsel. McVicar is well-known in the UK renewable energy sector having worked at GIG since its inception in 2012. Prior to this he was a partner at Pinsent Masons, though he was a legacy partner from McGrigors when the firms merged in 2012. He has also worked as a lawyer at SSE and Scottish Hydro. ■

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Briefings

POLICY & REGULATION

Germany to create integrated infra agency

In a bid to counter delays caused by fragmented procurement responsibilities, Germany is launching in late September a government agency that will bring together all competencies under one roof.

Currently, the country's federal states – or Bundesländer – are responsible for the planning and designing of infrastructure projects, while the federal government is responsible for financing.

The launch had been expected over the summer, but this was pushed back to September. After that, it is expected to take around three years to merge all existing entities from Germany's 16 federal states into the new agency.

Under legislative changes implemented in August 2017, the federal government will be responsible for the management of highways with legal effect on 31 December 2020 at the latest.

Vietnam raises wind FIT

Responding to observations from market analysts, the government of Vietnam is raising the feed-in-tariff (FIT) for wind power to \$0.085 per kWh for onshore developments and \$0.098 per kWh for offshore projects.

The move comes as the government concedes that the current FIT tariff of \$0.078 per kWh – which applied to both onshore and offshore wind – was too low to attract developers.

The new tariffs will be effective from 1 November, and will be valid for 20 years for projects that start operations before that date.

Existing wind farms will also be eligible for the new FIT.

Vietnam has around 190MW of wind power capacity. It is targeting 800MW by 2020, 2GW by 2025 and 6GW by 2030.

No new nuclear in South Africa's IRP

Tilting the balance of future power generation to renewables, the South African government has not included new nuclear power stations in its latest Integrated Resource Plan (IRP) for the years to 2030.

The IRP recommends that a significant amount of wind and solar capacity, in addition to gas-fired generation be built, with a small amount of coal-fired power also added to the mix.

A 60-day period of public consultation is ongoing for the draft IRP proposal.

Meanwhile, the government has committed to a continued roll-out of the Renewables Energy IPP Programme (REIPPP). The latest request for proposals for the fifth round of REIPPP is expected later this year.

Electricity consumption in the year ending March 2018 was also around 30% less than predicted.

UK creates £1bn housing fund

Reflecting mounting concerns over the housing crisis, the UK's housing secretary announced the creation of a £1 billion (\$1.31 billion) housing delivery fund.

The funding will be used to support small and medium-sized developers – with contributions ranging from £5 million to £100 million being made available to developers with a track record of delivering projects on time and within budget.

The fund will be overseen by the government's housing agency, Homes England, and will aim to open up the housing market to new players.

It will support the delivery of social housing, retirement living and apartments for rent.

The government aims to build 300,000 new homes per year by the mid-2020s.

Malaysia cancels China-backed gas pipelines

The government of Malaysia has cancelled three gas pipeline projects awarded to China Petroleum Pipeline Bureau (CPPB) which had a combined value of \$2.8 billion. They are the latest China-backed infrastructure developments to be cancelled, suspended, or placed under review since a general election in May 2018 saw a change of government in Malaysia.

Work had previously been halted in July on the 688km East Coast Rail Link, which had been awarded to China Communication Construction Company.

Government funding announced for BC transit projects

Federal and provincial government funding totalling over C\$3 billion (\$2.3 billion) has been announced for the Broadway Subway phase two and Surrey-Newton-Guildford light rail transit projects.

The Broadway Subway project is being procured as a design-build-finance and will add 5.7km and six stations to the existing Skytrain line. This will run from VCC-Clark Station to Arbutus Street along the Broadway corridor, one of Vancouver's busiest thoroughfares.

The Surrey-Newton-Guildford Light Rail Transit project is being procured under a design-build-vehicle supply-finance-operate-maintain rehabilitate model. It will be the first light rail transit system in British Columbia and will create 11 new stations along 10.5km of street-level track.

The federal funding for both is part of the new Investing in Canada Infrastructure plan which was signed off earlier this year and will see a total of C\$180 billion invested in projects by the government of Canada over a 12-year period.

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Holes in the road

A poisonous cocktail of corruption scandals, rising inflation, high interest rates and declining investor confidence threatens Argentina's roads programme, just as it was gaining momentum. By Juliana Ennes.

Just a few months ago most infrastructure finance professionals watching the Argentinian PPP programme would probably have described it as promising. Six toll roads had already been awarded in this most European of the Latin American countries – requiring nothing less than $8 billion in investments to construct – and these were just the first in a long list of road projects lined up for auction.

Now, observers are more likely to call the government's programme optimistic or even idealistic, with much of its promise perceived to have evaporated. The legal framework built by the current government was enough to attract international investors, but it has not been enough to counter a number of countervailing headwinds.

Developers, bankers and lawyers contacted by *IJGlobal* all say that it is hard to be optimistic right now.

Argentina has long been trapped in a boom-bust economic cycle, but the country was supposed to be entering a new period of growth. The election of President Mauricio Macri in 2015 led the business community to hope that political stability and market-oriented policy could break the cycle and deliver long-term economic improvement.

However, poor currency performance, rising inflation and consequent high interest rates led to a forced bailout negotiation with the International Monetary Fund (IMF).

Just before *IJGlobal* went to press, Argentina's government unveiled its budget plan and the IMF made a statement saying negotiations were progressing on the terms of a standby loan agreement. The peso rose on the news, and the risk of the country defaulting on its bonds seemed to be reducing but investor confidence has been hit hard by the crisis. The peso has lost around 6% of its value against the dollar since Macri looked to renegotiate terms with the IMF in August 2018.

Another unwelcome development has seen Argentina become the latest country in the region to be embroiled in corruption scandals, some of which involve companies awarded some of the initial PPP contracts.

The success of Argentina's planned PPPs is highly dependent on private financing, and developers have been given tight schedules to reach financial close. But banks have halted negotiations until they have some clarity that a deal with the IMF will stabilize the country, that the government's efforts to attract enough investments to launch a trust fund will work, and that the recent scandals will have a positive impact by reducing corruption in the country.

> A lawyer representing the construction companies for one of the roads said he "does not have any idea of how the roads will get financed"

Even if construction is delayed on some projects, and others need to be auctioned again, these may be worthwhile sacrifices if a better PPP sector emerges from these troubled times. But it is difficult to gauge how much of a setback the programme is facing.

Delays

Every single person involved in the Argentinian road concessions programme that *IJGlobal* has spoken to believe that the infrastructure plan will have to be delayed, even though the government is still announcing new efforts to try to guarantee that the construction schedule is followed as planned.

Investor confidence has plummeted, compromising negotiations between lenders and developers. Any movement towards financial close has been halted. One person involved with the matter expects the already awarded projects to be postponed for "at least one year".

A lawyer who represents the construction companies for one of the roads said he "does not have any idea of how the roads will get financed."

Macri's administration took office in 2015 and since then one of its main priorities has been the implementation of a national infrastructure plan. Major energy and transport projects were main drivers of this plan.

The transport programme has a total investment requirement of $33 billion with a total of 2,800km of new roads planned, half of which are already under construction. It also

The winning consortia:

PPP	Developers	Investment in the first four years	Investment from year five to 15
Corredor vial A	Paolini, Vial Agro, INC	$984 million	$346 million
Corredor vial B	China Construction America, Green	$989 million	$244 million
Corredor vial C	José Cartellone Construcciones Civiles	$631 million	$455 million
Corredor vial E	Helport, Panedile, Eleprint, Copasa	$1.3 billion	$370 million
Corredor vial F	Helport, Panedile, Eleprint, Copasa	$1.1 billion	$372 million
Corredor vial SUR	Rovella Carranza, JCR, Mota-Engil	$975 million	$236 million

Sources: *IJGlobal*

includes upgrades on over 75% of the 13,000km of existing roads and highways in the country.

Until the new PPP law, which was approved in February 2017, most financing for the transport sector has come from the public sector. In November 2017, the government launched the first round of transport PPPs, including six highways and safe routes.

On 26 July 2018, the five winning consortia of six roads concessions signed contracts with the national road management agency (Dirección Nacional de Vialidad), after presenting guarantees of capacity to reach financial close. Many of these guarantees were signed with local and international banks.

The consortium formed by Helport, Panedile, Eleprint and Copasa has signed the contracts for two road concessions: Corredor E and Corredor F, connecting Rosario to Buenos Aires and Rosario to Córdoba, respectively. The consortium has formed two special project vehicles (SPVs): Corredor Panamericano I and II. These SPVs will receive $1.9 billion from Argentinian government bonds títulos de pago por inversión (TPI) for Corredor E and $1.3 billion for Corredor F.

In order to sign the contracts, the consortium closed guarantees of around $178 million provided by Banco BICE, Banco Itau, UBS and Citibank.

The PPP financing rules

Developers will receive one type of financial compensation during the construction period, and a different one for the operation and maintenance phase. Construction will be paid for on a quarterly basis via TPI, which are dollar-denominated certificates of fixed or variable rates.

The operations and maintenance portion of the projects will be financed with the bonds títulos de pago por disponibilidad (TPD), which are issued every month. TPDs are peso-denominated. Argentina borrowed the structure from previous PPP programmes run in Peru and Panama.

Concessionaires can raise traditional project financing with debt mostly repaid through the cash flows generated by the assets. Another option is repackaged securities backed by government-issued TPIs placed in international capital markets. The government could enforce this type of performance bond to protect it against the concessionaire pulling out of the project.

Having the Argentinian government as the ultimate backstop for payments under the concession is not particularly reassuring in the current environment of economic instability, according to a person who represents one consortium which is having problems raising finance.

> The government as ultimate backstop for payments under the concession is not particularly reassuring in the current environment of economic instability

After the contracts signed in July the five consortia were given six months to reach financial close. The concessionaires can extend the deadline by another six months, but will be given a financial penalty as a consequence.

On 27 August, the Argentinian government announced that local financial institution Banco de la Nación would provide between $200 million and $300 million to the six toll road projects awarded in the first round of the country's PPP programme Red de Autopistas y Rutas Seguras.

The financing will be part of a larger trust fund created with the goal of guaranteeing the execution of the PPP projects. It means that, despite efforts to maintain the projects on schedule, the government still needs to figure out how it will finance the remaining of the trust fund.

PPP precedent

The roads concessions were important to Argentina's PPP ambitions because of the example they were meant to set to other sectors that are likely to be awarded – and financed – under similar structures. The government is seeking to bring private investments to bridges, railroads, transmission lines, hospitals, penitentiaries, water, sanitation, public lighting and logistics contracts.

The PPP regime is expected to require investments totaling $26 billion, roughly. Or at least it was expected to, before the country entered its most recent economic crisis.

Argentina's peso has declined further than any other emerging market currency, due to rising interest rates in the US. With deficit in the governmental budget and in the country's international trade, Argentina has turned once again to the IMF for funding support of about $50 billion.

Rocketing inflation made interest rates soar in a central bank effort to stabilize the currency and bring inflation under control.

Massive corruption investigations, known as the "notebooks" scandal, started earlier this year when a local newspaper published journals belonging to the driver of a senior government official in charge of negotiations with infrastructure companies. Dozens of key politicians and business people have been implicated by the investigation, in much the same way as in the recent Odebrecht scandal in Brazil.

Among those arrested or taking pleas are executives from the largest construction companies in Argentina, including Electroingenieria, Grupo Roggio, Albanesi and Iecsa.

The political situation aggravated the already complex financing situation and could lead to major project delays, with the possibility of even contract cancellations in some cases. While there is no clarity of how and when the country will recover, international investors stand on the sidelines, watching and waiting. ■

Direction of travel

Economics, politics, supply and demand, and US shale are shaping a new future for LNG markets. By Nina Howell, counsel at King & Spalding in London.

Amongst all the talk of transatlantic trade and tariffs during the summer, it was possible to miss one of the most potentially significant developments in the global liquefied natural gas (LNG) market in recent times. During meetings between US president Donald Trump and European Commission chief Jean-Claude Juncker in July, the US and the European Union agreed to work towards shipping more US LNG to Europe, signaling a new direction for European and transatlantic LNG markets.

The EU's demand for gas is growing, as indigenous EU gas production declines. In 2017 the EU imported approximately 408.7 billion cubic metres (bcm) of gas – an increase of 5.5% compared to 2016. Gas supply to the EU is dominated by piped gas with Russia continuing to be the main supplier. In 2017 less than 12% of gas supplied to the EU was imported as LNG.

There are presently 36 LNG import terminals across Europe, divided between 28 large-scale and eight small-scale terminals. Turkey, which has four of those large-scale LNG import terminals, is the only country that is a non-EU member. The current LNG receiving countries in Europe are Belgium, France, Greece, Italy, Lithuania, Malta, the Netherlands, Poland, Portugal, Spain, Turkey and the UK. Together they provide 227 bcm of LNG regasification capacity.

The European Commission (the EU's executive body) has made no secret of its goal to diversify its energy supply. LNG offers an alternative to the EU's dependency on Russian gas supply, and the European Commission's end goal is for all its member states to have to access to LNG. Its commitment is evidenced

Nina Howell

in the European Commission's support for 14 LNG infrastructure projects in the EU which are set to increase the continent's capacity by 15 bcm by 2021. Five potential LNG import projects – in

Some market observers predict that the US could house around 15% of global LNG capacity by 2020

Croatia, Cyprus, Greece, Ireland, Sweden and Poland (expansion) – have been identified as EU Projects of Common Interest which qualify for EU funding.

Great exportations

The strengthened cooperation between the US and the EU on energy trade has been made possible by the current boom in US shale gas resources. Historically the US was an LNG import market. Terminals were constructed along the East Coast to receive LNG for US domestic consumption. The discovery of US shale gas, however, turned the US LNG market on its head. Many of the existing import projects – led by Cheniere Energy's Sabine Pass in 2010 – were effectively flipped, being converted into LNG export terminals. Indeed, such is the anticipation for US exports that some market observers predict that the country could house around 15% of global LNG capacity by 2020.

With such an abundance of LNG supply coming to the market, the US is looking at export opportunities. Asia would have been the most obvious market to export to, although the supply of LNG from Australia and Qatar combined with a return to nuclear energy in Japan has softened interest. Europe – reiterated by Juncker in the summer – is now emerging as a possible key market for US LNG supplies.

The US LNG market is already surging with exports quadrupling in 2017, according to the US Energy Information Administration (US EIA). Significantly, all these exports were from the Sabine Pass liquefaction terminal in Louisiana. Other terminals are already operational or due to come on stream in Cove Point (Maryland), Elba Island LNG (Georgia), Cameron LNG (Louisiana), and Freeport LNG and Corpus Christi LNG (Texas). The total liquefaction capacity is estimated to be 9.6 billion cubic feet per day (Bcf/d) by the end of 2019, which would propel the US into the world's third largest LNG exporter after Australia and Qatar.

