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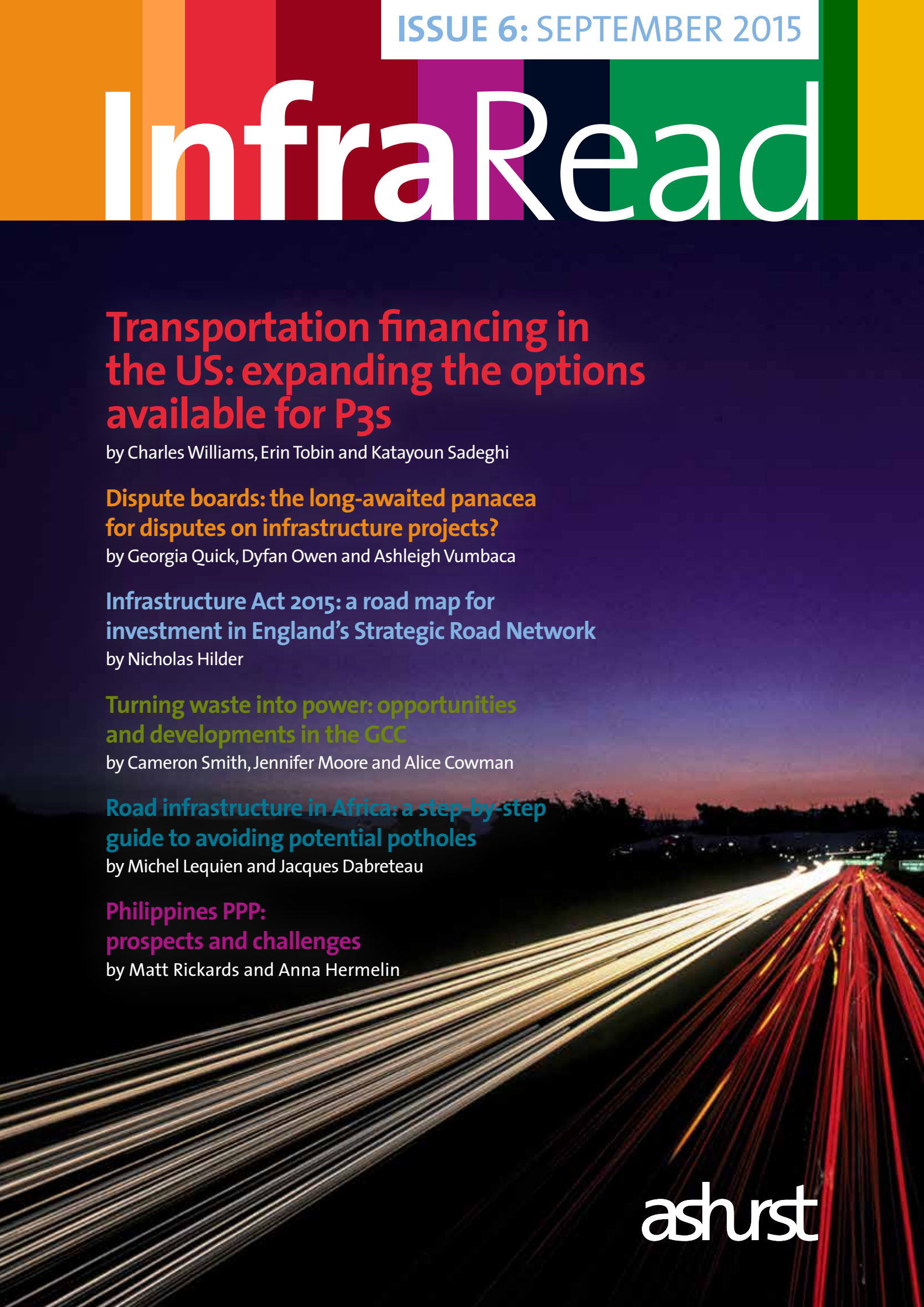

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An overview of this issue

I am delighted to introduce this sixth issue of **Infra**Read, our biannual publication covering a range of legal and transactional issues within the transport and infrastructure space. This is a truly global issue, with commentary and insight from our offices right across the world looking at:

TRANSPORTATION FINANCING IN THE US (p3) The US federal government and various state governments have been encouraging the development of transport infrastructure by passing enabling finance-related legislation, expanding the menu of funding options for developers. Charles Williams, Erin Tobin and Katayoun Sadeghi examine the current funding landscape for public-private partnerships (P3s) in the US, as well as giving their thoughts on what the future may hold.

DISPUTE BOARDS (p8) A prudent foresight in preparing for the inevitable or a costly additional overhead? Georgia Quick, Dyfan Owen and Ashleigh Vumbaca investigate the pros and cons of using dispute boards on infrastructure projects.

INFRASTRUCTURE ACT 2015 (p13) A step-change in road investment? The Infrastructure Act 2015 marks a change in the UK Government's approach to funding England's Strategic Road Network. Nicholas Hilder explains the key changes as he outlines the Government's new Road Investment Strategy.

TURNING WASTE INTO POWER (p16) Waste-to-energy (WtE) projects offer a solution to two problems faced by governments globally: managing waste and providing alternative sources of power. Cameron Smith and Jennifer Moore, together with Alice Cowman, Senior Energy Consultant at Adam Smith International, consider the role of WtE projects in the Gulf Cooperation Council region.

ROAD INFRASTRUCTURE IN AFRICA (p21) Modern, safe and future-proofed road infrastructure is essential for Africa's continued economic development. Michel Lequien and Jacques Dabreteau highlight the legal and institutional issues which infrastructure investors need to be aware of in this diverse and colourful continent.

PHILIPPINES PPP (p25) The establishment of a PPP Center and a healthy pipeline of projects has made the Philippines an attractive destination for overseas investors. Matt Rickards and Anna Hermelin describe the steps which the Philippines Government has taken to embed PPP into its national infrastructure strategy.

I hope that you enjoy reading this issue of **Infra**Read and that you find it useful. Please do get in touch if you have any feedback or if there are any topics you would like us to include in future editions.

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TRANSPORTATION FINANCING IN THE US

Expanding the options available for P3s

by Charles Williams, Erin Tobin and Katayoun Sadeghi

The rehabilitation and further development of transportation infrastructure in the US is widely recognized as an important part of the country's continued economic success. To facilitate this, the federal government and a number of state governments have taken steps to pass various types of legislation to enable the use of public-private partnerships (P3s) for transportation infrastructure projects.

This article provides an overview of some of the primary sources of financing available in the US for transportation infrastructure projects developed as P3s, including:

(i) Transportation Infrastructure Finance and Innovation Act (TIFIA) financing;
(ii) private activity bonds (PABs);
(iii) taxable bonds;
(iv) commercial bank loans; and
(v) monoline insurance.

TIFIA financing

Under the TIFIA program, the US Department of Transportation (the US DOT), acting by and through the Federal Highway Administrator, provides loans, loan guarantees and standby lines of credit to finance large-scale transportation projects. TIFIA loans have been a critical source of funding for many major transportation projects in recent years. Qualifying projects must meet certain statutory eligibility criteria (e.g. relating to their impact on the environment and their significance to the national transportation system) and must undergo review by, and obtain the approval of, the US DOT.

TIFIA financing can be attractive to P3 developers (and procuring authorities) given the magnitude of credit available, loan tenors which are significantly longer than those currently available from commercial banks (typically, the length of the underlying concession minus two years) and favorable interest rates (especially for projects in rural areas, which may be eligible for significantly reduced interest rates).

Utilizing TIFIA financing also presents certain unique challenges for procuring authorities and investors. For example, because the term sheet for a TIFIA financing is agreed between the US DOT and the procuring authority during the bid phase, developers typically have limited input into this exercise and must assume that reasonable covenants and other terms can be negotiated post-award – which introduces certain risks relating to the predictability of financing terms.

Also, it can take much longer to negotiate and reach financial close for TIFIA financing than it would for other forms of financing, such as commercial bank loans or PABs, due in part to the amount of time needed for the loan to receive US DOT internal credit committee approval. While developers are typically explicitly allowed extra time by procuring authorities to achieve financial close on account of delays attributable to finalizing TIFIA financing,

such delays can be undesirable from the perspective of both the procuring authority and the developer.

There also is not, as yet, a standardized approach to closing TIFIA financing alongside other sources of debt, which can inject uncertainty around the timing and process for achieving overall financial close of the project.

Finally, TIFIA debt has traditionally been subordinated to commercial financing provided to the developer in terms of priority of payment and certain intercreditor decision-making, subject to a statutory requirement that TIFIA debt "springs" to senior parity upon the occurrence of certain bankruptcy-related events. There is currently, however, a certain lack of predictability regarding the extent to which the US DOT will continue to subordinate itself, potentially impacting the developer's access to commercial debt and the rating given by the rating agencies to such commercial debt.

PABs

Historically, tax-exempt PABs have proven to be a cost-effective source of long-term financing for certain types of infrastructure projects, particularly in the transportation sector.

Under the US Internal Revenue Code (the Code), interest earned on tax-exempt bonds, including PABs, is exempt from federal and, in most cases, state income tax in the state in which the bonds are issued. Due to this tax savings, bond investors are able to accept lower interest rates on such instruments than would apply in the taxable bond market to achieve an equivalent after-tax return, resulting in lower borrowing costs for the borrowing developer and therefore a decrease in its overall project costs. This tax exemption is policy driven – intended to encourage the financing of certain types of facilities (e.g. airports, docks, wharves, roads and transit) which benefit the public and stimulate economic development, but which typically also have significant private involvement.

Under the Code, the interest tax exemption does not apply to PABs unless they are "qualified bonds". Most PABs issued in the US to finance infrastructure projects will qualify for tax exemption as "Exempt Facility Bonds". Within the Exempt Facility Bond category, there are 15 subcategories, including qualified highway and surface freight transfer facilities. Qualified highway and surface freight transfer facilities were the subject of specific federal legislation (the Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA)) which amended §142 of the Code to add this category of qualified PABs. SAFETEA also provided a US$15bn funding allocation to be disbursed among the states by the US Secretary of Transportation and exempted this category of qualified PABs from state volume caps. Other types of qualified PABs are subject to state volume caps, which are generally based upon a state's population; SAFETEA exempts issuers from such limitations thereby broadening issuers' access to this category of PABs. To date, in 2015 alone, Ashurst has represented sponsors and underwriters in connection with the issuance of just under US$1bn of this type of PABs.

In a typical infrastructure transaction utilizing PABs, the PABs will be issued by a conduit issuer (the Issuer), which must be a state or local government entity under the Code (i.e. a state or political subdivision, or a legal entity acting either as an "instrumentality" or "on behalf of" a state or political subdivision), and the Issuer will loan the proceeds of the PABs. The obligation of the Issuer to repay the principal and interest to bondholders is documented in a bond indenture entered into between the Issuer and a trustee acting on behalf of the bondholders. However, the underlying credit on the PABs is that of the entity borrowing the proceeds of the PABs which, in the case of an infrastructure project, is the developer. Under the loan agreement with the developer, the developer agrees to pay the principal and interest on the PABs to the Issuer.

Notwithstanding potential cost-efficiencies, the use of PABs poses certain challenges. In particular, investors seeking to access such financing will need to comply with both complex regulations under the Code (in order to preserve tax exemption throughout the life of the transaction) and certain Securities and Exchange Commission (SEC) rules and regulations.

Although PABs are exempt from registration with the SEC, as a security they are still subject to certain SEC regulations and to monitoring by the Municipal Securities Rulemaking Board (MSRB). Rule 15c2-12 of the Securities Exchange Act of 1934 (the Exchange Act) places obligations on the underwriters of municipal securities (including PABs), which are in turn passed on to the developer and sponsors. These include certain disclosure obligations prior to the issuance of the PABs, as well as continuing disclosure obligations. A key disclosure requirement prior to the issuance of PABs is the creation and distribution of an official statement to prospective investors. In an official statement, all of the primary entities involved in a transaction (including the developer, the procuring authority, the government of the state in which the project is being developed, sponsors, contractors and operators) are required to disclose information about themselves and the project, including risks to bondholders, project costs, the form of revenues supporting the project and the project's payment schedule. Additionally, each "obligated person", which may include the procuring authority but will almost always include the developer, must provide continuing financial and operational disclosures, as well as periodic disclosure of any material events affecting bondholders, until such time as the PABs mature or are otherwise redeemed in whole or defeased. If an entity provides misleading material information or omits to disclose material information in the official statement, it could result in liability under Rule 10b-5 (Rule 10b-5) of the Exchange Act. Proving a Rule 10b-5 cause of action and identifying which entity is ultimately responsible for statements made to investors are beyond the scope of this article, but sponsors and developers should be aware of this potential liability, and of the importance of ensuring the accuracy of required disclosures to investors in PABs transactions.

