INDEPENDENT EVALUATOR'S
QUESTIONNAIRE

The experience and qualifications of individuals being proposed for this RFP may be conveyed by responding to this questionnaire. Responses should be based upon the sum qualifications and experience of the proposed project team members currently on staff. Please provide resumes for proposed critical team personnel with the lead team member clearly identified. Insert responses directly in the box below. Boxes may be expanded as necessary. As a follow up, SDG&E, the PRG or the ED may request additional information based on these responses.

1. **Summarize your professional background directly related to utility resource planning, portfolio optimization, and project management.**

Boston Pacific Company Inc. (Boston Pacific) is a consulting firm that specializes in the electricity and natural gas businesses. Since our incorporation 28 years ago, we have worked for the full range of stakeholders, from private investors and utilities to state commissions and Federal organizations. Boston Pacific is well versed in the field of resource planning, specializing in helping utilities and State Commissions make the best resource choices and develop robust portfolios to serve ratepayers and meet regulatory goals. We have expertise in evaluating resource needs and designing and monitoring procurements that competitively solicit resources to meet those needs.

For example, Boston Pacific has served the Oregon Commission as the Independent Evaluator for five RFPs from PacifiCorp, two for renewable facilities, one for baseload facilities and two for all source procurements. We revieweach draft RFP to ensure that it is designed to procure the targeted resource and that such resource performs well against a wide variety of possible future outcomes with regard to key variables such as gas prices and carbon emission costs and review PacifiCorp's IRP, which develops a preferred portfolio of resources, resource acquisition plan and the evaluation methodology. As IE, we have evaluated dozens of bids for multiple varieties of base load, intermediate, and peaking resources ranging from natural gas plants to wind and solar projects. This review incorporates both price and non-price evaluations. From a price standpoint, we review both levelized cost models and capacity expansion model outputs as well as stochastic risk analysis models. The non-price review includes project management aspects such as reviewing proposed schedules, permits, and O&M agreements. At the end of each procurement we provide a recommendation on a final shortlist of bids and, in some cases, oversee final contract negotiations with the selected winners to ensure that the final product becomes a real project and that the prices and risk allocation contained in the winning proposals are enshrined in the final contracts.

Boston Pacific has assisted the Maryland Public Service Commission in reviewing resource adequacy in the State, assessing key risks, current portfolio composition, and weighing resource options that could mitigate ratepayer risk. As a result of our review the Commission's requested Boston Pacific to design an RFP targeted to developing new natural gas-fired in-State generation. This required designing a contract for differences that would provide the longer-term price guarantees necessary to achieve financing while minimizing ratepayer risk and assuring that the unit would compete fairly in

deregulated wholesale markets. Boston Pacific next assisted the Commission in issuing the RFP and evaluating the bids. We evaluated bids on both a price and non-price basis, for the latter reviewing financing plans, construction schedules and permitting status, and recommended a winning supplier. This evaluation included designing and running several least-cost dispatch scenarios using PROMOD to evaluate the potential cost to ratepayers under a number of circumstances to ensure that the winning bid was a robust selection and that rate impacts would be reasonable. In addition, Boston Pacific mediated final contract negotiations on behalf of the Commission between the utilities and the RFP winner. When the process was challenged in court we appeared as expert witnesses to defend the right of the State to maintain its own reliability standards.

From 2007 to 2009, we served as the Independent Evaluator (IE) on behalf of the Oklahoma Commerce Commission (OCC) for Public Service Company of Oklahoma's (PSO) long term RFP for baseload generation. We led a collaborative effort among stakeholders to design the RFP. We monitored the issuance of the RFP, independently evaluated bids, and reviewed utility bid evaluation. We monitored contract negotiations with winning bidders and presented our findings to the OCC. The RFP resulted in a signed contract for a 520-MW natural gas combined cycle resource.

On behalf of the OCC, Boston Pacific reviewed Oklahoma Gas & Electric's (OG&E) 197.8 MW Crossroads Wind Farm and testified to our findings. Our work included price and risk comparisons of OG&E's proposal to other recent proposals provided from the market. Boston Pacific carefully reviewed the wind resource assessment and project contracts, including the Turbine Supply Agreement, Asset Purchase Agreement and EPC contract, to determine the extent and value of the risk protections laid out in the project contracts and we compared those risk protections to those in other signed third-party PPAs between the Company and other suppliers.

In 2012 and 2013 we reviewed Public Service Company of Oklahoma's (PSO) efforts to comply with EPA Regional Haze standards, MATS, and other environmental regulations. This required us to (a) understand the environmental regulations and how they affected PSO's existing coal-fired assets, (b) compare PSO's proposed settlement with the EPA against other paths to comply with regulations such as converting the units to natural gas, (c) review and comment on the modeling PSO used to support their choice, (d) submit data requests, and (e) prepare several rounds of testimony. We also served as an independent evaluator for a related RFP for baseload resources, and reviewed and commented on PSO's updated integrated resource plan. We also served the OCC in a similar role regarding OG&E's efforts to meet environmental compliance.

Also for the OCC we served as the Independent Evaluator for PSO's 2013 Wind RFP. We reviewed and ranked all proposals submitted, worked with the utility to determine a shortlist, reviewed transmission impact studies to determine the impact on bid ranking, and monitored contract negotiations with shortlisted bidders. In addition, we worked with utility personnel to develop and review portfolio modeling cases to ascertain the impact of taking various amounts of new wind-powered generation. As a result, PSO successfully procured 600 MW of new wind PPAs. The OCC approved the transactions on February 4, 2014.