At present, the US export market is centred around Mexico (20% of all exports), South Korea (18%) and China (15%), but there is clearly a demand in Europe as a net importer of gas (all of Europe's LNG terminals are import facilities bar Norway and Russia).

The first US LNG carrier to

reach the EU was in April 2016 at the Portuguese port of Sines. In the two years since, EU imports of US LNG have gone from zero to 2.8 bcm, according to the EC. Europe now accounts for around 10% of US LNG exports but, despite a desire to increase that percentage, a number of issues have already been highlighted.

Red tape

So the US has the supply and the EU has the demand. Many are no doubt excited by the prospect of greater transatlantic gas trade. There are some legal and regulatory hurdles to be overcome, however, before the full potential can be realised.

As the EU pointed out in a statement in August, currently US legislation still requires prior regulatory approval for LNG exports to Europe. "These restrictions need to be addressed and US rules made easier for US liquefied natural gas to be exported to the EU," the European Commission states.

The US Department of Energy (DOE) has jurisdiction over exports of US natural gas under the Natural Gas Act. Energy companies wishing to export LNG are required to receive authorisation from the DOE's Office of Fossil Energy (FE) unit, which makes its decision based on public interest determinations to jurisdictions where the US does not have existing free trade agreements.

There is a two-path process; one for countries with a free trade arrangement (FTA) and one countries without an FTA. As there is presently no US-EU FTA, all the European countries fall into the latter category, under which DOE grants export authority to non-FTA countries. This entails the DOE undertaking a public interest review. Exports of natural gas to countries with a qualifying free trade agreement are already deemed in the public interest under the Act.

The DOE recently softened the regime on 'small-scale' LNG exports – which mainly go to countries in the Caribbean, Central America, and South America – with a final rule in July that stripped away some red tape.

US LNG export project developers also have to consider Federal Energy Regulatory Commission (FERC) rules on the construction and operation of export terminals, which includes an application process to FERC in which the body undertakes an environmental review of the facility.

The current US authorization requirements seem to be the only significant legislative hurdle to clear for ambitious exporters looking towards the EU as the EU has a more convenient legislative regime. The EU's Third Gas Directive, which came into effect in 2009, established the rules on third-party access to the EU gas market. In short, the directive provides for third party access to gas infrastructure in the EU (including LNG import terminals) on clear and transparent terms. Only six of the EU's large-scale LNG import terminals that are in operation are exempt from the EU's TPA rules. LNG exporters into the EU do not face any additional tariffs or EU-wide clearances to import gas but do have to comply with local and regional regulations (as well as the EU's REMIT reporting obligations).

Probably the biggest determinant on the level of LNG trade between the US and the EU will be the price of LNG compared to alternatives. Russian officials – notably Russia's Permanent Representative to the EU Vladimir Chizhov – have said that the cost of US LNG coming into Europe will be 30% higher than its existing Russian natural gas supplies by pipeline. The existing Nord Stream pipeline can supply up to 55 bcm of gas directly from Russia to Germany each year. The proposed Nord Stream 2 – strongly opposed to by the US and President Trump – would expand the project to double capacity.

It is not in doubt that US LNG is shaping up to play an important role on the global LNG stage. It may not become the dominating force of gas supply into Europe but it does provide a viable alternative to existing sources of European gas supply. Europe has already begun buying more natural gas from the US, with Portugal and Spain emerging as two of the most steady buyers over the last two years. Britain, Italy, Lithuania and the Netherlands have each taken a few cargoes, while Malta and Poland have received a single shipment, according to data from the US EIA.

The UK perspective post-Brexit

The UK currently operates under the Internal Energy Market (IEM), which establishes the EU-wide rules for the easy exchange and transportation of energy. Earlier this year the UK government signalled it wished to continue the country's participation in the IEM, although the lack of a Brexit deal means the issue has yet to be settled. An alternative could be a new set of bilateral arrangements between the UK and the EU or, at the very least, the UK is likely to follow the EU rules for practical and financial purposes.

In terms of practical impact, as there is no LNG trade between EU member states (beyond limited LNG re-loads) the EU's LNG market, and particularly the UK's three large-scale LNG import terminals, should not be impacted by Brexit. It could be a very different story, however, for the two gas pipelines that link the UK to its EU neighbors – Bacton (UK) to Zeebrugge (Belgium) which is bi-directional, and Balgzand (Netherlands) to Bacton (UK) which brings Dutch gas to the UK. The risk is that a 'hard' Brexit could lead to the imposition of tariffs on gas imports from the Netherlands and Belgium, causing the UK to look for alternative gas sources – a gap that could potentially be filled by US LNG. Fortunately for the UK, gas flows via the two gas interconnectors between the UK and non-EU Norway should not be impacted by Brexit.

US shale to Africa?

Across many parts of Africa, the demand for energy (specifically power) is rising sharply. Gas-to-power (including LNG-to-power) projects offer a way to produce electricity in an efficient and clean manner.

In 2015 South Africa unveiled its proposed "Gas-to-Power Programme" – involving a number of large scale gas-to-power initiatives including 3,000MW of gas-fired power generation at two ports. Morocco's proposed integrated LNG and gas-to-power project is also attracting significant attention from a range of industry players including LNG suppliers. Ghana, meanwhile, is presently the front runner in developing LNG-to-power projects in West Africa. Three FSRU projects are proposed along its coast: two separate developments at Tema and one at Takoradi. Other LNG-to-power initiatives have been earmarked for Kenya, Cote D'Ivoire, Mauritius, Mozambique, Senegal and Benin.

So demand for gas (and LNG) in parts of Africa could potentially rocket – so where would the supply of gas originate?

Africa boasts an estimated 600-trillion plus cubic feet of natural gas reserves, a potentially vast supply source. While countries such as Algeria, Nigeria and Equatorial Guinea produce natural gas – with the likes of Egypt, Mozambique and Tanzania also sitting on vast reserves – the geographic diversity of Africa is a key consideration in terms of supplying gas. Nigeria, Algeria, Equatorial Guinea and (intermittently) Angola are the only African nations currently exporting LNG, but all African LNG is currently exported outside the continent. There are a few existing cross-border gas pipelines for the supply of gas between African countries, but in the main the parts of Africa looking for gas must look to new sources.

At present Egypt is the only African country importing LNG: it has two FSRUs located at Ain Sokhna. There are gas-to-power projects already underway in the country, which began importing LNG for power generation in April 2015. Until recently Egypt was looking to a number of LNG supplying countries for its LNG imports, including potentially US LNG. However following the discovery of the Zohr field, Egypt is looking to return to being an LNG exporter in the relatively near future.

Many of the proposed African gas-to-power projects are still a few years away from reality, but there is a widely shared view that LNG-to power projects will be implemented in parts of Africa over the next decade and beyond. As these projects come into operation, the sight of US LNG vessels crossing the Atlantic heading for Africa may become more common.

Europe

INSIDE

Pipeline & procurement deals

Projects with recent tender updates

- A49 Motorway Germany
- Acquisition of Euroports
- Kriegers Flak Offshore Wind Farm
- Magnum CCGT Power Plant Conversion
- Trans Anatolian Natural Gas Pipeline
- Acquisition of CEZ Bulgaria
- Tamega Hydropower Complex
- Walloon Highway Lighting
- Moorside Nuclear Power Plant

Closed deal values by sector

Power: $6.71 billion

Renewables: $5.74 billion

Telecoms: $2.71 billion

Transport: $2.25 billion

Oil & Gas: $1.85 billion

Water: $655 million

Social & Defence: $578 million

Countries with highest closed deal values

Italy	$8.24 billion	5
United Kingdom	$7.51 billion	34
Germany	$2.14 billion	6
France	$1.33 billion	6
Switzerland	$640 million	1
Spain	$532 million	5
Sweden	$314 million	1
Ukraine	$104 million	1
Greece	$56 million	1

Transactions that reached financial close

09 Jul
Acquisition of IslaLink 2018

10 Jul
Haute Garonne High-Speed Broadband

19 Jul
Overturingen Wind Farm

03 Aug
Gas to the West Pipeline

14 Aug
Durham University Mount Oswald Accommodation

20 Aug
Tolmount Main Gas Field

Source: *IJGlobal*, from 1 July 2018 – 31 August 2018.

NEWS ANALYSIS: Belgium is hoping to award its first zero subsidy offshore wind farms in 2020, but market observers are skeptical. By Elliot Hayes.

Betting on zero

As Belgium looks ahead to a new round of offshore wind projects post-2020, it hopes to match neighbours Germany and the Netherlands in attracting zero-subsidy bids.

But while an increasing number of offshore wind projects in Europe are set to be developed subsidy-free, not all market participants are convinced that Belgium will achieve its ambitious goal so soon.

Where it all began

In 2004, the Belgian government identified an area of around 260km² (subsequently reduced to 240km²) on the Belgian continental shelf in the North Sea for offshore wind development.

A renewable energy credit (REC) tariff regime was introduced, applying to projects that reached financial close before 2014. This tariff was then amended to a system based on the levelled cost of electricity (LCOE) set to €138 ($160) per MWh.

Cheaper prices were achieved elsewhere in Europe, however. By 2016 DONG Energy (now Ørsted) was winning the Dutch Borssele 1 and 2 offshore wind projects with a bid of €72.70 per MWh, reflecting a competitive auction process and falling technology costs.

The Belgian government responded by publicly complaining that the tariffs agreed for five of its upcoming offshore wind projects were too generous. These projects were the 309MW Rentel, which reached financial close in October 2016; the 270MW Norther, which closed in December 2016; the 246MW Seastar and 300MW Mermaid, which recently combined to form the 487MW Seamade project; and the 224MW Northwester 2, which is due to close later this year.

In July 2016, Belgium asked the European Commission to review the subsidy support for Rentel and Norther which at the time were in advanced stages of financing. The review concluded that the projects would receive revised tariffs of €124 per MWh and €129.8 per MWh, respectively, for a period reduced from 20 years to 19 years.

Secretary of State for Social Fraud, Privacy and the North Sea Philippe De Backer said in April 2017 that the government should revoke the concessions for Seastar, Mermaid and Northwester 2. He proposed instead to retender the projects through an open auction process to lower the tariff prices.

But the Belgian government had little time to negotiate. With the Doel and Tihange nuclear power plants, which have a combined capacity of 6GW, due to be decommissioned when their permits expire in 2025 and looming EU emissions targets requiring 2GW of offshore wind by 2020, there was no time to retender the projects. Instead, a new tariff price of €79 per MWh was negotiated with the developers of the three projects.

Seastar and Mermaid subsequently merged following approval from the European Commission in July. The new Seamade equity consortium comprises Otary (70%), Electrabel (17.5%) and Eneco (12.5%). Financial close on the project is due by the end of 2018, with construction due to commence in 2019 and operations starting in 2020.

Looking ahead

Belgium is now planning a new 221km² area on the border of French waters for offshore wind projects after 2020, and De Backer is hopeful that the new procurement will attract sponsors willing to develop projects without state subsidies.

The European offshore wind market was stunned in April 2017 when 1.38GW of German offshore wind was won by zero-subsidy bids. Then in March 2018, the Dutch Ministry of Economic Affairs held its first zero-subsidy offshore wind auction for the 700MW Hollandse Kust Zuid I & II won by Vattenfall.

However, the secretary general of the Belgian Offshore Platform Annemie Vermeylen believes that the new dedicated offshore zone is far too small and will create a very high park density, thus preventing the turbines achieving the maximum power available.

A source working on Belgium offshore wind told *IJGlobal* that zero-subsidies would be detrimental to Belgium's race against time to meet its EU emission targets by 2020 and replace the 6GW of nuclear power before 2025.

No-subsidy procurement would only increase hesitation among developers and prolong the procurement process for the country.

Ultimately, sources active in the Belgian offshore wind market believe that regardless of the process selected for awarding offshore wind capacity in 2020, it will be too soon for non-subsidised bids. According to the sources, zero-subsidy Belgian wind will definitely be viable – only not just yet.

Another European investor compared the situation in Belgium to the UK where bid prices in 2017 went down by roughly 50% on average, on the previous contract for difference (CfD) allocation round in 2015. They also think Belgium is heading towards a zero-subsidy offshore wind market but that 2020 may be too soon. ■

DEAL ANALYSIS: This public bond refi achieved improved terms... but at a cost. By Beatrice Mavroleon.

M25 road refinancing, UK

The refinancing of London's orbital M25 motorway was the largest infrastructure refi in the UK since the Intercity Express deal of 2015.

There was much room for improvement on the terms of the original financing, which featured cash sweeps and debt pricing which reflected the drying up of credit in the middle of the financial crisis.

The primary financing reached financial close in May 2009, less than a year after the collapse of Lehman Brothers, with £698.58 million ($896 million) of senior debt provided by a club of 16 commercial banks and around £390 million of European Investment Bank (EIB) debt.

The project entailed widening 102km of the M25 – converting the remaining three-lane sections to four – and was pushed through by a government keen to show that despite the banking chaos, the UK was still proceeding with (and securing credit for) its large infrastructure projects.

The pricing margin on the commercial term loan was 250bp over Libor for years 1-7, 300bp over Libor for years 8-10 and 350bp over Libor for years 11-27.

Debt was due to mature in 2036, but there was a cash sweep of 50% from years seven to 19, and 100% from then onwards.

These cash sweeps were clearly an incentive to refinance, but huge swap breakage costs meant that replacing the existing debt package was challenging.

Private or public

The sponsors initially considered replacing existing debt through a private placement.

Ultimately it was determined that better pricing could be achieved (possibly as low as 90bp over Libor, although more likely around 100bp) on public bond markets, one source explained.

According to the source, this thinking proved somewhat mistaken. During negotiations prices crept upwards on public markets, and the borrower might have actually been able to get cheaper debt than the 115bp finally agreed in a private placement.

The public bond financing did put the sponsors in a better negotiating position, however, enabling them to present investors with a take-it-or-leave-it proposition, the source added.

The £889 million, A+ rated bond priced on 24 July 2018. Investors consisted of a group of UK pension funds and institutional investors, with the majority of the issue going to Legal & General Investment Management.

The new notes mature on 31 March 2039, and the refinancing left £383.3 million of outstanding EIB debt in place, dispelling market concerns about the EIB wanting to exit the deal due to Brexit.

It was always considered preferable to keep the EIB debt in place because its pricing was low and break costs were significant, said one source. And the EIB was happy to do this as long as the risk allocation remained largely unchanged.

Sponsors have had to pay for their cut in margin. The difference between the £889 million bond and the original senior debt (£698.58 million) reveals the magnitude of swap breakage costs.

Interest-rate swaps were broken and inflation swaps were novated to three banks that were originally on the swaps, but had since partly sold down, and which also acted as lead managers on the bond issue: Barclays, HSBC and Lloyds.

The issue was 1.7-1.8x oversubscribed the first time investors bid, and then they bid for a second time at a lower margin.

Shareholders

The current shareholding structure in the M25 Connect Plus concessionaire comprises: Dalmore Capital, Equitix and GCM Grosvenor, through two Edge vehicles (50%); Balfour Beatty (15%); Dalmore Capital (12.5%); Equitix (12.5%); and DIF (9%) and Egis Investment Partners (1%).

