Wind Financing

Financial Instruments and Key Considerations

Stirling Infrastructure
PARTNERS LTD

REPORT

Onshore / Offshore M&A and Financing

Stirling Infrastructure

PARTNERS LTD

Stirling Infrastructure is an M&A and capital raising firm focusing on project finance and operational onshore and offshore wind projects. The firm arranges both debt and equity financing for renewable projects internationally. The firm has established relationships with institutional investors, listed companies and private market investors.

For more information visit stirlinginfrastructure.com

Contents

Stirling Infrastructure
PARTNERS LTD

1. WIND PROJECT DEVELOPMENT: AN OVERVIEW

PURPOSE OF THIS PAPER

This paper will provide clear insight to interested parties on how to raise capital for a wind project as well as outlining what the relevant factors are for this process. To do so a deep approach will be taken, with sections on financing, corporate governance, revenue generation and the evolution of the market. By the end of this paper the reader will be aware of the key financing considerations for a wind project. For further information or for project specific advice please contact us at: enquiries@stirlinginfrastructure.com

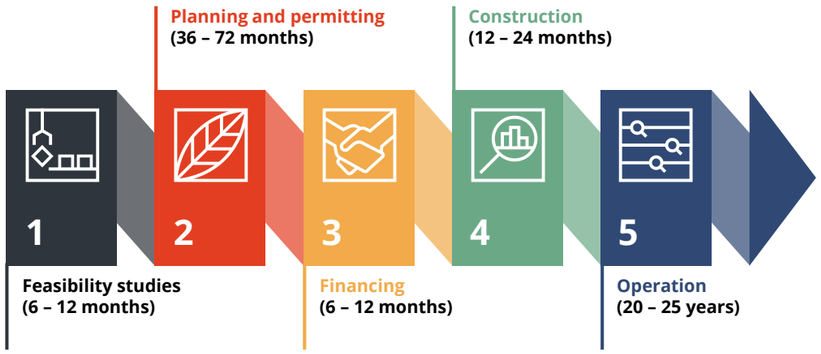
INTRODUCTION: GLOBAL GROWTH AND TRANSFORMATION OF WIND POWER

The electrification and decarbonisation of economies have driven a significant push towards wind energy. Wind capacity has grown dramatically from 371 GW (2014) to 624 GW (2019) (IRENA, Global Renewables Outlook, 2020) of installed capacity. This increase in installed output has been coupled with a transformation in the underlying technologies used to construct and operate windfarms, as the output cost of electricity has fallen dramatically and wind turbines have increased in complexity and scale. Crucially, this growth is globally dispersed with Europe, China and the United States rapidly increasing planning and growing capacity for Wind as a solution to their carbon commitment. This means the demand for financing of these projects will be a growing theme going forward.

1. WIND PROJECT DEVELOPMENT: AN OVERVIEW

Even though each infrastructure project is unique, based on our expertise, the process of developing a wind project can take typically between 5 and 10 years. We have identified 5 key stages in the development and operation of wind projects, which are described in Exhibit 1:

Exhibit 1: Five Key Stages of a Wind Project



Stage 1: Feasibility studies

The feasibility stage is the first step in any infrastructure project. Regarding wind projects, the objective is to evaluate how likely it is that a wind farm will succeed in a given location and become commercially viable. Some of the key aspects analysed at this stage include:

- Accessibility to the construction area
- Average wind speed at the site
- Area of available land and land ownership
- Ground conditions and land-use of proposed site
- Existing and future grid infrastructure
- Existence of similar projects in the area, as well as other energy generation projects
- Environmental planning, including proximity to protected areas
- Community acceptance evaluation

The scope of the analysis performed at this stage may vary depending on the peculiarities of each potential development. The feasibility study results will allow professionals and engineers to compare several locations and choose the most promising among them without investing significant time and money in the process.

Stage 2: Planning and permitting

This phase will be launched once the feasibility stage is completed. Its main objective is to obtain all permits and perform all associated tasks to prepare the project for construction. In addition, in-depth technical studies will be conducted to confirm the feasibility results obtained in the previous phase. Some of the key tasks completed at this stage include:

- Working on the acquisition of land, conducting negotiations with landowners and involving legal firms for related documentation.
- Developing and presenting the planning application to regulators. This will include the execution of several technical studies, involving professionals from diverse backgrounds such as archaeologists, ornithologists, ecologists, geologists, hydrologists, landscape architects, geotechnical engineers, etc.
- Submitting the application to connect to the national energy grid. This is one of the steps in the process that typically demands the most time, given that regulators follow a detailed evaluation process before granting access to the national energy grid for project developers.
- Performing wind monitoring activities and issuing an Energy Capture (wind) Report, providing detailed analysis about expected energy generation.
- Holding public meetings to inform the local community about the project, which is subject to several considerations, especially those related with environmental impact.

At the end of this phase, permissions and licenses are granted by regulators and government organisations.

Stage 3: Financing

The financing phase comes into play after obtaining all required licenses and permits for the construction of the wind project. In project finance, a special purpose vehicle (SPV) is created by project sponsors to own and control an infrastructure project. It works as a mechanism to protect sponsors from liabilities generated during the execution of the project, since the SPV is only liable for obligations created with capital providers through the issuance of non-recourse debt. In other words, the SPV raises funds based on its own merit to generate cash flows during the operation phase of the project.

The project sponsors source funds (debt and equity) through several organisations, including commercial and development banks, financial institutions, private investors, etc. The nature of the financial instruments and financing conditions will vary depending on the risk and return profile of each capital provider. Wind projects, as well as infrastructure projects in general, are highly leveraged, with debt to capital ratios ranging between 70% to 80%. A detailed analysis on the financing of wind projects is provided in section 2 of this document.

Stage 4: Construction

The construction phase is the most capital-intensive stage of the wind project development. It involves a collaborative work of engineers, technical advisers, consultants and contractors. Civil works, electrical infrastructure and wind turbines are brought to the site and installed.

Typically, civil contractors start the construction phase by building site roads and upgrading public roads, building the wind turbines foundations, crane pads and the electrical substation. Electrical contractors will come into play later by installing electrical infrastructure, including underground electric cables and electrical substation equipment to allow energy flow from the wind turbines to the electrical substation. At the same time, off-site grid connection works will take place to enable energy transmission from the wind farm to the national grid.