Currently, we are serving the OCC Staff and the Office of the Attorney General as an expert witness in a proceeding in determining PSO's cost recovery for its implementation of measures to meet

environmental compliance.

In Hawaii, we served as Independent Observers (IOs) for the Hawaii Public Utilities Commission for three of Hawaiian Electric Company and Maui Electric Company's unit-contingent RFPs for renewable energy. Currently, we are serving as the IO for Hawaii Electric Light Company's Geothermal RFP. Our work for these RFPs included advising the Commission on whether these RFPs are consistent with Hawaii's Framework for Competitive Bidding, reviewing the evaluation of bids, and ensuring that the solicitation process was conducted in a fair and transparent manner. The inherent limitations of an island in terms of grid stability, resource alternatives, and load, provide unique challenges with regard to utility resource planning, portfolio optimization, and project management. All of which provides us with a perspective that diversifies our knowledge base as independent evaluators.

We also worked for the New Jersey Board of Public Utilities (NJBPU) as consultants for the evaluation of offshore wind projects. The State of New Jersey, in recent years, passed legislation to encourage the development of 1,100 MW of offshore wind resources. By law, the NJBPU is required to solicit applications for offshore wind renewable energy certificates (ORECs). We also completed the evaluation of the first offshore wind application for such ORECs, a 25 MW offshore wind farm in State waters. Our evaluation included an assessment of whether the level of subsidy proposed for a project was reasonable, whether the project demonstrated net benefits, and other factors such as assessing the project's technology risk.

Beyond unit-contingent RFPs, we specialize in designing and monitoring large-scale full requirements procurements. These procurements, known as Standard Offer, Basic Generation or Provider of Last Resort Service procurements, are a key component of the electricity portfolio in many states as they procure supply for customers who "choose not to choose" a competitive retail suppler – i.e. most of the residential customers in each state. We have monitored most of the major full requirements solicitations in PJM, including: (a) the District of Columbia's 2004 through 2014 SOS RFPs, (b) the SOS RFPs for all four utilities in Maryland from 2004 to 2006 and 2010 to 2015, (c) New Jersey's 2007 through 2015 Basic Generation Service Auctions, (d) the Illinois Commerce Commission's 2006 Auction and 2008 through 2015 RFPs, (e) FirstEnergy's 2009 through 2015 Ohio Auctions, (f) Duke Energy Ohio's 2011 through 2015 Auctions, (g) Dayton Power and Light's 2013 and 2014 Auctions, (h) AEP Ohio's 2014 and 2015 Auctions, (i) Delmarva Power and Light's 2006 through 2009 Delaware SOS RFPs, (j) Allegheny Power's (now West Penn Power) 2009 RFP for Provider of Last Resort Service in Pennsylvania, and (k) Delmarva Power's 2007 Virginia RFP.

We served on several projects for the DOE as the Independent Market Advisor. In this role, Boston Pacific was tasked with assessing the ability of loan guarantee applicants to successfully construct energy projects being proposed within the indicated cost and time estimates. Additionally, we reviewed the applicant's expertise, track record, and ability to perform the day-to-day management and operation of the facility.

A final example of our experience includes our work for both the Mississippi Public Service Commission and the Illinois Commerce Commission regarding proposed IGCC or Clean Coal facilities in their territory. As described in one decision on the Mississippi case, the

Commission's concern about highly volatile natural gas prices led it to seek a diversified portfolio that is not too heavily dependent on natural gas. On behalf of the Commission we reviewed the proposed project, designed and held a solicitation for alternative projects, compared the project to bids that were received – including examining how different gas assumptions would affect the resource decision, and made recommendations for a path forward.

2. **Summarize your professional working experience directly related to the California IS0 energy, ancillary services, and ex-post markets.**

Boston Pacific has detailed, direct experience with the California ISO markets both through current experience, through past engagements working in the California market and from California ISO experience of our key personnel.

We have served since 2014 as an Independent Evaluator for transactions from Pacific Gas & Electric. In this role we have performed all the functions that are currently being requested for the SDG&E IE including a) assisting on the design, development and review of RFOs, b) reviewing and evaluating bids submitted into an RFO and making recommendations on which bids to accept, c) reporting to the CPUC and the PRG on the conduct and results of the RFO and d) monitoring bilateral negotiations and contract amendments and reporting on the results to the CPUC. In the past year we have served as the IE for PG&E's a) RAM V and RAM VI RFOs, b) a bilateral short term sale of energy and RECs by PG&E, c) a contract renegotiations to account for a PG&E acquisition and d) a renegotiation of a renewable supply contract. We are also currently serving as the IE for the upcoming Compressed Air Energy Storage (CAES) RFO.

Within California, outside our IE role, we provided testimony at FERC concerning the proper way in which to set Reliability Must-Run (RMR) rates for generators in the California ISO. Additionally, as part of a large effort for TECO energy, we had to assess transmission interconnection and availability in the southwest between Arizona and California. In the past we also assessed several mergers in the State.

