

New York State Energy Research and Development Authority

Managing Retail Electricity Price Volatility Through Long-Term Renewable Energy Contracts Between Generators and End Users: A Case Study

Final Report

June 2014

Report Number 14-23



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Managing Retail Electricity Price Volatility Through Long-Term Renewable Energy Contracts Between Generators and End Users: A Case Study

Final Report

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Summary

This case study describes Staples Inc., the world's largest supplier of office supply products, and its experience in attempting to solicit and negotiate the terms of an energy hedge contract. The purpose was to explore the opportunity for unique partnerships between large commercial and industrial customers and renewable energy generators through long-term power purchase agreements (PPAs).

The concept of reducing electricity price volatility through the long-term purchase of renewable energy products is fairly well understood in the United States. Despite their attractiveness, however, realizable opportunities to execute long-term contracts that create an effective energy hedge product for retail end users have remained elusive. The New York State Energy Research and Development Authority (NYSERDA) established its first hedge project in 2003. When first conceived, the concept was praised for its potential to offer benefits to both renewable energy generators and end users. Renewable energy generators (the seller) would benefit from the revenue stability needed to secure financing, while the retail end user (the buyer) would benefit from the purchase of electricity at a predictable price for the duration of the agreement.

S.1 Background

Since the idea was first explored, several studies and projects have been conducted to investigate the potential for, and terms of, long-term contracts directly between generators and end users. For example:

- **2003:** NYSERDA contracted with Sustainable Energy Advantage, LLC (SEA) to assess the potential value of wind power as a price hedge for large electricity end-users in New York. NYSERDA published the resulting report, *Using Wind Power to Hedge Volatile Electricity Prices for C&I Customers in New York*, in May 2003.
- **2004 – 2006:** The Wind Hedge Implementation Project (WHIP), a follow-up to the 2003 study, detailed the concept, design, and potential benefits of a wind hedge product, particularly to commercial and industrial (C&I) customers in New York State. The WHIP included multiple workshops and a Request for Information (RFI) to assess the level of interest and potential quantity, duration, and pricing of wind energy contracts for end users.
- **2008:** The World Resources Institute (WRI) Green Power Market Development Group (GPMDG) initiated exploration of hedge benefits and options. The GPMDG includes C&I customers interested in progressive renewable energy strategies. The group includes companies such as Alcoa Inc., The Dow Chemical Company, DuPont, FedEx Kinko's, Google, General Motors, IBM, Interface, Johnson & Johnson, NatureWorks LLC, Pitney Bowes, Staples, and Starbucks.
- **2009:** SEA worked with WRI to release an RFI with the goal of identifying generators, retail suppliers and specific hedge contract structures.
- **2011:** Staples released an RFP for long-term renewable energy supply. Numerous bids were received and detailed negotiations took place with several generators through early 2013. No long-term contract was executed at that time.

This process revealed a number of important issues with respect to the negotiation and implementation of a renewable energy hedge product. Table S-1 provides a summary of the benefits to each party.

Table S-1. Long-Term Renewable Energy Contracts: Benefits to Market Participants

End-Users	Renewable Energy Generators	Retail Suppliers
Long-term price certainty and resulting budget certainty <i>(long-term defined as > 5 yrs)</i>	For new projects, long-term contracts help enable financing <i>(long-term defined as > 10 yrs)</i>	Opportunity to extend an existing contract or enroll a new customer
Hedge against the volatility of traditional electricity supply pricing – for periods longer than traditional market mechanisms	For operating projects with available supply, contracts with creditworthy entities reduce merchant risk	Opportunity to become an expert in an emerging business area
Green power marketing and environmental benefits		Potentially leads to comparative advantage

Though the benefits (to both buyers and sellers of energy) are potentially significant, certain risks remain for each party, and the lack of market experience with this kind of transaction structure has been a major hurdle for all participants. It is important to point out that although a hedge would provide buyers and sellers with a known price for the duration of the contract, it would not guarantee the relationship of that price to the market price of energy. By definition, a retail hedge contract should be valued based on its ability to insulate the buyer from market volatility, and should not be thought of or described as a vehicle for guaranteed savings compared to market prices. The previously listed studies represent significant progress toward the design and implementation of effective long-term renewable energy hedge contracts.

NYSERDA’s WHIP had three key findings:

- In addition to providing an effective hedge, wind power offers significant environmental and marketing value to C&I customers in New York.
- Long-term contracts with creditworthy end users have significant potential to provide the revenue certainty needed to finance new wind projects.
- Conventional hedging options are limited or non-existent beyond five years, making long-term wind contracts (10-20 years) particularly attractive.

With regard to GPMDG, initial goals were achieved, and new targets were set. At its inception, the GPMDG was designed to foster commercial and industrial partnerships dedicated to building corporate markets for green power. Through these partnerships, WRI cites that the project supported over 1,000 megawatts (MW) of renewable energy between 2000 and 2010. This support was provided primarily through GPMDG member on-site RE projects, large corporate owned offsite projects, and REC purchases. After attaining their initial objective, several group members turned to the potential to realize a long-term hedge through the purchase of renewable energy directly from generation asset owners. These companies were able to leverage WRI and GPMDG relationships built through previous green power purchases.

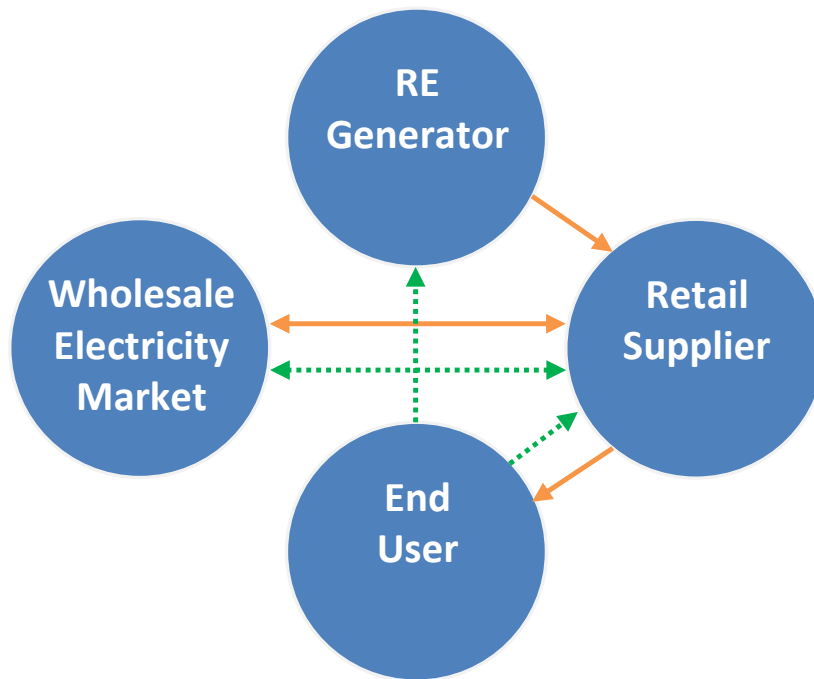
WRI's activities built on previous hedge research to pursue the goal of developing an executable term sheet for a long-term, fixed price power transaction between either a renewable energy generator or competitive retail supplier and an existing GPMDG member. In 2009, WRI worked with SEA to release a Request for Information (RFI) with the goal of identifying generators, retail suppliers and specific hedge contract structures.

S.2 Staples Case Study

The conclusion of the GPMDG efforts set the stage for this case study. The purpose of the hedge project described here was to detail the opportunity, challenges, and key aspects of partnerships between large commercial and industrial customers and renewable energy developers through long-term PPAs.

One of the most important aspects of this case study is the structure of the hedge contract itself. Several options were considered during the evolution of the project. All have slightly different structures for the flow of energy and payments between generators, retail suppliers, and end users. Figure S-1 represents a general contract model, and the orange lines represent contract energy flows and the dotted green lines mark payment paths.

Figure S-1. Energy and Payment Paths in Potential Contract



Hedging contracts can be arranged as either physical or financial transactions. Physical transactions flow through a retail service provider and are settled against load. Financial transactions are settled against a strike price directly between the generator and end user. Both physical and financial variations on hedge contracts were explored during contract negotiations, and over the course of the discussion, four prominent options emerged:

- **Option 1:** Purchase of physically delivered commodity electricity bundled with renewable energy credits (RECs) at a fixed price.
- **Option 2:** Financial contract for purchase of electricity and RECs. This is a REC-based contract-for-differences (CFD).
- **Option 3:** Financial contract-for-differences for electricity only. This is a CFD for the commodity electricity only.
- **Option 4:** Fixed price sale of commodity electricity only. The renewable generator would retain all RECs – for which a separate buyer would need to be found.

After the initial proposal evaluation, it appeared that a successful deal would most likely resemble the model described in Option 1. In pursuit of this type of physical deal structure, SEA & Mystic River Energy Group (MREG) contacted six competitive retail suppliers to ascertain their interest and capability to integrate a long-term, wholesale wind contract into all-requirements retail electric supply. Three suppliers expressed immediate interest in such a transaction, and had comments and suggestions on structure and features that reflected their commercial products and skills. The specific recommendations are confidential to the respective suppliers.

These discussions and Staples' priorities eventually led to the issuance of a Request for Proposals in late 2011. The RFP had the following objectives:

- Gain general knowledge of the seller's development capability, operations experience, and financial stability.
- Understand the status of the proposed renewable energy project, along with the seller's operational programs, and capabilities to deliver over the contract term.
- Evaluate the seller's price response compared to existing and expected market conditions.
- Evaluate the seller's offering compared to the specific requirements listed.