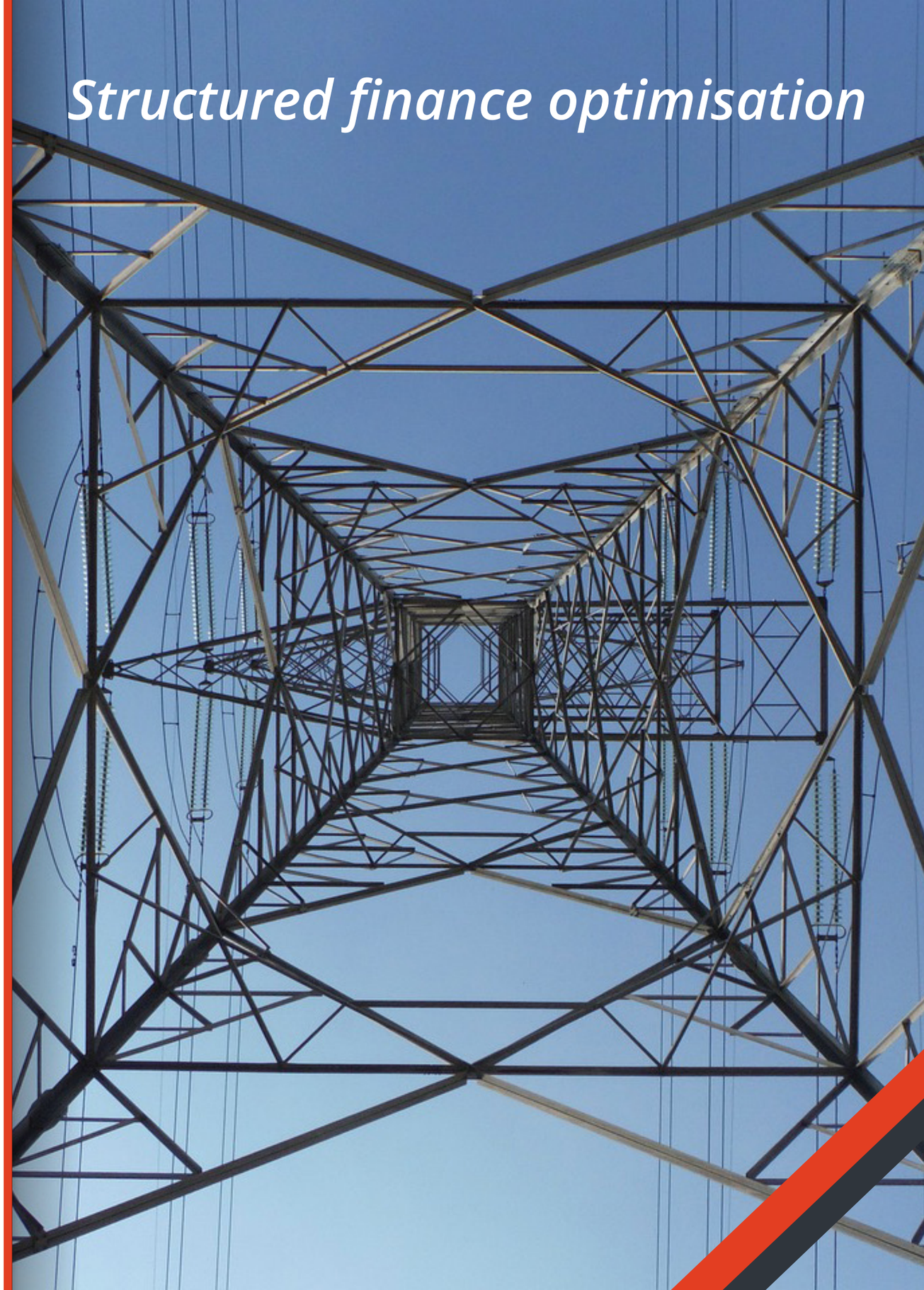
The construction phase can take between 12 and 24 months depending on several factors such as size of the project, location, access to the site, weather conditions, etc. Wind project developers can either hire external contractors for this phase by signing an Engineering, Procurement and Construction (EPC) contract or execute the construction themselves, making use of internal teams of engineers and project specialists.

Stage 5: Operation

Once the construction is completed, a testing phase will come into play, making adjustments to ensure that the turbines and electrical infrastructure work properly and transmit energy in a safely and reliable way to the national grid. A successful testing will finally bring the project to the operation phase.

The operation phase can last between 20 and 25 years, depending on the pre-defined lifetime of the wind project. At this stage, the efforts focus on monitoring and controlling the performance of the project, making sure it works as planned and delivers the energy levels forecast in previous phases. This involves several activities such as maintenance, compliance, safety and security, community relations, landowner agreements, among others. Project sponsors can either sign an Operation and Maintenance (O&M) contract with a third party to delegate these activities or use its own in-house team of engineers and technicians for this purpose.

Structured finance optimisation



2. WIND PROJECT FINANCING INSTRUMENTS

2. WIND PROJECT FINANCING INSTRUMENTS

As mentioned previously, wind projects are usually launched under an SPV scheme. This allows project sponsors to issue non-recourse debt, using the cash flows generated through the project to pay back capital providers. The latter can provide capital to the project in the form of equity or debt.

Equity capital bears the highest risk in the capital structure of a project since it refers to the shareholders who are responsible for the project's success or failure. Moreover, equity providers are the last investors to be compensated in case of liquidation. Consequently, given their higher risk exposure, equity holders are entitled to receive higher returns than debt holders. On the other hand, debt capital refers to diverse loan obligations which must be met according to a pre-determined repayment schedule. Debt holders do not own or influence the course of the project and their risk exposure is lower than that of equity holders since they have priority in case of liquidation.