In addition to our direct engagements in the California markets, one of our key personnel, Vincent Musco, has detailed knowledge and hands-on experience with California ISO markets and market rules. Prior to joining Boston Pacific, Vincent worked as an economist for eight years at the FERC on RTO market design issues across the U.S., especially in California. Vincent led several efforts at FERC ushering in the start-up of California ISO's day-ahead market construct, as well as other market design features that followed. For example, Vincent led a team and a technical conference that reviewed California ISO's backstop resource adequacy provisions and compensation (i.e., "Exceptional Dispatch" and the "ICPM" backstop capacity rules). Vincent led FERC's effort in reviewing and approving California ISO's convergence bidding proposal and design, and led a similar team in analyzing California ISO's scarcity pricing mechanism for energy and ancillary services, as well as the ISO's attempt to further integrate demand-side participation into its energy and reserves markets through its Proxy Demand Resource proposal. Vincent also was heavily involved in projects involving California

ISO's plan to coordinate with neighboring control areas through its Integrated Balancing Authority Area agreements, the ISO's compliance with FERC Order 719, and the ISO's "golive" efforts in starting up its day-ahead market. Each of these engagements required detailed knowledge of the California ISO markets, tariffs, and rules, as well as attendance at ISO stakeholder meetings, meetings with ISO and CPUC staff, and attendance at various western market issues conferences.

3. Address the following items directly related to your professional expertise and experience concerning the evaluation of Power Purchase Agreements (PPA's) and proposed new electrical generation facilities. Please specifically note any experience that you may have directly related to renewable energy projects and generation asset development.

a. Experience and level of responsibility in negotiating and evaluating energy contracts.

Boston Pacific has evaluated numerous PPAs and proposed new electric generation facilities for both conventional and renewable energy. This analysis is the heart of our work as an Independent Evaluator for the Oregon Public Utility Commission where we must compare PPAs and tolling agreements for new facilities against both EPC contracts and purchases of existing resources. This work includes a review of the draft standard form contracts issued with the RFP to ensure that they are fair and reasonable. We also review all bidder-proposed changes to the draft contracts to ensure that there is no attempt to push major risks back onto the shoulders of ratepayers. Finally, we have monitored negotiations for final contracts with winning bidders. This last step had the twin goals of (a) ensuring that selected winners "crossed the finish line" and became real projects and (b) that the prices and risk allocation contained in the winning proposals were enshrined in the final contracts. Our efforts resulted in the construction of one natural gas fired combined cycle plant and a large wind farm, the acquisition of another combined cycle plant and a PPA with another large wind farm.

We performed similar work in Oklahoma. We served as the IE for a RFO from Public Service Company of Oklahoma (PSO) for wind resources. We evaluated the RFO design, proposed modifications to the standard form PPA, and evaluated all offers made. We worked with PSO and with the Southwest Power Pool to accurately assess all costs, including transmission upgrade costs and model the effects of adding additional generation onto the PSO system. We supervised negotiations with the winning bidders and testified to the results. The procurement ended up producing three contracts with new wind farms for a total of 600 MW of new supply. Also from 2007 to 2009, we served as the Independent Evaluator (IE) on behalf of the Oklahoma Commerce Commission (OCC) for Public Service Company of Oklahoma's (PSO) long term RFP for baseload generation. We led a collaborative effort among stakeholders to design the RFP. We monitored the issuance of the RFP, independently evaluated bids, and reviewed utility bid evaluation. We monitored contract negotiations with winning bidders and presented our findings to the OCC. The RFP resulted in a signed contract for a 520-MW natural gas combined cycle resource.

In California, as part of our IE work, we monitored the renegotiation of a PPA between PG&E

and Noble Americas. PG&E had acquired the PPA when it purchased the assets of the City of Hercules and sought to simplify the transaction and eliminate the possibility of double charging ratepayers for certain services. We monitored negotiations to ensure that these goals were successfully met and reported the result to the Commission.

In Maryland we were tasked by the Commission with creating a draft contract for differences for new in-State generation. We reviewed proposed bidder changes to the contract and assessed how those changes affected the risk balance between ratepayers and the supplier. Once a winning bidder was selected the Commission tasked us with overseeing and coordinating the negotiation of a final contract between three Maryland Electric Distribution Companies and the winning bidder. This was a complex effort, requiring the negotiation between several parties of additional documents such as a Form of Consent and an Inter-creditor Agreement to preserve the rights of the second lien holders.

In Illinois we are currently working for the Illinois Commerce Commission to monitor two procurements for distributed generation from renewable resources. In both procurements we helped develop a standard form contract for use in the procurement. We worked to ensure that the contracts a) met all ICC requirements, b) properly protected ratepayers, c) clearly spelled out the responsibilities of each party and d) were not so onerous as to drive away legitimate competition. In 2010, we worked for the Illinois Commerce Commission to review 20-year contracts for energy and RECs from renewable power projects. We were involved in every step of creating the contracts and evaluating bids. Alongside several stakeholders and many potential bidders, we created standardized contracts so that bid evaluation could be "price only." Our review involved commenting on all aspects of the draft contracts from the perspective of intermittent renewable energy projects as well as participating in six days of workshops on the draft contracts. Contract terms specific to such projects included (a) flexible delivery schedules for intermittent energy and REC generation, (b) credit and collateral requirements specific to delivery of renewable energy and RECs, (c) methods to make obtaining financing easier such as being able to assign the project to lenders as collateral, (d) changes to Force Majeure, and (e) changes to default provisions around the date the facility would come on-line.

In the US Virgin Islands, we were consultants to the Virgin Islands Water and Power Authority (VIWAPA). We addressed VIWAPA's need of diversifying their all oil-fired generation fleet with alternative energy resources. We developed an RFP aimed at soliciting any type of non-oil fired generation, specifically renewable energy sources. Bidders offered resources ranging from geothermal, OTEC (ocean thermal energy conversion), wind, solar PV, to waste-to-energy power. We evaluated each project in detail and scored each project, giving each a price and non-price score. The evaluation led to negotiations of a long-term PPA with the top-scoring bidders, resulting in a waste-to-energy project being selected as the best solution. In addition to managing the RFP, we also advised VIWAPA throughout contract negotiations. A PPA has been executed and signed and the winning project is currently under development.