S.3 Lessons Learned

In summary, Staples' RFP requested energy bundled with Class I Renewable Energy Credits (or a reasonable equivalent), a geographic preference for the northeast or California, projects located in the same ISO load zone as the load to be hedged, and a deal structure that is wholesale based (as opposed to one negotiated through a retail supplier). Flexibility mechanisms built into the guidelines include the option for physical or financial contracts, terms as short as five and as long as 20 years, fixed or escalating pricing, and a wide range of potential volume of Staples' total retail loads in specified regions.

The solicitation yielded responses from 18 projects by seven different developers. An initial screening was conducted for all projects, and produced several key findings:

- As congestion risk and the price differential between locations increases, hedge effectiveness decreases – particularly when generation and load are not in the same zone.
- Generator interest depends on duration and quantity of contract sought.
- Potential accounting ramifications of financial transactions require further exploration
- The potential need for both wholesale and retail deal structures adds complexity.

Although Staples was unable to conclude these negotiations and execute a long-term contract, the experience provided by this process and detailed in this case study will hopefully serve as a useful tool to businesses, institutions, and other end users seeking to craft a long-term hedge against future electricity price volatility and promote further activity in this field.

1 Introduction

Over the past 10 years, the marketplace for renewable energy supply and demand has evolved rapidly in the United States. In addition to greenhouse gas emissions and energy independence benefits, one of the advantages of renewable energy technologies is that their costs are not highly correlated to fluctuations in the regional or global fossil-fuel market. This advantage allows fuel-free generators such as wind turbines to compete effectively with all other forms of power generation over long time horizons, despite their high capital costs. Dating back to 2003, efforts in New York, New England, and elsewhere have attempted to help retail end users take advantage of renewable energy’s ability to offer long-term price certainty and create an effective hedge through long-term contracts. When first conceived, such agreements were praised for their potential to offer benefits to both parties. Renewable energy generators (the seller) would benefit from the revenue stability needed to secure financing, while the retail end user (the buyer) would benefit from the purchase of electricity at a predictable price for the duration of the agreement. Table 1 summarizes the multi-party benefits of long-term renewable energy contracts.

Table 1. Long-Term Renewable Energy Contracts: Benefits to Market Participants

End-Users	Renewable Energy Generators	Retail Suppliers
Long-term price certainty and resulting budget certainty <i>(long-term defined as > 5 yrs)</i>	For new projects, long-term contracts help enable financing <i>(long-term defined as > 10 yrs)</i>	Opportunity to extend an existing contract or enroll a new customer
Hedge against the volatility of traditional electricity supply pricing – for periods longer than traditional market mechanisms	For operating projects with available supply, contracts with creditworthy entities reduce merchant risk	Opportunity to become an expert in an emerging business area
Green power marketing and environmental benefits		Potentially leads to comparative advantage

Though the potential for benefits (for both buyers and sellers) are significant, certain risks remain for each party. In addition, the lack of market experience with this kind of transaction structure has served as a major hurdle for all participants. It is important to point out that although a hedge would provide buyers and sellers with a known price for the duration of the contract, it would not guarantee the relationship of that price to the market price of energy. By definition, the hedge should be valued based on its ability to insulate the buyer from market volatility, and should not be thought of or described as a vehicle for guaranteed savings compared to market prices. Though the contract price is based both on the cost of energy (for proposed projects) and on the current view of electricity futures, the market is always evolving and the difficulty of accurately projecting energy futures is well documented. Thus, a

hedge does not guarantee a premium or savings in any given year; rather, it only ensures a set price that both buyers and sellers can plan around and which protects against expected (or unexpected) changes in market prices. These are benefits that many buyers already justify through fossil-fuel hedge programs.

As parties have begun to consider and quantify the benefits previously outlined, momentum has slowly grown behind the demand for renewable energy hedge options. Despite this pressure, the lack of experience in this sector of the market has served as a major barrier to such a contract and has resulted in very little action beyond the research stage. This research, however, provides cause for optimism, pointing to large commercial and industrial customers as an excellent match for the benefits of a renewable energy hedge contract and a credit-worthy counter party for renewable generators. The studies that have led to and build on this conclusion are detailed in the following sections of this study.

This case study expands on the existing research and understanding of renewable energy hedge contracts, and serves as a continuation of the effort to foster these types of relationships. Specifically, the purpose of the project described in this case study was to explore the opportunity for unique partnerships between large commercial and industrial customers and renewable energy generators through long-term PPAs. This report provides a case study on Staples Inc. and its experience in soliciting and negotiating the terms of a renewable energy hedge contract.

This case study summarizes the efforts that led to detailed contract negotiations, as well as the lessons learned from each stage of the process. This case study serves to guide other end users interested in pursuing a long-term renewable energy hedge. With the help of preceding studies and the support of the New York State Energy Research and Development Authority (NYSERDA), the World Resources Institute (WRI) and Staples, this project has contributed to the knowledge base regarding the challenges, issues, and potential surrounding renewable energy hedges and the long-term contracting process. In an effort to maintain momentum in the marketplace and encourage future partnerships, it is important to share the findings of this work, so that it may direct others trying to navigate this process.

The remainder of the document is organized as follows:

- **Background:** This section examines the history of this project and the studies that precede it.
- **Phase 1, Multi-Party RFI:** This section details the original RFI coordinated by the WRIs Green Power Market Development Group (GPMDG) and the results of this effort.
- **Phase 2, Staples RFP:** This section looks at the process surrounding Staples' 2011 RFP. This RFP grew out of the original GPMDG effort. It reviews key issues and challenges, and the evolution of contract negotiations.
- **Summary and Key Findings:** The results to date are summarized, with key successes and challenges highlighted.
- **Next Steps:** This section provides context for future renewable energy hedge negotiations.
- **Appendices:** When possible, materials from the negotiation process have been included to provide insight into the goals and results of this project.

2 Background

To provide appropriate context for the work that was done in this project, it is important to review the studies that predate it. NYSERDA first began investigating market opportunities for long-term renewable energy hedges in 2003 when it contracted with Sustainable Energy Advantage, LLC to author the study *Using Wind Power to Hedge Volatile Electricity Prices for C&I Customers in New York*. As the title implies, the purpose of this study was to assess the potential value of wind power as a price hedge for large electricity end-users in New York. The paper provides a comprehensive review of how a wind hedge would be structured and the factors affecting its success or failure, eventually concluding, “wind-generated electricity can provide important hedging benefits to New York’s wholesale electricity markets, but that providing this benefit to individual C&I customers is more challenging.” However, despite these challenges, the study did conclude that for a certain segment of the C&I market “wind can provide a good, if not perfect, hedge” and that the potential for this market merits further attention.

The findings of this preliminary study led to a three-year effort called the Wind Hedge Implementation Project (WHIP), which was carried out from 2004 to 2006. Again, the results of this study revealed promising opportunities for C&I customers in New York. Three important conclusions emerged from this work:

- In addition to providing an effective hedge, wind power offers significant environmental and marketing value to C&I customers in New York.
- Long-term contracts with creditworthy end users have significant potential to provide the revenue certainty needed to finance new wind projects.
- Conventional hedge options are limited or non-existent beyond five years, making long-term wind contracts (10-20 years) particularly attractive.

2.1 About NYSERDA

NYSERDA is a public benefit corporation primarily funded by state rate payers through the System Benefits Charge (SBC). NYSERDA’s objective is to help New York meet its energy goals: reducing energy consumption, promoting the use of renewable energy sources, and protecting the environment.

In 2008, the renewable energy hedge story was re-invigorated by the involvement of the World Resources Institute’s Green Power Market Development Group. At its inception, the GPMDG was designed to foster commercial and industrial partnerships dedicated to building corporate markets for green power. Through these partnerships, WRI cites that the project supported roughly 1,000 MW of renewable energy between 2000 and 2010. This support was provided primarily through GPMDG member REC purchases. After reaching their initial objective, several group members turned to the potential to realize a long-term hedge through the purchase of renewable energy directly from

asset owners. The advantage of the GPMDG was that WRI was already working with a group of C&I customers interested in green power – a group that included companies such as Alcoa Inc., The Dow Chemical Company, DuPont, FedEx Kinko's, Google, General Motors, IBM, Interface, Johnson & Johnson, NatureWorks LLC, Pitney Bowes, Staples, and Starbucks.

Building off the previous research on the viability of a renewable energy hedge for large C&I customers, a new effort took shape with the goal of developing an executable term sheet for a long-term, fixed-price power transaction between either a renewable energy generator or competitive retail supplier and an existing GPMDG member. In the following year, WRI worked with Sustainable Energy Advantage, LLC (SEA) and Mystic River Energy Group (MREG) to develop and issue an RFI with the goal of identifying generators, retail suppliers, and specific hedge contract structures. The details of this process are reviewed in depth in the following section.

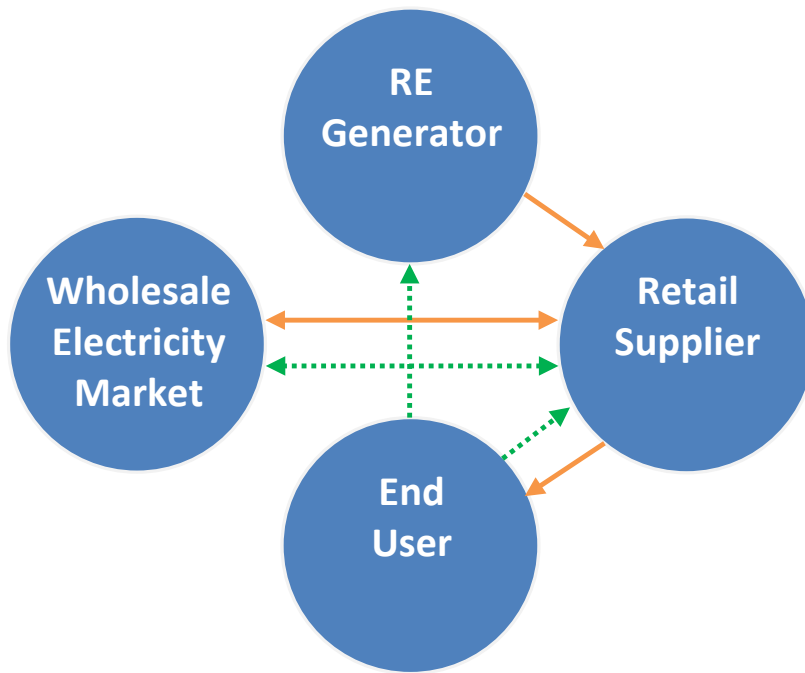
When the GPMDG effort came to a close in 2010, Staples continued with its own efforts in pursuit of a long-term renewable energy contract. These efforts mark the beginning of this study, wherein support from NYSERDA and WRI enabled Staples to continue to explore options in this market. The collaboration resulted in a request for proposals from renewable energy developers for 5- to 20-year, price-certain contracts from renewable energy generators in competitive retail markets across the country. The results, progress to date, and lessons learned are detailed in the next section.

