JULY 2021

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Evolution of Project Finance in Canada: Corporate PPAs and Merchant Revenues

Interest in infrastructure continues to grow due to its attractive risk-return profile. Infrastructure projects generate high quality, stable cash flows and tend to be defensive in nature, providing a low correlation with other asset classes and diversification which is complementary to a fixed income portfolio. These characteristics are highly appealing, especially to institutional investors which have deployed increasing amounts of capital into the infrastructure space, stimulating the continuous growth and development of infrastructure as an asset class.

Power has always been an important subsector of the infrastructure asset class and continues to evolve with broader environmental and regulatory trends. Traditionally, many power projects in Canada were developed, constructed and financed under long-term feed-in tariffs and/or a Power Purchase Agreement ("**PPA**") with a regulated utility or other quasi-government entity. PPAs offer long-term revenues from investment-grade counterparties, significantly de-risking projects for both equity and debt investors. Over the past decade, power market supply & demand dynamics have shifted. Development of renewable energy projects has increased due to government and corporate ESG initiatives combined with a falling cost of generation for these technologies. Government and corporate programs are also helping moderate growth in electricity demand and some industrial loads are now self-sufficient through behind-the-meter cogeneration and waste heat recovery. In response, government PPA programs have been curtailed (ex. Ontario's Feed-in-Tariff ("**FIT**") Program), except for renewable energy procurement programs employed in Alberta and Saskatchewan in an effort to expedite those provinces' energy transition away from carbon emitting generation. Where PPAs are still available, there is often an overabundant supply of capital and competition amongst developers/sponsors. This has also spilled over into secondary market activity given the appeal of contracted cash flows and low cost of capital. However, returns for largely de-risked assets are below minimum thresholds for many developers/sponsors and debt providers.

In the absence of traditional government-backed PPA opportunities, developers/sponsors are constantly seeking alternatives to deploy capital and improve returns in the power sector. Sponsors must find ways to develop assets and attract capital to projects and markets which would have historically been deemed more challenging. Competitive, wholesale power markets ("**merchant markets**") such as Alberta, have become more appealing, with investment in Alberta's power market increasing due to rising environmental compliance costs, legislated retirement of coal generation and ongoing demand growth.

Alberta can provide a useful illustration of how a competitive, wholesale market can work: in Alberta's merchant market, generators offer power into the market at a pre-determined price. The majority of the province's generation is offered at $0/MWh including from renewables and facilities such as combined-cycle, cogeneration and coal-fired plants, which require minimum levels of operation or are highly sensitive to dispatch. For instance, a

coal-fired plant may have a minimum stable generation level of 50%, so this 50% of capacity could be offered into the market at $0/MWh to avoid cycling and start-up costs. Coal, combined-cycle and certain simple-cycle plants may then offer generation into the market at their marginal cost. During periods of robust supply cushion, the market power price tends to be established at the marginal cost of these plants. When the supply cushion shrinks, prices rise, and are usually determined by simple-cycle or dispatchable hydro plants, which are strategically looking to capitalize on peaking and earn significant premiums.

After all generators have submitted price and quantity offers, the system operator dispatches the lowest-priced offers first, before moving towards the higher-priced offers until all electricity required to meet demand has been dispatched. The last offer to be dispatched sets the market price, which is calculated every minute. At the end of each hour, the average of these calculations is used to set the hourly price ("**pool price**"). All generators will then receive the same real-time pool price, regardless of their offer, and all electricity consumers would pay the pool price as well. Dispatchable generators are also able to supplement their participation in the electricity market through ancillary services (ex. providing power to a standby/contingency reserve or to a specific region) which are designed to provide fees to generators in exchange for maintaining system support and stability.