Additionally, for every full requirements procurement that we monitor we review the standard wholesale full requirements contract that each winning bidder must agree to sign. Since each bidder signs the same contract, making the evaluation a "price only" evaluation, it is vital that this contract be fair and properly allocate risk to the party best able to manage it. We often make recommendations to ensure that each procurement will be a success. For example, when proposed rule changes threatened

to derail New Jersey's 2015 Basic Generation Service Auction we worked with stakeholders to develop a contract amendment which would alleviate regulatory risk and allow bidders to participate in the Auction.

b. Expertise directly related to the analysis and structuring of data and complex issues associated with new generation facilities and with the associated regulatory and environmental requirements.

In each of the procurements which we monitor we must always consider the regulatory and environmental regime in which the procurement is taking place. For example, as part of our evaluation of new generating technologies in in Oregon, Oklahoma, and Maryland we had to consider the effects of potential future taxes on carbon emissions or the potential for any sort of cap-and-trade plan or tax that could put a price on emissions. We also had to consider the wide range of values that these costs could have and what those values did to our potential resource choice. On a regulatory level, we also had to assess the permitting hurdles that projects must clear, including endangered species acts and water permitting.

In 2012 and 2013, on behalf of the Oklahoma Commerce Commission (OCC), we reviewed Public Service Company of Oklahoma's (PSO) efforts to comply with EPA Regional Haze standards, MATS, and other environmental regulations. This required us to (a) understand the environmental regulations and how they affected PSO's existing coal-fired assets, (b) compare PSO's proposed settlement with the EPA against other paths to comply with regulations such as converting the units to natural gas, (c) review and comment on the modeling PSO used to support their choice, (d) submit data requests, and (e) prepare several rounds of testimony. We also served the OCC in a similar role regarding Oklahoma Gas & Electric's efforts to meet environmental compliance. Currently, we are serving the OCC Staff and the Office of the Attorney General as an expert witness in a proceeding in determining PSO's cost recovery for its implementation of measures to meet environmental compliance.

We assisted New Jersey's Board of Public Utilities in evaluating offshore wind project applications for offshore wind renewable energy certificates (ORECs). Since there are no installed offshore wind farms in the United States, a key challenge in our evaluation is the development of benchmarks for these projects. Offshore wind farms vary by turbine and foundation technology as well as size, distance from shore, and water depth. All of these factors affect the cost and performance of a project. As a result, we have been able to reflect these factors in comparing proposals to other installed projects around the world. Thorough attention also has been given to assessing anticipated environmental impacts on marine life and coastal waters, pursuant to strict state and federal standards. As a part of our evaluation, we also assess the permitting process for each application.

Additionally, in Maryland, we reviewed the current fuel mix supplying the State to evaluate risks to reliability with respect to emission legislation and regulatory delays in transmission planning. We also reviewed the potential amount of new generation needed to meet State Renewable Portfolio Standards and the need for flexible generation that this would create.

In California, we served as the IE for a short term sale on Category I energy and RECs from

PG&E to a third party. This required us to review PG&E's plans to comply with California RPS standards to ensure that it was reasonable for them to sell supply. We also reviewed various market price quotes to ensure the transaction was a good deal for ratepayers.

Elsewhere we service the Mississippi Commission by reviewing the proposed Kemper County Integrated Gasification Combined Cycle (IGCC) facility. The facility was proposed in response to current and proposed environmental restrictions that affected Mississippi Power's generating fleet. As a first of a kind technology at this scale we had to consider the risks the project posed to ratepayers, the benefits it conferred, how it met environmental regulations both now and in the future, and how best to mitigate risks for ratepayers.

c. Expertise directly related to the identification and assessment of various cost components in terms of reasonableness, completeness, variability and risk in bids for PPA's, Investor-Owned Utilities (IOU) build and new turnkey generation facilities.

In each procurement that we monitor, we focus ultimately on what the costs will be to ratepayers. This requires us to analyze each proposed transaction, be it a PPA, IOU build, or a turnkey asset purchase and sale agreement, in order to determine what cost components are controlled under the contract and what are left to be paid for by ratepayers.

A basic example of this work was our work in Oklahoma reviewing Oklahoma Gas & Electric's (OG&E) proposed Crossroads wind farm. OG&E presented a proposed transaction, including turbine purchase agreement, O&M agreement, EPC agreement, and land purchase documents. We had to compare the risks in this transaction to other PPAs that were currently available in the marketplace. We reviewed all the risks in the transaction and assessed which ones were accounted for by contract and which ones would have been accounted for under a traditional PPA. We then recommended additional risk protection measures to ensure that ratepayers would receive comparable protection from the project as they would under a standard PPA.

Typically, PPAs offer more risk mitigation because both its capital and operations costs are covered by the contract. With a turn-key contract, while capital costs are set by contract, both fuel and non-fuel operating costs are treated as cost pass-throughs. The higher ratepayer risk of cost pass-through must be included in a bid evaluation. IOU build power plants are even more risky as capital costs are not set. For these projects, like the Kemper County IGCC plant in Mississippi, we always try to ensure that the utility will hold itself to the prices used in the evaluation. With a new technology like IGCC, it is often difficult with precision to determine the cost of a project. Therefore, as a way to protect ratepayers, we recommend using pay-for-performance features in contracts. For the Kemper County IGCC, we recommended setting a cap on capital cost recovery based on the utility's installed cost estimate used in the proceeding regarding the project. We also recommended that capital cost recovery be tied to successful plant performance as measured by availability and pay-for-performance features for fuel, operations and maintenance costs, and byproduct revenues. These recommendations

served to protect ratepayers when the plant experienced severe cost overruns.

d. Expertise in evaluating PPA's, turn-key plants and IOU build plants with different characteristics and constraints on a side-by-side basis.