3 Phase 1: Multiparty RFI

Many of the fundamental issues and logistics of a commercial renewable energy hedge product were worked out during the initial phase of the project’s development. With substantial facilitation support from WRI, several GPMDG members collaborated to discuss the potential of creating a long-term hedge product for a retail entity by purchasing directly from renewable energy generators. Much of the effort in this stage revolved around outlining what the process and outcome of this effort would look like. Specifically, what would an ideal contract entail, how would such a deal be solicited, and what are the most important aspects of the negotiation process.

In its most general terms, a sample contract would involve three parties: the end user, a retail supplier, and the renewable energy generator. Figure 1 illustrates one potential contract path flow of energy and payments between these parties. In this figure, the orange lines represent energy flows and the dotted green lines mark payment paths.

Figure 1. Energy and Payment Flows Between RE Hedge and Contract Parties



Several variations of this model were considered over the course of these discussions. Looking at broad categories, both physical and financial variations of a wind hedge were explored, as well as physical and financial versions of a basic commodity hedge. Physical transactions flow through a retail service provider and are settled against load. Financial transactions are settled against a strike price directly between the generator and end user. Unlike the full renewable energy hedge, a commodity hedge would not include RECs, and thus would be priced differently depending on the market for RECs in a given region. The four options are:

- **Option 1: Purchase of physically delivered commodity electricity bundled with RECs.** Under this alternative, the retail customer would hedge electricity cost by buying fixed-price renewable energy from its retail electric generation service provider (presumably a competitive ESCO). This would represent a long term sale of a generator's output, bundled with the associated RECs, at a known price per kilowatt-hour (kWh). The purchase may represent the buyer's entire load or a portion of its load, in the latter case possibly varying based on the generator's actual production.
- **Option 2: Financial contract for purchase of electricity and RECs.** This option is a REC-based contract-for-differences (CFD). In a purchase of RECs structured as a CFD, the renewable generator and the end user agree upon a known strike price (e.g., \$50 per MWh) which reflects the combined value of energy and RECs, as well as a floating reference market index (e.g., the hourly spot electricity market clearing price for Zone A). The REC price paid by the customer is determined by the difference between the strike price and the market clearing price. If the market clearing price is less than the strike price at the time of production, the customer pays the difference between the two to the renewable generator. If the market clearing price is greater than the strike price, the renewable generator pays the difference to the customer. This transaction is based on the combined value of both the commodity electricity and the RECs. The transaction can be viewed as a CFD payment that represents the difference between (i) the reference market index price and (ii) a strike price that incorporates the value of both the electric energy and the REC. For the renewable generator, this arrangement reduces transaction costs and increases the certainty of projected cash flow. For the customer, this type of green CFD provides a hedge against volatile electricity pricing and enables the purchase of RECs without having to switch electricity providers or lock into a single electricity supplier.
- **Option 3: Financial contract-for-differences for electricity only.** This option is a CFD for the commodity electricity only. The generator and the end user agree upon a known strike price which reflects only the commodity value, as well as a floating reference market index. Electricity generated is liquidated into the spot market, and payments between the generator and customer are determined by the difference between the strike price and the market clearing price. The renewable generator must find a separate buyer for the RECs. For the end user, this arrangement can provide a hedge against volatile electricity pricing, but for the wind supplier it may be a less attractive arrangement because of the need to seek a separate long-term market for its RECs. The strike price is expected to be lower than under Option 2 because the REC would be sold elsewhere, and therefore the renewable generator would be fixing only a portion of its revenue stream.
- **Option 4: Fixed price sale of commodity electricity.** This alternative would be a long-term physical purchase of the energy, as in Option 1, but in this case the renewable generator would retain all RECs, and would have to find a separate buyer for the RECs, as in Option 3. As with Option 1, a contract requiring the delivery of electricity adds significant complexity and would require the participation of a retail service provider (i.e., a competitive ESCO).

Because each of these contracts is unique and there is limited market experience for developing these types of relationships, preliminary discussions during this phase uncovered a number of issues and challenges that would need to be overcome for a successful agreement. At the most basic level, all parties involved in a contract would have to agree to a number of structural options and their terms, including a physical versus financial delivery, the type of RECs included (if any), the quantity, the structure (firm block versus the percentage of output), contract duration, and the price structure (fixed or escalating). In addition, it is essential to select an appropriate location to best match supply and demand, while also trying to minimize congestion risks and wholesale market differences. A challenge for a customer like Staples (predictable, but relatively small and widely dispersed load centers) is that it is difficult to aggregate enough demand to justify the costs of a long term renewable energy contract. Expanding the geographic footprint to include additional properties starts to push against congestion issues and reduce the effectiveness of the hedge.

Again, the lack of experience for renewable energy generators in this marketplace adds another complication, as participants were hesitant to take on the risk of being an early adopter. Despite this trepidation, and with the support of WRI, the collaborative issued a RFI and engaged several potential bidders in follow up discussions and analyses to better understand the potential economic benefits.

For this initial RFI, WRI GPDMG members focused on four control areas:

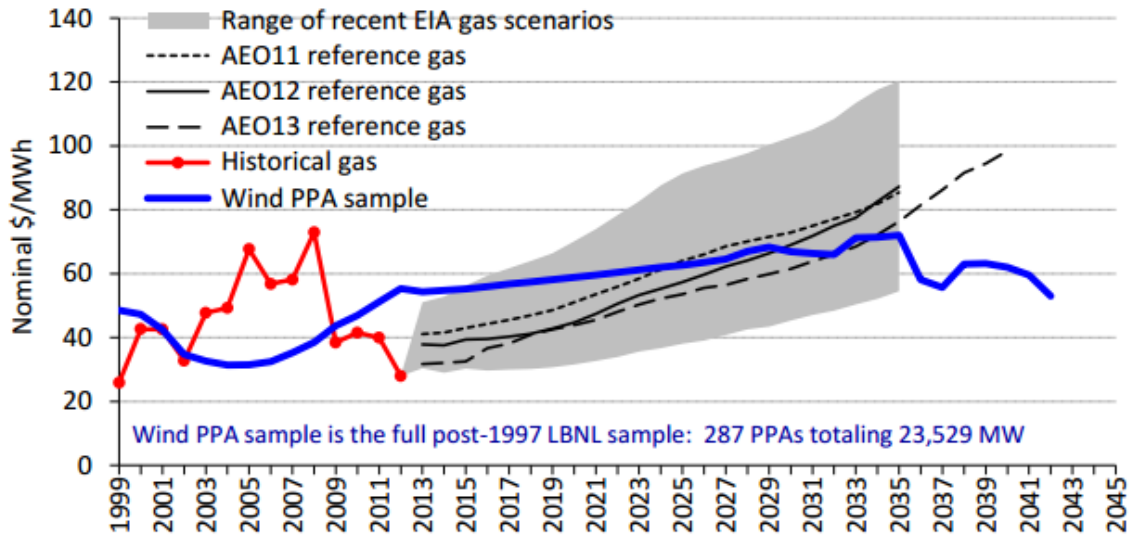
- New York Independent System Operator (NYISO)
- Independent System Operator of New England (ISO-NE)
- Pennsylvania-New Jersey-Maryland Interconnection (PJM)
- Electric Reliability Council of Texas (ERCOT).

Each of these regions has an established, well-functioning competitive wholesale market (which offers good location-based marginal price signals for energy), priced ancillary services markets, and forward capacity markets (with the exception of ERCOT). In these markets, the option of retail choice for load provides the opportunity to contract directly with generators or through a retail supplier with risk management expertise, allowing for some flexibility regarding the contract options previously discussed.

Each of these regions also operates through a centralized bid-based dispatch of generating units, which sets the electricity price at the marginal cost of production. Based on the quantity and cost of available supply in each of these areas, natural gas generators are typically on the margin, and thus set the wholesale energy price in the majority of hours (although to varying degrees by region). This aspect of the market results in a close correlation between fossil fuel prices (natural gas) and wholesale energy prices. The inherent volatility of these fuel prices is the basis for the potential benefit of a renewable energy hedge. Though a discount or premium is not guaranteed in any year of the contract, the hedge provides price protection from the perspective that natural gas, and thus electricity prices, will rise in future years and eventually surpass the levelized cost of renewable energy. Figure 2 illustrates this concept.