In addition to compliance with SEC regulations, the Issuer and ultimate borrowers of the proceeds of PABs must comply with certain Code regulations in order to maintain the tax-exempt status of the bonds. Before issuance of the bonds, the Issuer must hold public hearings (known as TEFRA hearings) which are subject to certain notice requirements and public approval. There are limitations on the use of proceeds from bond issuances (e.g. 95 per cent of the proceeds must be allocated to a qualifying use – working capital does not qualify but interest during construction qualifies until the project is placed into service). This requirement regarding interest during construction can cause complications with phased projects, where parts of a project are already in operation while construction on other parts continues. An Issuer may risk losing the tax-exempt status of bonds should certain project costs not count as qualifying uses of proceeds. Accordingly, in such scenarios, equity will typically have to fill the gap in order to avoid such adverse treatment under the Code.

Finally, the Code places arbitrage restrictions on the proceeds of bonds. Essentially, one cannot borrow in the tax-

exempt market and reinvest the proceeds of the bonds in the taxable (higher rate) market. Any arbitrage proceeds must be rebated to the US Government, unless an exception under the Code applies. Therefore, investments of bond proceeds prior to their disbursement to finance construction of the project must be carefully monitored to ensure they do not violate the arbitrage rules.

Unless taxable rates of interest fall at or below tax-exempt rates, qualified PABs will remain a significant source of financing for transportation infrastructure projects in the US for the foreseeable future.

Taxable bonds

Although PABs, TIFIA loans and commercial bank debt have been the primary sources of financing for US transportation infrastructure projects, depending on fluctuations in interest rates, the market for taxable bonds may continue to grow. This will largely depend on the yield spread and the yield ratio. The yield spread is the difference between the interest rate on taxable bonds (i.e. corporate bonds or treasury bonds) and the interest rate on tax-exempt municipal bonds of equivalent risk and maturity. The greater the yield spread, the greater the savings to a developer looking to finance a project with PABs. The yield ratio is measured as the average rate on tax-exempt bonds divided by the average rate on taxable bonds of like term and risk. A lower ratio implies a greater savings to developers which utilize PABs relative to taxable debt. As the ratio approaches 1:1, the taxable rate and the tax-exempt rate begin to converge and a developer may consider the use of taxable bonds to finance a project. Additionally, a developer may seek to use a combination of PABs and taxable bonds if certain project costs are not considered "qualifying uses" and thus would not comply with the qualifying use rules referred to above (i.e. that 95 per cent of PABs proceeds must fund qualifying purposes).

Should a developer decide to finance a project using taxable bonds, provided that such bonds are issued and sold in a private placement thereby exempting the securities from registration with the SEC, the developer would avoid the burden of complying with the complex Code regulations and the SEC's continuing disclosure rules applicable to PABs, as referred to above. In certain instances, the issuance of registered securities by a developer is not viable because of the cost and time involved in registering securities with the SEC. While the SEC has established a variety of registration exemptions, the ones most commonly used by issuers are private placement exemptions provided by Section 4(a)(2) (Section 4(a)(2)) of the Securities Act of 1933 (the Securities Act) and Rule 506 of Regulation D, which supplements Section 4(a)(2) by providing guidance to issuers on how to conduct a private placement.

Section 4(a)(2) provides a transactional exemption and only exempts the particular offering and sale of securities from registration. Sales of securities under Section 4(a)(2) are limited to sophisticated investors which would include qualified institutional buyers (QIBs) and accredited investors. Resales of securities must either be registered or benefit from an available registration exemption, the most commonly used resale exemption being Rule 144A under the Securities Act, which provides that resale must be to QIBs. Generally, a QIB is an institution (rather than an individual) which owns and invests, on a discretionary basis, at least US$100m in securities. For certain entities, such as broker-dealers, banks, and savings and loans associations, the investment threshold is lower. "Accredited investors", however, includes individuals whose net worth is more than US$1m or who have an annual income in excess of US$200,000 (or US$300,000 jointly with a spouse) and certain other institutions or trusts with assets exceeding US$5m. The SEC's main objective in restricting the types of investors to whom issuers may advertise and sell private securities is to protect unsophisticated investors from purchasing securities which are subject to less disclosure than is

required for registered securities. Issuers of securities in a private placement should be aware that under SEC rules and regulations:

(i) there may be a limit on the number of investors to whom an issuer can market and sell the securities;
(ii) there will be a prohibition on general solicitations and general advertising of the securities;
(iii) there may be an information requirement (as discussed below); and
(iv) there will be transfer restrictions on the securities.

Additionally, certain investors must represent whether they are purchasing securities for their own account and not with a view to resale.

If a developer decides to issue taxable bonds through a private placement, there are certain precautions it should take to ensure compliance with the exemptions under the Securities Act and the rules governing transfer. For example, issuers usually receive a letter from each investor providing the issuer with certain representations as to, among other things, their net worth and status in order to verify their qualification as either a QIB or an accredited investor. In addition, the actual bond should contain a conspicuous legend stating the transfer restrictions on the face of the bond in order to avoid an improper transfer of the security, which could then subject the security to registration with the SEC.

The issuer will generally be required to make extensive disclosures to investors, normally entailing the production of a private placement memorandum (PPM) which will include disclosures similar to those included in an official statement for PABs. However, the developer and any other obligors will not be subject to the same continuing disclosure rules as required with a PABs issuance. Even so, developers and sponsors should be aware that the same Rule 10b-5 anti-fraud provisions addressing material misstatements or omissions in a disclosure document presented to investors will also apply in the case of a PPM.

With taxable bonds (as opposed to with PABs), the developer may also directly issue bonds rather than entering into a loan agreement with a conduit issuer, eliminating the need to negotiate and agree documentation with an additional party.

Overall, the reduced level of regulations and restrictions associated with taxable bonds in contrast with PABs makes taxable bonds an attractive financing solution, but only to the extent that taxable interest rates are low enough in comparison with tax-exempt interest rates to offset the savings of tax exemption. Of note, taxable bonds and PABs use different benchmark interest rates: for taxable bonds – US treasuries of equal maturity; and for PABs – a benchmark municipal index (the specific index selected may vary based on whether the bonds are fixed or variable interest rate). Because of this difference in benchmark interest rates used, over time, the attractiveness of taxable bonds versus PABs will vary in line with fluctuations in such benchmark interest rates.

Commercial bank loans

A form of debt commonly used to finance transportation infrastructure in the US, as in other parts of the world, is the provision of loans from international and domestic commercial banks. While such loans are not accompanied by extensive

US Transportation Infrastructure P3s (July 2014–July 2015)							
Deal	**Bank financing**	**PABs financing**	**Monoline**	**Taxable bond**	**TIFIA financing**	**Equity**	**Total**
I-4 Ultimate	US$484.2m (short term)	N/A	N/A	N/A	US$949.5m (short term and long term)	US$103.5m	US$1,537.2m
Portsmouth Bypass	N/A	US$227.4m (short term and long term)	US$23.7m	N/A	US$208.1m (short term)	US$48.9m	US$484.4m
Pennsylvania Bridges	N/A	US$721.5m (short term and long term)	N/A	N/A	N/A	US$58.5m	US$780m
I-77 HOT Lanes	N/A	US$100m	N/A	N/A	**US$189m**	US$248.4m	US$537.4m

disclosure requirements or other onerous regulatory restrictions, they often carry a higher interest rate than other forms of debt available, so may be a less attractive financing solution for developers. Other considerations, such as tenor and ease of negotiation, also play into whether sponsors are likely to use commercial bank debt; this is discussed further below.

In the current post-financial crisis market, commercial banks are typically unwilling to provide financing for a tenor of longer than five to seven years. This is in contrast with other sources of financing (PABs, for example, may have final maturities of 30 to 40 years, thereby matching the entire lifecycle of a project). Therefore, in order to finance a long-term P3 concession most efficiently, bank debt would usually need to be combined with some other form of long-term funding (e.g. a TIFIA loan or PABs). In such instances, bank debt has frequently been used to fund construction, and is then repaid at project completion from the proceeds of any milestone or completion payments that the developer is entitled to receive from the procuring authority.

One significant benefit of commercial bank debt is that it is not subject to the SEC rules and regulations applicable to PABs or taxable bonds, or to the complex Code regulations applicable to PABs on an ongoing basis. While some form of disclosure document may be prepared for commercial bank lenders, developers will not be obligated to provide disclosure (or incur statutory disclosure-related liability) prior to lending or on an ongoing basis (other than that which the developer contracts to provide in the loan agreement or other agreements with lenders).

Monoline insurance

Monoline insurance (also known as financial guarantee insurance) is a potential enhancement product for transactions involving PABs financing. While many of the prominent monoline insurance companies have not been active in the market since the global financial crisis due to their exposure to certain financial products, there still remains a market for monoline insurance in the US, albeit a more limited one. Some of the five main legacy monolines still maintain relatively strong ratings and, in certain transactions, may help establish more favorable financing terms through wrapping risk on certain bonds. Although this credit enhancement adds another financing party and, as such, some additional complexity to associated negotiations and documentation, such difficulties are manageable.

The most important consideration will be whether the credit enhancement brought about by the monoline insurance is beneficial from a pricing and marketing perspective. It should also be kept in mind that a significant number of bond purchasers may prefer to purchase bonds that are not wrapped (and, thus, have a lower credit rating) given that such bonds generally carry a higher yield.

Conclusion

Investors seeking to establish themselves in the US infrastructure market should be aware of the various funding solutions available in addition to traditional commercial bank debt. This holds true for the transportation sector and for infrastructure projects more generally. While the processes involved in obtaining TIFIA financing or issuing PABs or taxable bonds may be comparatively onerous, each of these forms of financing presents unique benefits and, in the case of TIFIA financing and PABs in particular, will continue to be important sources of financing for procuring authorities and for any investor seeking to be competitive in the US market. While each project presents its own set of unique challenges (depending on a variety of factors including the approach of the procuring authority and legislative requirements in the relevant state), if developers have a solid understanding of the various forms of financing available to them, their prospects for success will be significantly improved.

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DISPUTE BOARDS

The long-awaited panacea for disputes on infrastructure projects?

by Georgia Quick, Dyfan Owen and Ashleigh Vumbaca

The infrastructure industry is increasingly looking at new means of dispute resolution in an attempt to resolve the large number of disputes that arise in the sector. The use of dispute boards is one of the more recent approaches being taken.

As these boards have the advantage of being informed about the parties and their potential dispute, they can provide a cost-effective resolution of the issues before positions become entrenched. However, against this must be balanced issues of procedural fairness, a lack, at present, of legislative frameworks or accreditation guidelines, together with limited mechanisms for enforcement. This leads one to ask: can these boards live up to all that they promise?

It is not unusual for commercial parties to be involved in a dispute at some point during the course of a contract. In the construction industry, it is said, "*the disease is most advanced*".[1]

A number of factors linked to the large-scale nature of infrastructure projects have led to the proliferation of disputes:

- construction projects often involve complex technical issues and sophisticated commercial players dealing in a complicated area of law which must attempt to regulate the parties' relationship over the extended period of the project's life;
- the complex nature of infrastructure projects requires specialised expertise, with scope for disagreement between experts and legal advisers alike;
- the competitive tendering process common on infrastructure projects may lead contractors to tender with smaller margins, and subsequently attempt to claim contract price adjustments in order to recoup losses; and
- late or disputed progress payments may cause financial pressures to be felt further down the contracting chain, resulting in an increased frequency of claims.

Participants in the 2014 report of our Scope for Improvement series,[2] which have since 2006 reported on the obstacles and pressure points in the Australian construction and infrastructure sectors, found that disputes are increasing both in number and value. In addition, participants indicated that an increase in the size of the project leads to an increase in the size of the dispute. In projects where delay costs run to millions of dollars a day, even a small delay

1 Justice D. Byrne, "The future of litigation of construction law disputes", *Building and Construction Law Journal*, 23 (2007).

2 *Scope for Improvement 2014: Project pressure points – where industry stands*, ashurst.com (2014).

becomes a claim of considerable value.

According to participants in the Scope for Improvement reports, the most common issues in dispute are variations to scope (47 per cent), contract interpretation (38 per cent), extension of time claims (33 per cent) and site conditions (19 per cent).

A recent study[3] found that the direct costs of resolving construction disputes in Australia is between AU$560m and AU$840m per year. When the indirect costs of disputes, such as delay and opportunity costs are included, this figure rises to AU$7bn annually.

It will therefore come as no surprise that the construction and infrastructure industries have been relatively quick to embrace alternate means of resolving disputes. One of the latest attempts is through the use of dispute boards.

What is a dispute board?

Dispute boards are creatures of contract, described as "on-the-run" and "real-time" procedures.[4] They generally consist of three independent members jointly selected by the parties at the beginning of the project. The parties may also choose to constitute a dispute board only at the time of a dispute. This will lower the cost of a dispute board, but result in a less "on-the-run" recommendation. Members are generally selected on the basis of their experience, technical qualifications, impartiality and independence from the project.

Throughout the life of the project, the members of the dispute board regularly attend the site with the parties and are provided with relevant documents, such as monthly progress reports. The dispute board continues to operate throughout the life of the project, attempting to resolve, on an informal basis, any disputes which the parties are unable to resolve for themselves.