Project sponsors have several financing options when raising capital for wind projects. Each option is linked to a specific financial instrument with particular characteristics in terms of structure, interest rate, repayment conditions and seniority within the project capital structure. Likewise, each financing option is provided by investors that share common risk and return profiles. The most common method of financing infrastructure projects is through commercial banks, who provide standard term loans to finance most of the debt issued by wind projects. However, over the last few years alternative capital providers have increased their share in infrastructure projects, providing more sophisticated financial instruments. Such capital providers include insurance companies, pension funds, specialist infrastructure funds, sovereign wealth funds, government and official agencies. A summary of the financial instruments available for infrastructure projects is detailed in Exhibit 2:

Exhibit 2. Financial Instruments in Wind Project Financing

Capital structure	Instrument category	Financial instrument
Debt	Loans	Bank loans and syndicated loans
		Direct lending and co-investments
	Bonds	Project bonds
		Green bonds
		Government and sovereign bonds
	Hybrid	Mezzanine and subordinated debt
Equity	Listed	Yieldcos
	Unlisted	Unlisted direct equity investment and co-investments

DEBT INSTRUMENTS

Bank loans and syndicated loans

As mentioned previously, bank loans are the most popular mechanism to finance infrastructure projects. They are originated by commercial or development banks and provide the lowest cost of debt within a project capital structure since they are secured with collateral and the expected cash flows of the project. Moreover, they have the highest level of seniority compared to other financial instruments, meaning that bank loan creditors will be the first party compensated in case of project bankruptcy.

Bank loans can be arranged during the construction or operational phase of a project. Due to significant differences between the two phases in terms of risk profile, project sponsors usually arrange an initial bank loan for the construction phase, followed by a refinancing of the facility after the construction has finished, reflecting the lower risk profile of the project during the operation phase. In this sense, bank loans are more flexible than other financial instruments, allowing debtors to adjust repayment terms, coupons, and the structure of the facility over the life of a project. Interest rates are usually set considering a fixed or floating spread over a benchmark such as LIBOR or EURIBOR[1] and maturities can vary depending on the capital structure set by project sponsors, the risk/return profile, and the lifetime of the project (ranging anywhere between 7 and 25 years).

Syndicated loans refer to the issuance of a bank loan by a group of commercial or development banks. In this mechanism, a lead bank coordinates the loan underwriting process with other banks, receiving higher fees according to the level of involvement in the process. Syndicated loans can then be traded in the over-the-counter (OTC) markets through investment managers and dealers.

[1] London Inter-Bank Offered Rate (LIBOR) and Euro Inter-Bank Offered Rate (EURIBOR)

Direct lending and co-investments

Institutional investors also play an active role in infrastructure financing. Direct lending refers to institutional investors (pension funds, insurance companies, etc.) providing financing to project sponsors without intermediaries such as banks or debt funds. Co-investments have a similar definition to that of syndicated loans. In this case, a lead institutional investor arranges the issuance of obligations to finance a project and sells some of those to other investors.

The loans issued by institutional investors are deployed in either greenfield or brownfield investments and the conditions in terms of repayment, maturity and interest rates are similar to those of loans provided by banks and financial institutions described previously. The main motivations for institutional investors to finance infrastructure projects directly lies in the desire to avoid fees from intermediaries and the attractiveness of looking for yield in SPVs. Consequently, they develop internal teams of sophisticated financial professionals with solid skills on underwriting deals, project finance and infrastructure.

Project bonds

Special purpose vehicles can opt for project bonds as a financing mechanism for developing wind projects. These are obligations issued by project sponsors following a similar process as with corporate bonds. Project bonds differ from corporate bonds in the sense that the former relies only on the infrastructure project performance, whereas the latter could rely on several business divisions and internal projects that a corporation usually manages. Consequently, project bonds are perceived as riskier since they do not have the benefit of diversification. Project bonds are issued after the construction phase has been completed, eliminating the construction risk and increasing the attractiveness of this financial instrument in the eyes of investors.

Project bonds can be an attractive option for investors who are looking to diversify their portfolios through long-dated fixed income investments. They are also a viable option for sponsors when managing infrastructure projects of large dimensions, being an alternative to syndicated loans. One advantage is the fact that they are more liquid than bank loans, with a potential to reduce overall costs of funding compared to the latter. In addition, large issue sizes can make project bonds become part of bond indexes, increasing demand from passive investors. Finally, they can also be issued with longer maturities than bank and syndicated loans.

As mentioned previously, project bonds follow the same process as corporate bonds for its issuance, including the use of standardised contracts, covenants, prospectus preparation, ratings and registration of the securities with local regulatory authorities. However, private placements of project bonds are also an option for project sponsors, avoiding some of the steps required for public placements.

Green project bonds

Green bonds are debt instruments meant to finance projects that have positive environmental or climate impact. They were launched in 2007 through an issuance from the European Investment Bank and the World Bank. Over the last decade they have gained more relevance, especially due to increased efforts by investors to allocate capital aligned with environmental, social and governance (ESG) principles. During 2019 green bonds were placed for a record aggregate value of USD 255 billion and analysts expect the growth to increase over the next decade.

Green project bonds are green bonds issued by SPVs for securing financing of an infrastructure investment. Same as with other debt instruments, the debt recourse is only to the project's assets and balance sheet. Given the renewable nature of wind projects, green bonds are an attractive financial instrument for project sponsors. They can help to diversify the investment base of a project by bringing in ESG-aligned investors and deliver a positive marketing story for the project. In terms of the issuance mechanism, there is no material difference in the placement process of green bonds and regular bonds. However, green bonds demand higher transaction costs due to requirements to track, monitor and report the use of proceeds.

Government and sovereign bonds

Government and government-controlled institutions can issue financial obligations to deploy infrastructure projects. This includes organisations such as federal or local governments, government agencies and multilateral development banks.

Such organisations can make use of revenue bonds to finance infrastructure projects. These are obligations whose liabilities are linked to the performance of a given project. Such bonds can then be sold to investors through the fixed income markets with standard characteristics such as long-term maturities, fixed or floating coupon rates, and are rated by credit rating agencies. These financial instruments are a popular investment choice for institutional and retail investors, including mutual funds and exchange traded funds (ETFs), who look for long-dated maturities and a solid debtor profile.