Generally speaking, in designing a procurement, it is easiest to limit the product offered and require adherence to a standard form contract. This allows for a "price only" evaluation which is the most transparent form of procurement and also the simplest to evaluate. Boston Pacific sees this most readily in the full requirements procurements. The California RAM procurements that we monitor are similar in that they use a standard form contract, so judgment is mostly reserved for items such as Resource Adequacy valuation and the total supply to take from each resource category.

However, for many larger, more complex, long-term procurements this sort of evaluation is not possible and different transaction types and technology types must be evaluated side-by side. Boston Pacific is very adept at this task, having monitored RFPs in Oregon and Oklahoma which invited multiple transaction types and technologies and having evaluated individual projects, such as the Mississippi's Kemper County plant against other market alternatives. The key is a thorough assessment of risks.

Our experience in Oregon best illustrates that experience and shows how risk assessment is at the core of side-by-side evaluation today. In our work in Oregon an Integrated Resource Plan (IRP) screening process is the starting point for the RFP. The IRP process attempts to fill a supply need with the least-cost portfolio of resources. Resources may include the full range of options: renewable technologies, traditional (fossil fuel) technologies, and demand-side technologies. Each technology is assessed in terms of both cost, typically measured as the expected present value of revenue requirements (PVRR), and risk, which includes both single-path or "scenario" risks such as the level of CO_2 tax/credit and varying or "stochastic" risks measured as random changes in factors such as natural gas prices. The IRP results in the choice of a preferred portfolio chosen on the basis of risk adjusted PVRR. The preferred portfolio then becomes the core of bid evaluation. That is, the new resources included in the preferred portfolio are removed and the bids are inserted in their place. The same risk analysis is performed and the bids are identified that best manage risks for ratepayers, that is, they provide low cost supply under a variety of possible futures.

Boston Pacific also has extensive experience evaluating PPAs, turn-keys, and IOU build power plants on a more literal level – that is, evaluating them as contracts, as we did for OG&E's proposed Crossroads wind farm. This time the task was to precisely define the risk assignment embedded in each of the contracts. Typically, the PPA offers more risk mitigation because both its capital and operations costs are covered by the contract. With a turnkey contract, while capital costs are set by contract, both fuel and non-fuel operating costs are treated as cost pass-throughs. The higher ratepayer risk of cost pass-through must be included in a bid evaluation. IOU build power plants are even more risky as capital costs are not set. For these projects, like the Kemper County IGCC plant in Mississippi, we always try to ensure that the utility will hold itself to the prices used in the evaluation.

With a new technology like IGCC, it is often difficult with precision to determine the cost of a project. Therefore, as a way to protect ratepayers, we recommend using pay-for-performance features in contracts. For the Kemper County IGCC, we recommended setting a cap on capital cost recovery based on the utility's installed cost estimate used in the proceeding regarding the project. We also recommended that capital cost recovery be tied to successful plant performance as measured by availability and pay-for-performance features for fuel, operations and maintenance costs, and byproduct revenues.

e. Experience in assessing the valuation of non-price components in new generation facilities, such as contractual legal and credit risk, site location, development risks, reliability, transmission access, etc.

In each engagement we monitor or conduct we are looking for the best deal for ratepayers in terms of price, risk, reliability, and environmental performance. That is, we always evaluate non-price components as one part of our evaluation of bids. In our work as Independent Evaluators, we independently score non-price factors based upon prescribed criteria in an RFP. Scoring can include anything from making sure that bids meet certain qualifications – as we do the RAM RFOs for PG&E – to actually assigning numerical scores to each bid based on factors such as; site control, completeness of permitting and risk of obtaining certain permits, experience of development team, technology risk, transmission access, financing capability and credit risk, and changes made to a model contract.

Our work in New Jersey, evaluating offshore wind projects, and our work for the DOE in evaluating loan guarantee applications, has given us significant experience in assessing non-price components in new generation facilities with new technology. For all of these projects, we evaluate the credit risks involved, whether it is through project financing or balance sheet financing. For example, we will look at contract terms and conditions, financial strength and credit ratings of all relevant parties and determine how credit risk is allocated amongst these parties. We also determine whether a project has control of a site through appropriate measures, such as through ownership, lease, options, right-of-ways, and easements. Regarding other factors such as development risk, we assess whether there are guarantees or if the capital structure of a project is reasonable to encourage successful completion of a project.

In Maryland for the Commission's RFP for long-term supply we created a scoring mechanism that assigned a weighted average score to each proposal based on a combination of price and non-price attributes. The goal of the mechanism was to ensure that price remained the dominant feature in bid selection, but that non-price features would be accounted for, and elevate bids into or out of consideration if their prices were similar. This created a "price mostly" scoring system.

f. Expertise with various models and sophisticated quantitative methodologies used to evaluate power products, including energy, demand response, capacity and ancillary services.