The original widening project saw Skanska and Balfour Beatty add capacity to the M25 between Junction 16 (M40) and Junction 23 (A1 at South Mimms) and Junction 27 (M11 at Bell Common) and Junction 30 (A13 at Thurrock). It was delivered in phases from 2009-12.

HSBC acted as the sponsors' financial adviser on the refinancing with Ashurst providing legal counsel. For Highways England, EY was financial adviser while DLA Piper acted as legal counsel.

Timeline

- **May 2009** – Financial close on primary financing
- **December 2017** – Dalmore Capital increased M25 stake
- **February 2018** – Equitix increased M25 stake
- **Mid-July 2018** – Public bond launched
- **Late July 2018** – Bond priced and financial close

DATA ANALYSIS: Expanding UK broadband infrastructure will require both public and private funding. By Lyudmila Zlateva & Stefaniya Dyulgerova.

The great British rollout

The UK's Department for Digital, Culture, Media and Sport (DCMS) announced in March 2018 that 13 areas across the UK are set to benefit from the first wave of funding from the government's £190 million ($243 million) Local Full Fibre Network (LFFN) programme, part of the £31 billion National Productivity Investment Fund.

This first batch of state funding marks a decisive step towards increasing full-fibre coverage across the country, with most areas of the UK expected to have broadband as early as 2020.

According to DCMS data compiled by *IJGlobal*, on the deployment of state funds for broadband, the number of premises connected to the new superfast infrastructure has been growing steadily.

Despite the state extending financing for the expansion of fibre optic infrastructure, the capital costs of most projects are expected to exceed these allocations. The Belfast broadband for example initially sought £30 million, while at the end it received a little over a third of the required sum. The costs mean that private investment will be required for achieving full UK broadband coverage, but luckily private capital already makes up the bulk of investment into the sector.

IJGlobal data shows that private investment in broadband projects and companies has been 10x greater than state funding since the start of 2017.

That said, the broadband rollout will only be possible through a close partnership of the state and private sector, especially through targeted investment from funds.

The government in July 2017 launched the UK Digital Infrastructure Investment Fund (DIIF) which seeks to mobilise over £1 billion for the development of full fibre broadband, and kick-start broadband connections across the country. DIIF is allocated in two vehicles: National Digital Infrastructure Fund (NDIF) and Digital Infrastructure Investment Partners (DIIP).

NDIF is managed by Amber Infrastructure, while DIIP is managed by M&G Investments' equity investment arm Infracapital and its infrastructure debt team.

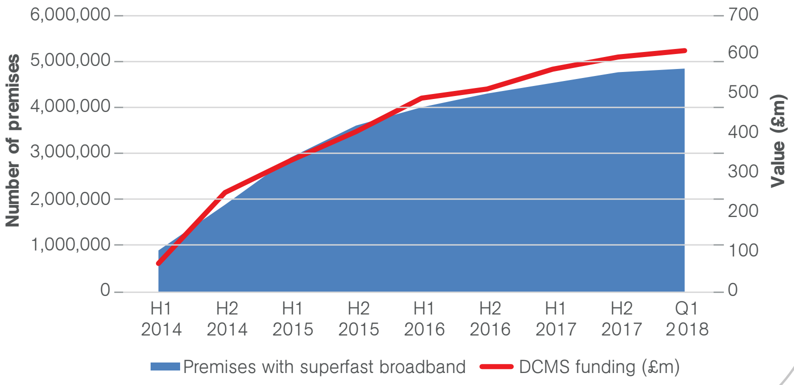
NDIF received a £150 million commitment from the government, a £5 million commitment from Amber Infrastructure and £45 million from Amber's listed fund INPP. The vehicle has already invested in fibre internet service providers Airband Community Internet and Community Fibre.

Airband has been committed to rolling out rural broadband, while Community Fibre vowed to deploy full-fibre connectivity to 100,000 homes in both social and private house estates in London by 2019.

The acquisition of WightFibre, completed in November 2017, marked the first investment by the DIIP fund, which also received £200 million from the government. The company is developing broadband on the Isle of Wight.

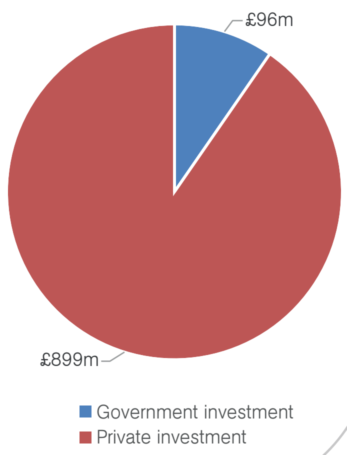
With more local projects across the UK set to apply for state funding this summer and beyond, and continuing progress on ongoing projects, the UK broadband sector will offer up increasing opportunities for private investors.

Cumulative representation of UK premises with broadband against state expenditure



Source: *DCMS*

Investment in UK broadband: government vs private investment since 1 January 2017



Source: *IJGlobal*

DEAL ANALYSIS: The refinancing of one of France's most expensive toll roads saw a higher pricing margin than on the original financing. By Beatrice Mavroleon.

A65 Autoroute de Gascogne

Although concerns over traffic volumes on the A65 Autoroute de Gascogne toll road seem to have lessened since it became operational in the wake of the financial crisis, a recent refinancing reveals that the road's sponsors still could not be too ambitious when it came to debt tenor and pricing.

The A65 motorway originally reached financial close in February 2007, with Fortis, Helaba, ING, Natixis and Santander as lead arrangers for the €980 million ($1.1 billion) senior debt.

The facilities, which were later syndicated, consisted of two tranches. One was a €935 million senior term loan with an eight-year tenor, a five-year extension option and a debt pricing margin rising from 110bp to 140bp over Euribor, while the other was a €45 million VAT facility with a 54-month tenor.

The concessionaire, A'lienor, is jointly owned by Eiffage (65%) and Sanef (35%).

Traffic volume concerns

The project consists of a 150km greenfield toll motorway between Langon near Bordeaux and Pau in south west France. It opened to traffic in December 2010, and press reports at the time indicated that traffic volumes seemed to be about 20% below the sponsors' expectations.

Firstly, the A65 is located in a remote, rural region of the country. Additionally, given the high road toll a significant proportion of heavy vehicles travelling through the region appeared to prefer the (free) N524 national road and local, department roads.

Because the A65 *is* expensive. In fact, it is among France's most expensive toll roads. Drivers were charged over €0.12 per km in 2012, compared to €0.07 per km for using the A1 that connects Paris to Lille in the north of the country.

Tolls have increased further since then, making the cost for the largest vehicles travelling the full distance of the road €73.80.

Heavy vehicles and local roads

In 2015, a law came into force prohibiting the circulation of heavy vehicles on 250km of free local roads across the Landes department (in which the majority of the A65 is located), which increased numbers of trucks on the tolled A65 and A63 motorways, boosting revenue for the toll road sponsors.

This law was reversed in November 2016, under pressure from road transport lobbyists. However, opposition by residents to large trucks on local roads ultimately led to the reintroduction of the prohibition on part of the local road network in March 2017, and heavy vehicles were forced back on to the A65 and A63 toll roads.

Refinancing

With the project's senior term loan due to expire in 2020, and the concession running to 2067, the sponsors needed to refinance the motorway's debt.

Initially, they attempted to put in place a 35-year tranche (on which pricing is said to have been flat at 150bp over mid-swaps), but this fell through.

Demand from lenders was limited for tenors stretching beyond 30 years, one source said. However, tenors around 30 years would have made swap breaks coincide with refinancing risk, which was undesirable, they said.

In the end, the sponsors settled for a less ambitious 10-year tenor, for which there was strong demand.

A club of 11 banks along with four institutional investors provided the debt. Banks comprised Bankia, Banco Sabadell. Banque Postale, BBVA, BNP Paribas, Caixa Bank, CBA, Crédit Agricole, KfW IPEX, Santander and Société Générale. The institutional investors were Barings, DWS (formerly Deutsche Asset Management), Generali and MIDIS.

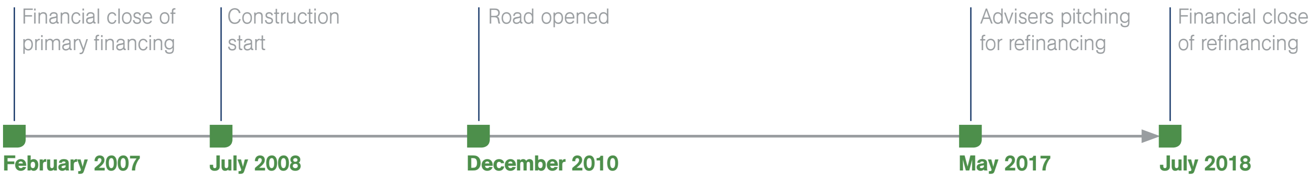
Among the lenders, BNP Paribas took the largest ticket of €120-150 million, according to a source close to the deal.

The debt was 100% oversubscribed, another source said.

Interestingly, with a pricing margin rising from 130bp to 185bp over mid-swaps, this seems higher than the 110bp to 140bp margin on the original financing, which was put in place before the 2008-2009 financial crisis.

Advisers on the refinancing included BNP Paribas (financial), Clifford Chance (sponsors' legal), White & Case (lenders' legal), Infrata (technical) and Mazars (model auditor).

Timeline



DATA ANALYSIS: Estonia is betting on a large pipeline of wind farms to meet its ambitious renewables targets. By Lyudmila Zlateva.

Running before the wind

The Estonian Government in October 2017 confirmed its plans to grow the country's renewable energy capacity by approving the Estonian Energy Development Plan until 2030 (ENMAK). The scheme targets 50% of Estonia's domestic electricity consumption and 80% of its heat generation coming from renewable energy by 2030.

IJGlobal data shows that the bulk of Estonia's renewable energy is currently generated by onshore wind farms, followed by waste-to-energy and biomass power plants, for a total installed capacity of around 303MW.

According to reports by Estonian transmission system operator Elering, renewables met only 13.2% of the country's electricity demand in the first trimester of 2018.

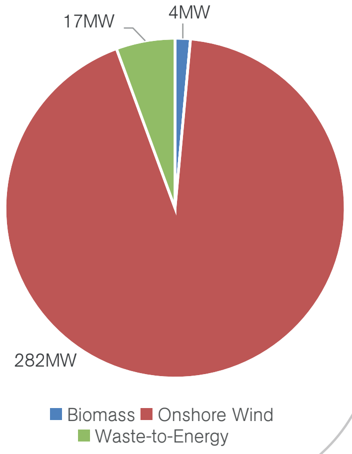
So with modest installed renewable energy capacity and a looming interim target for 17.6% of the country's electricity demand being met by electricity generated from renewable energy sources by 2020, Estonia will need to make a big push in the renewables space to stay on track for 2030.

Wind project pipeline

And Estonia can count on an impressive pipeline of wind projects – onshore and offshore – in the early stages of development, to advance its renewable energy agenda. *IJGlobal* data suggests that by 2030, Estonia's pipeline of projects will have the potential to reach over 4GW of capacity.

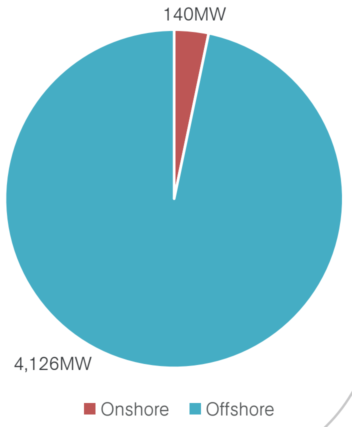
One notable wind project under construction is the 100MW Aidu wind farm near Vaivara in north east Estonia. Local developer Eleon started building the planned 30-turbine onshore wind farm in March 2016. UniCredit and Krediidipank are financing the €165 million ($193 million) project which is slated for completion in 2020 with a goal of becoming the biggest wind farm not just in Estonia, but in the Baltic region.

Estonia renewables operational capacity



Source: *IJGlobal*

Estonia wind generation pipeline



Source: *IJGlobal*

Aidu is advancing well ahead of another big Estonian onshore project. Eesti Energia's Tootsi wind farm in south west Estonia is due to be equipped with 52 wind turbines and boast a capacity of around 140MW – if brought to completion. However, the auction for the land allocated to the project has been contested in court by competing private companies – including Eleon – stalling state-owned Eesti Energia's plans to go ahead with construction.

Offshore wind ambitions

Meanwhile, Estonia also has its sight set on offshore wind developments. Seven offshore wind projects in the Estonian pipeline are expected to provide the majority of the country's renewable energy.

Among these is the impressive Baltic Blue offshore cluster, which will involve four projects and account for 1,666MW of capacity altogether. Estonia has mulled on the massive development since the early 2010s, but developer Baltic Blue Energy has yet to start construction.

Meanwhile, the 900MW Hiiumaa offshore wind farm, developed by Nelja Energia, is a step closer to being realised with construction scheduled for H2 2018.

The prospect of over 4GW of offshore wind projects to be developed in the mid- to long-term, Estonia is looking to attract both private funding and major equipment suppliers – such as Germany's Siemens, which will supply turbines to the 600MW Saare offshore wind project.

With interests in wind developments also in its Baltic neighbours through Estonia's largest private wind developer Nelja Energia's 55MW Silale II wind farm in Lithuania and 50MW Dundaga wind farm in Lativa, Estonia seems to be in a good position to become a leader in wind energy in the Baltic region.

Middle East & Africa

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It's now or never

Namibia's solar solution

Pipeline & procurement deals

Closed deal values by sector

Renewables: $2.33 billion

Power: $706 million

Water: $262 million

Projects with recent tender updates

- Al-Khairan IWPP
- Assa North and Ohaji South Gas Processing
- Bahrain Metro Line
- Kusile Power Station
- Boikarabelo Coal Mine
- Noor Midelt CSP-PV Complex I
- Boankra Inland Port
- Dumat Al Jandal Wind Farm

Closed deals by country

South Africa	$1.9 billion	7
Uganda	$773 million	3
Senegal	$370 million	1
Jordan	$166 million	2
Kenya	$68 million	1
Nigeria	$28 million	1
Botswana	$2 million	1

Transactions that reached financial close

- **11 Jul** Malindi PV Solar Plant
- **25 Jul** BioTherm Energy's Renewables Portfolio
- **31 Jul** Taiba Ndiaye Wind Farm
- **02 Aug** Zeerust and Droogfontein 2 Solar PV Plants
- **02 Aug** Enel's South African Wind Portfolio
- **21 Aug** Bokamoso Solar PV Plant

Source: *IJGlobal*, from 1 July 2018 – 31 August 2018.

It's now or never

The whole of the Kenyan PPP programme may hinge on the success of one road project which is edging towards naming a preferred bidder. By Jon Whiteaker.