Multilateral development banks play a key role for the financing of infrastructure projects in developing economies. These institutions issue sub-sovereign bonds to raise capital which is then used to provide subordinated or mezzanine debt to project sponsors. Multilateral development banks can also lead syndication processes with other financial institutions to finance high-calibre infrastructure projects.

Mezzanine and subordinated debt

Subordinated debt holds the lowest seniority level within the debt structure of an infrastructure project. It is considered as a hybrid between debt and equity since it shares characteristics from both types of capital. They are issued as interest-bearing loan obligations but they can also have a share in the equity of the project. Some popular financial instruments within this category include subordinated loans and bonds, with mezzanine being a popular choice for diverse infrastructure financiers.

Mezzanine loans are subordinated obligations used to cover financing gaps after senior debt tranches have been provided or to avoid equity dilution for project sponsors by increasing the equity of an infrastructure project. They can be interest-bearing obligations only or a combination of interest bearing and equity holding in the project. Payments in kind (debt service through equity offerings) are also popular in mezzanine loans. The risk/return profile of mezzanine lies between senior debt and equity.

Subordinated debt is provided by institutional investors such as pension funds and insurance companies, as well as by debt funds and multilateral development banks. As with private equity firms, general partners (GPs) raise capital from limited partners (LPs) and allocate investments in subordinated debt and mezzanine instruments. In this sense, they provide bridge financing between commercial banks and equity investors.

EQUITY INSTRUMENTS

Yieldcos

Yieldcos are special power projects with an agreed power purchase agreement (PPA) that are placed into a new subsidiary. Afterwards, the shares of the subsidiary are sold to the public markets through an IPO while the original owner maintains a stake on the project's equity. The name "yieldcos" is related to the long-dated, stable and attractive returns provided to investors by means of project cash flows and dividends generated through the project. They have been traditionally used by utility companies to perform spin-offs of power plants and projects, selling a portion of the equity to the public.

Yieldcos are a viable financing option for wind projects, helping to reduce the overall cost of capital by growing the investor base and improving liquidity. Institutional and retail investors see yieldcos as an opportunity to diversify equity allocations and receive higher returns than those obtained by fixed income products such as bonds. Yieldcos investments can be performed through funds and asset management products, following the same process as standard equity investments.

Unlisted direct equity investments and co-investments

This investment mechanism is similar to that described on "Direct lending and co-investments" with the difference that institutional investors buy an equity stake instead of providing loan facilities to the project. This is an attractive option for investors who do not only wish to provide capital to infrastructure projects, but also want to own and operate them through their useful life. The motivations for institutional investors such as pension funds and insurance companies to perform direct equity investments include avoiding the payment of fees to funds and other intermediaries, as well as performing long-dated investments that match the time horizon of the liabilities held in their books.

Co-investments in direct equity have grown over the last few years, involving institutional investors who share similarities in terms of investment strategies and instruments, and who want to associate in order to obtain higher returns, better access to deal flow and risk diversification. However, there are some challenges faced by investors willing to associate, including divergences in terms of strategic orientations, risk exposure limits, diversification targets or governance frameworks.

The investment process is the same as a standard M&A transaction, involving financial and legal documents, comprehensive due diligence, valuation, non-binding and binding offers, negotiation and closure. Institutional investors count with sophisticated financial professionals who run the process, involving external consultants, accountants and legal advisors as required by the specifics of the transaction.

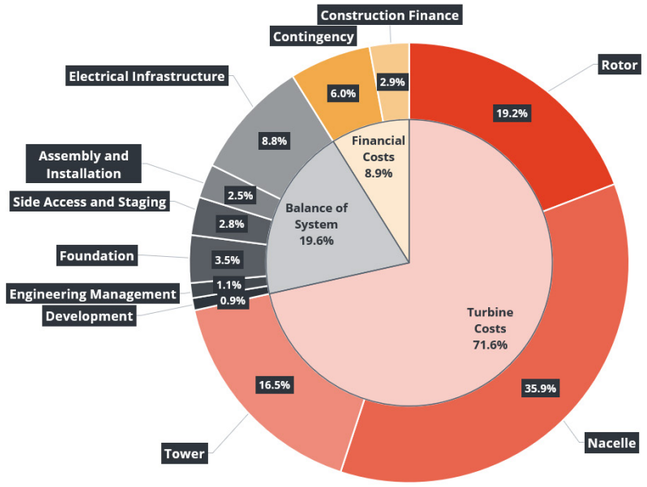
CAPITAL STRUCTURE AND CAPITAL DEPLOYMENT

Based on transactions that Stirling Infrastructure has advised upon, a representative wind project is financially structured on a 25%/75% equity/debt split. This ratio can be higher or lower depending on the size of the project, the quality and credit rating of the offtaker, and the scale and duration of the PPA secured (see specific section on PPAs). In addition, the ratio can also be affected depending on whether the technology used is proven, and the general market attitude of the debt and equity off-takers toward the project at that point in time.

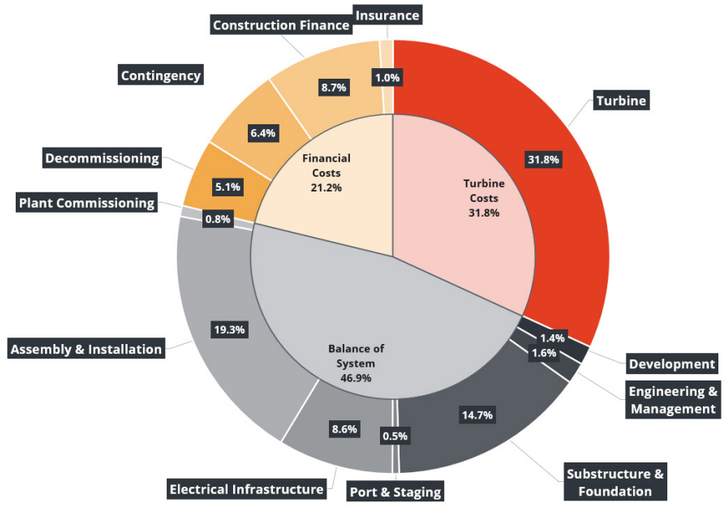
Following from the acquisition of the rights to the project and the successful raise, a draw-down framework will be agreed upon with the lender(s) and equity provider(s). For illustrative purposes, Exhibit 3 shows two representative capital drawdown structures for an onshore project and an offshore project, provided by the US Department of Energy. Red tabs refer to capital expenditure related to the projects' turbines. Grey tabs refer to balance of system items, such as electrical infrastructure, assembly and installation, etc. Yellow tabs include financial costs such as insurance and construction financing.