In our engagements we have worked with many types of models used to evaluate resource choice. In Oregon and Oklahoma we work with system optimizer models, which look at a system's long-term resource needs and attempt to pick the least-cost supply options from a portfolio of available resources. We also work with stochastic models such as the PaR or Planning and Risk model. These programs analyze the cost of a portfolio of supply options against changes in key elements (e.g. gas prices, thermal outages, hydro levels, etc.) In Maryland we used a least-cost dispatch model, PROMOD, to assess the total cost of a given portfolio to ratepayers and to evaluate the profitability of new resources.

Finally, in many of our engagements we build in-house models to calculate the levelized costs of constructing and operating various generation assets, including renewable technologies. For all of the full requirements procurements that we monitor we have built an in-house Benchmark Pricing Model, which analyzes the cost of all components of full requirements service, including energy, capacity, ancillary services, and renewable portfolio requirements using historical data and stochastic modeling techniques to predict prices for products and evaluate offers received. For Illinois we designed an evaluation model to a) review hundreds of unit-specific offers made into a distributed solar generation RFP, b) screen each offer against a benchmark, c) sort offers into size categories, d) rank offers by price and e) select winning bids based on Commission requirements and budgetary constraints. In addition, for our project evaluation work with the DOE and the New Jersey BPU as well as elsewhere, we frequently review pro forma financial projections to assess viability of projects.

g. Experience in the performance of comprehensive credit and risk analysis.

We perform credit and risk analyses in many forms. First, as part of our RFP design for full requirements and unit-contingent procurements, we must evaluate risks to design effective credit requirements that balance the goals of (a) protecting ratepayers and (b) including as many bidders as possible. Second, when evaluating bids in these RFPs we have to consider the credit package offered by each bidders and determine whether it complies with the RFP rules or, if not, whether it should be allowed and, if so, how that risk should be valued.

As consultant for Illinois' electricity procurements since 2006, we gather credit reports and financial data from bidders to determine their credit worthiness. This review determines how much unsecured credit bidders will be eligible for. We also review all credit documents and bidder comments on those documents. This includes reviewing letters of credit, collateral annexes, and collateral requirements. We do similar work in New Jersey for the BGS Auction.

Our experience in this area is also demonstrated by our prior work for the Department of Energy's loan guarantee program. Boston Pacific was selected for two DOE standing lists, one as Market Advisor and one as Financial Advisor. Part of our work with DOE included evaluating the credit risk and risk mitigation associated with energy projects that requested DOE loan guarantees. Our findings are presented to DOE's credit committee as input to their decision on granting a loan.

For our work in Maryland's long-term supply RFP we worked with multiple parties to negotiate a credit package to secure the winning bidder's performance and protect ratepayers while preserving the price that the bidder offered and was selected on. This has required the consideration of a number of different future scenarios and the negotiation of additional complex credit arrangements including a Form of Consent to lay out the rights of financing parties in case of a default and an Intercreditor Agreement to preserve the value of the second lien offered to the utilities.

h. Expertise directly related to the analysis and evaluation of Combined Heat and Power offers.

In our review of Integrated Resource plans in places such as Oregon and Oklahoma we have included the assessment of CHP resources as a way of meeting resource needs. In addition, we have evaluated actual CHP bids in our Oregon work. Furthermore, we have provided testimony regarding issues such as the setting of avoided cost payments to cogeneration facilities.

i. Expertise directly related to the analysis and evaluation of Energy Storage offers.

We are currently serving as the IE for PG&E's Compressed Air Energy Storage (CAES) RFO. This RFO will seek to secure a contract to develop a CAES facility on PG&E property to provide energy and meet storage goals. In our role we will perform all the standard duties of a California IE, including reviewing draft documents, commenting on procurement design, supervising bidder qualification and contact, evaluating offers, overseeing contract negotiations (if held) and making a recommendation to the CPUC regarding acceptance of a final offer.

Our proposed project team includes personnel with engineering backgrounds that are familiar with various types of energy storage systems, ranging from chemical based battery systems to mechanically driven flywheel and compressed air systems. In our experience, we have evaluated wind resource bids that have proposed battery systems to not only firm the output of the facility, but to also provide grid voltage and frequency support.

4. Describe your qualifications and experience directly related to the task of reviewing and auditing the documentation, design, and administration of a solicitation process or similar vehicle, and providing recommendations to the IOU and Procurement Review Group that were adopted

In all of the unit-contingent procurements that we monitor our engagement starts with an assessment of the procurement design. As part of our IE work for PG&E we review the RFO

documentation as well as internal protocols for bid qualification and evaluation. We look to make sure that the documents are clear and spell out exactly how bids are evaluated and what bidders need to do to qualify and win. We make sure that internal protocols are clear as well, and reinforce this by independently evaluating offers. For example, in the RAM V RFO we built our own models to independently qualify and score each and every offer and matched those offers with PG&E's to ensure that we agreed on the top bids. In this way we were able to develop an agreement on bid ranking far before a final selection of bids was made.

In Oregon for each of the procurements we have monitored we began our work with an assessment of the draft RFP. We looked for a procurement that was (a) open, fair and transparent, (b) featured a "price mostly" evaluation, (c) adhered to Commission and other regulatory guidelines and (d) did not feature any unnecessary barriers to entry (for example, higher than needed credit requirements). In each procurement, we issued a public report with our suggestions for changes and appeared before the Commission to explain our suggestions and answer questions. Many of these were adopted by the Commission, for example in the 2008R-1 Renewables RFP we suggested removal of a "right of first refusal" purchase option in the standard form PPA, adjusting the company self-build offer to account for risk, and requiring the company offer to adhere to similar standards risk protection as third-party bidders. All these measures were adopted.