In November 2017 the head of Kenya's PPP Unit, Stanley Kamau, said that if the government was to realise its Vison 2030 economic plan it "must partner with the private sector to undertake more infrastructure projects than those it can undertake while only relying on public financing."

The comment was made as five international teams prequalified for the PPP contract to develop the 2nd Nyali Bridge in Mombasa. The project is one of five major roads earmarked for PPP procurement by the government several years ago. That only two of those projects have made any significant progress since meant the prequalification milestone for the 2nd Nyali Bridge was a rare good news moment.

Yet less than a year later Kamau has been removed from his role and no replacement has yet been named.

Infrastructure development is one of the key pillars of Vision 2030, an economic plan launched by then-President Mwai Kibaki in 2008.

As Kamau highlighted last year, the PPP programme has been touted as the ideal way of bridging funding gaps for the country's most ambitious projects. But his dismissal in early 2018, having led the programme from its inception, suggests the government had begun to run out of patience.

Market participants agree that much now depends on the most advanced of the road projects – the Nairobi-Nakuru-Mau Summit Highway. Four groups were eventually prequalified for the project last year, though only two subsequently submitted bids.

Evaluation of the bids has been completed but at the time of publication no winner had been announced.

Even if a winner is confirmed soon, the significant funding requirement for the project suggests a lengthy financing stage to come. And question marks remain over payments under the concession and the nature of the government guarantee.

Challenges for the programme

The Kenyan government appointed Kamau to lead the PPP Unit in 2010, and it then passed a PPP Act in 2013. With World Bank assistance and funding it modelled its programme on European PPPs.

"The structure of the PPP concession looks very much like that used for the UK highways, with many of the firms involved in those projects now advising the Kenyan government," says Gowling WLG partner Jonathan Brufal.

The government has a priority list of 71 projects across many sectors, though it initially identified just five road projects to be procured as PPPs. Two were O&M contracts for existing roads, and three involved new construction: the Nairobi-Mombasa Highway; a 2nd Nyali Bridge connecting Mombasa Island to the mainland; and Nairobi-Nakuru-Mau Summit Highway.

Kamau's PPP Unit launched separate advisory tenders for all five in 2014, and subsequently selected teams for each. This decision was based on the belief that advising on all five projects would be too much for one team.

The downside was that there was no unifying structure for the programme and the government subsequently decided that it needed standards established. A PwC-led team, which had been selected for Nairobi-Mombasa, was picked to undertake this standardisation.

"There was not that capacity in Kenya at the time, so it made sense to tender the advisory contracts individually, says Jean-Pierre Bernardus Labuschagne, a partner at Deloitte.

"It also then made sense to programme some of the documentation so it was not bespoke and had some level of standardisation. It just took a while to work its way through the system."

Any momentum built was then lost in 2015 after five government ministers were embroiled in a corruption scandal. Among them was Michael Kamau, the Transport and Infrastructure Minister who had been a supporter of the programme.

New feasibility studies for the projects were finally completed in 2016, a stage the two O&M projects have not not progressed beyond. Two of the projects did move into the prequalification stage, however – the 2nd Nyali Bridge and Nairobi-Nakuru.

These tenders have attracted international bidding consortia which is a credit to the work done by the PPP Unit. But bidders are still waiting for clarification on a couple of vital issues.

Firstly, the government is understood to have not yet established the national roads fund which will collect the toll revenues. Under the PPP contracts, concessionaires will operate and maintain the roads on an availability basis. Tolls will be collected separately and fed into the fund, which will make payments to the concessionaire over the 30-year contract.

The fund is intended to first subsidise the payments made by the government under the concessions, and then eventually cover the full costs. The concessionaire will not be exposed to any traffic risk, but will also not benefit from

Kenya's road PPPs

Name	Value	Update	Transaction adviser	Contracting Authority
2nd Nyali Bridge Project	$200m	RFQ closed in 9 Nov 2017 Teams prequalified	Deloitte	Kenya Urban Roads Authority
Nairobi – Nakuru – Mau Summit Highway Project	$700m	RFP submitted April 2018 – bids in	Intercontinental Consultants and Technocrats	Kenya National Highways Authority
Nairobi-Mombasa Highway Project	$2.35bn	Bilateral deal with US – Bechtel the developer	PwC	Kenya National Highways Authority
Nairobi Southern Bypass project O&M	$177m	Feasibility study in 2016	CPCS	Kenya National Highways Authority
Nairobi-Thika Highway O&M Toll Road	$30m	Feasibility study in 2016	Intercontinental Consultants and Technocrats	Kenya National Highways Authority

Source: *The Kenya PPP Unit's disclosure portal*

any upside from higher than expected traffic volumes.

A separate concessionaire will install and operate the tolling systems, with a tender currently being undertaken. This obviously requires each concessionaire to assume the risk of another project, which creates added complexity.

"The tolling concession will not just include the PPP roads, but also those being developed on an EPC basis", Brufal says. "It's complicated but I think using an availability model for the road PPPs is a better structure for getting them built."

The government is due to backstop all payments from the national roads fund in case of revenue shortfalls. However, in a further concern for bidders, it is yet to provide details on exactly what form this letter of support will take.

Key projects

Both the 2nd Nyali Bridge and Nairobi-Nakuru attracted similar bid groups, with South African, European, and Asian developers/investors showing an interest.

The five groups prequalified for the 2nd Nyali Bridge are: China's CCCC; Strabag; Vinci and Meridiam; Mota-Engil, South Africa's AIIM, Egis and Orascom; and IHI, Japan's JOIN, and Acciona.

These groups now wait on an RFP, which the more optimistic of market participants expect to be issued by the end of 2018.

The total cost of this project is expected to be roughly $200 million, with works including the construction of a 400m new bridge, a 1.3km road at Kongowea, and 5km of road expansions.

The funding requirement for the more advanced Nairobi-Nakuru is far more significant and will test debt market appetite for the programme. The government has previously said the project will cost $700 million.

Just three groups initially prequalified, though a group led by Strabag successfully appealed and was added to a revised list in May 2017. Ultimately neither they nor a team led by IL&FS entered bids earlier this year.

The only two bids entered were from the same teams led by Vinci and Mota-Engil, respectively, which also prequalified for the 2nd Nyali Bridge tender.

A total of 273km will be operated and maintained under the concession, while construction involves 175km of additional lanes and 58km of road strengthening to the A8 highway.

The project will require a blended financing, as DFIs are not expected to lend the total debt amount. Local Kenyan commercial banks do not have the capabilities to lend long-term or at competitive rates but South African banks are expected to participate.

A proportion of project revenues will be paid in Kenyan shillings, so the concessionaire will look to create a natural hedge for this in the debt package to minimise exposure to changes in exchange rates. A group of nine Kenyan pension funds said in September 2018 that it would invest a combined $70 million in local currency to the project once the contract had been awarded.

Ominous signs

While things seem to be taking shape for Nairobi-Nakuru, and there is clearly market appetite on both the debt and equity side, there are lingering concerns that a lack of government support could still scupper the project.

Some suggest that the ousting of Kamau speaks to a government losing faith with PPP, with no contracts signed, for roads or any other sector, five years after the legislation was signed.

Bernardus Labuschagne says that the debt requirements for major PPP projects may also be a growing concern for the government: "One of the challenges that Kenya is facing is the quantum of debt it has been borrowing, and the impact of that on its economy."

A competitor for the government's attention is the Nairobi-Mombasa Highway, which has now been awarded to Bechtel in a bilateral government agreement between Kenya and the US. The Kenyan government still, at least publically, wants the project to be undertaken as a PPP, but Bechtel is lobbying hard for a more traditional design-build contract which it says will save money.

Given the political importance of Nairobi-Mombasa, there is a risk this project draws government capacity away from Nairobi-Nakuru. That might even have been the case if the PPP Unit still had a permanent leader in place to argue for its significance.

***The government of Kenya failed to provide comment for this article despite multiple requests.**

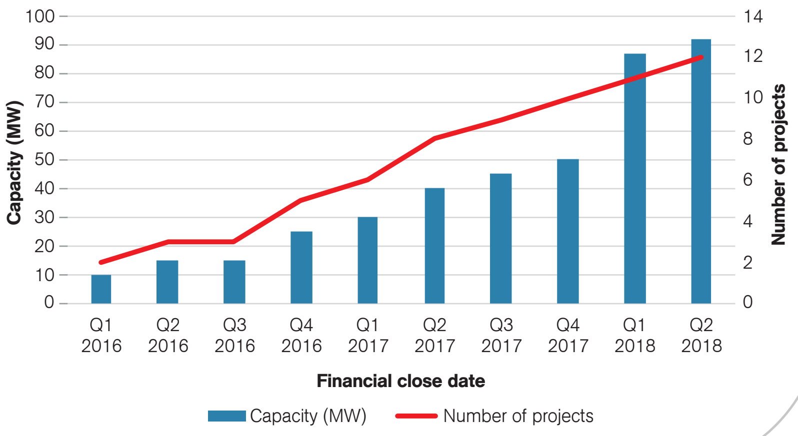
DATA ANALYSIS: Namibia looks skywards to reduce its electricity imports and attract private investors to renewable energy projects. By Sophia Radeva.

Namibia's solar solution

Namibia has long been at the mercy of electricity imports from South Africa and other countries across the region. In order to reduce this dependency, reforms have been undertaken in an attempt to attract IPPs into Namibia's power sector, and the country is starting to see positive results via solar PV tenders.

As shown by *IJGlobal* data, the country's domestic generation capacity is only around 560MW.

Accumulative capacity/volume of closed Namibian renewable projects



Source: *IJGlobal*

REFIT programme

The Electricity Control Board of Namibia, the Ministry of Mines and Energy and state utility NamPower in 2015 launched the Renewable Energy Feed-In Tariff (REFIT) programme in an attempt to promote small-to-medium size renewable energy projects and boost domestic businesses through a mandatory 30% local ownership of IPPs.

As part of the REFIT programme, 14 PPAs for 5MW of generation capacity each were signed between NamPower and various IPPs. The beneficiaries – consisting of 13 solar projects and a single wind – are set to produce a combined 70MW that will be fed into the national grid.

Three years after being launched, 10 of the 14 projects have reached financial close and have been grid-connected, bringing the total capacity of closed renewables projects in Namibia to over 90MW.

Price of success

All of these small-scale, privately-developed power plants are expected to pave the way for future larger projects in the country, creating a successful track-record for private investment.

Although it appears that Namibia is on the right path to solving its electricity under-supply problem, it should be noted that such progress has come at a price.

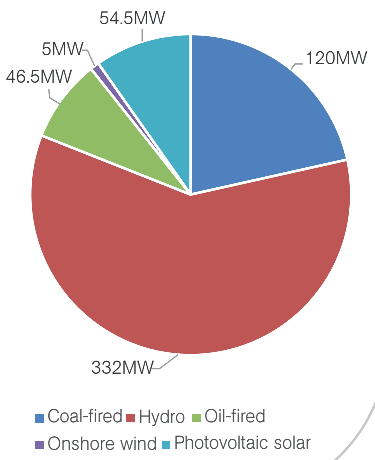
In April 2018, the European Central Bank (ECB) approved a tariff increase of 5%, effective from July, so that NamPower could cover its operating costs, fulfill its financial obligations and ensure a continued supply of electricity. These tariff price rises are being passed on to Namibian electricity users.

According to the ECB, Namibia's peak demand will reach 1.33GW by 2035, an estimation based on predicted GDP growth and future electricity use. In the most recent (fifth) National Development Plan, the government set a target of 755MW for locally generated energy capacity by 2022 and a target of providing 70% of the country's energy needs to be produced by renewable resources by the year 2030.

The National Integrated Resource Plan also includes an allocation for biomass power plants with capacity of as much as 200MW.

Bridging the considerable gap between the country's currently available capacity and future demand will fall in large part on the government and energy regulator. But solving Namibia's energy equation necessitates attracting private capital in cost-effective generation, with an eye on the right incentives to foster local entrepreneurial participation and expand access to electricity for the country's population.

Namibia's domestic power sources



Source: *IJGlobal*

North America

INSIDE

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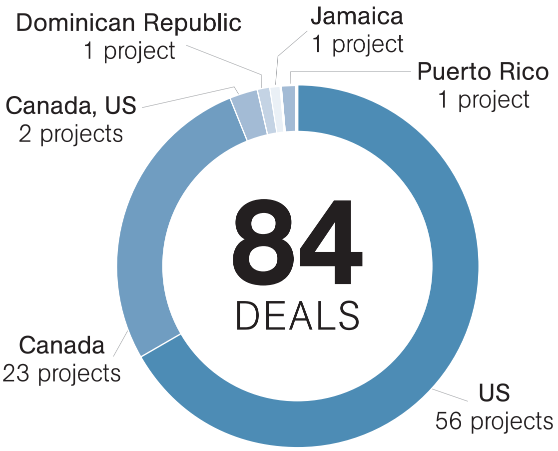
- **Los Angeles APM, US**
- **Canadian PPP: mean and lean**
- **Going to school on social infra**

Pipeline & procurement deals



Projects with recent tender updates

- Vineyard Offshore Wind Farm
- Reidsville Energy Center
- Norman Manley Int'l Airport Expansion
- Indeck Niles CCGT
- Dawson Creek Hospital Redevelopment
- Evraz Rocky Mountain Steel Solar PV Plant
- Georgia Interstate Broadband Deployment
- Gemini Solar PV Power Plant

Closed deal values by sector

Renewables: $6.70 billion

Oil & Gas: $4.99 billion

Power: $1.66 billion

Social & Defence: $4 million

Closed deals by country

United States	$17.41 billion	18
Canada	$3.31 billion	4
Canada, United States	$807 million	1
Dominican Republic	$62 million	1

Transactions that reached financial close

- **18 Jul** Acquisition of a Stake in EnLink Midstream
- **25 Jul** Rhode Island State Energy Center
- **27 Jul** Acquisition of EverPower's US Onshore Wind Portfolio
- **02 Aug** Acquisition of Midcoast Operating
- **23 Aug** South Field Energy Gas-Fired Power Plant
- **29 Aug** Acquisition of a Stake in Airports Worldwide

Source: *IJGlobal*, from 1 July 2018 – 31 August 2018.

Favoured financing

With a sizable chunk of funding still available to developers, private activity bonds (PABs) look set to be the gift that keeps on giving despite the growing availability of private placements. By Ila Patel.

Tax-exempt private activity bonds have been a ubiquitous source of funding for P3 projects in the US over the last decade. As of 1 August 2018, around $8.38 billion in PABs had been issued for 23 projects, with $2.63 billion allocated and approved by the US Department of Transportation for an additional five projects.

PABs are a type of tax-exempt municipal bond, which at present can only be authorised for transport facilities that will be used by the public. They are used on deals where the private sector is playing a significant role but they have to be authorised by the US Secretary of Transportation. A conduit issuer on behalf of a private entity can then issue them for highway and freight transfer projects. Sponsors of projects benefit from fixed interest rates and lower financing costs compared to taxable options.