The contractual arrangement will determine the specifics of how a dispute board will function and the procedure to be adopted but, generally speaking, there are three main types:

1. Dispute Review Boards (DRBs)

When a dispute cannot be resolved between the parties, the DRB will hold an informal meeting. This meeting is more akin to a site meeting than a trial and generally will not involve lawyers or experts. Both parties are usually given the opportunity to present their position on the matters in dispute and may provide the DRB with materials which will assist it in reaching a conclusion.

The DRB will then issue a non-binding determination, typically within a short time-frame. If neither party expresses dissatisfaction with the recommendations within a stated period of time, the parties are generally required to give effect to the recommendations.

2. Dispute Adjudication Boards (DABs)

DABs first appeared in the International Federation of Consulting Engineering (FIDIC) design and build contract (the Orange Book) in 1995. The main difference between a DRB and a DAB is that a dispute referred to a DAB will result in an immediately binding decision, rather than a non-binding recommendation. However, parties may also agree that the recommendations of a DRB are to be binding if no objections are raised within a specified time period. For example, under article 4 of the International Chamber of Commerce's Dispute Board Rules, a DRB makes recommendations which are binding provided there is no objection within 30 days.

3. Combined Dispute Boards (CDBs)

CDBs are an amalgamation of DRBs and DABs. Unlike DRBs and DABs, CDBs are able to make both binding and non-binding recommendations. The default position of a CDB is that it may make a non-binding recommendation. However, either party may submit a request for a CDB to make a binding decision. Unless the other party objects, the decision will be binding on both parties.[5]

The increasing popularity of dispute boards

In 1996, the Dispute Resolution Board Foundation was established with the aim of promoting the use of dispute boards worldwide. According to the Foundation, a number of large infrastructure projects globally have used a dispute board during the construction phase, including:

- the Channel Tunnel project between the UK and France (US$15.7bn);
- the Chek Lap Kok Airport in Hong Kong (US$10bn); and
- the Oresund Fixed Link Bridge in Denmark (US$820m).

An independent study into the use of dispute boards in the US found that they have most frequently been used on highway projects, as opposed to tunnelling and more general building projects.[6] The use of DRBs in Australia has followed the same trend, with State highway departments (especially in New South Wales) being early adopters. The Queensland Department of Transport and Main Roads became the first Australian organisation to include optional dispute board clauses in its standard design and construction contracts.[7]

According to the Dispute Resolution Board Foundation, there are currently 52 projects in Australia utilising a dispute board. These projects range in value from AU$60m to AU$1.8bn and include the Sydney Light Rail project and Pacific Highway upgrade in New South Wales, and the M5 Legacy Way in Queensland. However, the extent to which the dispute boards are

3 P. Gerber and B. Ong, "21 today! Dispute review boards in Australia: Past, present and future", *Australasian Dispute Resolution Journal*, 22/3 (2011).

4 D. Jones, *Building and Construction Claims and Disputes*, Construction Publications (1996).

5 International Chamber of Commerce, *Dispute Board Rules* (in force from 1 September 2004), art. 6.

6 C. Menassa and F. Peña Mora, "Analysis of Dispute Review Boards Application in U.S. Construction Projects from 1975 to 2007", *Journal of Management in Engineering*, 26/2 (2010).

7 P. Gerber and B. Ong, "DAPs: A flash in the pan or here to stay?", *Australian Construction Law Bulletin*, 23/8 & 9 (2011).

Consideration	Dispute board	Litigation	Arbitration	Expert determination
Available outside of the contract terms?	✗	✓	✗	✗
Available before a dispute has arisen?	✓	✗	✗	✗
Procedure determined by the parties?	✓	✗	✓	✓
Are costs front-loaded?	✓	✗	✗	✗
Dispute heard by an industry expert?	✓	✗	Possibly[8]	✓
Is the court, tribunal or expert(s) familiar with the project prior to the dispute being referred?	✓	✗	✗	Possibly[9]
Formal, more lengthy process?	✗	✓	✓	✗
Ability to formally submit evidence which can be cross-examined?	✗	✓	✓	✗
Ability to obtain relevant documents through discovery?	✗	✓	✓	✗
Confidential outcome?	✓	✗	✓	✓
Binding decision?	Possibly[10]	✓	✓	Possibly[11]
Decision enforceable as a court judgment?	✗	✓	✓	✗

actively being used by the parties to these projects is unclear.

Dispute boards in comparison to more traditional forms of dispute resolution

While most dispute resolution procedures only become relevant once a dispute has arisen, one of the primary functions of a dispute board is to avoid disputes in the first place by actively engaging with the parties throughout the construction process. The table above compares dispute boards to more traditional methods of dispute resolution. These comparisons are based on general observations and, in practice, each method of dispute resolution is unique to the terms of the contract provisions establishing that procedure.

Why would you use dispute boards?

Encouraging party communication and co-operation

A successful construction project requires a constructive working relationship between the parties, especially between the project sponsor and the contractor, and between the contractor and any subcontractor. However, poor communication, misunderstandings and misinterpretation of the contract can lead to adversarial attitudes being adopted.[12]

The site visits and meetings conducted by the dispute board, which occur on site and in "real time", can assist in promoting communication between the parties, which may lead to the clarification of any misunderstandings before these become actual disputes or claims.

As a result of being familiar with the project, dispute boards may be able to intervene to provide solutions at the early stages of any differences of opinion before the issue gains further momentum and positions become entrenched.

The effectiveness of dispute boards in resolving conflict has been the subject of a number of independent studies, which are summarised below:

- In a study of 1,042 construction projects in the US begun between 1975 and 2007 which made use of dispute boards, 810 projects were complete as at 30 December 2007. Of these 810 projects, 51 per cent had resolved all their disputes during site meetings without requiring a formal dispute board hearing and 97 per cent were completed without having to resort to any formal dispute resolution procedure.[13]
- Between 1994 and 2008, the Florida Department of Transport had 262 instances of disputes on its projects progressing to a dispute board hearing. All except one of these disputes were resolved without requiring formal dispute resolution.[14]

These figures are impressive, but it should be borne in mind that factors besides the operation of the dispute board may have influenced these results. The large-scale nature of the projects assessed means that dispute boards were probably adopted as part of a more formal dispute resolution process that may have included partnering and other forms of alternate dispute resolution.

In addition, given the political and financial pressures associated with these projects, the incentive to resolve disputes quickly and progress the project will have been strong. Participants in these projects are also more likely to have been aware of the operation of dispute mechanisms prior to the project commencing, enabling parties to be "dispute ready" and able to articulate their position as early as possible, should any issue arise.

Dispute boards as an insurance policy

Litigation and arbitration can be timely and expensive. The cost of these forms of dispute resolution are usually in the realm of eight to ten per cent of the total project cost.[15] This is largely due to the extensive fact-finding operation required and the difficult task of recreating events which may have occurred a number of years previously for the benefit of the court or tribunal.

Dispute boards can be viewed as a form of insurance against the costs of disputes which proceed to arbitration or litigation. That is, the value of dispute boards lies in the litigation and arbitration costs which they avoid by preventing disputes from escalating to the point where litigation or arbitration is required. For projects with a contract value greater than AU$20m to AU$30m, the costs of a dispute board are generally between 0.05 per cent to 0.3 per cent of the contract value.[16] Conversely, the

8 This is dependent upon the arbitrator(s) selected by the parties.

9 This is dependent upon the contract provision giving the expert the authority to determine a dispute.

10 This is dependent upon whether the parties adopt a DRB (non-binding) or a DAB (binding) dispute board.

11 This is dependent upon the contract provision giving the expert the authority to determine a dispute.

12 P. Gerber and B. Ong, "DAPs: When will Australia jump on board?", *Building and Construction Law Journal*, 27/1 (2011).

13 As footnote 6.

14 F. Arif, M.E. Bayraktar and C. Cinkilic, "Analysis of Disputes in Transportation Projects", *Journal of Risk Analysis and Crisis Response*, 2/4 (2012).

15 P. Chapman, "Dispute Boards for Major Infrastructure Projects", Paper presented at Seminar on The Use of Dispute Boards in Australia, Queensland, 30 November 2006.

16 G. Peck and P. Dalland, "The benefits of Dispute Resolution Boards for issue management of medium to large construction projects", *The Arbitrator & Mediator*, 26/1 (2007).

smaller the value of the contract, the higher the dispute board costs are in comparison. The costs associated with dispute boards may mean that they are not economic for smaller or less complex projects. Of course, if the dispute board fails to resolve a dispute, then these costs become additional to the more conventional dispute resolution costs.

What are the issues to consider before setting up a dispute board?

The cost of maintaining a dispute board

The direct costs of a dispute board are typically borne equally by the parties. However, dispute boards also incur indirect costs, as outlined in the table to the right.

The costs of a dispute board can be greater than other methods of dispute resolution due to the requirement to keep dispute board members aware of construction progress throughout the life of the project. This cost is incurred even if the dispute board is never required to make a recommendation. Despite the characterisation of dispute board costs as "valuable insurance", these costs can be substantial and should be an important consideration for parties prior to the adoption of a dispute board mechanism.

Direct costs	Indirect costs
• The legal costs of establishing a dispute board requiring legal counsel to draft the contract provisions. • A retainer for each member of the dispute board (which is typically two to three times their daily rate) in order to secure their involvement for the course of the project. • A daily fee payable to each member of the dispute board for site visits, meetings, hearings, preparation for these meetings/ hearings through reviewing documents and correspondence. • Other expenses incurred by the dispute board such as travel costs.	• Employees of both parties preparing for dispute board meetings. • Employees of both parties participating in dispute board meetings. • Keeping dispute board members informed of construction progress between site visits.

Issues with dispute board determinations

The failure of a party to adhere to a binding determination of the dispute board can be enforced through litigation for breach of contract. However, this requires parties to undertake the same litigious course which they had sought to avoid through the use of a dispute board. There is also the risk that a court may require the subject matter of the dispute to be reheard[17] which will increase the time and cost associated with enforcement proceedings.

Parties who are unhappy with a binding determination face the difficult alternatives of either:

(a) seeking the consent of the other party/parties to not adhere to the determination;
(b) commencing proceedings seeking a declaration that the dispute board determination be set aside for reasons such as the dispute board having acted outside its jurisdiction; or
(c) adhere to the determination.

These alternatives will require the parties to expend further costs despite having already paid the costs of maintaining and operating a dispute board.

Furthermore, if a party loses confidence in the dispute board, there is usually no mechanism for replacement of the dispute board. The dispute board procedures will still have to be followed and costs incurred, irrespective of whether it has become somewhat obsolete.

The quality of a determination will be dependent upon the members of the dispute board selected by the parties. When selecting dispute board members, parties should not only consider their expertise, experience and independence but also factors such as commercial awareness and an appreciation of the context within which a party operates. This is particularly important where government bodies are involved, as probity requirements may necessitate a legal entitlement having been established before public funds can be released as payment in accordance with a determination. This is in contrast to a contract involving two commercial parties, as they may be able to agree to a payment being made in order to progress the project, despite there having been a relatively limited discussion of legal entitlement.

Is the referral of a dispute to a dispute board a condition precedent to other forms of dispute resolution?

There is some authority on whether the referral of a dispute to a dispute board must occur before the parties can consider other forms of dispute resolution under their contract. In *A___ S.A. -v- B___ S.A.* 4A_124/2014, a decision of the Federal Supreme Court of Switzerland, the court held that generally a procedure under a dispute resolution clause is mandatory and so parties should not bypass the mechanisms in place and attempt to refer a dispute directly to arbitration. However, in this case, the parties had failed to appoint a DAB after the contracts had been executed and, in these circumstances, the court ruled against requiring the parties to proceed with an ad hoc DAB.

In contrast, the English High Court in *Peterborough City Council -v- Enterprise Managed Services Ltd* [2014] EWHC 3193 held that, given that the relevant clause provided for ad hoc DAB appointments, the contract required the referral of the dispute to the DAB prior to any litigation. The court held that, as the parties had agreed to incorporate the FIDIC DAB machinery into their contract, it would have been foreseeable that this machinery would be required. In coming to this decision, the court relevantly stated that "*[a]s the authorities clearly show, there is a presumption in favour of leaving the parties to resolve their dispute in the manner provided for by their contract*". It seems courts are willing to enforce the requirements of dispute resolution clauses, provided that these requirements are sufficiently certain.

The need to draft carefully the dispute board's structure and procedure

In situations where claims are particularly complex and technical, it may be preferable to involve a dispute board member with a legal or judicial background, to ensure that procedural fairness considerations are observed throughout the life of the dispute board's operation. It will also facilitate the legal consistency of determinations made throughout a project.

In 2007, the Dispute Resolution Board Foundation released its *DRBF Practices and Procedures* manual for DRBs and DABs. This manual incorporates recommendations

17 As was the case in *CRW Joint Operation -v- PT Perusahaan Gas Negara (Persero) TBK* [2011] SGCA 33.

for best practices and procedures for the operation of a dispute board, such as "*[t]he DRB gives each party ample opportunity to fully convey its position*". When drafting the relevant clause in their contract, parties may consider making reference to this manual as a means of regulating the conduct of the dispute board.

