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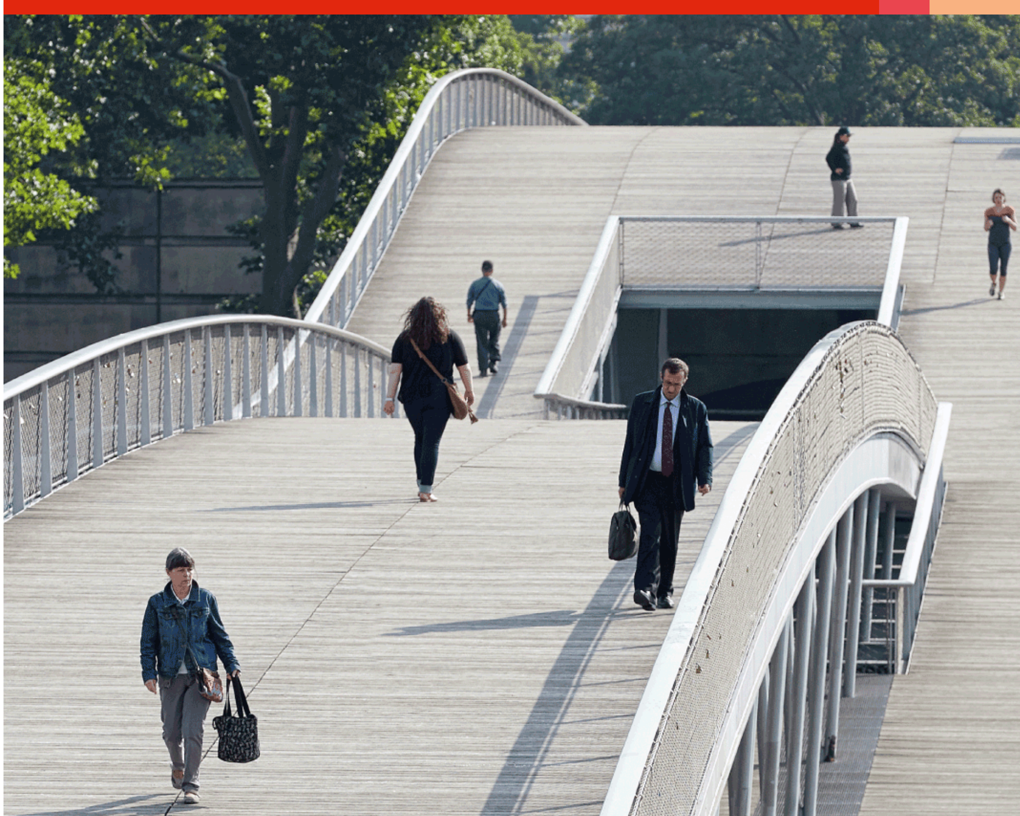
Introduction to Renewable PPAs

Achieving Success in the New Competitive PPA Environment

July 2012



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Power Purchase Agreements, also known as PPAs, are contracts between two parties—one party generates electricity and the other is looking to use or purchase that electricity. In essence, the PPA is an agreement to purchase a certain amount of power for a certain price and for a certain amount of time, thereby reducing variability of costs and profits.

There are multiple uses for PPAs. They have historically been used by utilities to procure power from independent power producers, and by large users, such as municipalities or large corporations, to obtain preferential and steady rates from utilities.

More recently, PPAs have become increasingly used in the renewable energy space as procurement and financing tools. The sellers of renewable energy PPAs are project developers or independent power producers that own the technology or the project assets. The buyers of renewable energy PPAs range from utilities that need to meet their regulatory obligations related to Renewable Portfolio Standards (RPS), which is known as the compliance market, to companies, municipalities, cooperatives and individuals who want to use renewable energy, which is referred to as the voluntary market.

Another stakeholder significantly affected by the PPA is the project investor. Since the PPA, along with existing tax credits, drive project profitability, the PPA is considered critical by potential investors. The PPA, in effect, reduces cash flow uncertainty and increases the security of the returns on their capital investment. For example, "Feed-in Tariff" type PPAs can basically make an investment in a solar project look like an investment in AAA rated bonds, and many investors do not consider investing in projects that have not secured PPAs.

Renewable PPA Environment is Rapidly Evolving

The compliance renewable energy market has grown significantly in the last few years and is expected to continue to outpace the voluntary market. Compliance demand in 2010 was 55 MWh compared to 36 MWh voluntary demand, with compliance demand estimated to increase to 150 MWh by 2015.[1] While RPS requirements range across states, they generally stipulate that 20% or more of the power sold by utilities must come from renewable sources. This regulatory requirement is the main driver of renewable PPA market demand for the last few years.

As utilities get closer to meeting their RPS requirements, their need to enter into PPAs for new renewable energy projects diminishes. With the reduced appetite from utilities to enter into PPAs, project developers are finding it more difficult to secure such agreements, putting pressure on PPA prices. This was the case in late 2011 and early 2012, where in California, the number of RPS contracts procured by large investor owned utilities in 2011

[1] National Renewable Energy Laboratory. "*Status and Trends in U.S. Compliance and Voluntary Renewable Energy Certificate Markets (2010 Data).*" October 2011.

dropped by about 40% from 2010, and those signed in 2011 fetched prices 25% lower than 2008, with many pricing below the market price referent. [2]

Reduced PPA prices affect project economics and lower the return on investment (ROI) for potential investors. Reduction in the number of PPAs and PPA prices impact the investor and reduce the number of potential investors, creating significant competition between developers to obtain both the PPA and investment capital. It is believed that 2012 is the beginning of a period of consolidation between developers and the abandonment of less feasible projects.

Achieving Success in the New PPA Competitive Environment

The current PPA market conditions pose a number of challenges and opportunities for each PPA stakeholder:

- From the perspective of the PPA buyer, the current downward pressure on PPAs provides a great market opportunity to procure renewable energy at competitive prices for potential resale or future consumption. To take advantage of this opportunity, buyers need to:
    - Understand how different technologies can best help them
    - Know how to operate a robust RFP process
    - Assess alternative project developer and financing options
    - Take advantage of all available federal, state, and local tax incentives

- From the perspective of the developer, these are challenging times. Those with the ability to structure, negotiate, and value PPAs effectively as well as execute on project delivery will be in a better position to benefit and survive. To best meet the challenges of increased competition, developers need to:
    - Understand detailed customer needs (e.g., PPA prices, desired solution offering, integration requirements, service needs, etc.) and state-level market dynamics for their target segment(s) (e.g., residential, commercial, or utility)
    - Leverage structured processes for managing project risk throughout a project's lifecycle
    - Build strong portfolio management and working capital management capabilities
    - Develop a robust set of project execution partners that understand the key levers to reduce project costs and minimize overall project cycle time

- From the perspective of the investor, the issues are more complicated. On the one hand, a reduced number of profitable projects mean that the

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[2] California Public Utilities Commission, "*Database of Investor-Owned Utilities' Contracts for Renewable Generation*." 2012.

investor may not be able to take advantage of tax incentives and may have to compete with other potential investors for projects with PPAs. On the other hand, the increased competition between developers may move more of the project profits to the investor. To best navigate this complex market, investors need to:

- Understand the energy markets and the value of the PPA relative to the investment and returns
- Examine other potential structures and sources of value
- Fully comprehend the risks and benefits of the project as well as the overall market to best negotiate

In all cases, a thorough understanding of PPAs, their structure, valuation, and negotiation is an asset that all stakeholders can use to their advantage during these challenging times.

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