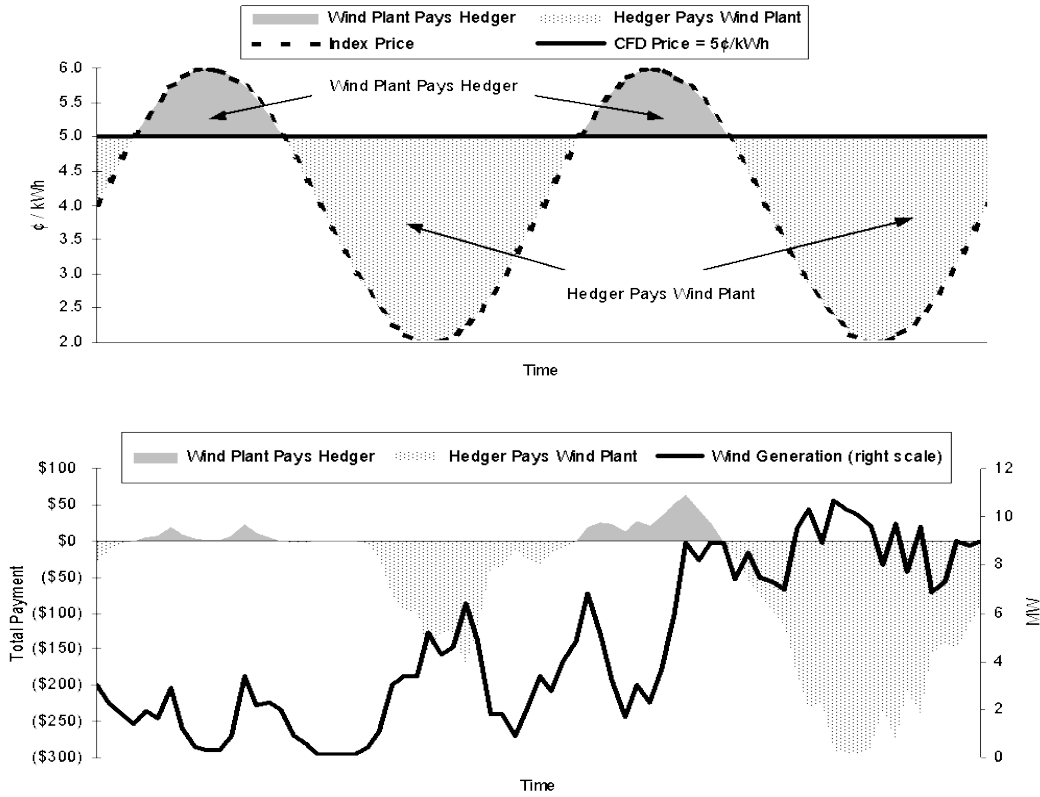
Figure 2. A long-term fixed price contract may provide increasing value over time

Reprinted with permission from Bolinger, M. 2013. *Revisiting the Long-Term Hedge Value of Wind Power in an Era of Low Natural Gas Prices*. <http://emp.lbl.gov/publications/revisiting-long-term-hedge-value-wind-power-era-low-natural-gas-prices>



A renewable generator hedge also provides the benefit of predictable energy expenditures. Not only does the contract offer some protection against peak demand price spikes, it also provides better stability for long-term budgeting. Figure 3 illustrates how a wind hedge interacts with real-time pricing to provide protection against wholesale market fluctuations.

Figure 3. Schematic of Wind Power Contract-for-Differences Set at \$0.05/kWh



The Staples RFI generated 14 responses. Each indicative offer was carefully analyzed for its economic potential. This analysis was done by calculating the expected value of renewable electricity using a forecast of location-based energy prices and comparing it to the price of each offer. Additional value, including the potential cost of future carbon regulation was also included. Offers were evaluated with and without RECs.

Although none of the proposed deals matured into binding contracts, this phase of the study led to a number of interesting findings. As the offerings were reviewed, one of the most significant realizations was the effect of location on the expected hedge value. Specifically, substantial variance in congestion over time imposes uncertainty in the effectiveness of a hedge, when production and load are not perfectly coincident. The range of this uncertainty generally increases with distance as proxy for the topography of the transmission system. It is also important to note that intermittent generation cannot currently hedge congestion risk effectively through financial transmission rights mechanisms and that such rights are not generally available long term.

Another important understanding that emerged from this phase of analysis was the role of retail suppliers. In pursuit of the physical deal structure, SEA and MREG contacted six competitive retail suppliers to ascertain their interest and capability to integrate a long-term, wholesale renewable energy contract into all-requirements retail electric supply. Three suppliers expressed immediate interest in such a transaction, and had comments and suggestions on structure and features that reflected their commercial products and skills. The specific recommendations are confidential to the respective suppliers.

Most importantly, this phase of negotiations facilitated productive conversations between a number of large commercial end users and wholesale suppliers. Through this process, both buyers and sellers had a chance to see and discuss sample contract terms, a first for a renewable energy hedge product. Ultimately, no offered contracts from renewable generator were accepted at that time.

4 Phase 2: Staples RFP

After learning a great deal from the negotiations facilitated by WRI in Phase 1 of the project, Staples continued its efforts to develop an economically viable hedge product. Staples revisited some of the underlying analysis and studied its store loads nationwide to determine the markets that best suited a wind hedge project. Again, NYISO, ISO-NE, PJM, and ERCOT emerged as the best-suited regions, this time adding the California Independent System Operator CAISO to the list as well. To narrow the regions of interest and identify target hedging loads, store usage within each transmission zone was assessed on an aggregate basis, taking wholesale prices and transmission constraints into account. Once this was complete, Staples issued a RFP for specific contract prices and volumes from renewable energy developers in these regions. The Staples RFP is provided as Appendix A.

In their RFP, Staples outlined the following objectives:

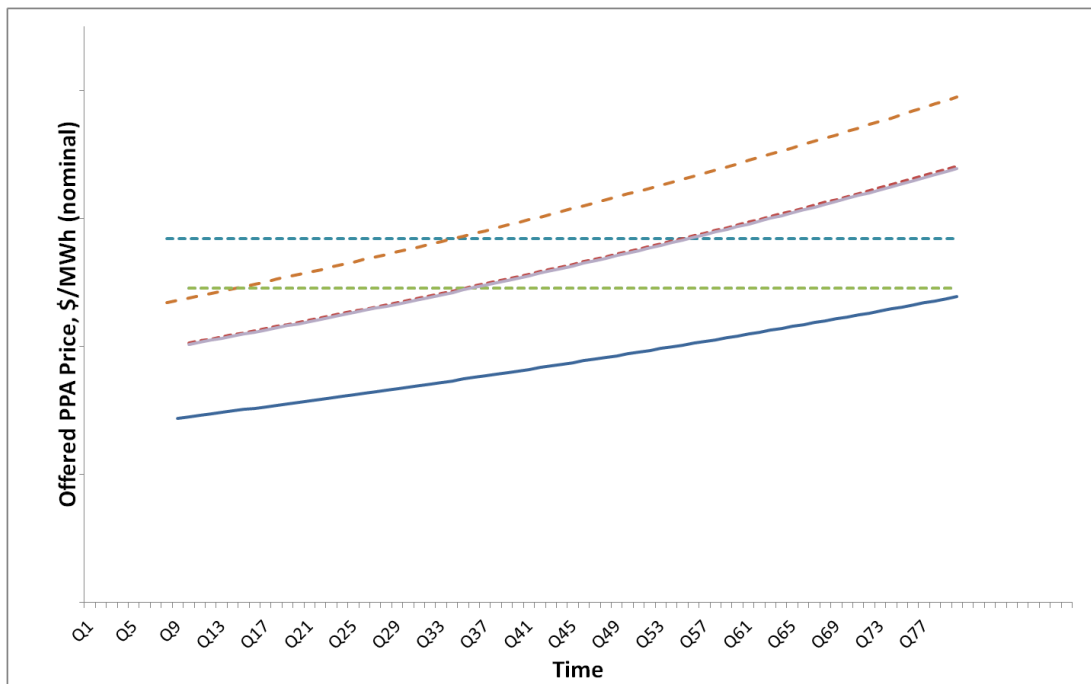
- Gain general knowledge of the seller's development capability, operations experience, and financial stability.
- Understand the status of the proposed renewable energy project, along with the seller's operational programs, and capabilities to deliver over the contract term.
- Evaluate the seller's price response compared to existing and expected market conditions.
- Evaluate the seller's offering compared to the specific requirements listed.

This evaluation hinged on a number of defined criteria, both quantitative and qualitative. Most importantly, the contract needed to demonstrate value, defined as a combination of price, pricing structure, perceived long-term hedge value, and the availability and type of environmental attributes. Second, Staples stressed the importance of the suppliers' flexibility, support, tools, management, technical and financial resources and experiences, and track record with similar projects. Finally, the simplicity of contract implementation and administration, and adequate management support, was also taken into account.

Using the lessons learned from Phase 1, the Staples RFP was crafted to meet specific objectives, while simultaneously providing project developers with some flexibility in structuring their proposals. The RFP requested energy bundled with Class I Renewable Energy Credits or a reasonable equivalent, a geographic preference for the northeast or California, projects located in the same ISO load zone as the target Staples load, and a deal structure that is wholesale based (as opposed to one negotiated through a retail supplier). Flexibility mechanisms built into the guidelines include the option for physical or financial delivery contracts, terms as short as five and as long as 20 years, fixed or escalating pricing and volumes ranging from 20-50% of Staples' total retail loads in specified ISO regions.

This solicitation yielded responses from 18 projects by seven developers. Each of these proposals was subject to a primary screening analysis to help narrow the field of applications. Figure 4 provides an illustrative comparison of applications to demonstrate the range of prices, contract terms, and expected premium or discount associated with each.