Apart from this manual, there is little guidance available as to the role and function the dispute board must play. This may be prescribed in the agreement between the parties and the dispute board, but these agreements usually give the dispute board a reasonable amount of discretion. Also, like expert determination, there is no legislative basis for dispute boards under either Australian or English law, and currently no accreditation schemes. As previously mentioned, there is usually no mechanism for replacement of the dispute board during the life of the project.

Finally, dispute boards often perform both a "without prejudice" and a "with prejudice" function. Having obtained certain information from a party in more candid moments, this party may feel somewhat uncomfortable about the dispute board then making a determination which could be binding upon it (depending upon the wording of the contract). This may undermine the effectiveness of a dispute board's role in facilitating communication between the parties.

Interaction with other legislation

The statutory adjudication regime under Security of Payment legislation in Australia prevents parties opting out of the regime.[18] To the extent that a dispute does not fall within the application of the regime, there will be no conflict between the dispute board and the legislation.

However, if the dispute relates to payment claims, a dispute board may result in an unnecessary parallel process. Further, there is as yet no authority on the interaction of these two mechanisms.

Under English law, the Housing Grants, Construction and Regeneration Act 1996 (the Act) provides a statutory right for disputes under all "construction contracts" (as defined in the Act) to be referred to adjudication – irrespective of the subject matter of the dispute (i.e. unlike the Australian Security of Payment regime where statutory adjudication only applies to payment claims).

18 For example, see Building and Construction Industry Security of Payment Act 1999 (NSW), section 34.

The future of dispute boards

Dispute boards are increasing in popularity in the international project landscape. However, the use of dispute boards, particularly outside the construction sector, remains in its infancy. Further, no current standard form building contracts in Australia incorporate any dispute board provisions at present. However, recognising the growing trend among parties towards agreeing less adversarial dispute resolution mechanisms, Standards Australia has prepared a draft AS 11000: General Conditions of Contract which is intended to supersede AS 2124:1992 and AS 4000:1997. This draft provides parties with the option of adopting a Dispute Resolution Board.[19] The procedures relevant to the operation of this dispute board will be contained in AS 11001: Dispute Avoidance, Management and Resolution under Construction Contracts. This draft standard is yet to be released by Standards Australia.

With the increased use of dispute boards, it is likely that dispute boards will become subject to more scrutiny and guidance on their use, enforcement and procedure (such as in the *Peterborough City Council* case referred to above). It will also be interesting to observe their use not only within the infrastructure sector, but also in a general commercial context. They may be well suited to other industries where long-term contracts are prevalent, such as telecommunications, shipping, maintenance agreements or the aerospace and defence industries.

Dispute boards are, however, not a panacea for all disputes on an infrastructure project. When considering whether to use a dispute board and the form of any dispute board, parties should give careful consideration to the specific nature of the project (its size, cost and whether multiple disputes are likely) and use careful drafting to ensure that the intention of the parties in respect of costs, formation and members of the dispute board, the binding nature of any decisions, enforcement, consistency of procedure and the operation of security of payment legislation, is clearly reflected in the contract.

19 Standards Australia, DR AS 11000:2015 General conditions of contract (23 January 2015), clauses 45.14 to 45.16.

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INFRASTRUCTURE ACT 2015

A road map for investment in England's Strategic Road Network

by Nicholas Hilder

As its name suggests, the Infrastructure Act 2015 deals with infrastructure; specifically, how to make it quicker and easier to get Britain building the kind of cost-efficient infrastructure that is central to the Government's long-term economic plan to increase competitiveness and deliver jobs and growth.

The full scope of the Infrastructure Act is too broad to cover in this short article – including, as it does, measures to boost energy security and domestic growth through the extraction of shale gas, give local communities the right to invest in renewable infrastructure projects, and streamline the regime for nationally significant infrastructure projects by making a number of amendments to the Planning Act 2008.

As well as these changes, one of the most highly publicised aspects of the Infrastructure Act is its impact on England's Strategic Road Network. Headline grabbers have included the creation of Highways England as the "Strategic Highways Company" and the allocation of a war chest of approximately £15bn to deliver more than 100 road improvement schemes over a five-year investment period.

In this article, we focus on those parts of the Infrastructure Act that relate to the Strategic Roads Network. We explore the need for reform, the key changes introduced by the Infrastructure Act, the regulatory framework and what we can expect in the future.

The Strategic Road Network and the need for change

The Strategic Road Network is a key part of England's national infrastructure. It comprises approximately 4,300 miles of motorway and trunk A-roads. Although 4,300 miles of road accounts for only some two per cent of all roads in England, that same 4,300 miles of Strategic Road Network carries approximately 33 per cent of all traffic and approximately 66 per cent of all freight traffic. When compared against locally managed roads, the Strategic Road Network carries on average four times as many vehicles a day per mile. As these statistics show, the Strategic Road Network is vitally important both in keeping the general population connected by facilitating travel and in keeping the economy moving.

Against this backdrop of the national importance of the Strategic Road Network it may perhaps come as something of a surprise to learn that as traffic has increased, road investment has reduced. The Strategic Road Network in place today was

largely built in the 1960s and 1970s and, while the intervening decades have seen significant increases in traffic volume and car ownership, investment in the network has reduced, falling significantly behind that of the UK's international competitors.

Not only has there been a lack of investment generally, there has also been uncertainty as to what funding was available and when. The National Audit Office and the House of Commons Public Accounts Committee have both criticised the "stop–start" nature of funding for road maintenance and improvement works, and the short termism that, up until now, has pervaded road investment policy. Without the necessary funding certainty, the Department for Transport has struggled to draw up holistic long-term road investment plans that addressed the needs of the network in a co-ordinated manner. Instead, funds have been used as they became available which, combined with the need to spend the money within the same financial year, has meant that the majority of maintenance work has taken place between September and March each year. While this minimises disruption for road users, it is less efficient than carrying out work at other times of the year, as materials can be more difficult to handle in cold and wet conditions and daylight hours are shorter.

Faced with the reality that parts of the Strategic Road Network have already reached capacity and that congestion currently costs £2bn each year, investment in roads has slowly moved up the political agenda. With traffic volumes expected to grow steadily in coming years, the existing network will be put under more and more pressure, with the annual cost of congestion expected to rise to £10bn by 2040 unless action is taken. The Infrastructure Act embodies Parliament's approach to meeting these challenges.

The key changes

Strategic Highways Companies and Highways England

The Infrastructure Act allows the Secretary of State for Transport to appoint *one or more* companies as a highway authority. Such a company is known as a Strategic Highways Company. The appointment of a Strategic Highways Company must specify the area in respect of which the company is appointed, and the highways in that area for which the Strategic Highways Company is to be the highway authority. A Strategic Highways Company must be limited by shares and be wholly owned by the Secretary of State for Transport: if the Strategic Highways Company ceases to be wholly owned by the Secretary of State, its appointment as a highway authority terminates.

By the Appointment of a Strategic Highways Company Order 2015 (S.I. 2015/376) (the Order), the Secretary of State appointed Highways England as the highway authority for the whole of England. The Order provides that Highways England is appointed as the highway authority for all highways within the area for which the Secretary of State was the highway authority immediately before the Order came into force, with the exception of the M6 toll road and certain approach roads to the Severn crossings (which are operated under private concessions).

In practical terms, the Highways Agency (which had previously been an executive agency of the Department for Transport and the custodian of the Strategic Road Network) has been turned into an autonomous state-owned company: Highways England. The justification for having an arm's length company is that it promotes a long-term approach to planning infrastructure and securing funding. Not everyone supports the move, however, with a cross-party transport group saying last year that it was not convinced that the change in status was needed. Unions too have been opposed, with some 3,500 Highways Agency staff losing their status as civil servants on 1 April 2015 when they transferred to the new government-owned company.

The Road Investment Strategy

The Infrastructure Act gives the Secretary of State the power, at any time, to set a Road Investment Strategy or to vary a Road Investment Strategy that has already been set. A Road Investment Strategy relates to whatever period the Secretary of State considers appropriate. The legislation stipulates that it must set out the objectives to be achieved by the Strategic Highways Company during the specified period and the financial resources to be provided by the Secretary of State for those purposes. A Strategic Highways Company must comply with the Road Investment Strategy which is applicable to it.

The first Road Investment Strategy, published in March 2015, consists of three parts:

(i) the Strategic Vision;
(ii) the Investment Plan; and
(iii) the Performance Specification.

The Strategic Vision is for the Strategic Road Network to be smoother, smarter, safer and more sustainable.

The Investment Plan for the first Road Period (i.e. the period between 2015/2016 and 2020/2021) involves £15.2bn of capital being

committed to over 100 major schemes (including tunnelling part of the A303 as the road passes Stonehenge). The funding for these improvement schemes has been described as "ring-fenced", the assumption being that by taking it outside the normal departmental budget decision-making process there will be greater certainty that the funding will be committed as set out in the Investment Plan. While this is a step in the right direction aimed at stimulating supply chain engagement and investment, it should be remembered that, legally, the Secretary of State retains the right to vary the Road Investment Strategy at any time. Of course, having the legal right to amend or scale back the Road Investment Strategy and the political will to exercise that right are two very different things, but with the Government having recently frozen parts of its £38.5bn five-year investment plan for rail infrastructure (vaunted as the biggest since Victorian times), nothing can be certain.

The Performance Specification contains the key performance indicators against which Highways England will be judged, and focuses on eight specific areas:

(i) safety (a 40 per cent reduction in the number of people killed or seriously injured);
(ii) user satisfaction (overall satisfaction of at least 90 per cent);
(iii) traffic flow (97 per cent network availability, i.e. reducing the impact of roadworks and clearing 85 per cent of incidents within one hour);
(iv) economic growth (monitoring time lost per vehicle per mile to illustrate the cost of delay);
(v) the environment (reducing noise and improving biodiversity);
(vi) cyclists and pedestrians (new and upgraded crossings);
(vii) efficiency; and
(viii) improving network condition (so that 95 per cent of the road surface is in an adequate condition).

Transfer Schemes

In order to properly manage the Strategic Road Network and deliver against the Performance Specification, Highways England needs to be able to administer, and benefit from, the myriad of existing contracts and land rights that the Secretary of State has entered into and enjoys in relation to the Strategic Road Network; for example, the various design, build, finance and operate contracts with the private sector which were a feature of earlier upgrade schemes across the network.

The Infrastructure Act makes provision for this and allows the Secretary of State to create one or more schemes for the transfer of property, rights and liabilities from the Secretary of State to a Strategic Highways Company. Schedule 3 to the Infrastructure Act provides further detail on how Transfer Schemes work and confirms that the property, rights and liabilities that may be transferred by a scheme include property rights and liabilities which would otherwise *not* be capable of being transferred or assigned. Furthermore, Schedule 3 provides that a scheme may provide that transfers are to take effect irrespective of:

(a) any requirement to obtain a person's consent;
(b) any liability in respect of contravention of another requirement; or
(c) any interference with any interest or right which would otherwise apply.

This means that Transfer Schemes can effectively ignore the carefully crafted restrictions on transfer/assignment which are a common feature of commercial contracts. This may come as something of a shock to counterparties to contracts with the Secretary of State who will have taken a view as to the covenant strength of the Secretary of State. Many of those counterparties will have sought to further protect themselves against the covenant risk of a successor entity by making any such transfer subject to that counterparty's consent and/or the provision of acceptable guarantees that the successor entity's obligations will be performed.

Oversight

The Infrastructure Act provides that the activities of Strategic Highways Companies will be subject to scrutiny by both a consumer watchdog and a separate monitoring body.

Representing consumers is Transport Focus (previously Passenger Focus), with a mandate to protect and promote the interests of highways users. Transport Focus has the power to conduct investigations, publish reports and advise the Secretary of State. In June 2015, Transport Focus launched its Road User Panel – a forum meeting every couple of months and bringing together a representative cross-section of road user groups including the Department for Transport, the Local Government Association, the Office of Rail and Road (as "monitor") and Highways England. The panel is part of Transport Focus's commitment to understanding the priorities and aspirations of a wide range of bodies and groups interested in roads.

The Office of Rail and Road performs the role of monitor. It is responsible for tracking the activities of Highways England and holding it to account. The Infrastructure Act gives the Office of Rail and Road the power to carry out investigations, publish reports and give advice to the Secretary of State on whether, how and at what cost a Strategic Highways Company has achieved its objectives under a Road Investment Strategy. If Highways England does not meet the requirements set out in a Road Investment Strategy, fails to comply with a direction, or to have regard to guidance issued by the Secretary of State, the Office of Rail and Road can either require compliance or levy fines payable to the Secretary of State.

A step towards privatisation of the Strategic Road Network?