As another example, in Maryland to create a final RFP for long-term capacity we reviewed a draft RFP for long-term generating capacity that had been put out for comment by the Commission. We suggested several edits to make the procurement more targeted to the needs of the State and to make the evaluation process more transparent for bidders. These changes included limiting the eligible resources to a specific fuel type and location and spelling out a price and non-price scoring system for ranking bids. The Commission approved the majority of these edits and we helped issue and run the resulting RFP.

In Illinois, we worked with multiple parties to create evaluation documents and standard contracts for RFPs for distributed solar and wind generation. We worked with the procurement administrator to define exactly how bids would be evaluated and ensure that the final process was logical and adhered to ICC Orders. We reviewed standard contracts and suggested many edits to ensure that all risks were properly aligned We also reviewed price benchmarks for distributed generation offers and suggested changes (e.g. adjusting net metering credits for tax effects) that were adopted into the final benchmarks used for bid screening purposes.

Finally, in all the full requirements procurements that we monitor we annually participate in reviews of the results and process of the RFP, looking for any changes that would make the process more open, fair, transparent and competitive. Our suggestions have ranged anywhere from small, technical suggestions like the level of load caps (i.e. limits on the amount any bidder can win in a given bid day) to larger scale changes like moving bids days to avoid conflict with other jurisdictions and give the process a better chance of success. For example, in New Jersey we suggested and helped design a contract amendment to pass through the effect of potential changes in capacity price caused by PJM market rule changes in order to incent competitive bidding in the BGS Auction.

5. **Describe your qualifications and experience directly related to the task of reviewing solicitation documentation for the purpose of ensuring clarity of definition for price and non-price factors and products sought, to ensure that all bidders effectively responded to the solicitation.**

In all of the reviews of RFP documentation that we conduct we always review the definition of products sought and the description of evaluation procedures to ensure that bidders know exactly what is being asked for and how bids will be evaluated. For example, we are currently reviewing solicitation documents for PG&E's CAES RFO to ensure that the product sought is clearly defined, that bidders understand exactly how the bids will be evaluated and that timelines are reasonable.

For full requirements procurements, the product definition is especially important because all bidders must offer the same product – that way the bid evaluation can be done solely on price. While full requirements supply is a reasonably well-known product, each jurisdiction has small differences that can make a big difference in price. For example, New Jersey requires bidders to supply Network Integration Transmission Service and Renewable Portfolio Requirements, whereas Ohio requires neither of these. In this case the fact that we create price expectations, just as a bidder might, with our Benchmark Pricing Model means that we are very aware of how each product is constructed and any areas that might prove confusing for bidders and take special effort to ensure that offer documents are clear.

For unit-contingent RFPs, such as the multiple RFPs we have monitored for PacifiCorp in Oregon, Boston Pacific has helped the utility hone both its RFP and the documents submitted in conjunction with the RFP, leading to improvements in the process such as the specific descriptions and scoring values of non-price factors listed in the RFPs. We strive for a "price mostly" evaluation that transparently details how each bid will be scored as well as the various risks we will be evaluating. The latter feature ensures that bidders understand which risks they will get credit for controlling. As noted elsewhere, for Maryland's long-term RFP we specifically designed – and described in the RFP - a scoring system that would assign a certain number of points to price and non-price factors, with the goal of making price the driving function of bid selection.

In each process that we monitor we do not just review documents, we also participate in the entire bid process. This can include; a) reviewing and submitting comments formally or informally on draft documents, b) participating in stakeholder workshops to develop RFP and contract documents, c) participating in bidder information sessions to see what information is being communicated to bidders, d) reviewing bidder questions to see what areas are causing confusion for bidders and e) meeting with Staff, utility and bidder personnel to discuss issues as they arise during the procurement process.

6. **Describe your professional experience in interacting with the PRG, CPUC, & Federal Energy Regulatory Commission (FERC) and the context of your interactions.**

As an IE for PG&E Boston Pacific has interacted with the CPUC staff in every transaction that we have monitored. In each case we strive to keep the CPUC informed regarding the progress of the procurement or transaction, any key decision points and any preliminary results of the process. We also provide drafts of our reports for review and comment. Our goal is to make sure that the CPUC is well aware of the progress of the action well in advance of any advice letter filings. For the RAM V RFO we presented our findings to the PRG, carefully explaining how the procurement generated the results that it did and answering questions on the evaluation and selection of final offers.

Boston Pacific has testified before FERC in over 30 proceedings. Most recently Boston Pacific filed its Independent Evaluator report with FERC which included the results of the TransCanada open season process for two 3,000 MW transmission lines which would transport energy from Wyoming and Montana to the Southwest. We have also frequently presented to FERC on a wide range of topics, including presenting to FERC on the Southwest Power Pool's State of the Market Report.

In addition, one of our key personnel, Vincent Musco, worked for eight years as an economist at the FERC before joining Boston Pacific on RTO market design issues across the U.S., especially in California. Vincent led several efforts at FERC ushering in the start-up of California ISO's day-ahead market construct, as well as other market design features that followed. For example, Vincent led a team and a technical conference that reviewed California ISO's backstop resource adequacy provisions and compensation (i.e., "Exceptional Dispatch" and the "ICPM" backstop capacity rules). Vincent led FERC's effort in reviewing and approving California ISO's convergence bidding proposal and design, and led a similar team in analyzing California ISO's scarcity pricing mechanism for energy and ancillary services, as well as the ISO's attempt to further integrate demand-side participation into its energy and reserves markets through its Proxy Demand Resource proposal. Vincent also was heavily involved in projects involving California ISO's plan to coordinate with neighboring control areas through its Integrated Balancing Authority Area agreements, the ISO's compliance with FERC Order 719, and the ISO's "go-live" efforts in starting up its day-ahead market. Beyond California, Vincent worked at FERC on market design issues in PJM and NYISO, focusing on issues such as virtual bidding, financial transmission rights, scarcity pricing, backstop capacity procurement, and market mitigation.