Merchant markets such as Alberta, which are underpinned by strong fundamentals over the intermediate term can offer generators higher upside but also higher risk. On the demand side, these same risk factors can also lead to greater opportunities for PPAs with non-government entities. Unlike contracted power projects, merchant generators face lower revenue certainty to cover fixed and variable operating costs, given the volatility of power pool pricing. Alberta is not a liquid power market with financial intermediaries readily providing intermediate term hedging instruments. Instead, to reduce cash flow volatility and de-risk a project sufficiently to attract debt financing, developers/sponsors often aim to secure a corporate offtake (PPA) for a predetermined portion of generation capacity and term of the project lifespan. Corporate PPA counterparties are usually investment-grade/bankable entities that are heavy, industrial users of electricity which use the PPA to hedge a major input cost and stabilize operating margins. Corporate PPAs are also appealing to counterparties due to environmental benefits and corporate ESG initiatives. In a period of rising carbon costs, a PPA with a renewable power project can allow large industrial counterparties to obtain valuable offsets, which can be used to reduce compliance obligations and carbon costs elsewhere in its operations.

Usually under corporate PPAs, the parties settle directly between themselves for the contracted volumes at the contracted price (known as "**net settlement**" in Alberta), without the system operator being involved in the purchase of electricity or settlement of price. Under other PPAs, the parties still purchase and sell electricity through the system operator, but the PPA contains a strike price (known as "**contract for difference**" in Alberta). If the strike price for the contracted volume of electricity for is greater than the spot price, the purchaser pays the difference to the generator. Similarly, if the strike price is less than the spot price, the generator will pay the difference to the purchaser. Through either arrangement, both parties can effectively convert floating spot prices to stable, contracted long term prices.

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RISKS

Merchant markets can offer generators greater upside if a market is underpinned by strong fundamentals such as stable load growth and moderation of supply (ex. government-mandated retirement of coal-fired generation). However, merchant projects are also subject to market price risk, which can be compounded by regulatory factors (ex. carbon tax legislation), changes in demand (ex. due to recessions), or unforeseen, extreme events such as COVID-19 or the recent winter storms in Texas. On the demand side, these same risk factors can also lead to greater opportunities for PPAs with non-government entities.

Traditional project finance lenders such as banks and insurance companies are generally comfortable with corporate PPAs, assuming the PPA counterparty is investment grade. However, these lenders are much less comfortable to assign credit for merchant revenue streams; even on PPA-backed projects, banks and insurance companies limit merchant tail risk and provide minimal credit to generation capacity post PPA (typically <15% of the initial term loan), even if the useful life of the generation facility extends well-beyond the maturity of the PPA. However, there are several structural enhancements available to lenders, which can help address the risks associated with these type project finance transactions. For alternative lenders who can provide flexible, prudent structures while mitigating key risk factors, this creates an intriguing investment opportunity where less competition can lead to more attractive returns.

RISK MITIGATION

Corporate PPAs

For corporate PPAs, the credit quality of the counterparty is usually paramount. Lenders can often overcome the lack of a government-backed offtake if the PPA counterparty is a creditworthy entity. Well known examples of recent corporate PPAs with high quality counterparties in Alberta's merchant market include Brooks Solar, which signed a long term PPA with Telus, and Claresholm Solar, a Fiera Private Debt borrower, which signed a long term PPA with TC Energy.

In other cases, it may not be sufficient to evaluate the credit quality of the counterparty in isolation; some power projects, particularly distributed generation (behind the meter), may be backed by PPAs with entities operating in sectors such as oil & gas, midstream or mining. This indirect commodity exposure must be a major component of due diligence, with the economics of individual assets at the forefront. While a Lender may not be willing to accept broad commodity exposure, risk can be reduced if a project is tied to a counterparty with strong assets in the area in which the project is located. On distributed generation projects, this means the counterparty may be a specific mine or gas field, and a Lender must ensure that these assets are characterized by i) being a "core" asset, attracting significant capital investment from its operator, ii) having a long reserve life well in excess of the debt term, iii) having a strong track record of operations through commodity cycles, and iv) being highly profitable and a low-cost leader relative to other competing assets. If an asset meets these criteria, risk is significantly reduced and it is unlikely the asset would be shut-in or the counterparty would fail to discharge its obligations under the PPA, regardless of economic conditions.