Exhibit 3. Capital Expenditure Breakdown of Windfarms: Onshore vs. Offshore

a) Capital expenditure for an onshore (land-based) reference wind plant project



b) Capital expenditure for an offshore (fixed-bottom) reference wind plant project



Source: National Renewable Energy Laboratory

The figures displayed show a relevant difference in the capex composition of land-based vs. offshore wind projects. Challenges accessing locations and deploying infrastructure in offshore developments explain why the balance of system capex is the most relevant element of the whole capex structure in offshore wind projects. On the other hand, turbine-related items are the key capital expenditure for onshore developments, reflecting lower balance of system investment requirements due to easier location access and infrastructure deployment conditions. Moreover, offshore wind projects include additional financial costs (e.g. contingency, insurance) due to higher risks during the construction phase compared to onshore developments.

The average capital expenditure in onshore wind projects is $20.8/MWh, $6.8/MWh and $2.6/MWh for turbine, balance of system and financial costs, respectively. For offshore projects, the costs are $17.2/MWh, $33/MWh and $8.5/MWh. However, such costs keep evolving, experiencing negative trends as a consequence of increased global investment interest in this sector.

Finally, an illustrative example of the scheduling and requirements for each phase of capital expenditure is given in Exhibit 4, based on projects that Stirling Infrastructure has advised on:

Exhibit 4. Capital Expenditure Timeline for a Hypothetical Wind Project

% capital deployment estimates are based on projects that Stirling Infrastructure has advised upon.

Phases	% capital deployment	Scheduling and requirements
Phase 1: Preconstruction	15%	▪ Legal contractual relationships established between stakeholders ▪ Concession or lease of land or seabed and waters ▪ Engineering assessments ▪ Engineering and construction planning ▪ First stage payments to EPC for commencement of works ▪ Payments to professional advisers to secure the approvals ▪ Fees to financial advisors ▪ Internal business costs incurred to project sponsor to pay staff and operate the project ▪ Deposit placed on turbines
Phase 2: Construction	80%	▪ Obtaining and securing necessary access rights ▪ Grid connection complete and tested ▪ Leasing and hiring equipment for the development of the site ▪ Preparation of foundation ▪ Payments to EPC for build, development install and construction of site ▪ Further installments by manufacturers for the turbines, cabling and equipment for the wind farm to function ▪ Fulfilment of agreements (i.e. completion within agreed parameters) *Equity debt split allocated to each phase on the drawdown needs to be consistent with the agreed ratio with the lender. **Interest payments are rolled into the principal and become payable once cashflows are generated .
Phase 3: Pre-commercial operation checks	5%	▪ Final installations ▪ Testing, with large scale performance data collected ▪ Regulatory checks
Phase 4: Commercial operation date	n/a	▪ Labour costs for operation, management and maintenance of site ▪ Payment of principal and debt as staged payment

3. WIND PROJECT REVENUE GENERATION: POWER PURCHASING AGREEMENTS (PPAs)

3. WIND PROJECT REVENUE GENERATION: POWER PURCHASING AGREEMENTS (PPAS)

REVENUE GENERATION FOR WINDFARMS

Revenue generation is critical for the financing of any project. Wind projects looking to raise revenue face the choice of joining a subsidy scheme, acquiring a contract to sell directly to private consumers, or selling directly to the wholesale market. For wind power, however, output is irregular and subject to day-to-day and seasonal variations. In addition, the market for electricity generation is highly dynamic, with significant fluctuations in the spot price. Therefore, from a financing perspective, as there is very little guarantee to the lender that the project will be viable if sold directly to the wholesale market, lenders typically require 70% or more of the output of a windfarm to be covered by an agreement in order to reduce revenue volatility. For modern wind energy, the most successful wind projects will almost always have a PPA in place.

PPAS FOR WIND PROJECTS

A highly popular and increasingly global method to alleviate pricing risk is to use a Power Purchasing Agreement (PPA). A PPA can be defined as a long-term bilateral agreement where a counterparty agrees to buy the energy generation from the developer at a negotiated price. PPAs can be broken into the following categories:

- **On-Site PPAs;** a private wire is installed that allows the power output of the windfarm to be consumed behind-the-meter, directly by the end user.

The benefits of On-Site PPAs is that there is no need to engage with the transmission grid, which can often be expensive. However, the variability of the output means that multiple sources of power may be necessary to balance irregular production, and the costs of transmission from the wind site to the end consumer may be large.

- **Sleeved PPAs;** a generator "sleeves" their electricity, selling to the consumer via a utility.

The benefits of Sleeved PPAs is that the utility can mix multiple sources of power together to ensure a smooth end-user consumption. However, this service comes at a cost to the generator as the utility will charge a sleeving fee. Sleeved PPAs are common across the EU, and adoption will increase as utilities face regulatory pressure to source a higher proportion of the energy mix from renewable sources.

- **Synthetic PPAs:** the supplier "virtually" sells the renewable electricity that it produces to a consumer for a fixed price.

The process is outlined as follows. 1) The generator sells electricity to the utility at market prices. 2) The utility sells to a corporate consumer at market prices. 3) The generator and corporate consumer agree on a contract for the difference or other hedge with a fixed strike price for the power produced by the generator. 4) The generator and corporate consumer settle the difference between the fixed strike price and the market price.

The main benefits of a Synthetic PPA is that power can be sold "virtually" across separate markets, which has led to high usage in the disaggregated US energy market.

PRICING PPAS

The success of any PPA in securing revenues will depend on a variety of factors (target price, payment period, pay as produced or alternatives). In addition, a successful PPA will take into account the kind of energy a windfarm produces. Within the energy grid, baseload energy refers to the minimum level of electricity necessary to meet grid demand. Baseload energy tends to be supplied by sources that do not vary in output, so the grid operator can be certain this minimum level of demand is met, for example with nuclear power. However, for renewables this consideration means that they do not produce baseload energy as they have irregular output. Therefore, energy from renewable sources cannot be sold at the baseload power price and faces additional costs: shaping costs and balancing costs.