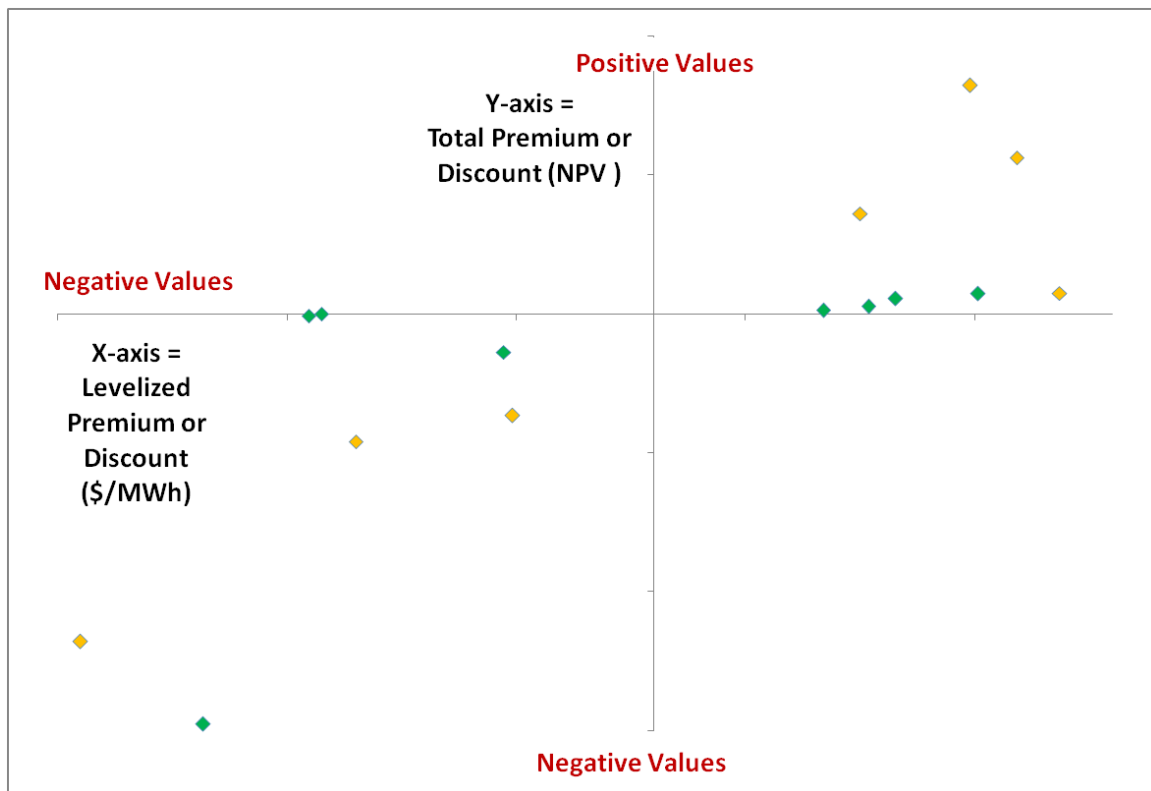
Figure 4. Illustration of Offered PPA Prices and Contract Duration



The responses included projects of varying length and pricing structures. Figure 4 shows a comparison of fixed-price and escalating-price contracts over the same term. Though the escalated price offerings often result in larger total payments over the course of the contract, the lower front-end impact makes these options uniquely attractive.

Price is not the sole indicator of value. Both levelized cost of energy and the present value of contract expenditures should be considered. Figure 5 illustrates the RFP results in two ways simultaneously: the X-axis shows the levelized discount or premium of each offer in dollars per megawatt-hour. The Y-axis illustrates the total discount or premium in present value dollars. Bids in the lower left quadrant are expected to offer savings compared to forecasted market prices. Bids in the upper right quadrant represent an expected premium over the contract term.

Figure 5. Comparative Premium or Discount from Offered Contracts



Each project that was selected from this group underwent a more detailed economic analysis to ascertain the effectiveness and value of the potential hedge. This analysis included geographic analyses of supply and demand centers with respect to load zones and transmission constraints, updating electricity and natural gas price forecasts, and completing a detailed financial analysis over the term of each proposed agreement. The time value of production and time value of use was also analyzed for each project and collection of demand centers. From these calculations, a final short-list of projects emerged. These projects, including those in development and operation, were located in Upstate New York, Pennsylvania, and Texas.

The three most attractive projects – including two operating, one under construction, and all located within one of the aforementioned control areas – were invited to participate in bilateral negotiations in an attempt to reach a final deal for a mutually-effective long term contract.

Each of the developers that were solicited for this stage of negotiations was asked to provide some flexibility in their offerings regarding the type of RECs offered (regional or national), the type of price structure (flat vs. escalated) and the duration of the contract – which now span between five and 15 years. Prices were also revised to reflect changes in market conditions.

Each of the new contract offers was run through the same financial analysis model as the initial proposals to assess their net present value and cost/value differential on an annual and cumulative basis. Both the retention and resale of RECs in varying quantities was evaluated to understand the impact on contract net present value and ascertain if any arbitrage opportunities were available.

Google Becomes An Early Adopter

Google emerged from WRI’s GPMDG as an early adopter of long-term contracts for renewable energy. Although their deal structure differs from that sought through the Staples’ RFP, their work provides some interesting context for the rationale and process of securing such a deal. In 2010 and 2011, Google secured two major long-term contracts with wind farms in Iowa and Oklahoma.

	Story County II Wind Farm (2010)	Minco II Wind Farm (2011)
Location:	Ames, IA	Oklahoma City, OK
Purchase Quantity:	114 of farm’s 150 total MW	101 MW – sized and built for Google’s needs
Contract Term:	20 years	20 years
Power Sold To:	MISO	SPP
REC Treatment:	Retained by Google	Retained by Google
Power Offset:	Council Bluffs, IA Datacenter	Pryor Creek, OK Datacenter

While seeking these contracts, Google identified two criteria that any proposal must meet. First, a project must show additionality; that is, demonstrate that Google’s purchase would spur renewable energy development that would not otherwise have taken place. Second, proposals needed to address problems that currently limit the growth of the renewable energy industry. To do this, Google and wind developer NextEra developed contracts with the following terms

- NextEra sells as-generated energy and RECs to Google from contracted capacity.
- Google liquidates this energy in the wholesale market (currently at a loss, but this is expected to change as prices increase over the 20-year contract term).
- Google retains the RECs to offset the non-renewable power purchased for and delivered to its physical data centers by the applicable local distribution utilities.

Much like any deal that Staples would make through its negotiations, this process has several benefits for both the commercial entity (i.e., Google or Staples) and the renewable generator. For the commercial customer, the long-term PPA provides price stability for electricity purchased over the lifetime of the contract, which, depending on future price increases, may yield economic returns for the buyer. The purchase of power and RECs from the generator also provides it with the financial certainty necessary to secure project financing.

5 Roadmap for a Renewable Energy Hedge Deal

Much has been learned about the process of exploring and developing a renewable energy hedge product. Coordinating the interests and negotiating contract terms between multiple parties was a time-consuming process. Despite challenges encountered during the evolution of this project, NYSERDA, WRI, Staples, and their partners have paved the way for future renewable energy hedge contract negotiations, identifying many of the pitfalls and keys to success along the way.

This project has helped to create a roadmap for any party interested in pursuing a renewable energy hedge deal, and has targeted a number of key objectives, structures and contract parameters, all of which are detailed in this section.

5.1 Key Objectives

The project targeted the following objectives:

- To develop an executable term sheet for a long-term, fixed price power transaction:
 - Between a renewable energy generator and an end user.
 - Between a competitive supplier and an end user.
 - That can lead to a negotiated wholesale transaction.
- To track the effectiveness of the renewable energy hedge over the term of the contract.
- To create a replicable model from which other generators and end users will benefit.

5.2 Deal Structures and Contract Parameters

Through this process, the parties have amassed the following findings about wholesale and retail deals and specific situations. Additional detail concerning both wholesale and retail deal structures can be found in Appendix B.

5.2.1 Wholesale Deal Structure

The following key issues are associated with selecting a retail supplier partner:

- Is there an existing contractual relationship?
- What is the end-user appetite for committing the remainder of its retail load (at specified meters) to a single supplier for some minimum term?
- What is the ability and interest of the retail supplier to add the long-term renewable energy generator output to its portfolio?

These terms should be considered:

- Wholesale contract preferred.
- Will the contract deliveries be physical or financial?
- Bundled (energy, capacity, and RECs) versus unbundled (including project RECs versus national RECs).
- Price and price structures. Escalating payment rates can help with near term cash flow issues.
- Quantity (percent entitlement “as generated” versus firm block).
- Duration (5± year contracts likely from existing generators; 10+ year contracts may attract generator still under development).
- Delivery point and congestion risk--physical proximity reduces the risk that hedge will not be as effective as anticipated.
- Ability to assign the “wholesale agreement” from the end-user to different retail suppliers, from time to time, throughout the length of the contract, including that the end user will likely need to be ultimately responsible from a credit perspective.
- Counterparty: Security and credit implications.

5.2.2 Retail Deal Structure

The role of a retail power provider in a renewable energy hedge deal is still being explored as of this writing. Phase 1 of this effort looked primarily at securing a hedge deal through a retail supplier, which presented a number of issues including creditworthiness, available contract terms, and limitations for fixed pricing structures. As a result, when Staples entered Phase 2 of contract negotiations, they shifted their approach to negotiating a wholesale contract directly with a renewable generation owner with the expectation that they will be able to negotiate a separate contract with a retail power provider.

This new approach would alleviate some risk and concerns for the retail provider, and give Staples the option of negotiating a physical or financial product with the renewable developer. A retail contract will also potentially need a “wrap-around” retail supplier to deliver and complement a physical power contract with partial requirements supply and balancing to achieve a fully bundled retail supply necessary to serve load. Other components that a retail contract must address include:

- Specifies delivery point(s) on local utility system.
- Can be “all requirements” or “partial requirements” service.
- Quantity is full facility load, minus the amount provided by RE generator.
- Term is likely less than Wholesale Agreement.
- Pricing can be fixed, or partially fixed with pass-throughs.