Despite reassurances to the contrary from ministers and senior figures in Highways England, there has been some concern that the creation of Strategic Highways Companies is a vehicle for the future privatisation of the Strategic Road Network and the introduction of more toll charges. Sceptics believe that the current arrangements amount to an orchestrated attempt, at the taxpayer's expense, to bring the Strategic Road Network up to a standard that would be attractive to the private sector. Once this standard had been achieved, the private sector would be invited to bid for franchises modelled on the rail industry, with tolling as the primary income stream. Graham Dalton, former chief executive of the Highways Agency, has stated that there is no intention of privatising Highways England, pointing out that 90 per cent of its budget already goes to private sector contractors.

Under the terms of the Infrastructure Act, we know that if a Strategic Highways Company ceases to be 100 per cent owned by the Secretary of State, its appointment as highway authority terminates. Given these safeguards around share ownership, privatisation of the Strategic Road Network would not be possible without further legislative intervention.

It will be interesting to see what the next decade has in store for England's road sector, and whether the conspiracy theorists are proved right or wrong.

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TURNING WASTE INTO POWER

Opportunities and developments in the GCC

by Cameron Smith, Jennifer Moore and Alice Cowman

The continued use of landfill and uncontrolled dumping of waste is a global problem from which the Gulf Cooperation Council (GCC) region is not immune. In this context, waste-to-energy (WtE) projects can present an opportunity and solution which holds significant benefits for governments, local communities and international investors.

This article examines the key drivers behind the growth in WtE, the state of the market in the GCC region, and the commercial and regulatory issues that are key to the success of such projects.

The waste issue

The GCC countries are among the highest per capita producers of municipal solid waste (MSW) in the world (see figure 1). Today, residents of the UAE produce an average of 2.5 kg of waste a day per person, which amounts to 2.5m kg of MSW daily in the emirate of Sharjah alone.[1] This can be compared to just 0.5 kg per person per day in New Delhi or 0.85 kg per person per day in Beijing.

1 Bee'ah, UAE.

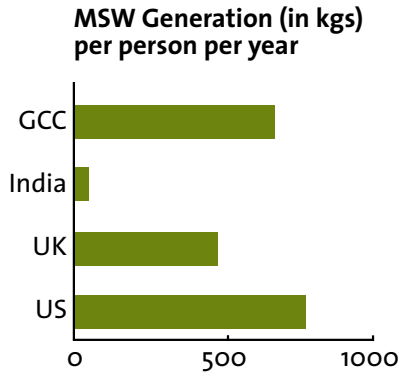

Figure 1 (Source: Frost and Sullivan)

Across the GCC, rapid economic growth, industrialisation and modernisation have given rise to: (a) greater volumes of municipal, commercial and industrial waste; (b) waste of a different complexity and composition, such as different types of plastics, agricultural wastes and residues, and electrical and electronics equipment waste; and (c) increasing demands for energy.

The majority of waste in the Middle East is sent to landfill, which is space-intensive and uses up valuable land that could be put to better use. Uncontrolled disposal of untreated or inadequately treated waste causes health and sanitation issues, as well as environmental pollution such as air pollution from the uncontrolled burning of waste, and contamination of groundwater and surface water by leachate. In other jurisdictions (particularly across Africa), the uncontrolled and unregulated dumping and landfilling of waste has led to widespread disease and death.

The recycling rate in the GCC region is as low as ten per cent compared with a current average of 22 per cent or higher in other high-income countries,[2] but the region is working hard to improve this statistic.

What is waste-to-energy?

WtE facilities create energy in the form of electricity or heat from the treatment of waste products. The use of waste to produce biogas and electricity dates back to the early twentieth century. However, due to dwindling fossil fuel resources, a greater awareness of the social and environmental hazards of poor waste management, a reduction in available landfill capacity and a global focus on reducing greenhouse gases, the development of WtE projects has increased significantly over the last 20 to 30 years. There are different types of WtE processes, the main ones being:

LFG capture

Landfill gas (LFG) emissions from landfill can be flared or captured and utilised to minimise pollution, or can be captured to generate power or fed into the gas network.

Combustion

Combustion (or incineration) is the burning of waste to recover the energy content of waste as either heat or electricity.

Gasification

Gasification is the thermal treatment of waste in a low oxygen environment so that full combustion cannot occur, resulting in the production of electricity, heat or syngas (which can be converted into high-quality diesel biofuel) and far less production of ash and residue.

Anaerobic digestion

Anaerobic digestion is the non-thermal treatment of biological waste, such as food, which produces digestates that can be used as fertiliser and biogas which can be used to generate heat and electricity.

Why waste-to-energy?

Waste diversion is the most preferred option for dealing with the waste issue after the "three Rs": reduce, reuse or recycle. Although incineration is a less favoured option in terms of the preferred options of dealing with waste, it is, nonetheless, a viable and attractive option for the following reasons:

- Incineration can reduce up to 90 per cent of the disposed waste going to landfill.
- Energy from waste can be cost-competitive as compared with other renewable technologies in certain circumstances. A 2012 US energy administration study placed WtE ahead of solar PV and solar thermal in terms of cost-efficiency.
- Even well-managed sanitary landfills emit LFG, which is a mixture of methane, carbon dioxide and trace constituents. Methane emissions from landfill represent 12 per cent of total global methane emissions and, with 12 times the potency of carbon dioxide, are significant contributors to climate change. LFG capture is required in many jurisdictions and generating energy from captured LFG makes sense for current landfills.
- WtE can be part of the solution to meet the future energy demands of the MENA region's rapidly growing population through renewable energy.

Worldwide WtE market revenues (which accounted for US$19bn at the end of 2012) are expected to reach US$29bn by 2016.[3] The market in the GCC has grown from 20 to 25 per cent in the last three years.[4]

What is the current market interest in the region?

An overview of developments and programmes in the region

Although the GCC is widely considered to have huge potential for WtE technology, the sector's development is still relatively small, with only 0.25 to 0.3 TWh of energy currently being produced from waste across the region.

Qatar was the first GCC country to implement WtE on a large scale with its Domestic Solid Waste Management Centre (DSWMC) (see below). However, other countries are rapidly following suit. Abu Dhabi is expected to follow Qatar's approach by developing its own 100 MW WtE plant through an engineering, procurement and construction (EPC) model, and several municipalities in Saudi Arabia are considering projects. The emirate of Sharjah is also reportedly in discussions with technology providers.

Nearby, in South East Asia, Singapore is at the forefront of the WtE industry with the National Environmental Agency (NEA) currently procuring Singapore's sixth incineration plant, the second plant to be offered to the private sector as a PPP. The first WtE plant PPP was tendered in 2004 and was awarded under a design-build-own-operate scheme. The plant can treat up to 900 tonnes of solid waste daily and generate approximately 22 MW of green electricity. NEA collects the gate fees from waste collection and pays the developer an availability payment for the facility, for the amount of waste accepted and for the electricity generated.

Significant projects

Kuwait – Kabd MSW facility

On average, per capita waste generation is approximately 1.4 to 1.5 kg per day in the State of Kuwait, making it one of the largest per capita waste generators in the world. The Kuwaiti Government (advised by Ashurst LLP, PwC and Fichtner GmbH & Co. KG) invited bidders to qualify to tender in March 2015 for the development of an ambitious WtE plant that will treat 50 per cent of Kuwait's MSW and is due to announce which bidders have qualified. The WtE plant, to be procured on a build-operate-transfer basis, will benefit from an availability payment and will generate its own electricity, selling the excess power generated to the Kuwaiti Government under an offtake agreement.

Case study: Sweden's waste management success

Sweden is a global leader in recovering energy from waste. With a waste strategy of "reduce, reuse, recycle, recover", only one per cent of its waste is sent to landfill. In 2009, 49 per cent of all Swedish household waste was converted into energy. In the last decade, WtE has expanded at a rapid rate in Sweden, as the country changed its policies to become more environmentally friendly and achieve a more diversified energy mix.

From 1999 to 2010, waste incineration with energy recovery increased from 39 per cent to account for 49 per cent of the country's waste treatment methods. In 2009, through approximately 32 Swedish WtE facilities, 13.9 TWh of energy was produced through incineration, of which 12.3 TWh was used for heating and 1.6 TWh for electricity. This amounted to 15 per cent of Sweden's district heating needs and 2.45 per cent of the country's total energy needs.

2 The World Bank.

3 Frost & Sullivan, 2014.

4 Ibid.

Jordan – MSW facility tendered in Amman
Greater Amman Municipality has recently issued a request for proposals to bid for the contract to design, build, operate and transfer a MSW facility in Amman in March 2015. The project will have an initial processing capacity of 1,200–1,500 tonnes per day of MSW with at least two processing lines. The facility will be designed to allow further expansion to process additional MSW disposed in landfills to a level of approximately 2,500 tonnes per day. It is anticipated that the facility will be commissioned in April 2018.

Bahrain – bids received for WtE project
Bahrain's Municipalities and Urban Planning Affairs Ministry is currently evaluating bids received earlier this year for a 390,000 tonnes per year WtE facility. This project was first tendered in 2008, but was later cancelled before its recent retendering. The project is planned to be developed as a 25-year build-operate-transfer scheme, which will include the following components: (i) initial pre-sorting/recycling; (ii) processing for the treatment of domestic waste; (iii) recycling of construction waste; (iv) composting of green and garden waste; (v) thermal treatment plant for the elements no longer able to be reused or recycled; and (vi) a sanitary solid waste landfill. The plant will process 100,000 cubic metres a day.

Qatar – Domestic Solid Waste Management Centre
One of the most promising developments in the GCC has been the creation of the DSWMC at Mesaieed which was built on an EPC basis. Receiving waste transported by about 300 trucks per day, the DSWMC is helping Qatar achieve its goals to reduce waste sent to landfills from 92 per cent to 64 per cent, and raise recycling rates from the current eight per cent to 20-25 per cent.

The facility consists of a solid waste management centre that sorts waste, separating out anything that can be recycled and removing organic waste to make compost. The remainder, about 40 per cent, is burnt in an incinerator and the energy emitted is used to produce electricity. Only the leftover ash needs to go to landfill; this is estimated to be five per cent of the volume of waste that was previously dumped.

Dubai – Warsan WtE plant
Dubai Municipality has invited companies to pre-qualify for the project to develop a WtE project, located at a site behind the landfill site in Warsan, with an estimated processing capacity of 6,500 tonnes per day of MSW. The project will involve the design of the WtE scheme and other associated facilities, the EPC of the plan, and the commissioning and testing of the facility.

Dubai – Al Qusais Landfill Site
The LFG flaring project, located at the Al Qusais Landfill Site in Dubai, is a trailblazer for LFG capture in the GCC. This small-scale project has twin goals: (i) direct reduction of harmful LFG, odours and volatile organic compounds; and (ii) power generation. The 52-hectare landfill has been operational since 1989 and is still active. It demonstrates the UAE's fantastic potential to make use of LFG; the country's low rainfall means gas trapped in the landfill is not pushed down into the water table by rainwater. This makes it easy to extract the gas. The Al Qusais landfill project is mitigating the potential damage caused by over 350,000 tonnes of carbon dioxide a year, which is equivalent to taking 60,000 cars off the road. Its power capacity is currently at 12 MW, with the potential to be expanded to 20 MW.

This project is the first of its kind in the UAE and the legislative framework still needs to be developed to support it. This means that although the plant is producing electricity, it cannot yet be connected to the grid. A small portion of the flared gas produced is currently used to power an engine that provides for all the electrical needs of the landfill and Dubai Municipality's site offices. It is hoped that surplus power will in future be connected to Dubai Electricity and Water Authority's network once an appropriate legislative framework is in place.

Sharjah – Waste Management Centre at Al Saj'ah
Bee'ah, a PPP company established in 2007, has a mission to tackle waste in the region and lead Sharjah as the first city in the Middle East to achieve zero waste going to landfill by 2015. Bee'ah's Waste Management Centre consists of facilities to treat and process waste for reuse in the economy, and includes the third largest material recovery facility in the world. This has an annual capacity of 500,000 tonnes, of which 60 per cent can be recycled via facilities at the Waste Management Centre (such as a tyre recycling facility and a construction and demolition waste recycling facility). It also features a liquid waste processing centre and a compost plant.

Bee'ah is also planning to build a WtE facility which will treat up to 400,000 tonnes per day of non-recyclable waste using state-of-the-art gasification technology.

Oman – potential WtE plant
Oman Environmental Services Holding Company, which is overseeing the management and eventual privatisation of the solid waste sector in Oman, is currently studying the feasibility of establishing Oman's first-ever WtE project, aimed at converting part of the colossal quantities of municipal waste generated daily to produce electricity for a seawater desalination plant. It is proposed that suitably sorted waste will be converted for use as an industrial fuel source in place of natural gas. The feasibility study concluded that 2,100 tonnes per day of recycled calorific waste could produce 73m cubic metres of portable water annually, representing around 30 per cent of the country's installed desalination capacity.

What are the barriers to development of WtE in the GCC?

Economics

Costs

Given the cost of developing WtE plants, these facilities are usually not financially competitive in their own right as pure electricity generating facilities (in competition with gas-fired plants, for example) without a strong regulatory and enforcement regime, and appropriate financial incentives.