- Shaping costs are the difference between baseload energy price and the effective price.
- Balancing costs are the costs that accrue due to irregular output, usually in the form of imbalance charges.

From a financing perspective, the shaping and balancing costs make it even more important that a wind project can acquire a PPA and de-risk its revenue, as with increased adoption of renewable generation these are likely to rise. For example, a solar plant will be producing its highest output at the same time as other solar plants, leading to more output for the grid to balance and therefore a higher likelihood of balancing cost. Well-structured PPAs can ensure that even in 10 or 15 years with many more renewable sites completed, this downside risk is minimised and core profitability maintained for wind projects.

EVOLUTION OF THE PPA MARKET FOR WIND ENERGY

As the previous sections have illustrated, acquiring a PPA is an important step for a wind project. However, the market is dynamic and recent developments have led to the emergence of collaborative PPAs. These can take a range of forms, such as with a consortium (similarly sized businesses with similar risk tolerances aggregate energy demand to allow for access to the PPA market), with an anchor (one single entity contracts the majority of the PPA, smaller PPAs are made by other entities), or a reseller (a large buyer acquires a PPA then divides the offtake into smaller parcels which are resold). Similarly, on the supply side of the PPA, multiple renewable energy producers can aggregate their output to create a more reliable and competitive PPA offering.

In this way the development of collaborative PPAs accommodates an entirely new customer base which previously could not access renewable energy at competitive rates, while the developers face less risk with aggregation enabling a standardisation of PPA contracts. The growth of this approach enables renewables to embed themselves more deeply into communities and increase demand for wind energy financing going forward.

4. FACTORS THAT ENABLE SUCCESSFUL WIND PROJECT FINANCING

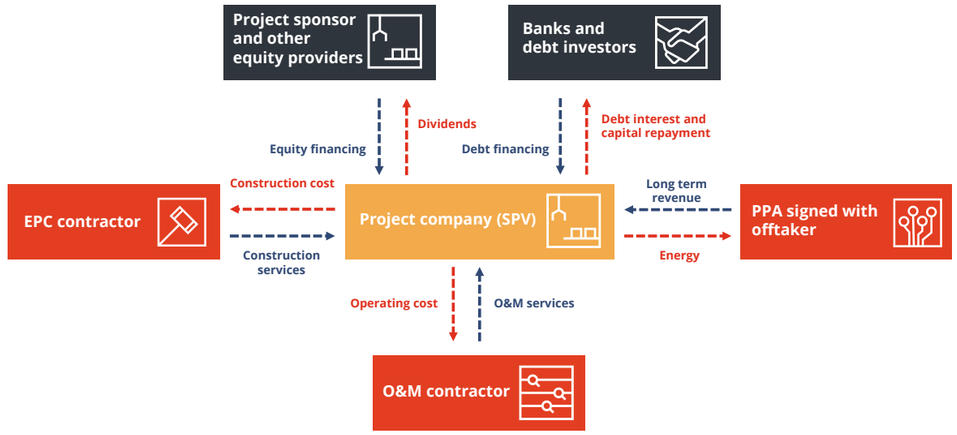
In the previous sections, we have discussed in detail the processes of planning for and acquiring the rights of a wind project, raising the debt and equity to develop the project, and how that project can secure revenues to ensure profitability. There are several key considerations to ensure a successful wind project development. As Stirling Infrastructure advises project sponsors and institutional investors, we have summarised the key risks that may stand in the way of a wind project being completed on time and on budget and ultimately becoming viable and bankable.

These risks can be effectively mitigated by planning and conducting in-depth due diligence before the construction phase begins, which in turn requires understanding the risks from an economic and regulatory perspective as well as understanding the local market.

CONTRACTUAL RISKS

One of the most challenging aspects of ensuring a successful wind project is securing the appropriate financing and structuring contracts that enable the correct capital and incentives in place. If all these contracts are not brought together in an aligned and timely manner, the development of a wind project can become delayed and costly. Exhibit 5 summarises the different contracts between relevant parties that need to be in place in order for the wind project to be financed and for contract-related risks to be mitigated.

Exhibit 5. The Contractual Matrix of a Wind Project



LEGAL AND REGULATORY RISKS

Another main cause for project delays is related to the project not having obtained the relevant rights. The degree of regulatory complexity depends on the jurisdiction, although the risk can usually be mitigated by engaging competent legal counsel (barring extreme corruption, see 5.5). Additionally, political costs such as the costs of participating in auctions for the site where the project is to be developed presents an added layer of complexity.

TECHNICAL RISKS

The project needs to be well-planned and well-organised from the start, meaning that the environmental characteristics of a site should be properly checked from an engineering point of view to ensure the technical solutions are appropriate. For example, the optimal battery storage solution for a site varies depending on climatic and geological features (see SI's "Energy Storage Financing for Sustainable Infrastructure" paper). Selecting the right technology and getting the parts at the right price via a competitive process will prevent cost overruns. It is also essential that guarantees are acquired from the manufacturer to ensure key technology (such as the turbines) are surveyed and tested before the site become operational to prevent false starts and delays.

LOGISTICAL RISKS

A bankable project needs to demonstrate comprehensive planning for the construction phase. Ordering the turbines and parts on time, making sure factories are available to manufacture and deliver the parts, and ensuring that the construction site is accessible and connected to other key infrastructure, are all important to the successful and timely delivery of a wind project. It is important to note that accessibility includes both a material aspect (e.g. presence of physical infrastructure and distance to key infrastructure) and a legal/regulatory aspect. For example, the Jones Act is a US federal law that requires goods shipped between US ports to be transported on ships that are built, owned, and operated by US citizens or permanent residents, which poses implications for project costs and for the sourcing of equipment and parts. Finally, ensuring the availability of a skilled, well-trained labour force before construction starts is paramount. A high-quality EPC contractor with a proven track record ensures that the project is delivered on time and on schedule.