The first P3 project to use PABs was the I-495 Capital Beltway HOT lanes project in Virginia which reached financial close in December 2007. The year's biggest P3 deal, it entailed the build, financing and operation of two new HOT lanes along a 14-mile stretch of Virginia's Capital Beltway under a 75-year concession.

In the last few years, institutional investors have increasingly been eyeing the US P3 space given the propensity for fixed-rate long-term tenors on debt that are relatively low-risk and offer higher yields.

Private placements can be used on a range of projects that have investment grade characteristics. They are very much applicable in the power, energy and infrastructure sectors. Private placement bonds can be very useful in bid situations because they can be committed in advance – like a bank financing. They can have very long tenors (upwards of 40 years) and are well-suited for greenfield projects due to the delayed delivery option which reduces negative carry during construction. They are also useful for projects with revenues and cash flows denominated in hard currencies other than US dollars, without imposing currency risk onto the issuer/project.

The first private placement deal in the US was the City of West Lafayette's Purdue University. A Plenary-led private sector consortium reached financial close on State Street redevelopment P3 in March 2016 – the first US P3 availability project where the bid included a privately placed bond with fixed credit spreads.

The deal structure included a short-term credit facility and long-term private placement bonds with SMBC acting as sole lender on the credit facility and agent on the private placement. Babson Capital was understood to be among one of the buyers of the private placement notes.

The $15 billion cap

Following the signing into law of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) by former President George W Bush on 10 August 2005, $15 billion was made available to finance key infrastructure projects in the airports, water ports, mass transit, water and sewer, and surface transport sectors. Given that over $11 billion worth of deals have already been financed using PABs and there is still a pipeline of projects that need to be financed, the question arises – what next?

President Donald Trump addressed this very issue earlier this year (2018) when his administration proposed lifting the cap and expanding the use of PABs in other sectors including:

- hydroelectric generation
- flood control and storm water facilities
- rural broadband facilities

However, former President Barack Obama previously announced a similar expansion to the programme in 2015. His administration wanted to build on the existing PABs structure through tax-exempt Qualified Public Infrastructure Bonds (QPIBs). These would have cost $4.8 billion over the next 10 years from 2016 to 2025.

These plans were never realised and since the Trump administration's own PABs announcement, there has been little progress.

A veteran investment banker says: "Private activity bonds have been in use since the mid-2000s when legislation was introduced that allowed for up to $15 billion worth of infrastructure projects to be financed. At that time the assumption was that this would be used up quickly but given the long-term nature of procurement processes in the US there is still funding left."

New kid on the block

The Canadian market has been using private placement bond financings for a number of years. Canadian pension funds and life insurance companies are the main proponents, viewing them as long-term investments.

In the US, in a very low spread environment, taxable private placements are increasingly competitive with PABs. Beyond the pricing being close, private placement can be committed in advance and be delivered on a delayed basis, neither of which can be done with tax-exempt debt.

Barney Allison, a partner at Nossaman, says: “Private placements may be competitive with PABs since you can get fixed spreads over long-term US treasuries which are still historically low right now. There seems to be an appetite among investors for long dated fixed rate private placement deals where you can negotiate a draw down feature during construction vs having to capitalize interest in a PABs deal.”

The second deal to close in the US using private placement bonds was the Long Beach Courthouse P3 in California in May 2016. The project’s financing package involved a combination of short-term bank debt, long-term private placement bonds and sponsor equity. The project was also the first social infrastructure PPP in the US to be financed using a taxable private placement solution. The $239 million, 34.5-year average life private placement bond issue was entirely covered by Allianz Global Investors (AllianzGI), marking their first social infrastructure PPP investment in the US. Barclays was agent on the private placement.

Tom Rousakis, senior managing director at Ernst & Young Infrastructure Advisors, says: “We continue to see increased use of private placements in the US infrastructure markets, driven by the types of projects being contemplated as P3s. One of the biggest drivers will be increased activity in social infrastructure, as this class does not enjoy the same tax exemption benefit as transportation projects. Moreover, projects that want to avoid the risk of delay and cost from project ‘federalization’ may view the taxable markets as providing better overall value.”

Rousakis continues: “There are interesting headwinds to note. The industry has been exploring approaches to social infrastructure P3s that would allow them to be financed with government tax exempt bonds through 501c3s or other structures. Moreover, we are seeing increased interest in taxable muni bonds, which would tap a wider taxable investor base, many of whom were investors in Build America Bonds nearly a decade ago. Both of these would impact demand for private placements.”

Another deal, the $408 million Marion County consolidated justice complex PPP in Indianapolis which featured a fully committed private placement bond issue at bid stage was cancelled in 2015 after being embroiled in local city and county politics.

Allison adds: “We are seeing more interest in the market in trying to come up with tax-exempt governmental bond solutions for P3 transactions vs private placement, particularly for projects that aren’t eligible for PABs.”

> “There is appetite among investors for long dated fixed rate private placement deals where you can negotiate a draw down feature during construction”

The Los Angeles World Airports (LAWA) Consolidated Rental Car (ConRAC) facility is the next major transport project in line to close, most likely by the end of the year. It will be financed using a combination of equity and private placement debt with JP Morgan and RBC acting as placement agents.

The veteran investment banker adds: “PABs certainly are the favoured funding mechanism for transport projects but private placement financing is certainly gaining momentum. This is mostly because certain projects do not qualify, such as ConRAC. It does not connect physically to an airport terminal so a strange quirk in the legislation means it cannot be financed using PABs. But this is an unusual case. I think going forward we will continue to see private activity bonds being used to finance transport projects but other debt instruments such as private placement will always have to be considered.”

Social infra and PABs

At the end of 2017, a piece of legislation was introduced for private activity bonds to be used on social infrastructure called Public Buildings Renewal Act of 2017. If signed into law, it will permit the tax-exempt financing of certain government-owned buildings by expanding the definition of “exempt facility bond”.

A qualified government building is a government-owned building or facility that consists of one or more of the following:

- elementary or secondary schools
- a facility of a state college or university used for educational purposes
- a public library
- a court
- a hospital, health care, laboratory, or research facility
- a public safety facility
- an office for government employees

The bill excludes buildings or facilities that include specified recreational equipment or are used for the primary purpose of providing retail food and beverage services, recreation, or entertainment. It caps PABs for social infrastructure at $5 billion.

Rousakis adds: “Technical factors continue to drive attractive pricing from all these financing vehicles and tax-exempts continue to provide the most attractive pricing, especially after taking into account the greater call flexibility embedded in this market.”

The US infrastructure market has certainly become more comfortable using P3s and given the number of deals, alternate financing structures will be welcome. It is almost impossible to predict where rates, spreads or the overall market will go but all things being equal, the private placement market will continue to grow in the coming years as and more sponsors become accustomed to executing with them. PABs will continue to be the favoured financing tool though given the success of so many P3 deals over the last decade or so. ■

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DEAL ANALYSIS: Part of a wider LAX redevelopment, this project saw a rare bank-and-bond financing for the US P3 market. By Angus Leslie Melville.

Los Angeles APM, US

As a mass-transit solution, California's $2.5 billion Los Angeles Automated People Mover (APM) breaks new ground for financing in the US, delivering a 2.25 mile elevated electric train system, connecting parking facilities to the international airport.

This is the first time that a DBFOM PPP model has been used for a transport system of this nature at a US airport, making Los Angeles International Airport (LAX) a P3 pathfinder with a challenging bank/bond hybrid model.

The APM will provide a free service to transport 30 million passengers per annum between the central terminal area of LAX and off-airport intermodal transport facilities and the planned Consolidated Rent-A-Car (ConRAC) service.

The project has an all-in, design/build capex of a shade over $2 billion and the project is designed to reduce travel times and congestion, while hugely enhancing user experience.

Pre-construction work has already started on the project that reached financial close on 8 June 2018 and full operations are slated for early 2023. Most of the construction work will be completed long before 2023, allowing for several months of testing.

Construction of the guideway starts late summer next year and, building work will begin on the six stations towards the end of 2019.

The first of the 44, fully-electric cars will be delivered in late 2020. To boost green credentials, the vehicles generate a portion of their own power through regenerative breaking, and they are 98% recyclable.

As a further nod to California's green agenda, the command centre/maintenance facility generates half its power from solar energy and it is designed to be LEED Gold Certified, offsetting the carbon equivalent of 12 million vehicle miles.

The APM will have nine trains with four cars – each of which will carry up to 50 passengers with luggage. There is a maximum ridership of 200 people per train, which will arrive at stations every two minutes with an end-to-end travel time of 10 minutes.

Project procurement

The Los Angeles APM was a hotly-contested project with five teams initially qualifying in August 2016 for the DBFOM project with a 25-year O&M concession.

GatewayConnectors included equity providers Kiewit, Meridiam and Skanska; lead contractors Kiewit Infrastructure West and Skanska USA Civil West California District; lead designers Mott MacDonald and Gannett Fleming; lead O&M provider Johnson Controls; and advisers Société Générale Americas Securities, Orrick, JP Morgan, Goldman Sachs, Siebert Brandford Shank & Co and BTY Group.

LA ConnextPartners consisted of equity providers Ferrovial Airports International, Cintra, Bechtel, John Laing Investments and Bombardier Transportation; lead contractors Ferrovial Agroman and Bechtel; lead designer Bechtel; lead O&M provider Ferrovial Airports International, Cintra, Bombardier and Bechtel; and advisers Scotiabank, Gibson Dunn & Crutcher, Alvarado Smith, Griffith Company, Royal Bank of Canada, Morgan Stanley, Backstrom McCarley Berry and Latham & Watkins.

LAX Connecting Alliance comprised equity providers OHL Infrastructure, Acciona Concesiones, Star America Fund, Aberdeen Global Infrastructure GP II, Axium Infrastructure and Charles Pankow Builders; lead contractors OHL, Acciona and Charles Pankow Builders; lead designer Arup North America; lead O&M providers OHL, Acciona and Serco; and advisers Barclays Capital, Squire Patton Boggs, TRC Solutions and PRR.

LINXS brought together equity providers Fluor, Balfour Beatty Investments, Hochtief PPP Solutions and ACS Infrastructure Development; lead contractors Fluor, Balfour Beatty Infrastructure, Flatiron West and Dragados; lead designers HDR Engineering and HNTB Corporation; lead O&M providers Fluor, Balfour Beatty, Hochtief and ACS; and advisers Allen & Overy, MUFG, Citigroup Global Markets, Bank of America Merrill Lynch and Ramirez & Co.

Finally, **PWA** included equity providers Plenary Group, Walsh Investors, AECOM Capital, JLC Infrastructure Fund I and Sumitomo Corporation of Americas; lead contractors Walsh Construction Company II, Granite Construction Company and URS Energy & Construction; lead designers AECOM Technical Services and TEC Management Consultants; lead O&M provider ENGIE Services; and advisers Fasken, Rutan & Tucker, Sanders Roberts & Jewitt, Ballard Spahr, InTech Risk Management, Wells Fargo Securities, Loop Capital Markets, TDSecurities and Plenary Group.

Towards the end of April 2017, this line-up was whittled down to three contenders – Gateway Connectors, LAX Connecting Alliance and LINXS – with the preferred bidder selected towards the end of January this year.

The LINXS team – led by Fluor, Balfour Beatty, Hochtief and ACS – was chosen by Los Angeles World Airports (LAWA) to deliver the automated people mover, allowing the project to progress to financial close in June 2018.

Financing details – LINXS

The LINXS consortium closed financing on the $2.23 billion project with $103 million in equity, $1.29 billion in private activity bonds (PABs), $269 million in short-term bank loan and $1.032 billion in landmark payments (the last of which is used to retire the construction loan).

The $103 million equity tranche was provided by the primary players in the LINXS consortium: Balfour Beatty Investments (27%); Fluor Enterprises (27%); ACS Infrastructure Development (18%); Hochtief PPP Solutions (18%); and Bombardier (10%).

The California Municipal Finance Authority issued $1.29 billion in 29-year senior lien revenue bonds on behalf of the sponsor consortium. They were rated BBB+ by Fitch Ratings.

The bonds were arranged by Citigroup, Bank of America Merrill Lynch and local player Ramirez & Co, split across two liens: 2018A and 2018B notes. They priced on 5 June 2018 at an all-in cost of 4.1%.

The five-and-a-half-year construction loan of $269 million was provided by a club of five MLAs comprising CIBC, Korea Development Bank, Mizuho (administration agent), SMBC and TD Bank.

Bank debt priced at 380bp all-in – a margin of 80bp over Libor – flat for the duration of the loan. KDB is not able to offer swaps, so that was distributed across four other MLAs.

There is a debt service cover ratio minimum of 1.15, averaging out at 1.18 DSCR over the loan life.

The bank facility does not draw until construction is well advanced – three to four years – as the SPV receives six milestone payments from the airport authority that average out at $172 million, awarded on completion of design/construct work stages.

The bond was deployed immediately, followed by the six milestone payments which amount to $1.032 billion (taking the financing up to the $2.23 billion total, avoiding double-counting). The bank debt is drawn towards the end of construction, and is repaid by the final milestone payments. At financial close, the banks were essentially charging a commitment fee.

LAX will cover availability payments to the concessionaire from rental car customer facility charges and other airport operating revenues.

Non-equity members of the LINXS consortium include: Flatiron West (contractor); Dragados (contractor); HDR Engineering (designer); HNTB Corporation (designer); White & Case (legal adviser); and Ramirez & Co (financial adviser).

The rise of hybrid financing

While the market is no stranger to the deployment of the bank/bond hybrid financing model – notably well supported in neighbouring Canada – it is making its first appearance in the US on a deal of this nature.

Those involved in the APM transaction insist they are not copying the Canadians, and have honed it to suit the US market – but it is not without its issues, principally surrounding milestone payments.

"The tricky thing about milestone payments is that if they are numerous and frequent, what the contractor does at that point is – essentially – take the risk between milestones on balance sheet and bank those payments themselves," says a source involved in the APM financing.

"When you have big milestone payments that are spread out, then a bank financing becomes much more important because the contractors cannot 'carry' that much cost between funding of the milestones."

He continues: "Another important point is that when you see a municipality putting out milestone payments, they are basically reducing the risk allocation benefit that they get. They are putting money out before they have a completed project.

"Of course, they are doing it to drive down cost, but – in practice – they are eroding the benefit or risk allocation with the more money they are putting out pre-completion."

Another source adds: "It's a balance between having the right amount of private capital involved and not having too much expensive private capital."

A challenging environment

There are divided views on the procurer – LAWA – with some accusing it of being too "demanding" and shifting the goalposts; while others celebrate its vision and drive to push through a deal of this magnitude to financial close in two-and-a-half years.

Given that LAX is now well progressed on the $5.5 billion Landside Access Modernization Program, LAWA will doubtless shoulder many more complaints/congratulations as it procures:

- ConRAC – the P3 consolidated rental car facility
- two intermodal transport facilities
- improvements to roads connecting to the airport

One area that leaves many involved in the procurement process unhappy was the process adopted by LAX in dual shortlisting developers and rolling stock providers – and then expected them to come together at RFP stage.