5.3 As Congestion Risk Increases, Hedge Effectiveness Decreases

As the preferred candidates for both end user retail loads and renewable energy generators became clear, the physical distance between the two provided instructive insight into the importance of analyzing congestion risk. The project highlighted that:

- Transmission congestion between generator nodes and load zones where retail power is priced causes a change in value of generation that on average would be expected to mirror the cost/megawatt-hour differences between the two locations.
- Potential variances in congestion over time impose uncertainty on the effectiveness of a hedge, when production and load are not coincident.
- The range of uncertainty increases with distance, or increase in congestion, between generator and load.
- Intermittent generation cannot hedge congestion risk effectively through financial congestion rights mechanisms.
- Financial congestion rights are not generally available long-term.

The bottom line is that transmission congestion between generator and load reduces the confidence that a hedge will be effective at any specific price. The more proximate hedge is likely to have a more predictable impact.

5.4 Potential Accounting Ramifications of Financial Transactions Require Further Exploration

At the heart of this finding is the question of whether a financial transaction – where a contract for energy (and/or RECs) is liquidated through the use of a strike price and market clearing prices – is considered to be a derivative by the Financial Accounting Standards Board (FASB) and therefore subject to Financial Accounting Standard (FAS) 133. Additional uncertainty has been added since the start of this effort with the implementation of the Dodd-Frank Wall Street Reform and Consumer Protection Act. Where the contract is a derivative, the value must be “marked to market,” a process in which the face value is compared to the expected market value over time and the difference (whether positive or negative) is realized on the contracting entity’s financial statements.

Through this project, the participants gained a better understanding of the transactional elements that may require unique accounting treatment.

To determine whether a contract is a derivative, FAS 133 includes three preliminary tests:

- Does the contract have underlying and notional amount? “Underlying” most likely refers to the price, and “Notional amount” refers to the units (e.g., megawatt-hour). (However, for production-based contracts, the actual megawatt-hours delivered in a year cannot be known in advance).
- Requires no initial net investment.
- Terms require or permit net settlement (can be settled by means outside the contract).

Google provides an important example of a deal structure that was determined not to be a derivative (see text box). Google's contract had three primary objectives: reduce carbon impacts of datacenter operations, create a long term hedge against rising energy prices, and provide some additional benefit as a wind project enabler. After extensive due diligence, Google contracted directly for 76% of a 150-MW wind project in Iowa for 20 years, purchasing both the energy and environmental attributes (RECs). This bundled commodity was offered at a fixed price with a small escalator, and allowed Google to sell the energy into wholesale market at spot prices through an agent. Google's additional in-state load purchases power from its regulated utility (as there is no retail access, unlike New York and New England), and their data center financials do not have to account for above market net cost. In addition, Google chose to retain and retire RECs.

It was determined that the deal was not a derivative because the nominal volume criteria were not met since deliveries are unit contingent and vary with wind. This combination creates uncertainty as to whether a guaranteed future obligation can be reasonably defined. It was also determined that the Google transaction did not qualify as a normal purchase and sale. It is also important to note that while the Google contract represents critical innovation in this field, its adoption in a traditional, regulated retail market made conducting any form of mark to market accounting difficult and unreliable. In the end, the buyer's risk centers on the long term price commitment. This contract reveals Google's view on the potential value of long-term contracts as a hedge against rising electricity prices.

5.5 Interest of Renewable Generators Depends on Duration and Quantity of Contract Sought

In addition to reducing their electricity price volatility, end users participating in this project seek to contribute to the development and financing of new renewable energy facilities. Success in this regard depends on the duration and quantity of the purchase they intend to make. This process found that offers for contracts of less than 10 years – particularly when associated with quantities of only a few megawatts – generally attracted projects that were already operating but were willing to contract a portion of their merchant supply. By contrast, proposed renewable energy projects require contracts with terms that will support financing. This generally means durations of 15 years or more for a material portion of project output. Small quantities are less attractive because they would require more contracts – the transaction costs of which could compromise project economics. As a result of the magnitude of the purchase offer associated with the GPMDG process, bids were predominantly from existing generators.

6 Next Steps

As Staples continues to work through this process, other opportunities continue to emerge for attractive renewable energy hedging opportunities. While this case study was being completed, Nestle Waters North America signed a PPA for the output of two 1.6-MW turbines owned by Foundation Wind Power LLC. The output will supply 30% of the power required to run Nestle Waters' bottling plant in Cabazon, California.¹ Mars Incorporated subsequently executed an agreement to purchase the entire output of the 200 MW Mesquite Creek Wind project near Lamesa, TX. Through this action, Mars will procure enough power to offset 100% of its US operations once Mesquite Creek comes on-line in 2015. In addition, WRI has continued to expand the scope of its efforts and is now developing partnerships in India with an emphasis on hedging long-term energy pricing with renewable energy. Finally, Lawrence Berkeley National Laboratory published a report in March 2013 reasserting the hedge value of wind power in the current energy market.² As the potential for these types of contracts continues to expand and become more attractive, this case study may serve as a tool for efficiently pursuing and securing new deals for purchasing and financing renewable energy.

¹ Nestlé hosts its first two on-site wind turbines in the world at Cabazon, Calif., bottled water plant.
<http://www.nestleusa.com/Media/news-and-features/WaterWindEnergy.aspx>

² <http://emp.lbl.gov/sites/all/files/lbnl-6103e.pdf>

Appendix A: Staples RFP

Wholesale Renewable Generation

Request for Proposal (RFP)

Issued on:
October 25, 2011

Issued by:
Howard Spellman

Final Response Requested by:
November 30, 2011

This document contains information confidential and proprietary to Coleman | Hines, Inc. ("Coleman Hines") and its client Staples, Inc. ("Staples"). The information may be used only for the purpose of preparing a response to this Request for Proposal (RFP) and may not be used for any other purpose. Reproduction of any section of the document must include this notice.

You agree to use utmost care in protecting the proprietary and confidential nature of the information contained herein and limit disclosure to only those third parties, including potential subcontractors needed to assist in developing an acceptable proposal.

If your firm does not wish to submit a response to this request, we respectfully request that you destroy all soft and hard copies of this document.

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Overview

Introduction

Staples is seeking renewable generation project(s) that can provide a long term hedge against future energy prices. One of their stated objectives is to encourage new projects and technologies to come online; thus they are willing to consider projects in the planning and development stage. Existing projects with an operational track record may also be considered as part of a diversified strategy.

Staples is seeking deal structures that are wholesale based. Each proposed deal structure will be reviewed and evaluated on its own merit.

Coleman Hines, on Staples' behalf is issuing this Request for Proposal ("RFP") to a list of project developers and wholesale providers ("Suppliers") that it believes will be able to submit successful proposals to Staples. As a recipient of this RFP your company is considered a serious potential Supplier of the service(s) listed in this RFP.

RFP Objective

This request for proposal has three primary purposes:

- Gain general knowledge of Supplier's project development and operational experience, and its financial stability;
- Comprehend Supplier's project status, operational programs, and capabilities to deliver over the contract term; and
- Evaluate Supplier's response and offering to the specific requirements listed.

Staples is committed to selecting the best overall solutions. This will be based on the overall economic and environmental value of each proposed solution. Economic value consists of price, pricing structure, perceived long term hedge value, project management and overall project viability. Environmental value will be based on meeting or exceeding the environmental requirements listed in this RFP. This value will be balanced with the other stated objectives contained in this document.

Background – Staples

Staples is the world's largest office products company. They are committed to making it easy for their customers around the globe to buy a wide range of office products, including supplies, technology, furniture, and business services. With \$23 billion in sales, Staples serves businesses of all sizes and consumers in 27 countries throughout North and South America, Europe, Asia and Australia.

Staples is committed to corporate responsibility. It's a holistic approach to business that recognizes the close connection between their financial success and their desire to make a positive impact on their associates, communities, and the planet by joining together the following areas: diversity, the environment, the community, and ethics.

Background – Coleman Hines

Coleman Hines has been in business since 2000 and holds a Women and Minority Business Enterprise Certification (WMBE).

Our client base is comprised entirely of national multi-site retail and restaurant companies ranging from 75 to 6,000 sites. Our staff is comprised of former national energy managers, supplier and utility company employees. Core competencies include strategic energy planning, commodity procurement, rebate processing and invoice payment and auditing.

RFP Guidelines

This section outlines the guidelines and principles under which a proposal should be presented to Coleman Hines. Guidelines are segmented based on confidentiality, general rights/obligations, proposal submittal, pricing proposals, and project management.

Confidentiality

Each party shall treat all information as confidential and proprietary and will use a standard of care at least equal to that with which it safeguards its own confidential information and in no event less than a commercially reasonable standard of care. Confidential information will be used only to the extent necessary to evaluate the project and disclosed only to those of its officers, directors, employees and agents who "need to know" in order to evaluate the proposals, provided each is bound by written agreement and/or employment policy to maintain the confidentiality of the information.

All confidential information is and shall remain the property of the transmitting Party. At any time, the transmitting Party may require that the receiving party promptly return all tangible forms of the confidential information, including any and all copies and partial copies thereof, whether machine readable or otherwise.

If a conflict exists between a previously existing agreement between the parties regarding confidential information, and the terms & conditions of this document, the strictest provision of either agreement will apply.

Rights/Obligations

Staples reserves the right to amend, modify or withdraw this RFP at any time for any reason whatsoever. The company further reserves the right to accept or reject all or part of your proposal. Neither receipt of this RFP nor the submission of a response shall be construed to create a contract, obligation or an expectation of a future business relationship. Coleman Hines and Staples are not liable for any costs incurred by the Supplier in the preparation, presentation, or any other aspect of the Proposal received by reason of this request.

Staples is neither committed to accept the lowest bid nor any of the proposals received.

Staples reserves the right to contact the Supplier for clarification of the proposal and to contact the Supplier's references, users or other sources to obtain additional information that would assist in the evaluation of information.

Staples may, during the proposal period, advise the Suppliers in writing of additions, omissions or changes to the specifications. All such changes shall be included in the proposal and will become part of the specifications as if originally submitted.