SOCIAL AND POLITICAL RISKS

Delays due to opposition from environmental groups and local residents can also occur. For example, onshore wind projects typically draw criticism for creating visual and noise pollution, disturbing wildlife and creating habitat fragmentation, and affecting the overall mental wellbeing of local residents. A consultation process at the appropriate level which both informs and engages with the public offers a mechanism to avoid and mitigate social and political risks. Infrastructure projects that employ foreign rather than local labour also tend to draw controversy, and should be a point of consideration for investors. Furthermore, corruption in certain jurisdictions that lead to embezzlement and bribery, as well as the difficulty of obtaining local government approval, will significantly undermine the quality, cost-effectiveness and timely delivery of infrastructure projects.

OVERSEAS PROJECT RISKS

When choosing to invest in an overseas wind project, currency risk and the cost to hedge the foreign currency should also not be neglected. Projects in emerging markets have a higher level of complexity for the reasons outlined above (i.e. legal, regulatory, social and political risks), which will require certain conditions to be met for multilateral banks to finance the project.

OFFTAKER RISKS

For a wind project to be bankable in the long term, there needs to high-quality offtakers that have a high enough credit rating to make risk proportional to the return that can be achieved. Analytics need to be carried out in the relevant market to see what price is paid for electricity, to ensure the right pricing is reflected in the offtaker contracts.

SUMMARY

We have offered a brief overview of the key risks that impact the viability and bankability of a wind project, which highlight the importance of good feasibility studies, a strong project management team, competent EPC contractors and advisors, and high-quality offtaker contracts. Stirling Infrastructure's role as a project finance advisor is to identify and evaluate all the above-mentioned risks, and to make sure that there is evidence that these risks have been considered and that mitigation is up to a sufficient standard before the project is at the financing stage.

Renewable energy: Powering national infrastructure

5. CORPORATE GOVERNANCE IN WIND PROJECT FINANCING

5. IMPORTANCE OF CORPORATE GOVERNANCE IN WIND PROJECT FINANCING

The purpose of corporate governance is to facilitate effective, entrepreneurial and prudent management that can deliver the long-term success of the company. It is the system by which companies are directed and controlled. Provisions incorporating the following principles should be incorporated into a section on Corporate Governance within the Shareholders Agreement for any wind project. We believe that effective corporate governance is a key element that must be considered alongside financing to ensure the success of the windfarm is not jeopardised by mismanagement.

STRONG CORPORATE GOVERNANCE PRINCIPLES

Solid board practices

The developer should be headed by an effective board, ideally with members that have experience in the operation or development of a wind site. The efficiency of the board is an important factor for the long-term success of the venture. Examples of good board practices include ensuring that top management has the ability to directly influence what is happening on the site, and that there are clear document policies, procedures and processes in place to ensure that all required commitments and deadlines are met.

Accountability

The principle of accountability relates to the board's ability to ensure it conducts and presents a fair, balanced and understandable assessment of the company's position and prospects. For example, in the construction phase of the wind farm project, there will be several stakeholders with different interests that will need to be individually addressed before corporate decisions are made.

Strategy

The body governing the company and venture must be able to efficiently strategise the success of the project. This will entail the production and effective communication of detailed business strategies and models that also address other key areas of concern for the board, such as risks, KPIs, remuneration, nominations and succession planning. The use of such a strategy will enable efficient and decisive decision making and the success of the development.

High transparency

Transparency ensures that stakeholders have confidence in the management of the company. This principle requires that stakeholders be informed about the company's activities, future plans, such as refinancing, and business strategy risks. This is achieved by a willingness to disclose accurate and honest financial performance figures to project sponsors. In addition, it is important to note that wind developments require significant contract work, which requires high transparency to ensure tenders are properly and competitively allocated.

SHAREHOLDERS AND INFORMATION

In order to ensure that shareholders are kept up to date with the progress of the project and in order to ensure that there has not been any mismanagement, they will need to be supplied with financial statements regarding the projects. Quarterly earnings reports are included, usually with a company press release. In terms of timing, shareholders will most likely need financial statements prior to any transaction, as well as at major project checkpoints and performance data at the following phases: pre-construction, during construction, operation and maintenance.

MISMANAGEMENT

The shareholders will be able to step-in to the loan agreements if there is a delay in repayment or breach of the terms of the loan documentation. This legal maneuver enables the lenders to take decisive action and ensure long term success of the financing of the project.

CHALLENGES FOR AN EFFECTIVE CORPORATE GOVERNANCE

The challenge lies in ensuring identifying whether or not there are strong corporate governance practices in place for the shareholder. Whilst at the outset there may be corporate principles in place, discussing whether the principles are inherently built to better the company or whether they are incomplete is pivotal to identify firms with sincere efforts to improve their corporate governance, and therefore the best projects to finance. In summary, strong corporate governance principles are crucial to the success of wind projects and their development, from financing to completion, and it is important for projects to bear these principles in mind going forward.

6. OUR ROLE IN WIND PROJECT FINANCING AND M&A

Advisory services or bespoke solutions can benefit key stakeholders at various phases of a wind project. Here, we demonstrate what Stirling Infrastructure ("SI" hereafter) can offer as a project financing advisor at the capital raise stage and the operational stage (refinancing and the M&A) of a wind farm.

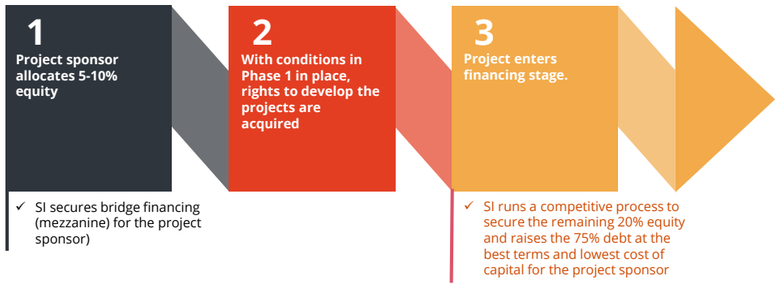
CAPITAL RAISE STAGE

At the capital raise stage, there are two typical scenarios for the beginning of the project: one in an off-market or "private" project finance transaction, the other in a competitive (public) auction which may be either for a greenfield project or an operational asset. Exhibit 6 shows how SI can provide value as a project finance advisor.