Beyond that, any multi-billion dollar infrastructure transaction will throw up more than its fair share of challenges – and they were dealt with capably by the procurer and preferred bidder.

Timeline

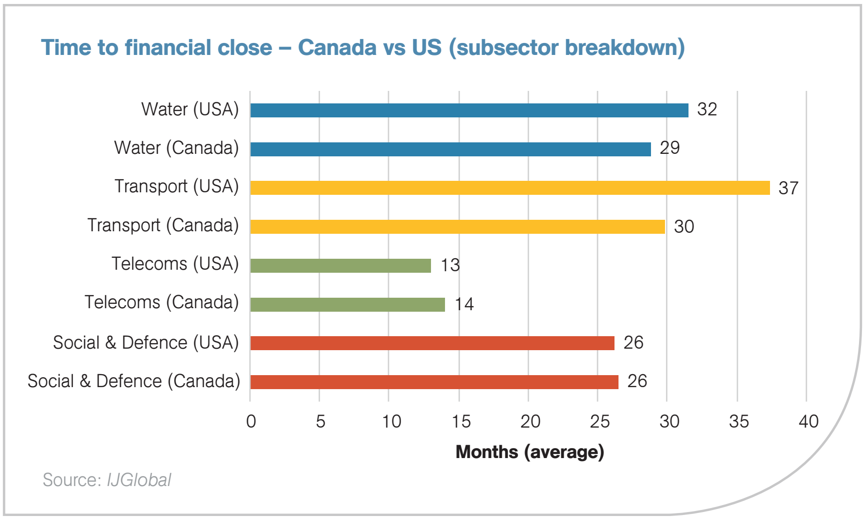
Transaction announced	Five teams qualify	Shortlist chosen	Preferred bidder	Financial close	Operational
November 2015	September 2016	April 2017	January 2018	8 June 2018	early 2023

DATA ANALYSIS: Successful use of the PPP model has made the Canadian project development and funding process lean and effective. By Yavor Guerdjikov.

Canadian PPP: mean and lean

Canada has long been one of the most attractive markets for private investment in public infrastructure. According to *IJGlobal* data, nearly $56 billion primary financings for PPPs have been closed in the country over the last 10 years.

The success of the PPP model in Canada is built on reliable procurement agencies. Late last year, Infrastructure Ontario (IO) announced its PPP pipeline for 2018, with a capex value of C$15.8 billion ($12.4 billion). Meanwhile, Infrastructure Canada has outlined a plan for bilateral agreements with provinces to provide roughly $33 billion of funding for the next 10 years.



IJGlobal data shows that for the majority of the completed PPP deals in the last 12 years, it took between one and three years to reach financial close since initial announcement. Furthermore, PPPs that close between their third and fourth year on the market are more costly, with an average of $528 million per transaction compared to an average of $271 million and $213 million for those closing in 12 months and in 24 months, respectively.

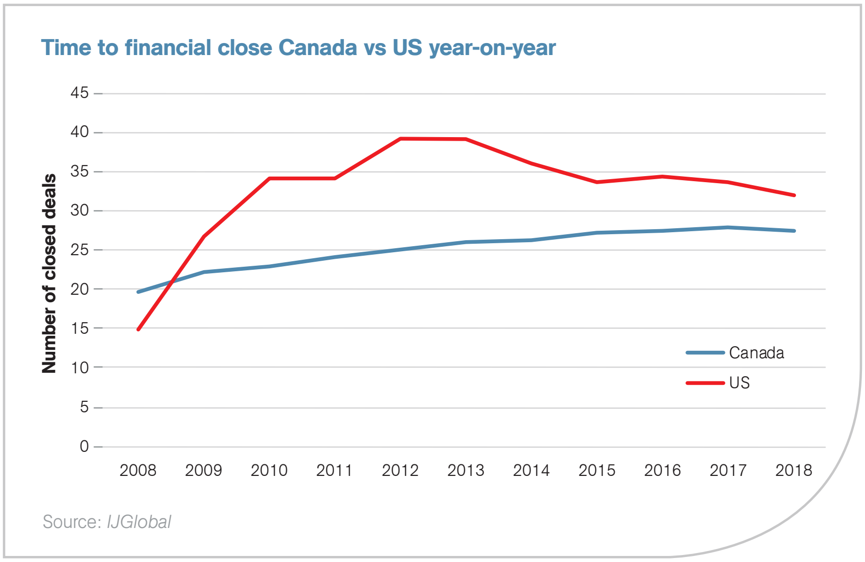
The second highest valued transactions on average are those closing between two and three years with $455 million, and the slowest to close deals have an average of $396 million.

When comparing the average number of months it takes for Canadian PPP transactions and US PPP transactions to achieve financial close, it is clear that the time periods are significantly shorter for the former. The gap has been closing in recent years, however, and the US is keen to improve its efficiency further.

With amendments to the legal and regulatory environment and the federal government keen to push ahead with a much-touted $1.5 trillion, 10-year infrastructure plan, the US is hoping to crowd in private investors for a significantly wider area of sectors and to shorten the time needed to close transactions.

The US is newer to using the model and has generally relied on private funding mostly for road infrastructure. According to *IJGlobal* data, while Canada has closed on 106 primary financing PPP deals for social infrastructure (69 in Ontario alone), the US has managed just 15.

There is a substantial difference between the two countries' use of PPPs and their respective legal and regulatory landscapes. Both Colorado's I-70 East Extension (66 months to financial close) and Maryland's Purple Line (99 months) suffered delays due to environmental litigation and lengthy review processes. In comparison, among Canada's more recent projects the Finch West LRT took only 32 months to reach financial close.



NEWS ANALYSIS: P3 projects at universities in the US are become larger, more numerous, and more complicated. By Ila Patel.

Going to school on social infra

The P3 market in the US is no longer limited to just the transport sector. Over the last few years, the focus has shifted to universities procuring student housing projects and setting in motion the potential for other types of social infrastructure projects.

Higher education has been procuring DBFOM projects (or some element of this model) for many years. But it is only recently that the universities sector has been subject to greater exposure as deals increase in size and complexity.

Public vs private

But how are universities able to procure projects using the P3 model given that many states have faced numerous challenges just to get P3 legislation passed?

Private universities have the authority to procure P3 projects, but procurement authority is very different for public universities. The context for each public university is unique, particularly given differences in state-by-state P3 enabling legislation. In addition, the approval process for public universities often includes a state-level agency review and vote.

Getting it right

There is a risk that universities facilities management teams (along with internal procurement and finance teams) would be tempted to run the P3 procurement themselves and try to save money on external advice.

JF Strayer, head of P3 advisory at Grant Thornton, says: "The limited supply and quality of financial and procurement P3 advisory services available to higher education authorities wishing to enter in to these alternative financing and procurement models may become the bottleneck for increasing the volume of P3 transactions in the industry."

Experienced advisers increase chances of a procurement reaching financial close, while achieving best value-for-money for the university. At the same time meeting a competitively priced rate of return for the private partner: the proverbial P3 "win-win" situation.

With the number of potential university P3 transactions on the rise, poorly managed procurements may erode value-for-money for the university and impact returns to the private partner.

Mega projects

Brad Noyes, executive vice-president at programme management and development advisory firm Brailsford & Dunlavey, says that the P3 market has recently seen a number of successful projects so they can now see what is possible. "There is a lot more standardisation around larger, multi-asset class, revenue-generating deals which is creating a healthy project pipeline," he says.

The larger projects Noyes refers to are the University of California Merced campus redevelopment PPP (UC Merced 2020) and the Ohio State University's Energy Management project.

Plenary Group reached financial close on the $1.35 billion UC Merced 2020 project on 17 August 2016. The project was partially funded with around $663 million of privately placed bonds backed by about five institutional investors. Legal & General Retirement provided a $100 million ticket in the 38-year facility and the university contributed $600 million.

The deal represented the largest social infrastructure PPP transaction to close in North America in 2016.

Meanwhile, the $1.165 billion Engie North America and Axium Infrastructure-backed lease concession for the Ohio State University's utility and energy systems reached financial close in July 2017.

MetLife Private Capital Investors was the lead investor on the private placement bonds that covered the majority of the debt financing. It was complemented with a short-tenor revolving debt facility backed by commercial lenders and sponsor equity.

CIBC, MUFG Bank, RBC Capital Markets and Santander provided a $140 million credit facility – comprising a $125 million revolving capex loan with a five-year tenor and a $15 million letter of credit facility. Engie and Axium provided about $175 million in total equity.

Noyes adds: "I think the political dynamic is interesting. Given that a larger number of projects are reaching the $150 million to $1 billion mark, they are now attracting increased regulatory scrutiny so this is an additional risk factor for firms interested in bidding for these types of projects.

"So far, it has not reduced industry interest in bidding for projects, they definitely remain interested, but they now need to accurately price political risk and ensure they have the necessary resources to tackle this."

What next?

The universities sector is evolving to include broader campus initiatives. This dynamic is also true beyond US universities, with an increasing volume of social projects emerging from states and municipalities. This includes courthouses, sports complexes and government facilities.

Agencies and state authorities must consider whether P3 is the right model to deliver projects. Rather than looking at the entire upfront costs a private partner can pay, authorities must instead look at the entire lifecycle of the project and the benefits and costs associated with that deal.

Latin America

INSIDE

- **Mesa la Paz, Mexico**
- **Just what the doctor ordered**
- **Coming into power**
- **Santa Vitoria do Palmar**

Pipeline & procurement deals

Projects with recent tender updates

- Albireo I and Albireo II PV Solar Plants
- Autopista al Mar 1 Highway
- Autopista al Mar 2
- Bogota Metro Line 1
- El Dorado 2 Airport
- Porto do Acu III CCGT Power Plant
- Santiago Transmission Line
- Marcona Mina Justa Copper Mine

Closed deal values by sector

- **Renewables:** $1.50 billion
- **Transport:** $725 million
- **Power:** $545 million
- **Mining:** $350 million
- **Oil & Gas:** $326 million
- **Telecoms:** $203 million

Closed deals by country

Chile	$2.16 billion	8
Panama, Chile	$700 million	1
Brazil	$428 million	3
Mexico	$370 million	2
Ecuador	$350 million	1
Latin America	$203 million	1
Uruguay	$115 million	1
Bolivia	$70 million	2
El Salvador	$60 million	1
Colombia	$50 million	1

Transactions that reached financial close

- **17 Jul** Puerto Libertad Solar PV Plant
- **26 Jul** Bahia and Piaui Transmission Lines
- **26 Jul** Privatisation of Cepisa
- **07 Aug** Santiago–Talca Highway Refinancing
- **10 Aug** JMM Transmission Line Bond Facility
- **29 Aug** Guajiro PV Solar Plant

Source: *IJGlobal*, from 1 July 2018 – 31 August 2018.

DEAL ANALYSIS: This milestone wind farm financing sets a precedent for corporate PPAs in the LatAm region. By Juliana Ennes.

Mesa la Paz, Mexico

AES and Grupo Bal reached financial close on the largest-ever wind project in Mexico at a time when financiers were questioning the wider bankability of renewables in the country.

EnerAB – a 50:50 joint venture between AES and Grupo Bal – closed on the 306MW Mesa la Paz wind farm in Tamaulipas state using a traditional project finance structure, which for Mexico is quite unconventional.

Financing agreements for the project were signed in May, leaving the market to analyse the specifics of the transaction, which could potentially be replicated for upcoming projects.

Key to the project is the long-term power purchase agreement (PPA) signed with a private counterparty. Mesa La Paz has a 25-year corporate PPA with local industrial conglomerate Industria Peñoles, starting in April 2020 and covering 80% of the asset's energy output.

"The 25-year PPA in dollars, something that is not common to see in Mexico, allowed us to have the robustness required in order to come up with a unique financing structure for Mexico, which was a long-term bond in the private sector. It was funded from construction all the way down to basically the end of the PPA", AES Mexico chief executive Juan Ignacio Rubiolo told *IJGlobal*.

The financing

The sponsors achieved a debt-to-equity ratio of 76:24, with financing comprising $440 million in debt and roughly $140 million in equity.

Debt raised for the project included three facilities: $304 million in notes; $73 million in credit facilities; and $63 million in working capital.

The 5.98% senior secured notes due 2044 were issued in the US private placement market. The notes have a 26.5-year tenor, which includes the construction period plus most of the duration of the PPA. It was the first time that AES Mexico issued green bonds.

BNP Paribas and JP Morgan acted as placement agents and credit facility providers on the deal.

The $73 million in credit facilities will cover project and financing obligations.

Bancomext provided the working capital facility, which will be used for value-added tax payments during construction.

The financing has a delayed draw feature, meaning that the sponsors will receive funding in accordance to the construction calendar, reducing the cost of carrying the debt, according to a person close to the transaction.

Mexico has strong local banks, including development institutions. Many times PPAs are priced in local pesos, which means that many energy projects in the country are financed by local lenders for the construction period. As such, projects carry refinancing risk once construction is completed.

In the case of Mesa La Paz, the project bonds cover both the construction period and the PPA. AES Mexico chief financial officer Kristina Lund believes that similar financing structures will be used in Mexico and in Latin America in the future.

"I do see the potential to use a similar financing for other projects that are well structured like this one. […] Because of the strength of the customer and the quality of the contract and the structure of the financing, we were able to lock in very attractive terms and take away the refinancing risk after the construction. This is a very attractive model. I think it is a model that we would like to use to use again," she told *IJGlobal*.

The Mesa La Paz project entails the construction, operation and maintenance of the asset, and includes two substations and one transmission line associated with the project.

California-based Oak Creek will develop the wind farm, while Acciona was awarded the balance of plant (BOP) contract. DNV GL – Renewables will be the independent engineer, and Vestas will supply the wind turbines.

Operations are expected to commence in September 2019.

Latham & Watkins acted as the sponsors' New York legal adviser, while Galicia Abogados advised the sponsors in Mexico. Paul Hastings provided legal advice to the investors and banks in New York, and Mijares, Angoitia, Cortes & Fuentes was the investors and banks' legal adviser in Mexico.

Timeline

- **2013** – Mexican energy reforms start
- **February 2018** – Interconnection approved
- **May 2018** – Financial close
- **June 2018** – Agreement with Vestas to supply turbines
- **September 2019** – Operational

DATA ANALYSIS: After years of underinvestment, health infrastructure PPPs across Latin America are on the rise. By Sophia Radeva.

Just what the doctor ordered

Demand for healthcare in Latin America has been steadily increasing, and with PPPs becoming an appealing mechanism for delivering projects, *IJGlobal* data shows that Mexico and Chile have been leading the way by introducing ambitious programmes.