Where the option of simply dumping waste or flaring LFG (or not installing any system at all) exists, investors are unlikely to put forward the capital for LFG capture or other WtE schemes unless it will be sufficiently profitable to justify the set up and maintenance costs of a WtE facility. Waste disposal in the GCC is generally carried out at low or no cost to the local population and at little cost to the relevant municipal authority, particularly where waste can be landfilled or dumped, and there are no overriding policies or macroeconomic drivers to avoid landfill. However, this is changing and certain countries now charge gate fees (although some argue that these are still at too low a level to be effective). High gate fees can make landfill costs prohibitive and energy recovery a more economical alternative means to dispose of waste. Gate fees also provide an additional revenue source for WtE projects.

In the UK, gate fees were introduced and ratcheted up by the UK Government over a period of years to ensure that landfilling became progressively more expensive in comparison to other waste treatment and disposal routes. This has been a very effective way to create market incentives for the development of WtE

facilities. However, these steps have been taken in conjunction with other measures to prevent the unlawful disposal and dumping of waste.

Price of power

Prevailing electricity and gas rates may not be sufficient to incentivise the development of WtE projects in their own right, but may provide additional revenue for WtE facilities which have a dependable long-term gate fee revenue stream.

Uncertainty in carbon markets

Certain WtE projects have in the past relied on revenue from the sale of Certified Emission Reduction certificates (CERs) where a project has been able to obtain registration under the Clean Development Mechanism. However, following falls in CER prices, confidence in the sale of CERs as a long-term stable revenue stream has been reduced. Where such "green certificates" are priced properly and provide a reliable revenue stream, the finance ability of these projects is enhanced.

Policy

Untested regulations

Investment regimes and legal frameworks to encourage the development of WtE and other renewable energy projects need to be developed and implemented. Change in the law, risk and untested implementation also remains a concern for investors. WtE facilities are easier to develop in jurisdictions where the management of MSW and commercial waste is highly regulated and illegal dumping is punished.

Lack of awareness

Policymakers and managers of solid waste sites may not be aware of the existence of landfill emissions, their harmful effects, or the potential fuel value and uses of the lost waste.

Furthermore, any attempt to introduce landfill taxes and charges associated with waste collection and disposal need to be accompanied by public awareness campaigns to educate the public about the benefits of better treatment of waste.

Electrical system interconnection for offtake

Inconsistent, complicated or poorly devised standards for connecting small-scale renewable or WtE projects to the grid infrastructure are a major obstacle, particularly for projects that lack the resources to handle expensive or lengthy connection processes. Solid waste sites typically consume small amounts of electricity and need to sell the excess power generated to the grid to be viable.

Land

Some of the GCC countries, such as Saudi Arabia, Oman and the UAE, have vast amounts of undeveloped land, meaning there is no immediate pressure to cut back on landfill as land is readily available at little to no cost. By contrast, WtE schemes have been very successful in jurisdictions where landfill capacity is not readily available, such as in the Netherlands, Singapore or the UK.

What can policymakers and the public sector do to encourage the development of WtE projects?

Improving the economics – financial policy support

Generation incentives

Generation incentives offered consistently over a specified number of years (i.e. which give long-term, reliable revenue certainty) can encourage large WtE investments that would otherwise prove too costly. Tying the incentive directly to generation rather than the construction of a plant ensures that the motivation is to produce power in a timely, efficient manner.

Subsidies

Subsidies can come in many forms, such as production grants, tax holidays and exemptions (for example, on import customs duties on equipment), feed-in tariffs (FITs) and low interest/preferential loans to producers. In Europe, a range of measures have been employed in order to drive forward the development of WtE projects. These measures include:

- FITs and the availability of green certificates (in a variety of forms);
- renewable heat incentives (such as the renewable heat incentive scheme in the UK);
- enhanced capital allowances and other tax incentives; and
- the imposition of landfill taxes and landfill allowance trading schemes.

In Europe and Asia, the incentives have, to date, focused on the renewable energy production side of the equation, although, given the pressures to reduce landfill in some jurisdictions, there has also been increasing attention given to issues of waste supply and waste reduction.

Feed-in tariffs

FITs are a proven method of incentivising the generation of energy. Although there are some variations in FIT schemes around the world, the central premise of a FIT scheme is that a renewable energy generator is guaranteed a certain level of payment for its electricity, over a fixed long-term period. The obligation to buy the electricity at the set tariff is usually imposed on the utility/supply company(ies). Different rates are typically set for individual technologies, such as solar, wind and biomass/biogas. The costs of paying higher rates for renewable energy is typically passed on to the consumer. FITs are set for a certain number of years to ensure long-term predictability for investors. Each year, the rates offered to new projects are lowered as more projects are built and, theoretically, their economic competitiveness and technological efficiency increases. The aim of the policy is that, once a FIT scheme has been in place for some time, the industries will outgrow the need for government support and will be able to stand on their own in the market.

Tipping fees and landfill restrictions

Waste collection and disposal is expensive and has other costs. Charging little or nothing for waste disposal within the GCC neither encourages waste diversion nor private sector efforts at better waste disposal. Although Sweden, for example, has an abundance of land relative to its population, its landfills are expensive. As of 2005, average tipping fees were equivalent to €135 per tonne. In contrast, Abu Dhabi currently charges just AE$250 (approximately €50) per tonne and in Dubai it is free (although there is talk of introducing a charge for commercial users similar to Abu Dhabi's). With cheap landfill disposal, there is little chance of either public or private sector engagement in better waste management or WtE development.

Energy purchase requirements

The cost structure of a WtE project changes dramatically when there is a requirement to produce or purchase energy from renewable sources, and when WtE is defined by the relevant authorities as a renewable source. For example, in the UK, electricity retailers have a statutory obligation to source a defined portion of their electricity from renewable sources (although the current Renewables Obligation scheme is being phased out and being replaced with a new Contracts for Difference regime[5] involving top-up payments above the wholesale electricity price). In the UK, WtE generation is deemed to be a renewable energy source if it also includes the generation of heat as

5 For more information on Contracts for Difference see the article on Electricity Market Reform in issue 15 (July 2015) of Energy**Source**, Ashurst's sister energy publication to **Infra**Read.

well as electricity. Such highly efficient WtE plants therefore get the benefit of "green certificates", which can be sold to electricity retailers, or a Contract for Difference (under the new regime).

Non-financial policy support

In addition to financial support, the following elements need to be present as part of the overall policy and regulatory environment to facilitate WtE projects:

Access to the grid

As for any generation project, third party access to the grid is essential. WtE projects are likely to be smaller-scale than conventional thermal power, and are therefore more likely to connect to the distribution network. A well-defined regime for access to the distribution network, with transparent terms, is key.

Connection standards for distributed generation

Well-planned connection standards make connecting to the grid an attractive option for small-scale WtE systems without compromising on the safety and reliability of the overall system. To design effective standards, a number of factors should be considered to address the needs and concerns of all stakeholders. These include promoting broad participation during standards development, addressing a range of technology types and sizes, and taking into consideration existing barriers to connection.

Regulatory framework for thermal treatment of waste

It is important that the regulatory framework contemplates the thermal treatment of waste to avoid uncertainty, particularly in terms of environmental and planning consents. A transparent licensing and planning regime which is capable of enabling all key consents and permits to be efficiently obtained in a way which is incapable of subsequent challenge is an essential ingredient.

Dispute resolution

It is also important to note that investors and banks will look for a legal framework which facilitates dispute resolution and the enforcement of any awards or decisions which arise.

Regulation of waste collection

Also key is an organised waste collection industry, and a developed regime regulating it, that facilitates the centralised collection of municipal and commercial waste and discourages illegal, unregulated disposal of such waste.

Ownership of the waste stream

Projects need creditworthy, long-term suppliers of waste, which may mean municipal authorities/local government or, alternatively, financially stable and technically proficient corporate entities.

Heat/power offtake

Last, but not least, a project needs to secure creditworthy long-term power and/or heat offtakers, which may be public utilities or corporate offtakers of good financial standing.

What the private sector can do to encourage the development of WtE projects

International companies have long been cognisant of reducing waste, not only for their environment conscience but also to save costs. In the US, Dr Pepper has committed to recycling 80 per cent of solid waste in its manufacturing facilities. Coca-Cola has been using recycled plastic since 1991, and Evian now have 50 per cent of recycled material in its bottles. The private sector – driven as it is by profit margin – can make change happen, often more efficiently than the public sector.

In the UK this year, there has been the first example of a private sector company not just recycling but supporting its own WtE plant. The supermarket chain Sainsbury's has a store now entirely powered by its own food waste. Sainsbury's delivers food to an anaerobic digestion plant and the energy generated through bio-methane gas is delivered back to them. Although this is also spurred on by high electricity costs and a higher cost of landfill disposal in the UK than the GCC, this eye-catching project might become the first model for future private sector development of WtE in this region. Even if some government support is required, the tariff and costs could be lowered for the public sector if the private sector can see economic benefits from such a project.

Private sector companies in the waste management industry have also been at the forefront of many of the public education campaigns, designed to inform the public about the benefits of recycling and reuse of waste, as well as the perils of landfilling waste. Those companies in the waste management sector that have embraced new technology and invested in WtE facilities have benefited from higher returns, due to their enhanced ability to profit from trading in recyclable products and shifting their focus towards renewable energy generation.

Conclusion

Due to such a high production of waste in the GCC, there is great opportunity and scope to turn waste into recycled products, captured LFG and valuable green energy to reduce the ever-growing carbon footprint of GCC citizens. To do so would be in line with regional initiatives, such as the State of Energy Report in Dubai 2014, which sets out how the Municipality of Dubai is focused on increasing renewable energy sources and decreasing waste-to-landfill.

To do this, governments in the GCC will need to promote awareness and encourage the diversion of waste from landfill and the generation of green energy and other by-products from waste.

This could be achieved by adapting policies on waste collection and introducing a gate fee for commercial and institutional waste collection. Not only will this provide funding towards incineration and LFG plants, it will also encourage companies and individuals in the GCC to cut down on waste production. To enable green energy to be seen as a viable alternative to fossil fuels, policymakers could also consider providing FITs or other financial advantages such as low interest loans and grants.

With the proper planning and development, WtE initiatives and projects have the potential to play a significant role in helping GCC policymakers move towards an integrated, sustainable waste management solution for the region, reducing the carbon footprint of GCC companies and citizens, and moving forward into the field of green energy.

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ROAD INFRASTRUCTURE IN AFRICA

A step-by-step guide to avoiding potential potholes

by Michel Lequien and Jacques Dabreteau

Many African economies have experienced significant growth in recent years. This growth could have been even greater if the countries concerned had had appropriate transport infrastructure in place. Transport, of course, is not just about roads. In Africa, as everywhere else, passenger and freight travel are, for the most part, intermodal, involving transport by land (road and rail), air and sea.

Over the past 15 years, however, the road sector in Africa is the one where most progress has been made in both institutional and financing terms. The creation of road agencies and road funds financed, in many countries, from fuel levies, has meant that 80 per cent of the main road network in Africa is now deemed to be in either good or fair condition.[1]

While there has undoubtedly been progress, the challenges remain immense. With an average of 204 kilometres of roads per 1,000 square kilometres, of which only one quarter is paved, the density of national roads lags far behind the world average of 944 kilometres per 1,000 square kilometres, of which more than half are paved. According to the World Bank, in addition to the small number of major regional trunk roads currently linking deep-sea ports to economic hinterlands, which comprise no more than 10,000 kilometres, "*[b]etween 60,000 and 100,000 kilometres of roads are required to provide ... intracontinental connectivity*" in Africa. Low road density also means that Africa's fast-growing cities are affected by increasing congestion, which has an adverse impact not only on economic development but is also a significant source of pollution and accidents. With a road traffic injury fatality rate of 32.2 per 100,000 inhabitants[2] – the corresponding rate in countries such as Sweden, the UK and France is between four and eight deaths per 100,000 population – African roads are the most dangerous in the world.

The sub-Saharan African[3] road network is still underdeveloped. Medium- and long-distance national and international

1 "Africa's Infrastructure: A Time for Transformation", World Bank/Africa Development Forum report (2010).

2 "Global status report on road safety", WHO (2009).

3 Africa is a continent comprised of 54 countries with different economies, legal and political systems, languages and cultures. Therefore, when this article refers to "sub-Saharan Africa" it is for simplification purposes only.

corridors need to be developed or improved, to facilitate connectivity between capitals and other major urban and industrial centres. Such international corridors will benefit landlocked countries in particular, providing them with much-needed road access to deep-sea ports. There is also a need to facilitate all-season road connections between major cities and provincial regions, in particular "higher value agricultural regions" and mining areas, and to decongest high-density cities by building new, wider and safer paved roads facilitating access to, and circulation within, these cities.

The situation is difficult but improving, and the needs have been identified in numerous studies and reports.[4] There has been an increasing number of privately-financed road projects in various parts of Africa – some already completed, some currently under development – indicating that private financing can – and will – play an increasing role in the financing and development of the African roads network.