A Supplier may modify or withdraw its proposal prior to the due date. The modification or withdrawal must be in writing and submitted to the Coleman Hines contact.

Any discussion of the evaluation and selection process related to this RFP is limited to information that will assist the Suppliers in developing an acceptable proposal.

Upon the completion of the evaluation process Staples may, at its sole and absolute discretion, award a portion of the contracted products/services to more than one Supplier, reject all proposals, or further negotiate with bid participants. This is a Request for Proposal and not a binding offer to contract with Staples. Any work ultimately awarded will be documented in a contract, which shall contain, among other terms, the provisions set forth in this RFP.

Staples has no obligation to disclose the result of the RFP process or to disclose why particular firms were selected to participate in the contract negotiations process or selected for award.

By submitting a response to this RFP, each Supplier agrees to hold harmless, defend and indemnify Staples and Coleman Hines, its officers, employees, volunteers, and agents from and against any and all claims, losses, causes of action, judgments, damages, and expenses (including but not limited to, attorney's fees and costs) resulting from or arising out of Suppliers' breach of obligations contained herein, the Suppliers' submittal in response to this RFP, Staples or Coleman Hines response or failure to respond to the Supplier's submittal to the RFP and use of any information contained in the submittal.

Supplier shall not disclose any information relating to the RFP or its relationship with Staples.

Proposal Submittal

It is encouraged that the proposals be organized and indexed in the format identified. It is imperative that all Suppliers complete their responses electronically and return a fully completed proposal to Coleman Hines via email. Each section of the RFP response should contain all items in the sequence identified. Please mark N/A if a section is not applicable.

The submission of additional, non-requested information is welcomed, but it should be provided separately. Each Supplier should also be aware that they are responsible for providing sufficient information to facilitate a thorough capability assessment of the proposed solution. Additionally, the Supplier is responsible for obtaining from Coleman Hines any additional information needed for preparing the Supplier's proposal.

Pricing

The Supplier affirms by signing the "Intent to Respond" that the proposal prices have been arrived at independently without collusion, consultation or communication with any other Supplier or with any other competitor prior to submission to Coleman Hines, and that the proposed prices were not disclosed to, confirmed or discussed with any other supplier or any other person or entity not related by law to the submitting Supplier.

Project Management

In order to support the program and services identified in this RFP, it is important that issues that arise are resolved quickly and completely. Therefore, bidders must supply a single point of contact for resolution of all commercial and technical issues related to the on-going implementation and management of a future awarded contract.

RFP Evaluation Criteria

The following assessment criteria will be used to short-listing and selecting Suppliers. These criteria are not necessarily exhaustive or listed in order of priority. In addition, Staples reserves the right to adjust the criteria at any time at its sole discretion. Staples also reserves the right to allocate and award contract(s) to as many potential Suppliers as it deems appropriate.

1. **Value.** Value consists of a combination of price, pricing structure, perceived long term hedge value, and environmental attributes.
2. **Overall Experience and Project Viability.** It is Staples' intention to enter into any agreement in good faith. Therefore, it is extremely important that they believe that the terms and conditions of any such agreement are achievable and the Supplier can deliver per the contracted terms. It is also important to understand Supplier's flexibility, support, tools, management, technical and financial resources and experience, track record with similar projects, as well as other Supplier attributes.
3. **Project Management.** A Project Manager would serve as the single point of contact and have overall responsibility for the product/services provided including consolidated reporting and periodic performance reviews. In addition this representative would have overall responsibility for all day-to-day contacts for all service, price/contract and reporting needs.
4. **Simplicity of contract implementation and administration.** In order for Staples to successfully implement and achieve the goals of any agreement it is important that they are not unduly burdened with overly complex details of implementation or administration of such agreements.

Instructions for Completing RFP

Overview

The following Sections outline the Contents of the RFP, instructions and contact information for completing submissions.

Contents of the RFP

The following is a list of appendices and attachments contained in this RFP:

Intent to Bid and Signature Authorization Form.....Appendix A
Staples RFP Scope of Work DetailAppendix B

All pricing offers must be good for a minimum of 90 days from date of submission.

Instructions

Please follow the instructions below for completing the RFP to ensure completeness and timeliness of your response. While we welcome procedural questions about this RFP, please refrain from making inquiries about the status of your Proposal.

Complete all of the questions and forms in Appendices and Exhibits in the RFP. Additional data, discussion or a presentation may be requested in support of your response to this RFP.

Return your RFP response by the stated deadline. Those suppliers who provide Proposals viewed favorably by Staples will be notified by the scheduled date and requested to proceed to the next phase of the process.

Coleman | Hines Contact Information

The primary Coleman Hines contact for any correspondence required regarding this RFP is:

Howard Spellman
20830 N. Tatum Blvd., Suite 330, Phoenix AZ 85050
(480) 346-5806
response@colemanhines.com

Proposal Format

Proposals shall be submitted in accordance with the instructions contained in this RFP and should include all information and materials requested in the RFP.

For your convenience, we are allowing each Supplier to use its own format to the extent that all information requested is labeled and answered. Due to the open format, when proposing multiple solutions, we request that each offer be provided in the same format to allow for easier comparisons.

Suppliers may include any additional information and material they wish; however, such material (e.g., alternative services and/or features) shall be identified as such, submitted as additional information in the RFP and labeled as an alternate service and/or feature. Any such attachment shall identify the applicable RFP section or subsection to which it is responding and shall be incorporated into and be made part of the Proposal. All alternative services and/or features are made in addition to and not in place of any requirements contained within this RFP.

Return Instructions

Complete responses to all components of this RFP must be received at the stated due date. No RFP will be considered complete and eligible for further consideration unless all components of this RFP have been fully completed, signed and returned by this date, or date as specified in this document.

Date	Activity	Method of Notification/Submission
October 20, 2011	RFP issued to prospective suppliers	Electronic (email)
October 30, 2011	Intent to Bid (Appendix A)	Electronic (email)
Open throughout entire process	Submit questions pertaining to the RFP	Electronic (email) and/or telephone
November 30, 2011	RFP Due Date (Exhibits A,B,C)	Electronic (email), Delivery or Mail
December 31, 2011 (Estimate)	Prospective bidders selected to proceed to the next phase will be notified Prospective bidders not selected to proceed to the next phase will be notified	Electronic (email) and/or telephone
January 30, 2012 (Estimate)	First round of discussions / negotiations	Onsite (face to face)
February 29, 2012 (Estimate)	Final round of discussions / negotiations including final legal review	Electronic (email) and/or telephone
TBD	Contract start date	

Appendix A – Intent to Bid and Signature Authorization Form

Supplier has full power and authority to enter into the submission of this Proposal and any Proposal thereto. Supplier further acknowledges that it has read the RFP, understands it, and agrees to the terms and conditions stated therein and subsequent proposals extended to Staples.

Company: _____

Name: _____

Signature: _____

Title: _____

Address: _____

Phone: _____ Fax: _____

Email: _____

Date: _____

We do not intend to respond to this RFP for the following reasons:

Appendix B – Staples RFP Scope of Work

All information included in this scope of work will be part of the required services for the chosen Supplier. It is important that you read each area as noted and if you are unable to fulfill that requirement please note the reason why and highlight the section. Staples is looking for a partner who can fulfill all or most of the requirements as described below.

PROPOSAL TYPE

Staples is open to deal structures that are financially based or result in the physical delivery of energy or a combination thereof.

RENEWABLE ENERGY PROJECT REQUIREMENTS

Staples is seeking Class 1 renewable energy project(s) with pricing and a generation profile that can provide a long term hedge against future energy prices. One of Staples' stated objectives is to encourage new projects and technologies to come online; thus it is willing to consider projects in the planning and development stage. Existing projects with an operational track record may also be considered as part of a diversified strategy.

For the purposes of this RFP "Class 1 renewable projects" means wind, solar, low impact hydro, geothermal, biomass, biofuels and landfill gas.

Basic information required includes:

- A. Location
 - Geographic (nearest city, local utility service territory, and ISO load zone)
 - Interconnection point to the transmission system (generator node)
 - Proposed delivery point
- B. Size
 - Unit nameplate MW
 - Number of units
 - Net MW
- C. Equipment and operating history
- D. Generation profile expected based on renewable resource and/or actual operations.
 - Projected energy supplied at the delivery point on an annual, monthly and an hourly basis for a representative week during each month
 - Provide historical data where available. List products to be delivered (could include energy, RECs and capacity).
- E. Status
 - Operational projects – commercial operation date, track record of generation and availability, and percentage sold to other buyers on a long term basis.
 - Development projects - evidence of site control, completed and remaining milestones including listing and status of all major permits, interconnection status, financing plan, and expected commercial operation date.

Records of performance for existing operating facilities will be required as part of the evaluation documentation.

SINGLE VERSUS MULTIPLE PROJECTS

Due to the complexity of evaluating multiple generation projects inside a larger offering, Staples will view each potential generation source on its own merit and timeline. This will be balanced against the need to have a diversified supply and the potential volumes available in an ISO zone.

GEOGRAPHIC PREFERENCE

Staples preference is to find renewable projects that are located in the Northeast or California in areas where there is retail choice for Staples facilities. We are open to projects outside these regions to the extent they meet the criteria stated herein this document. It is also preferable that the projects be located inside the same ISO zone as the sites they are serving to allow for a better correlation of pricing.

WHOLESALE VERSUS RETAIL DEAL STRUCTURES

Staples is seeking deal structures that are wholesale based and settled in the wholesale financial and physical market.

ANNUAL ENERGY DELIVERIES

Staples is considering a layering strategy based upon specific projects and financial performance. The perceived hedge values of the individual projects will drive the specific annual energy commitment and approach. For proposal purposes, Staples is willing to consider annual energy volumes at the 20%, 35% and 50% level of the retail loads listed behind selected Utility companies. Staples total usage in the selected service territories is approximately 322,000 MWh's. Please see Exhibit #1 – Staples Volumes for more details.