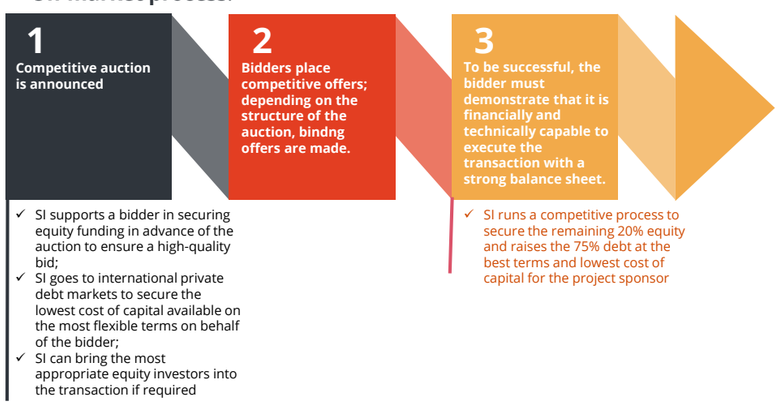
Exhibit 6. SI's Role During a Hypothetical Capital Raise Process

Numbers in the off-market case are based on transactions SI has advised on.

Off-market process:



On-market process:



For the off-market process the crucial factors include the quality of the documentation that is available from a due diligence perspective for investors to review, and the efficiency with which the corporate advisory firm can raise mezzanine, equity and senior debt for the transaction.

For the on-market process it is important to note that while the price must be competitive, the highest bid does not necessarily win the auction if other considerations are not met, such as the strength of the balance sheet. In addition, if the auction is for a government site, additional compliance requirements must be met.

REFINANCING STAGE

Once a project is complete and commercially operational, Stirling Infrastructure can advise and assess whether a refinancing of the debt requirements of the project is appropriate. At this point the project can demonstrate that the asset is producing stable cashflows over long periods, and the existing lenders typically will have accounted for this phase having the characteristics of a lower risk profile and will have reduced interest charged accordingly. However, depending on the flexibility and financing terms and exit charges of the lender's (or lenders') agreement(s) there is opportunity for refinancing. The extent to which this would benefit the project depends on current interest rates and terms available in the international lending markets, and Stirling Infrastructure works with specialist lenders who can offer lower cost and more flexible lending terms than what the project has currently in place.

M&A

There is significant data available on historical transactions on wind projects and renewable projects internationally. Wind projects are one of the most liquid assets in the infrastructure asset class, provided that the offtaker is investment-grade. This is due to most (but not all) renewables projects benefiting from stable long-term income and being often linked to inflation. From an M&A perspective, wind and renewables are attracting new categories of market participants and investors which historically were not so actively involved in the renewables sector. These now include oil and gas companies, utilities, institutional investors, private equity, YieldCos, and private market investors. Different categories of investors have different attitudes toward risk, which depends on the point in the life cycle of a wind farm where the investor decides to have an interest in the asset.

As there is a shift toward decarbonisation, and with wind and renewable assets becoming more commonly built, these assets will be traded and sold from an M&A perspective far more regularly as investors around the globe become more knowledgable about them. Stirling Infrastructure has strong relationships with all market participants across multiple jurisdictions and our firm is well placed to act as a bank to advise on either the buy side or the sell side of wind and renewable projects.

7. ABOUT STIRLING INFRASTRUCTURE

Stirling Infrastructure is an investment advisor to institutional investors and project owners in the infrastructure sector. We support investors on the execution of capital allocations and provide access to capital for asset managers and project owners.

We support the financing of wind projects by managing the whole capital raising process, protecting the interest of project owners and securing the best terms. We also support institutional investors by identifying the most attractive opportunities and executing investments on their behalf.

The core of our expertise lies in arranging and securing the following financing instruments for our clients:

- Syndicated loans
- Direct lending and co-investments
- Mezzanine and subordinated debt
- Unlisted direct equity investment and co-investments

8. CONCLUSION

To conclude, we have outlined the typical stages of a wind project, the financial instruments available for wind project financing, the relevant financing scenarios, key concerns for securing revenue through PPAs and other in-depth considerations such as corporate governance that factor into the successful financing of a wind project. With increasingly global growth and competitive technology, wind energy will be a key part of the electrification and decarbonisation of the energy market, and Stirling Infrastructure is well placed to advise on the high demand for debt and equity for these upcoming projects. For any requests for further information or for project-specific advice please contact us at: enquiries@stirlinginfrastructure.com.

FURTHER READINGS

1. Irish Wind Energy Association. (2019). Life-cycle of an Onshore Wind Farm. <https://www.iwea.com/images/files/iwea-onshore-wind-farm-report.pdf>
2. National Renewable Energy Laboratory. (2015). 2015 Cost of Wind Energy Review. US Department of Energy. <https://www.nrel.gov/docs/fy17osti/66861.pdf>
3. Pearse Trust. (2014). "The Core Principles of Good Corporate Governance." <https://www.pearse-trust.ie/blog/bid/108866/The-Core-Principles-Of-Good-Corporate-Governance>

OUR OTHER PUBLICATIONS ON THIS SUBJECT

Wind Energy Investments: Forecast of Growth Markets and Innovations

Energy Storage Financing for Sustainable Infrastructure

FOR FURTHER INFORMATION

This report is a primer that presents our renewables M&A transaction team and debt & equity capital raising team's expertise in advising project sponsors, institutional investors and private market investors. The firm provides M&A transaction services and debt / equity capital raises for renewable projects globally.

For further information please contact:

Stirling Infrastructure Partners Limited
84 Brook Street
London
W1K 5EH
Tel: +44 (0)20 7629 3030

contact@stirlinginfrastructure.com
www.stirlinginfrastructure.com

DISCLAIMER

Stirling Infrastructure Partners Limited
84 Brook Street
London
W1K 5EH

For further information please contact:

Tel: +44 (0)20 7629 3030
contact@stirlinginfrastructure.com
www.stirlinginfrastructure.com

Stirling Infrastructure
PARTNERS LTD