It is also important to consider the environmental attributes of a project and the benefits that it provides to a corporate counterparty. Companies around the world are placing an increased focus on reducing their carbon footprint and sourcing power from a renewable generator can provide significant emission reduction benefits that help large industrial emitters meet long term ESG objectives. Under corporate PPAs the purchaser is also entitled to receive any carbon benefits generated by the power project, including Carbon Offsets or Renewable Energy Certificates ("**RECs**"). Considering Canada's strong carbon legislation and rising compliance costs, these environmental benefits can provide substantial monetary value and alignment between a project sponsor, its investors and a corporate offtake counterparty.

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Merchant Projects

All merchant power projects are exposed to market price risk resulting from the variability of wholesale spot prices. Where possible, sponsors will look to reduce risk through net settlement or contract for difference arrangements with corporate counterparties. However, sponsors/developers many be unable to contract the full amount of a project's generation capacity or they may be unwilling to do so, due to a loss of upside as price concessions are typically required to secure a long term offtake. In other instances, the term and amortization of a debt facility may exceed the life of a PPA.

In all of these cases, it is important to conduct extensive sensitivity testing around power prices including back-cast analysis, break-even analysis, and an evaluation of the underlying collateral through the cycle. In merchant jurisdictions, there are reputable power market consultants who can provide useful, research-backed and fundamentals-based price forecasts. However, prudent lenders will also evaluate extreme downside cases including P10 pricing curves in combination with P90/P99 generation scenarios and understand substantive factors such as new generation coming online, non-dispatchable generation mix, government policy initiatives and irrational pricing/dispatching behaviour from other power producers. Where applicable, policy risk must also be evaluated, and stress testing should cover Carbon Offset/REC prices given their influence on wholesale electricity markets and depending on the scale of their contribution to debt service and debt sizing metrics.

Market price risk can also be managed through effective loan structuring. A project's debt quantum is typically sized to achieve minimum debt service coverage profiles between 1.50x – 1.75x at conservative price curve forecasts, thereby ensuring that the project can still discharge its obligations under various power price scenarios. As overall debt sizing is typically constrained by downside power price scenarios, merchant projects carry significantly less leverage than fully contracted power projects.

Structural enhancements can provide additional layers of protection. Customary cash reserves including debt service and major maintenance reserves, and distribution lockups (sponsor is unable to distribute excess cash if minimum debt service coverage thresholds are not met) are mandatory and help ensure that adequate liquidity is in place to address variability in financial and operating performance. Lenders may also structure a target debt repayment profile, whereby a borrower is provided with a longer base amortization, but distributable cash flow sweeps are used to repay debt quicker and conform to a shorter amortization profile. No single structure is adequate, and a combination of enhancements are necessary to manage the market price risk of merchant projects.

Conclusion: Adapt to Changing Markets, but Manage Risk Accordingly

As power markets evolve, financing structures must adapt to manage the various risk factors. Medium term corporate PPAs and partially contracted or merchant projects are becoming more common and represent a growing proportion of mid-market infrastructure financing opportunities. It is important to seek opportunities with some level of contracted cash flow, but if a debt facility is not materially covered by contracted cash flows, lenders must determine how much merchant exposure is acceptable.

Thorough financial analysis and stress testing is paramount. Debt sizing mechanisms should be applied to a project's contracted and uncontracted exposures to ensure the project can withstand deteriorations in operating or financial performance while still being able to discharge its obligations. To supplement debt sizing constraints, lenders may also require borrowers to maintain additional hedges and add further credit enhancements as required. While the risk profile of these projects is not suitable for every institutional investor, market price risk can be appropriately mitigated through prudent lending practices. By underwriting these complex opportunities, lenders are able to earn significantly higher returns than what is generally available in the investment grade private debt market.

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