PROJECT TERM AND DELIVERY TIMEFRAME

Contract terms of up to 20 years will be considered. The availability and structure of renewal options will be considered for shorter term projects.

PROJECT COMPANY INFORMATION

Staples' evaluation of the individual projects will include a review of the companies behind the specific projects. A dossier for each potential Supplier should include at minimum a profile of past project successes, executive bios, development, construction, technical, operational, financial and other information that demonstrates their ability to successfully develop and operate a project through its anticipated lifecycle.

PROJECT SPECIFIC PLANS

Staples evaluation of the individual projects not yet in commercial operations will include a review of the Supplier's development, permitting, interconnection, financing and operational plans to the proposed project. Please provide all information that would assist Staples in this process.

PERFORMANCE / OPT OUT

Staples will require certain milestones and performance criteria to be met as part of a contract. Staples will reserve the right to terminate based on the projects not meeting certain pre-defined performance criteria.

PRICING

Staples is willing to consider either fixed and variable-based pricing for products delivered for all or portion of an agreed upon term. Please price each volume level separately. If a variable price option is selected, Staples will require the pricing to be tied to a published trading point or commodity index. Transparency is important. Due to the long-term nature of these deal types and the goal of providing a long-term price hedge, Staples may prefer the pricing be tied to a commodity that can be separately swapped via financial instruments.

RENEWABLE ENERGY CREDITS (REC'S)

Staples' desire is to own the renewable energy credits associated with the energy purchased from a project. Staples is willing to consider the financial benefit of an arbitrage of the REC's. For example,

swapping the REC's from the specific project for REC's in lesser cost geographic areas could yield a positive difference to reduce the offer price. Staples will not use this project to secure additional REC's beyond those associated with the selected project(s).

A REC only solution will not meet the requirements of this RFP. Pricing should be provided with the inclusion of the REC's.

ENVIRONMENTAL ATTRIBUTES

The types and ownership of the environmental attributes associated with the project proposed will be further defined by Staples and the Supplier in the contracting phase. Submissions should address the following questions:

- If this project is located in a state with a mandatory Renewable Portfolio Standard, explain clearly how the project is or will be classified within the relevant state's RPS definitions of eligible technologies. The project's technology (and fuel source if appropriate) must be eligible to qualify it as Class I Renewable in the state where the relevant Staples load is located.
- Has the project accepted, or does it plan to accept, any state, local, or utility incentives which require the surrender of Environmental Attributes of the energy generation? Please explain, if so.
- Is the project already registered in any REC tracking system (e.g. M-RETs, NARR, WREGIS, etc.)?
- Is the project located in a state with a CO2 emissions cap on the power sector? If so, is there a mechanism in place to retire allowances and convey corresponding emissions reduction benefits to voluntary REC purchases?

ISO METERING

Seller shall be responsible for all ISO metering equipment requirements and accuracy during the term of the agreement.

INTERCONNECT AND TRANSMISSION

Seller shall be responsible for all interconnection and transmission facility upgrades required during the term of the agreement.

MAINTENANCE OBLIGATIONS

Seller shall be responsible for all project maintenance obligations required during the term of the agreement.

SECURITY OBLIGATION

Security obligations will be required during the term of the agreement. Staples will require \$5/MWh times the expected annual energy deliveries.

SELLER INSURANCE REQUIREMENTS

To be determined based on the specific projects proposed.

SELLER COLLATERAL REQUIREMENTS

To be determined based on the specific projects proposed.

REPORTING REQUIREMENTS

To be determined. Please provide examples of reporting that Staples will receive with each proposal.

NON-DISCLOSURE AND CONFIDENTIALITY

Seller shall not disclose non-public terms and conditions.

TAXES AND GOVERNMENTAL CHARGES

Seller shall be responsible for all taxes and governmental charges upon it or the project.

INDEMNIFICATION/ LIMITS OF LIABILITY

Staples will require full indemnification and Limits of Liability protection.

DEREGULATED MARKETS / EXISTING CONTRACTUAL OBLIGATIONS

Staples is currently an active participant in many deregulated energy territories. Based on the proposal and the specific project(s) selected, Staples may be required to coordinate the implementation with timing of these prior obligations. Please see Exhibit #2 – Staples Current Deregulated Contracts for a list of markets and expirations dates. Deregulated contract activity will continue subsequent to the release of this RFP. Consideration of the proposed projects may be coordinated with new or renewal opportunities.

Please note that in our evaluation the long term hedge value includes the ability for Staples to continue to hedge the remaining portion of their load.

RETAIL MANAGEMENT

It is Staples' intention to contract with a national energy management firm to integrate the output of the selected wholesale project(s) into the retail supply delivered to Staples facilities. This may include operational and settlement ISO interfaces, scheduling, load balancing, and procurement of ancillary services among other tasks. Due to the long-term nature of the projects being considered, the energy management firm initially selected may not be the management service provider during the entire project term. Contractual terms between Staples, the project generator and the retail management firm must allow for free assignment and transfer of related services and associated Seller support and cooperation.

USE OF STAPLES CREDIT

If conducive to reduced future pricing, Staples is willing to consider pre-payments or use of its credit as a backstop for a potential project. If your proposal includes the use of these options, please show the proposed pricing with and without the use of these additional credit support options.

LICENSED RETAIL SUPPLIER

At this time, due to license fees, credit and other requirements, Staples does not want to enter into a deal structure which would require it to become a licensed registered retail supplier or an ISO participant.

Appendix B: Renewable Energy Hedge - Conceptual Deal Structure



APPENDIX B: Renewable Energy Hedge – Conceptual Deal Structure

1) Parties:

- a) Commercial end-user (**End-User**)
- b) Competitive retail supplier (**Retail Supplier**)
- c) Renewable energy generator (**RE Generator**)

2) Key agreements:

- a) RE wholesale power purchase agreement (**Wholesale Agreement**)
 - i) Between RE Generator and End -User
 - ii) Products are energy, capacity, RECs
 - iii) Unit contingent for all or a portion of facility output
 - (1) Agree on reasonable production profiles that can be used in retail supply pricing
 - iv) Term – likely 10 to 20 years. Expect this term to be longer than the corresponding retail electricity sales and purchase agreement (**Retail Agreement**)
 - v) Price – Fixed or shaped pricing. Expect to be structured in \$/MWh for energy delivered
 - vi) Start date
 - (1) End-Users may want the start date of the Wholesale Agreement tied to start date of the corresponding Retail Agreement so that overall cost of power and associated risks are understood
 - (2) Possible that Wholesale Agreement could commence before Retail Agreement. Need to address disposition of the wholesale power that is generated prior to the start of a Retail Agreement or in excess of the loads under the Retail Agreement. Would require an intermediary to accept and monetize the output
 - (3) Consider start date and term for both agreements in the event that a development RE project is delayed
- b) Electricity sales and purchase agreement (**Retail Agreement**)
 - i) Between End-User and Retail Supplier
 - ii) Local delivery utility identified
 - iii) Delivery point (s).
 - (1) Agreement could cover multiple End User facilities
 - (2) Access to historical load data will need to be provided for each facility
 - (3) Representative peak demand and energy likely identified and made part of any agreement. Significant deviations potentially subject to different pricing
 - iv) Basic product options (assumes a specific monthly or more granular RE production profiles):
 - (1) “All requirements power” including energy, capacity, ancillary service, congestion risk, generation production risk, RECs (where applicable) and all ISO and supplier fees
 - (a) Incorporate Wholesale Agreement output assuming specified production profile
 - (b) Retail Supplier provides a firming service where deviations in load and generation are managed by the Retail Supplier at a known price
 - (2) “Partial requirements power” to provide all energy, capacity and other products not provided by the Wholesale Agreement. Includes energy, capacity,

**Managing Electricity Price Volatility Through Long-Term Renewable Energy Contracts**

ancillary service, congestion risk, generation production risk, RECs (where applicable) and all ISO and supplier fees

(a) Incorporate Wholesale Agreement output assuming specified production profile

(b) Deviations from the assumed production profile are settled at hourly market prices. End User is at risk for the net difference of the deviations.

v) Quantity is full facility requirements, less amounts provided by companion Wholesale Agreement and dependent on the product options above

vi) Term – Likely less than the Wholesale Agreement (1 to 5 years?)

vii) Price options

(1) Fixed

(2) Fixed with pass-throughs of certain market costs such as ancillary services or capacity

(3) Wholesale Agreement deviations absorbed (firmed) or priced at market

viii) Transmission and distribution wires related charges will continue to be billed by the local utility. Some utilities offer the option for combined billing where generation costs can be included in one bill.

ix) Renewal clause for the Retail Agreement to potentially bring its duration in-line with the Wholesale Agreement. Provisions to be negotiated and could range from mutual agreement to bounds on price adjustments at time of renewal.

3) Align other terms and conditions so that there are no serious mismatches between the two agreements that would impact performance under the other agreement

a) Force majeure

b) Billing, payment and credit

c) Confidentiality

d) Default and termination including possible cross default provisions between Retail Agreement and Wholesale Agreement

e) Limitation of liability

f) Reps and warranties

g) Dispute resolution

h) Assignment provisions for both parties, approval not to be unreasonably withheld and subject to certain credit requirements

4) Other Issues

a) Quantity of output to contract for in the Wholesale Agreement relative to the End User's current and expected loads. Potentially ask for pricing from the Retail Supplier at different Wholesale Agreement quantity levels if a firming service is being priced

b) Assuming the term of Wholesale Agreement exceeds Retail Agreement, must ensure cooperation and assistance in the possible future assignment or transfer of the Wholesale Agreement output to another Retail Supplier

c) Transparency and ability for End User to make any desired claims

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Andrew M. Cuomo, Governor

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Final Report
June 2014

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