Certain legal and institutional issues must be identified and addressed to ensure the successful implementation of road PPPs in Africa. Most of them are, of course, no different from those encountered when developing and financing roads in other parts of the world; the solutions in Africa will, however, sometimes differ significantly from those which apply elsewhere.

Legal and institutional issues

Road projects must make sense

Going back to first principles, in the same way as for any infrastructure scheme, a new-build, project-financed road project must make economic sense. It must be affordable for the public authority and, where the road is tolled, for users. Affordability is not only an issue in relation to the original construction investment but also relates to the ability – from an institutional, operational and budgetary perspective – to maintain and renew the road infrastructure in a consistent and efficient manner. This ongoing obligation can become a significant issue, particularly in countries with difficult weather conditions such as a marked rainy season or harsh desert conditions. The project needs to bring clear economic benefits; for instance, by connecting an urban or industrial centre to a port or another mode of transport infrastructure (such as an airport) or by "de-bottlenecking" a congested urban area and facilitating the segregation between freight and other traffic. For example, the Dakar-Diamniadio Highway project in Senegal[5] not only creates a more rapid, safer and efficient link between the city centre of Dakar and the new economic centre of Diamniadio, and the Blaise Diagne airport, but also operates as a junction between Dakar port and the Dakar-Bamako-Ouagadougou-Niamey trans-West African highway.

Institutional frameworks

Although roads are not the most complex form of infrastructure to develop and manage, the proper planning, financing, management, maintenance and policing of road infrastructure require a solid institutional framework. It is generally acknowledged that countries with road funds – in particular, those that set fuel levies at a reasonably high level – have systematically better road funding and are much more likely to successfully implement road maintenance requirements than those which do not.[6] Several African countries (such as Nigeria, Senegal, South Africa and Uganda) have road agencies with varying degrees of autonomy and responsibility, ranging from full independence in road network management (including the contracting out of public works) to limited responsibility for the implementation of governmental road programmes. Many African countries also have ring-fenced funding for the financing of maintenance and new roads, either funded from fuel levies (such as in Tanzania and Rwanda) or from budget allocations (such as in Benin, Côte d'Ivoire, Ethiopia, Zambia and Gabon).

Legislation and procurement/contracting schemes

The creation of institutional frameworks for road infrastructure goes hand in hand with the adoption of enabling legislation to create an appropriate framework

4 See, for example, "Study on Road Infrastructure Costs: Analysis of Unit Costs and Cost Overruns Statistics of Road Infrastructure Projects in Africa", African Development Bank (2014) and "Africa's Transport Infrastructure: Mainstreaming Maintenance and Management", International Bank for Reconstruction and Development/World Bank (2011).

5 The project (phases 1 and 2) consists of a 48.5 km road connecting Dakar to the Blaise Diagne airport outside Dakar. The road is partially tolled. The financing, construction and operation of phases 1 and 2 of the highway concession were awarded to Eiffage in 2009 (phase 1) and 2014 (phase 2). Phase 1 started operation in August 2013. Phase 2 is expected to commence operation during 2016.

6 "Africa's Transport Infrastructure", as footnote 4.

for private sector involvement in the road sector.

Such enabling legislation will typically provide for the adoption of appropriate procurement and contracting schemes, ranging from fixed-payment, performance-based maintenance contracts to various forms of privately-financed schemes typically used for the procurement of privately-financed roads, such as concessions or availability-based PPPs. For example, Uganda has recently adopted enabling legislation to facilitate the forthcoming launch of the Kampala-Jinja Expressway project.[7] Uganda's new PPP law sets out the required tender process to be followed, and the approvals required in order to bring PPP projects to fruition.

Regulation framework

Enabling legislation is also often required to provide a robust and stable road regulation framework. Legislation will be required to permit and organise toll collection and enforcement. In several countries, where specific laws already exist regulating the establishment of roads (including planning, land acquisition and contracting), access to roads and the regulation, operation and policing thereof, it will often be necessary to review and amend the existing legislation to ensure that it allows for privately-financed projects and provides a clear, exhaustive and stable framework for the development and operation of such projects. This will involve, for example:

- improving the enforcement of rules against encroachment (which is a widespread issue in many African countries);
- limiting the right of landowners to build their own access to roads;
- authorising private operators to fully perform their safety and maintenance functions in order to operate the road, without competence overlaps or interference from other authorities; and
- clarifying the powers of the roads authority, in particular in relation to financing, and toll revenue management and disposal.

Land acquisition and environmental impacts

Land acquisition is always a sensitive issue in road projects (as with any linear infrastructure projects, such as rail and pipeline projects). Land acquisitions in sub-Saharan Africa and the safeguarding of the selected land corridor raise issues which are common to the development of infrastructure in most developing countries. For example, urban road projects crossing shanty towns raise not only individual expropriation compensation issues but also wider social concerns, as they generally require the displacement and resettlement of families as well as of economic and commercial activities. The concession or PPP contract will often impose certain specific compensatory obligations on the private sector concessionaire or the PPP company which can sometimes extend beyond the normal scope of obligations of a roads concessionaire; for example, noise protection walls, planting of green spaces, improving sanitation and funding of community activities.

In rural areas, tribal land ownership rules can make land acquisition a long and complex exercise. Similarly, the environmental impact of the proposed road must be assessed and taken into account, including through environmental mitigation and compensation measures. For example, the first stretch of the Dakar-Diamniadio Highway project crosses the Mbao and Sébikhotane classified forests, which has resulted in the contract imposing specific environmental protection constraints and measures. As in the case of other infrastructure and power projects, the identification and proper management of environmental issues is particularly important for road projects involving multilateral agencies and international commercial lenders, which have increasingly stringent environmental and social impact management and compensation requirements.

Traffic risk and optimal payment structure

As in the case of privately-financed road projects anywhere in the world, a key issue is how to manage traffic risk and to determine the optimal payment structure. Common sense would normally lead to the conclusion that the African roads market is not sufficiently stable and mature to enable traffic risk to be transferred to the private sector. With developed countries recently experiencing a string of high-profile failures of revenue risk on toll road projects, how could such a model be expected to work in less developed African countries? While it is probably correct to state that the revenue risk model is unlikely to be the most attractive model for sponsors or for lenders, it has an obvious advantage from the public authority's perspective, in that the public sector does not have to contribute from its own funds or, at the very least, that such contributions are minimised.

Revenue risk model

That the revenue risk model can be successful in Africa is illustrated by the Dakar-Diamniadio Highway concession in Senegal, which includes a 25-kilometre stretch of tolled road.[8] With a total cost for travelling the Dakar-Diamniado Highway of FCFA 800 for motorcycles, FCFA 1,400 for cars and FCFA 2,700 for trucks, and average traffic in excess of 40,000 cars per day,[9] the project proves that, where all the necessary conditions are met, it is perfectly possible to privately finance a revenue risk road project in Africa. In fact, for the

7 The project consists of a 75 km, four-lane, dual carriageway motorway in Uganda. Ashurst is currently advising the International Finance Corporation, which is retained by the Uganda National Roads Authority to assist in the structuring and tendering of this project. Requests for qualification are expected to be issued by the end of 2015, with the PPP procurement process expected to commence in the first quarter of 2016.

8 The tolled section comprises an open toll system (lump-sum payment) in the urban part of the highway (Patte d'Oie Thiaroye) and a closed toll section in the peri-urban and rural part (Keur Massar Diamniadio).

9 Figures extracted from "Dakar Diamniadio Toll Highway (P087304)", World Bank Implementation Status & Results Report (2015).

Dakar-Diamniado Highway, using the tolled section of the road is faster (allowing saving of up to 75 minutes' travel time as well as on fuel costs), safer and cheaper than the former route on which drivers had to regularly pay amounts significantly higher than the cost of the toll to informal "toll collectors". It is fair to acknowledge, however, that although the Dakar-Diamniado Highway project has been "project financed", in strict terms "private finance" represents only a limited portion of the financing package for the project. Of the €230m financing package, €38m (16.5 per cent) of the financing was provided by the project co-sponsors, French company Eiffage (€32m in equity) and a Senegalese commercial bank CBAO (Attijariwafa Bank) (€6m), the rest being provided by the Senegalese State (€120m) funded by Agence Française de Développement (AFD) and the African Development Bank (ADB), and by multilateral development banks (€56.5m provided by the International Finance Corporation, the West African Development Bank (BOAD) and the Economic Commission for Africa (ECA)). Similarly, the 16.5-kilometre extension to the Blaise Diagne airport required €122m in total of new investment, primarily funded by way of a public subsidy and by development banks.[10] Clearly, project-financed revenue-risk road projects in sub-Saharan Africa will continue to require the support of strong multilateral institutions and the ECA for a long time to come.

It is likely, however, that, other than in specific instances where the traffic risk appears manageable for the private sector (such as the Dakar-Diamniado Highway), revenue-risk-based structures will not be the norm for road projects in Africa. In any event, where traffic risk is to be transferred to a concessionaire, an adequate level of flexibility in the structure will be required to allow for adjustments should the project dramatically underperform or substantially overperform.

Availability risk model

Public authorities and funders will instead often prefer to opt for the established availability risk model, a model with which the market is familiar and for which lenders have an appetite. The model also appears more adapted to the financing and development of non-standard projects in untested environments, without a reliable traffic history or any certainty about public acceptance of road user charging.[11] This does not mean that structures will never involve real toll but rather that traffic risk will ultimately be retained by the public sector (the state and/or the relevant roads authority) with the private sector operator being paid by way of an availability payment and, where a real toll is implemented, toll revenues being collected on behalf of, and paid to, the authority.

Government support

In turn, the structuring of availability-based projects raises the difficult question of government support in guaranteeing availability payments, in particular where the payment is being made by a roads agency established in the form of a corporate entity. It will often be considered necessary for central government to guarantee the obligations of road authorities to make the relevant project bankable. Beyond the natural reluctance of public authorities to structure their infrastructure projects on the basis of a government guarantee, the granting of such guarantees will often require parliamentary approval, which is, in itself, another potential risk factor for the project.

Conclusion

The challenges to the development of privately-financed road infrastructure in Africa are significant. There is still a long way to go before project finance becomes the norm for the development of the African roads network. However, the few completed African road projects – South Africa's N3 and N4, Senegal's Dakar-Diamniado-Blaise Diagne Airport Highway – have shown that, where all the necessary conditions are met, project finance can be a solution, even for revenue-risk-based projects. Projects will require strong governmental and multilateral support to come to fruition but it is likely that, when availability-based or other non-revenue risk structures are put in place for sound projects, the appetite of private sector players for projects will grow, and the sponsors and commercial lenders' share in the financing of projects will progressively increase.

As a closing note, it is worth mentioning that the improvement of road infrastructure is only part of the solution. Economic research shows that, while the quality of road infrastructure is important, regulation and the market structure are the "*binding constraints on performance in the international corridors*" in Africa.[12] Therefore, while improving and developing road infrastructure is essential, at the same time it is also necessary to liberalise and regulate transport services generally, using the new infrastructure to ensure that the African economy as a whole (and not just the haulage and logistics industries) truly reaps the benefits of better road infrastructure.

10 The financing structure of the extension is as follows: €16m equity provided by the sponsor and €76m of new debt provided by the World Bank, BOAD, ADB and CBAO to part refinance the debt of the phase 1 project and part finance the extension, and approx. €85.5m as a subsidy from the Government of Senegal, itself financed by a sovereign loan from AFD.

11 Beyond toll evasion, a key risk to be dealt with in this respect is that of traffic diversion onto competing roads, the existence and maintenance of which is generally required by roads regulations.

12 "Africa's Infrastructure: A Time for Transformation", World Bank/Africa Development Forum report (2010).

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PHILIPPINES PPP

Prospects and challenges

by Matt Rickards and Anna Hermelin

Recently recognised in a report by the Economist Intelligence Unit as the most improved country in Asia-Pacific for public-private partnership (PPP) readiness[1] and with an ambitious pipeline of projects, the Government of the Philippines is seeking to encourage more overseas investors to bid for its PPP projects. This article examines the prospects and challenges facing investors who are looking to invest in the Philippines PPP sector.

The need for infrastructure

A comparison of infrastructure competitiveness by country highlights the need for continued infrastructure investment in the Philippines. The table to the right identifies the quality of overall infrastructure in selected countries in the Asia-Pacific region.[2] The report ranks each of the 144 countries reviewed based on the score achieved by each country (1 = extremely underdeveloped; 7 = extensive and efficient) by international standards.

Ranked 52nd of 144, the Philippines lags behind a number of its Asia-Pacific neighbours. Worldwide, the Philippines features below countries such as Kazakhstan, Latvia and Barbados. However, in just three years, the Philippines has jumped 61 places to 52nd (it was ranked 113th in the World Economic Forum's 2011-12 Global Competitiveness Report), testament to how effective its infrastructure development has been over the past few years. Since the current PPP programme began in 2010, ten PPP deals cumulatively worth US$4bn have been awarded, including the Mactan-Cebu Airport Project and the Cavite Laguna Expressway Project. This drive for further infrastructure development shows no sign of abating.