The Mexican government launched a health infrastructure programme in 2002, and in April 2007 Bajio Regional Specialty Hospital – Latin America's first PPP hospital – opened its doors. It was just the first of a run of such projects, which include the Ciudad Victoria Specialty Hospital, the Ixtapaluca Regional Specialty Hospital, and the Torreon General Hospital.

Chile, meanwhile, launched its first healthcare PPP programme in 2009. To start the programme, the La Florida and Maipu hospital developments were bundled together and tendered as one single project. After this success, Chile tendered additional replacement hospitals Salvador Hospital and National Geriatric Institute and Santiago Occidente Hospital in 2014.

The successful completion of the projects in Mexico and Chile has led to the drafting of new PPP legislation in a number of countries, aimed at encouraging and incentivising private participation. A pipeline of projects is already evident, as suggested by *IJGlobal* data.

Colombia: a veteran runner-up

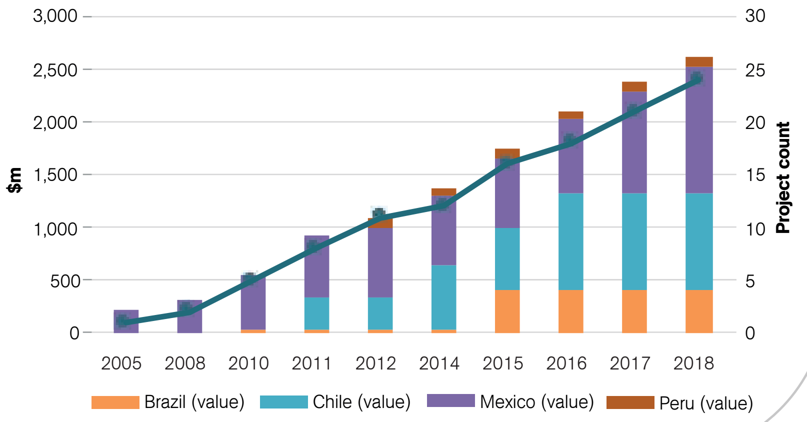
Colombia has the longest history of undertaking PPPs in the region, starting from 1993, but had initially excluded social infrastructure projects from its efforts. This changed in 2012 when the country renewed its PPP legal framework, expanding eligible sectors and more clearly defining the tender process. A new national infrastructure agency was created and charged with centrally managing PPP tenders.

The new law introduced availability payments, a 30-year contract term limit and allowed private parties to submit unsolicited proposals. A better defined approval and bidding process was also put in place.

Colombia is yet to procure a healthcare PPP, focusing instead on its sprawling Fourth Generation (4G) road infrastructure programme. But recent legislative reforms suggest that this may change soon.

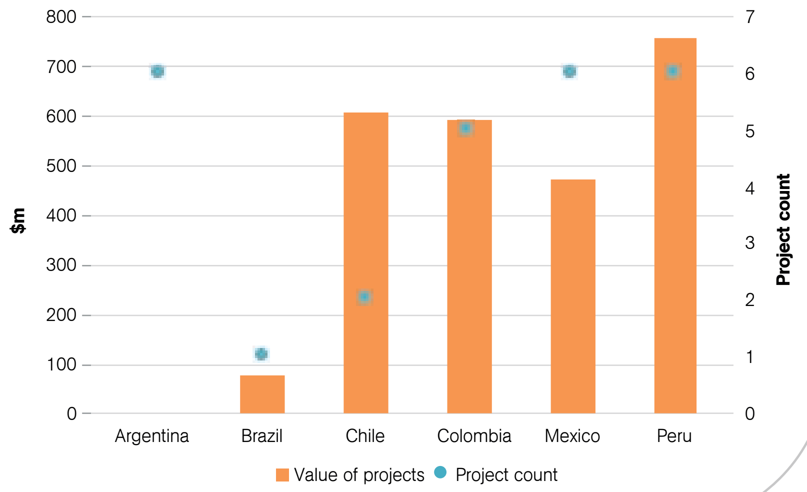
The government plans to tender five healthcare PPPs in Bogotá. The design-build contracts will require $590 million in total investment, and foreign investment is likely to be required.

Accumulative value/volume of closed LatAm healthcare PPPs



Source: *IJGlobal*

LatAm healthcare PPP pipeline



Source: *IJGlobal*

NEWS ANALYSIS: Uncertainty surrounds Mexico's fourth power auction as AMLO looks to shake up the industry. By Juliana Ennes.

Coming into power

With the inauguration of Mexico's new government still months away, developers, investors and lenders have been left wondering what role the private sector will be asked to play in the country's power industry under leftist president-elect Andrés Manuel López Obrador (AMLO).

And amid this market uncertainty, Mexico's energy regulatory commission CRE is gearing up to award power generation, capacity contracts and certificates of clean energy (CELs) in the country's fourth long-term electricity auction since the energy reform in 2013.

The auction is scheduled to take place before AMLO takes the oath of office on 1 December 2018. Pre-qualification will start in September, and contracts are due to sign on 14 November.

It means that developers will make offers for new projects without fully knowing what lies in store for Mexico's electricity sector. AMLO and his team have long opposed the energy reforms that opened the country's oil & gas and power sectors to private and foreign companies.

No projects have been cancelled yet due to this political uncertainty, and many banks are (cautiously) looking to finance greenfield developments currently out to market. But there are projects struggling to agree long-term PPAs with private offtakers, with many large energy consumers reluctant to tie themselves to long-term obligations.

And with so many projects looking for offtakers, competition is set to be very high in the upcoming electricity auction.

At the same time, the amount of power offered by state-owned Comisión Federal de Electricidad (CFE) to buy energy will be much lower than in previous auctions, according to a person familiar with the matter.

The fourth auction

Rules announced in March established CRE as the entity responsible for authorizing the call and the bidding rules – a role previously played by Mexico's energy secretariat SENER in the three previous auctions in 2015, 2016 and 2017.

Winning projects will be awarded 15- and 20-year contracts to provide electricity, capacity and CELs to CFE and large energy consumers.

> "CFE has announced it will review contracts for power agreements, to check how they were awarded and what its benefits are. The market is nervous about what would be the trend after these revisions"

Like in the third auction in 2017, projects will be awarded through a clearing house. This has brought an additional layer of uncertainty to the auction since the new company does not have credit history or ratings.

Another potential constraint could be power prices. In the third auction, prices were low to a point at which commercial international institutions questioned the feasibility of financing the projects. The average price per MWh was $20.57.

Prices are expected to stay between mid-$20s and low-$30s per MWh at the fourth auction.

New policies

As the fourth auction approaches, the incoming administration has been outlining some of its policy objectives for the power sector. It intends to increase the generation capacity of the CFE, and has also said it aims to prioritise hydroelectric projects.

José Antonio Prado, a partner at Holland & Knight, told *IJGlobal* that CRE has recently been modifying the tariff formula for basic supply, transportation and distribution services, which can affect PPA payments. The final methodology is not expected to be finalised until H1 2019.

"CFE has announced it will review contracts for power agreements, to check how they were awarded and what its benefits are. The market is nervous about what would be the trend after these revisions," said Prado.

Meanwhile, a banker has said their institution is still financing energy projects in Mexico, but only the ones awarded in the second power auction. The bank is not looking at financing any projects from the third auction, however, as prices were considered too low.

It is not only bankers who are watching power prices closely.

The incoming government has announced it will review electricity prices, freezing the tariffs, which would be annually increased according to inflation.

It is not yet clear whether industrial consumers would also be impacted, and so no long-term private offtake agreements are likely to close in Mexico until the new policies have been confirmed.

DEAL ANALYSIS: This transaction saw the Inter-American Development Bank guarantee its first local-currency bond. By Juliana Ennes.

Santa Vitoria do Palmar

IDB Invest recently closed a total credit guarantee to help finance Atlantic Renewable Energy's 207MW Santa Vitoria do Palmar wind complex in Rio Grande do Sul – in a peculiar transaction that saw the private sector arm of the Inter-American Development Bank (IDB) Group provide a guarantee greater than the total value of the infrastructure debentures issued to fund the project.

IDB Invest has never used this structure before, but intends to do it again – and soon, and not only in Brazil. Other Latin American countries such as Mexico, Peru, Colombia and Chile may see similar structures in the coming months, IDB Invest Infrastructure and Energy division chief Javier Rodriguez de Colmenares has told *IJGlobal*.

Understanding the transaction

Located in the southern state of Rio Grande do Sul, the Santa Vitora do Palmar wind complex consists of 12 wind farms and has been fully operational since 2017. The project was developed by SPV Atlantic Renewable Energy, a Brazilian generation platform 100% controlled by UK fund manager Actis.

Atlantic Renewable Energy raised R1.4 billion ($341 million) in financing for the project through the help of development banks and institutional investors. The last facility closed in July, when Atlantic Renewable Energy emitted R105 million in infrastructure debentures with local investors.

IDB Invest provided a R125 million total credit guarantee to cover the issuance – which was R20 million more than the private bond emission, since the guarantee also included a cushion for eventual fluctuations. The papers priced at a premium on top of the Brazilian national treasury bond NTN-B, which is indexed on inflation.

IJGlobal has learnt that the debentures were privately placed with 16 investors and have a 13.5-year tenor. Investors included private banking institutions, high net worth individuals within private banks, multifamily offices and trading desks of major banks.

Underwriters on this deal were Bradesco, Itau BBA and XP Investimentos.

Brazilian development bank BNDES approved R679 million in funding for the project in 2017: R449 million directly provided by the bank through the emission of green bonds, and R230 million from the regional development bank Far South Regional Development Bank (BRDE).

A club of banks comprising ABC do Brasil, ABN AMRO, Banco Pine, Bradesco, Itau Unibanco and SMBC guaranteed the debt.

BNDES and BRDE have started disbursing the funding in different tranches.

As such, the total financing for Santa Vitora do Palmar included R679 million from BNDES and BRDE; R635 million in equity and cash; and R105 million in debentures.

Since the wind complex started coming online in 2016, it began generating revenues before it officially commenced operations in 2017 which helped financing part of the construction cost.

Santa Vitora do Palmar has a 20-year PPA denominated in reais at a fixed average price of around R124.5 per MWh, indexed to inflation (IPCA, IGPM) and signed with system distribution companies. 10 of the project's 12 wind farms were awarded contracts in Brazil's A-5 power auction in 2013, while the remaining two wind farms were contracted in the A-3 auction of 2014.

Legal advisers on the financing included Paul Hastings and Lobo de Rizzo advising Atlantic Renewable Energy in the US and Brazil, respectively. Meanwhile, Clifford Chance acted as IDB's legal adviser in the US, while Brazil's Mattos Filho advised the IDB along with the club of banks on the 2017 debt. Machado Meyer was the Brazilian legal adviser to the underwriters on the 2018 debentures.

IDB's role

IDB Invest's Colmenares has told *IJGlobal* that the provision of guarantees in Brazil is intended to complement financing provided by local development banks such as BNDES, BRDE and Banco do Nordeste (BNB). By improving the credit profile, extending tenors and reducing financing costs, IDB Invest looks to attract additional investors to a market that is seen to have great potential, but also great risk.

Timeline

13 December 2013	March 2014	2016	April 2017	September 2017	31 July 2018
10 wind farms contracted in the A-5 auction	Two wind farms contracted in the A-3 auction	Actis took full control of Atlantic Renewable Energy	BNDES and BRDE financing signed	Wind complex fully operational	Closed emission of infrastructure debentures

Asia-Pacific

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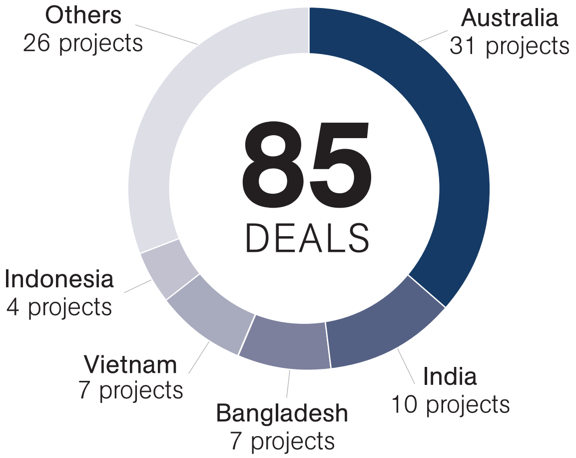
Pipeline & procurement deals



Projects with recent tender updates

- Acquisition of APA Group
- Acquisition of Conergy's Asia Solar Portfolio
- Colombo Ligh Rail Transit
- Glenellen Solar and Battery Storage
- GMS Highway Expansion Phase 2
- East Coast Rail Link
- Matarbari Gas-Fired & LNG Terminals
- Port Augusta Renewable Energy Park Phase 2
- Karnataka Highways Upgrade

Closed deal values by sector

Transport: $2.83 billion

Power: $2.22 billion

Renewables: $855 million

Telecoms: $833 million

Countries with highest closed deal values

India	$4.08 billion	2
Australia	$1.81 billion	5
Japan	$284 million	3
Turkmenistan	$268 million	1
Vietnam	$262 million	2
Malaysia	$34 million	1

Transactions that reached financial close

- **07 Jul** Navi Mumbai International Airport
- **12 Jul** Granville Harbour Wind Farm
- **20 Jul** Dam Nai Wind Farm
- **27 Jul** Numurkah PV Solar Farm
- **21 Aug** AirTrunk Data Centres Expansion
- **29 Aug** Acquisition of Reliance's Mumbai Power Business

Source: *IJGlobal*, from 1 July 2018 – 31 August 2018.

NEWS ANALYSIS: After years of generous solar tariffs, Japan seems to have backed itself into a corner. By Mia Tahara-Stubbs.

Sunset on greenfield

Generous feed-in-tariffs (FITs) drove the growth of Japan's solar market. But with the government cooling on solar, industry players expect new greenfield developments to dry up.

In a bid to jump start solar installations, in part with an eye to help Japanese solar panel manufacturers, Japan's Ministry of Economy, Trade and Industry (METI) set a generous FIT of ¥40 ($0.36) per kWh in the year ending March 2012.

The solar FIT has been cut every year since, but has remained high: ¥36 per kWh in 2013, ¥32 per kWh in 2014, ¥28 per kWh in 2015, ¥24 per kWh in 2016 and ¥21 per kWh in 2017.

The tariffs triggered a stampede to acquire the FIT licenses. By the end of June 2016, some 640,000 solar FIT licenses with a combined capacity of 5.1GW had been granted.

To clamp down on what it saw as speculative and sometimes frivolous licence holders, the Japanese government announced in May 2016 that it would nullify legacy FIT licences if the developers had not signed grid connection agreements with an electricity distributor by 1 April 2017.

Following the passing of the deadline, METI estimated nearly 2.8GW worth of licences would be cancelled.

However, the strategy has been successful overall. The FIT regime doubled installed solar capacity to 1.4GW in 2012 and the market has continued to grow – by the end of 2017, Japan had nearly 5GW of installed capacity was the world's fourth largest solar market, according to International Energy Agency data.