Opportunities

For those considering investing in PPP projects in the South East Asia region, the Philippines presents an enticing investment

Country	Rank	Score
Singapore	2	5.65
Japan	6	5.47
Hong Kong SAR	7	5.45
Taiwan	14	5.25
Australia	21	5.16
South Korea	26	4.96
China	28	4.89
Thailand	31	4.66
Indonesia	34	4.57
Philippines	52	4.40
Vietnam	68	4.23

1 "The 2014 Infrascope: Evaluating the environment for public-private partnerships in Asia-Pacific", Economist Intelligence Unit.

2 According to the World Economic Forum Global Competitiveness Report 2014-15.

opportunity, given the Government's demonstrable commitment to PPPs as evidenced by the establishment of the country's PPP Center and the healthy pipeline of PPP projects coming to market.

The PPP Center

The PPP Center of the Philippines (PPP Center) is an agency attached to the National Economic Development Authority (NEDA, the independent planning agency of the Government of the Philippines) which is responsible for facilitating, co-ordinating and monitoring Government PPP programmes and projects by acting as an oversight agency in their programming, implementation, monitoring and evaluation. It also serves as an information repository on PPP contracts and reports annually regarding the status of the PPP programme.

The PPP Center has been very successful to date in working with the various implementing agencies to build a pipeline of projects. It has also shown a willingness to listen to the market and the concerns of market participants, and to adjust its PPP programme accordingly. The PPP Center has been increasingly active in marketing the pipeline of PPP projects to foreign investors and finance providers. The strength of the PPP Center has been a key success factor in building sufficient momentum and interest to drive forward the Government's PPP programme.

A healthy pipeline of projects

The PPP Center publishes and regularly updates the pipeline of current projects on its website.[3] It is currently promoting a healthy pipeline of projects across a wide variety of sectors.

- **Airports:** the tendering process is already underway for the development, operation and maintenance of two bundles of regional airports (Bacolod-Silay and Iloilo and Davao, Laguindingan, and New Bohol (Panglao)), with pre-qualification documents due to have been submitted in August 2015. In addition, in July 2015, the PPP Center announced that the Cabinet-level NEDA-Investment Coordination Committee (NEDA-ICC) has also now approved the Ninoy Aquino International Airport (NAIA) PPP Project. This project is intended to transform the Philippines' main gateway into a world-class modern airport facility. While international interest in the regional airports has been muted to date, greater interest is expected in the NAIA PPP. Other airport projects currently subject to ongoing studies include the upgrading of the San Fernando Airport and the operation of Clark International Airport.
- **Rail:** projects in this sector include the recently announced North-South Railway PPP which covers the rail link from Metro Manila to Legazpi City, Albay, plus a number of existing and proposed branch lines totalling approximately 653 kilometres. It consists of both commuter railway operations and long-haul railway operations and is expected to cost US$3.79bn. In the light rail sector, the LRT Line 4 Project has now been approved by the NEDA-ICC, while the larger LRT Line 6 Project, for the financing, design and construction of the 19-kilometre rail line from Bacoor to Dasmariñas, Cavite, is pending approval.
- **Roads:** the ambitious US$2.7bn Laguna Lakeshore Expressway-Dike Project is currently in procurement. The private partner will finance, design, construct, operate and maintain the six-lane expressway toll road atop a 47-kilometre flood control dike. Other projects in the pipeline include the construction, operation and maintenance of the NLEX-SLEX Connector road.
- **Water:** in the water sector, the Bulacan Bulk Water Project for the financing, design, construction and maintenance of conveyance facilities, treatment facilities and water source to provide treated bulk water is currently in procurement, and the Kaliwa Dam Project procurement process is scheduled to be repeated after all the prospective bidders were disqualified.
- **Social infrastructure:** the Regional Prisons PPP Project was launched earlier in the year and is currently in procurement. However, interest in the project – which involves the construction of a facility that can accommodate 26,880 inmates – has been comparatively muted and there are only two pre-qualified bidders.

A clear legal and regulatory framework

The implementation of PPP projects is governed by the Republic Act No. 9, more popularly known as the Build-Operate-Transfer Law (as amended, the BOT Law) and its implementing regulations (the BOT Law IRR).

The BOT Law sets out a number of prescribed contractual arrangements including build-operate-and-transfer (BOT), build-own-and-operate (BOO), build-transfer-and-operate (BTO) and rehabilitate-operate-and-transfer (ROT). Other contractual arrangements which are not expressly set out in the BOT Law are also permitted, subject to Presidential approval.

An amendment of the BOT Law to turn it into a fully-fledged PPP law is intended to be implemented before the change of administration in 2016. It is expected that the amendments will generally be favourable to investors and will further institutionalise the process for issuing awards and the role of the PPP Center.

A transparent bidding process

The BOT Law IRR sets out the process by which tenders for infrastructure projects are undertaken. As a general rule, projects to be undertaken pursuant to the BOT Law must be awarded after public bidding. Usually, a two-stage process is followed:

(i) invitation to pre-qualify and bid: the invitation to pre-qualify and bid sets out the standards and requirements that prospective bidders must meet in order to be permitted to participate in the bidding process; and

(ii) bid submission and evaluation: the implementing agency issues the bid documents to pre-qualified bidders. Technical proposals are evaluated first. If acceptable, financial proposals are then evaluated.

Partnership with foreign participants

Traditionally, the Philippines market has been dominated by local conglomerates, who, to this day, are still very active in bidding for PPP projects. However, where more substantial projects are being procured or where there is a lack of local resources (either due to a lack of experience in a sector or simply a lack of capacity due to the number of projects coming to market), local conglomerates are showing an increasing willingness to partner with experienced foreign sponsors and investors.

Incentives

Under the Omnibus Investment Code, projects in excess of PHP1bn that are undertaken pursuant to the BOT Law are entitled to incentives, including an income tax holiday, upon registration with the Board of Investments.

Challenges

There remain, however, challenges, both for the Government in its implementation of infrastructure projects and for those considering investing in the Philippines PPP sector.

3 ppp.gov.ph

Rights of way

The acquisition of rights of way (ROW) and other interests in real property in connection with a national government project is governed by Republic Act No. 8974 which permits various modes of acquisition of ROW including expropriation. As expropriation involves a court process, there have historically been long delays in the acquisition of necessary ROW and the incurring of potentially high resettlement costs (for example, in the North Luzon Expressway Project). In past projects, the Government has been willing to take on some of the burden of obtaining the necessary ROW, and further amendments to the law are expected which are aimed at increasing the efficiency with which land rights may be obtained for national projects.

Nationality restrictions

Under the constitution of the Philippines, and as reflected in the BOT Law, where an infrastructure facility's operation requires a public utility franchise (such as a franchise to operate a railway or airport), the facility operator must be Filipino or, if a corporation, must be duly registered with the Securities and Exchange Commission (of the Philippines) and owned at least 60 per cent by Filipinos. This therefore limits the ability for participation by foreign investors and sponsors. In previous projects in the Philippines, this has been managed by allowing the project company the option of acting as facility operator itself (if it meets the ownership requirement) or by appointing another entity through an operations and maintenance agreement (if it does not). While some foreign investors have been discouraged by such limits on their equity participation, others have indicated that, for the right project, such a limitation would not be a barrier to their investment.

Timelines and resources

The Government and the PPP Center have set out an ambitious pipeline of projects which they intend to award prior to the change in administration in 2016. This has been putting some pressure on the resources of bidders (especially those interested in several projects which may be being bid for simultaneously) and may help to explain why some projects have received fewer bids than expected, as participants become more selective in choosing which projects to bid for.

Property tax/other local taxes

Depending on the location of a project, the project company may be exposed to multiple local tax and consent processes (with potentially onerous conditions attached to these consents).

The Government is reportedly considering including additional mitigants to such risk in the proposed amendments to the BOT Law.

Currency of tolls and fees

Where the project company is to be repaid through the collection of tolls, fees and charges, it may be exposed to currency risk in relation to any foreign-denominated loans.

Historical precedent

In spite of the clear legal and regulatory framework, high-profile issues have arisen on a few projects which has injected uncertainty into the bidding process and given some investors pause for concern. For example, the Cavite Laguna Expressway (CALAX) Project has recently been awarded to Metro Pacific Investment Corporation's subsidiary MPCALA, but only after the project was rebid due to another bidder having questioned its disqualification from the original tender for what it called an "*inadvertent and harmless typographical error*".[4] The Mactan-Cebu Airport PPP Project, which was awarded to the GMR Infrastructure and Megawide consortium, has also faced delays, in part due to a dispute between the GMR-Megawide consortium and the runner-up, the Filinvest-Changi Airports consortium.

Change in administration

President Benigno Aquino III is barred from seeking re-election in the 2016 election and there will therefore be a change in government next year. There is some market uncertainty as to the approach which a new administration would take to the current Government's flagship PPP programme. However, the risk is in part mitigated by the institutionalisation of the PPP programme under the BOT Law and also by the unquestionable need for both improved and new infrastructure in the Philippines.

Risk allocation

The PPP Center has published a Generic Preferred Risks Allocation Matrix based on the results of studies under the Philippines-Australia Partnership for Economic Governance Reforms Facility. It is a guideline only, and risk allocations may vary from sector to sector and from project to project, although the PPP Center has encouraged the use of precedent risk allocations where appropriate. However, foreign investors have indicated that they have withdrawn from projects in the past due to inappropriate risk allocations and that the proposed risk allocation for individual projects will need to be carefully evaluated.

Local bank liquidity

Traditionally, foreign lenders have found it hard to penetrate the infrastructure market in the Philippines due to the liquidity of the local banks and the dominance of local sponsors with access to, and long-term relationships with, such banks. Although single borrower limits apply, the rules were relaxed for PPP projects that are part of the Government's official pipeline of projects. Given the ambitious pipeline of projects and the increasing interest of foreign sponsors, foreign lender participation is therefore expected to increase.

Conclusion

The Philippines, like many other of its Asia-Pacific neighbours, still requires a significant amount of new infrastructure, alongside the renovation of its existing infrastructure. The institutionalisation of the PPP Center and the legal and regulatory framework for PPP projects, combined with a healthy projects pipeline, indicates that the Philippine Government is continuing to tackle its infrastructure gap head-on.

However, PPP projects in the Philippines come with a distinct set of challenges, some of which are typical of infrastructure projects in emerging economies in the Asia-Pacific region and some of which are more specific to the Philippines. With some significant projects coming to market, such as the North South Rail Project, greater interest from foreign investors is expected. So far, the Government of the Philippines and its PPP Center have shown a willingness to listen to the concerns and suggestions of potential investors and to engage with multilateral agencies and international experts to benefit from best practice. While this continues, we expect it to be a market that continues to generate significant investment opportunities.

4 Darwin G. Amojela, "San Miguel asks Malacanang to intervene in CALAX bid", InterAksyon.com, July 2014.

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STOP PRESS:

Ashurst announces new Managing Partner for Tokyo office

Rupert Burrows has been appointed Managing Partner of our Tokyo office. Having worked in Tokyo for over 20 years, Rupert has a wealth of expertise in international infrastructure projects in the electricity, oil and gas, chemicals and transport sectors as well as corporate M&A deals. Rupert replaces project finance partner John McClenahan.

Ashurst achieves US Chambers ranking for P3s

Ashurst's US team, with offices in New York and Washington DC, has been recognised for the first time by the 2015 Chambers directory in the US in the "PPP – Nationwide" category. This is a tremendous achievement for a team that has been operating in this sector for a relatively short time and reflects the real impact that we have had on the market. With major programmes including the I-4 highway in Florida, the PennDOT bridges P3 and the Maryland purple line on our CV, we are truly embedded in the US infrastructure market acting for a wide range of clients across the transport, social infrastructure and renewables sector.

For full details of all Ashurst's legal directory rankings, visit the Chambers website at chambersandpartners.com and the Legal 500 website at legal500.com.

Awards success for Ashurst's infrastructure team

Ashurst was awarded "Legal Adviser of the Year – Gold Award" at the 17th annual Partnerships Awards, held on 14 May 2015 at the Park Plaza Hotel in London. Our team was recognised for our work over the past two years advising on some of the biggest, most high-profile and most innovative PPP projects across the globe. In particular, the judging panel considered Ashurst to be a worthy winner as: "*Ashurst's ability to overcome problems with innovative solutions has ensured it has been at the forefront of flagship deals across all sectors in a large number of countries over the course of 2014*". Other significant projects to receive awards on which Ashurst advised included: Mersey Gateway PPP ("Best Road Project"), Dublin Waste-to-Energy PPP ("Best Waste/Energy/Water Project"), Ayrshire & Arran Acute Mental & Community Hospital ("Best Healthcare Project – Silver Award") and North West Rail Link PPP, Australia, which was the recipient of "The Judges' Award for Projects Grand Prix" and "Best Transit Project".

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