Victim of its own success

The government's policy, set in 2015, was to increase the proportion of renewable energy to 22-24% of total electricity generation by 2030, with solar representing 7% of the total.

That 7% target has now been met well ahead of schedule, prompting the government to attempt to cool the market.

"Political pressure about high electricity prices has been rising and the government now thinks Japan has enough solar," Linklaters Tokyo partner Hirofumi Taba told *IJGlobal* in an interview. Linklaters was the legal adviser for Sonnedix on its 42MW Sano solar plant that reached financial close in July 2018.

> "[The FIT] will probably stay at ¥18 for at least a couple of years"

The effort to cool the market has not worked out too well. In mid-2017, METI floated the idea of cutting the solar FIT to ¥18 per kWh in the fiscal year starting April 2018.

The government instead opted for reverse auctions.

The first reverse auction was held in November 2017 and attracted just 141MW of bids for 500MW of capacity despite a tariff ceiling of ¥21 per kWh – and was eventually cancelled after almost all of the bidders dropped out.

The second auction was held in August 2018 with a tariff ceiling at ¥15.50 per kWh. The auction failed to attract the full 200MW of bids – and with the lowest bid coming in at ¥16.47 per kWh, was promptly cancelled in early September.

METI is apparently now resigned to finally setting a FIT for the fiscal year ending March 2019, of ¥18 per kWh. Undeterred by the high cost of development in mountainous Japan, METI is hoping to cut the FIT to ¥8 per kWh by 2022, according to local media reports.

That new ¥8 per kWh FIT target is unlikely to be met, one Japanese renewables developer who participated in the first but not the second auction told *IJGlobal*. The FIT "will probably stay at ¥18 per kWh for at least a couple of years," he predicted.

Winding up

The boom in greenfield solar development appears to have come to an end and with the lower FIT is likely to slow if not end any new activity, the Japanese renewables developer said.

For renewables bankers in Tokyo, their immediate pipelines remain dominated by solar. But, "we are wrapping up the financing on the FIT certified projects we have over the next two years and don't really expect to see much after we finish them up," one of them told *IJGlobal*.

The pool of new projects to be funded has dried up to the point that Japanese banks, which had shied away from funding international developers, have begun financing them and have "effectively priced out the internationals", according to Linklaters' Taba.

The spread on the 19-year term loan on the project financing package of a typical medium sized 35MW solar farm in Japan is now hovering at just over 110bp over Tokyo Libor, *IJGlobal* understands.

Looking ahead, the next trend for solar is likely to be brownfield M&A, by bundling Japan's typically smaller solar farms into portfolios, according to Taba. ■

DATA ANALYSIS: Bangladesh has set its sights high, but progress on infrastructure development has been slow. By Sophia Radeva.

Big ambitions

Bangladesh has set an ambitious target: becoming the world's 30th largest economy by 2030. But in order to achieve this, according to the Dhaka Chamber of Commerce and Industry, the country would need to pump around $24 billion of investment per year into infrastructure alone.

Government-to-government

IJGlobal data shows that DFI lending into Bangladesh has been sporadic this decade, though the trend is positive. Government-to-government lending, meanwhile, has been significant since 2010.

India first extended a credit line worth $1 billion towards Bangladesh in 2010. In 2016, the Indian government provided a landmark $2 billion credit line, at that time the largest LoC extended by India to another country. However, this was followed by a $4.5 billion LoC signed on 4 October 2017, which together with additional project loans brought India's investment in Bangladesh to over $9 billion.

Japan has committed over $12 billion in aid during the last four decades in the form of grants, loans and technical assistance. Japan recently pledged to provide up to $6 billion over the next five years as part of the Bay of Bengal Industrial Growth Belt initiative.

In October 2016 China signed project funding agreements which amounted to the largest ever investment package committed by a single country to Bangladesh. The treaties concerned the development of 34 projects worth over $25 billion.

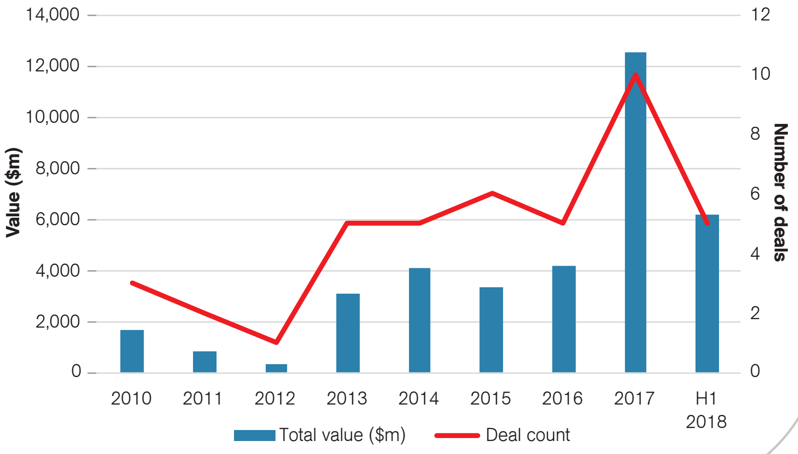
The agreements provide much needed investment into sectors such oil and gas, transport, and education, but come with special conditions.

While loans from Japanese investors typically carry interest rates of around 0.25%, and World Bank and Asian Development Bank lending price is around 1%, Chinese loans have rates as high as 2% and 3%. Chinese loans also often require project contracts to go to Chinese companies.

The government of Bangladesh may deem this a price worth paying, if there are viable alternatives to plugging its investment gap.

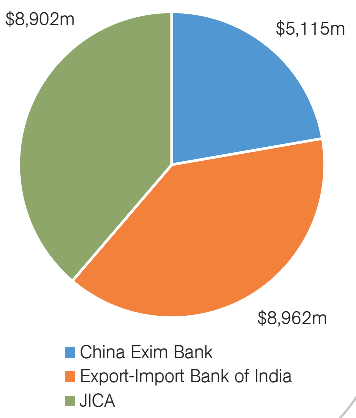
And China has proved a useful ally for problematic projects. After the World Bank scrapped its support for the Padma bridge project in 2012 due to allegations of corruptions, China stepped in to provide the required funding.

DFI lending in Bangladesh



Source: *IJGlobal*

Government lending in Bangladesh (2010-H1 2018)



Source: *IJGlobal*

Slow progress

There has been little progress so far on the planned 34 projects. Disbursement has been made against only two projects: the construction of the Karnaphuli Tunnel in the port city of Chittagong and Bangladesh digital connectivity project Info Sarker-3. Work has also started at the 1,320MW Payra coal-fired power plant.

Necessary preparations for signing loan agreements have been completed for just six of the developments, and the remaining projects are still in their very early stages. The delay, explained by Finance Deputy Minister M A Mannan, is caused by the considerable scale of investment and needing more time for implementation.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NEWS ANALYSIS: The shadow of 1MDB looms large on Chinese infrastructure contracts in Malaysia. By Mia Tahara-Stubbs.

1MDB: the reckoning

The 1Malaysia Development (1MDB) scandal that swept the opposition into power in Malaysia is turning into a reckoning for $22 billion worth of China-backed infrastructure projects.

The surprise election victory in May 2018 of the opposition party in Malaysia, led by former Prime Minister Mahathir Mohamad, was provoked by voters' anger at alleged corruption at 1MDB, the state infrastructure investment fund.

Investigators believe around $6 billion may have been diverted out of 1MDB, some of which has been linked to defeated Prime Minister Najib Razak.

Founded in 2009 by the Ministry of Finance, the fund's debt burden has been estimated at around $10 billion.

By April 2016, the fund was unable to even meet interest payments on its debt, and was forced to sell its crown jewel asset, its power unit Edra Global Energy, for $2.3 billion to China General Nuclear Power Corporation. The assets include 13 power plants in Bangladesh, Egypt, Malaysia, Pakistan and the United Arab Emirates with a total generating capacity of 6,620MW.

From there on, a series of embarrassing revelations rocked 1MDB, but also some light on some of its debt structure.

In July 2016, the US Department of Justice filed a civil forfeiture complaint seeking to recover assets of more $1 billion that was allegedly stolen from 1MDB.

A month before that, in June 2016, Abu Dhabi sovereign wealth fund International Petroleum Investment Corporation filed a $6.5 billion claim in an arbitration tribunal against 1MDB and its owner, the Malaysian Ministry of Finance.

As the dispute dragged on, it emerged that the International Petroleum Investment Corporation had agreed to make interest payments on $1.75 billion of 1MDB bonds. The bonds itself have become controversial after revelations that the underwriter, Goldman Sachs, had commanded unusually high fees and diverted the funds to offshore accounts in the Middle East.

The International Petroleum Investment Corporation and 1MDB eventually reached an agreement in April 2017.

The new government has acted swiftly.

A couple of days after taking office after the election in May, Mahathir ordered the attorney general's report on 1MDB to be declassified and Finance Minister Lim Guan Eng appointed PwC to audit the fund on 24 May 2018.

By early July, Mahathir's predecessor Najib had been charged with corruption-related offences.

The Malaysian Anti-Corruption Commission and the federal are reportedly working with their counterparts in the US, Luxembourg, Switzerland, the Netherlands, the Middle East and Singapore.

The investigation is now expected to be completed by the end of 2018.

The fund may have racked up debt of as much as $12 billion, according to Tony Pua, a member of parliament of the ruling coalition and one of the loudest critics of 1MDB. He has now been appointed special officer to the Finance Minister to investigate the fund.

While the new government has pledged to pay off 1MDB's debts, it has also shelved all infrastructure projects pending reviews of their cost structure. Eng blamed the cost of paying off 1MDB's liabilities for the cancellations.

"We have to pay M$50 billion [($12 billion)] in debt. If not for the 1MDB scandal, the LRT3 and other projects can proceed without glitches. We are now paying the price of the scandal," Eng said at a conference in Kuala Lumpur.

Investigations into the terms of the three contracts with Chinese state-owned firms have reportedly revealed extensive links to 1MDB, mostly in the form of bribes to pay off the fund's debt.

The government in early July 2018 instructed China Communication Construction Company to halt work on the proposed 688km East Coast Rail Link and China Petroleum Pipeline Bureau to suspend work on two pipelines worth $2.5 billion.

The the East Coast Rail Link has been marred in controversy since it was awarded to China Communication Construction Company in November 2017, amidst reports that the cost had been inflated to pay off 1MDB's debts. Eng said in early July 2018 that the real cost of the rail project is M$81 billion rather than the previously stated M$55 billion.

Meanwhile, the pipelines project has attracted fresh attention due to new revelations that nearly 90% of the cost was paid to China Petroleum Pipeline Bureau even though just over 10% of the work had been completed.

Some of that money may have been used to pay off 1MDB's debts, according to Pua. "The entire pipelines project smelt like a scam," he said.

So far, neither the Chinese state-owned companies nor Beijing have commented on the very public unravelling of 1MDB.

Mahathir was scheduled to travel to China in mid-August and has vowed to renegotiate the terms of the three projects but has so far stayed uncharacteristically silent on the outcome of the talks. ■

NEWS ANALYSIS: Having set an ambitious 2022 solar target, the Indian government may be its own worst enemy. By Mia Tahara-Stubbs.

Targets and reality

One of the world's fastest growing renewables markets has ambitious goals and a government upbeat on meeting them – but is New Delhi too optimistic?

Prime Minister Narendra Modi set the ambitious target to install 100GW of solar capacity by 2022 back in June 2015.

And there has been a frenzied pace of tenders over the past year.

To date 23GW of capacity has been installed, with around 10GW under construction while another 24GW of projects is in the process of being tendered out, according to official figures as of July 2018.

Though still some way short of its target, the government remains bullish. "The Ministry of New and Renewable Energy has planned a detailed trajectory so as to meet the target of 100GW by 2022," Power and New and Renewable Energy Minister R K Singh recently told parliament. "The country is on track to comfortably achieve the target of 100GW of solar capacity by 2022."

The eventual total may be even bigger, according to Singh: the National Institute of Solar Energy estimates the country's total solar power potential at some 748GW.

The government's own agencies and policies may turn out to be a road bump, however.

Stumbling over itself

Solar Energy Corporation of India (SECI), which is part of the Ministry of New and Renewable Energy and has been the largest tenderer of solar capacity, has recently taken to cancelling auctions altogether when developers failed to match the record low tariff of Rs2.44 ($0.04) per kWh.

In July 2018, SECI cancelled 950MW of solar tenders and Uttar Pradesh state in northern India also annulled a 1,000MW auction, citing higher tariffs.

This month, SECI cancelled all but the lowest bid at its 3GW solar auction. Only Acme Solar's Rs2.44 per kWh bid, in line with the historic low, for 600MW was spared. The other bids came in at between Rs2.64 and Rs2.71 per kWh.

"The government must be live with the outcome of bid price. It should go ahead with these projects even if tariffs are higher than what they like," rating agency Crisil Research director Rahul Prithiani recently said in an interview with local media. "If bids are scrapped, you'll further delay the overall programme."

The Indian government also has been seeking to encourage domestic manufacturing of solar panels.

One policy solution, imposing so-called "local content" requirements, had to be scrapped after the US government won its case against India at the World Trade Organization (WTO) in 2013. India complied with the ruling from December 2017.

Another policy has hit domestic opposition. At the end of July 2018, New Delhi's imposed 25% tariffs on solar imports from China and Malaysia for two years, another effort to prop up domestic manufacturing.

The tariffs risked raising capital costs by 15-20%, according to industry experts cited in local media.

That prompted developers to threaten to pull out of the country's largest energy conglomerate NTPC's 2GW auction if they could not pass on the cost of the tariff to offtakers.

The situation has been put on hold since then. India-based solar independent power producer (IPP) Acme Solar won an interim directions to suspend the tariffs in the High Court of Orissa. Mumbai-headquartered Shapoorji Pallonji Infrastructure has also challenged the tariffs in the Madras High Court.

In response, the government shelved the tariffs for the "time being", which was enough to ease bidders concerns and see the NTPC auction proceed. The lowest bid came at Rs2.59 per kWh.

"The uncertainties from safeguard led to severe disturbance in the supply chain. Significant number of orders for modules imports were either suspended or cancelled. Hundreds of containers were also stuck at ports until Madras High Court ordered for provisional clearance of shipments without charging any duty while hearing the petition," Solar Power Developers Association director general Shekhar Dutt told local media.

Whether the tariffs can be imposed at all is also an open question, after Malaysia sought consultations with New Delhi under the WTO's safeguard agreement at the end of August 2018.

The consequences for developers if the Indian government does push ahead with imposing the tariffs may be dire.

With the cost of solar panels typically representing 60% of total project outlays in India, the "cost of solar projects will be additionally burdened by 20% and has created a huge risk on the viability of on-going projects," according to Dutt.

What effect the cancellations and the tariffs will have on India's 100GW target remains to be seen.

In a recent report, Crisil Research estimates that even under the best case scenario, the country will only be able to reach capacity of 80GW – 20GW short of the government's target. ■