7. **Describe your experience testifying in the capacity of an expert witness before state and federal regulatory agencies. Please cite document references to applicable proceedings.**

Boston Pacific has served as an expert witness throughout the nation on subjects such as procurement, antitrust, contracts, and market power. For example, Dr. Craig Roach has testified in more than 30 proceedings at the FERC, before 25 State Commissions and the District of Columbia Commission, in State Court, in Federal Court, in arbitrations, before regulatory bodies in three Canadian provinces, and before Congress. Frank Mossburg has appeared formally and informally before Staff and Commissions in places such as New Jersey, Maryland, Oregon, Ohio, D.C., Delaware, and Pennsylvania to make recommendations regarding resource choice, procurement design and acceptance of procurement results and has submitted formal testimony in

Minnesota, Maryland, Pennsylvania, and Oklahoma regarding various procurement-related issues.

Boston Pacific is an industry leader in providing effective, credible and independent market and procurement monitoring to State Commissions and utilities. As part of our monitoring engagements, we routinely brief Commissioners and Staff on procurement results and make recommendations regarding the acceptance of those results. In total, we have monitored or are monitoring of 175 procurements.

Our monitoring experience includes monitoring most of the major full requirements solicitations in the United States, including our engagements for:

(a) The 2006 Illinois Auction and 2008 through 2015 Illinois RFPs;
(b) FirstEnergy's 2009 through 2015 Ohio Auctions;
(c) Duke Energy Ohio's 2011 through 2015 Auctions;
(d) The 2007 through 2015 New Jersey Basic Generation Service Auctions;
(e) All four utilities in Maryland's Standard Offer Service (SOS) RFPs in 2004, 2005, and 2006 as well as the 2010-2015 RFPs;
(f) AEP Ohio's 2014 and 2015 Auctions;
(g) Dayton Power & Light's 2013 through 2015 Auctions;
(h) The District of Columbia's 2004 to 2015 SOS RFPs
(i) Delaware's 2006 through 2009 SOS RFPs
(j) Allegheny Power's (now West Penn Power's) 2009 to 2012 Full Requirements RFP in Pennsylvania

In each of these cases we present our recommendation to Commissions and Staff either through written reports, informal meetings, testimony, or a combination of all three. We perform a similar service for the unit-contingent procurements that we monitor in places such as Oklahoma, Oregon, Maryland, and elsewhere, appearing before Commissions to make recommendations regarding procurement design, procurement results, contract negotiations and other procurement-related issues. We perform the same function in California as an IE for PG&E.

We also have a long track record of providing expert advice and testimony regarding mergers and acquisitions. Our work began in 1989 with the proposed Southern California Edison and San Diego Gas & Electric (SDG&E) merger. In 2007, Boston Pacific advised the Staff of the Public Utility Commission of Texas on the acquisition of TXU Corporation by private equity investors. The proposed acquisition of TXU Corporation was one of the largest private equity transactions ever done in the United States, with an estimated $45 billion transaction cost. The scope of the contract was for us to conduct a thorough evaluation of the impact of the transaction on a regulated transmission and distribution company, and ultimately the effect on its ratepayers. As part of this effort, Boston Pacific evaluated financial, accounting, and other ring fencing measures that needed to be implemented to effectively protect the public interest. We also assisted the Commission with all tasks related to the litigation surrounding this case, including submitting expert witness testimony regarding the transaction. The case was settled to the Texas Staff's satisfaction and the acquisition was completed.

Elsewhere, Boston Pacific has served as independent expert witnesses in two different cases in Canada before the Alberta Utilities Commission. In 2011, Boston Pacific testified on behalf of several

generation companies regarding the appropriate way to account for and price transmission losses. Boston Pacific has testified on behalf of TransCanada regarding the proper method for allocating transmission capability in light of the interconnection of the Montana-Alberta Transmission Line (MATL) to the Alberta grid.

8. **Identify each key member of the project team that may support you during the assignment period with the lead team member clearly identified, and summarize their expected role in the process.**

Boston Pacific's wide array of experience and industry knowledge is personified through its highly qualified staff. While the individuals assigned to a particular procurement may change depending on the procurement specifics, the leading members of the team for this project will consist of some of the following individuals.

Craig R. Roach is the President and founder of Boston Pacific Company, Inc. He has 39 years of experience working on investments in, policies for, and litigation concerning the electricity and natural gas businesses, and other energy businesses. For 28 years at Boston Pacific, he has served the full range of stakeholders: public utility commissions, regional transmission organizations, competitive power suppliers, electric utilities, electric and gas marketers, gas pipeline companies, electric transmission companies, trade associations, government agencies, and energy consumers. Prior to founding Boston Pacific, he was an economist with the U.S. Congressional Budget Office and a Project Manager with ICF Incorporated, an energy and environmental consulting firm.

Craig is a nationally-recognized expert as evidenced by his submissions of testimony, affidavits, or comments to the U.S. Federal Energy Regulatory Commission in more than 30 proceedings, public utility commissions in 25 states plus the District of Columbia (some on multiple occasions), regulatory bodies in three Canadian provinces, in federal and state courts, and in arbitrations. A list of his submissions can be found at the link above. Also shown therein is a list of his speeches and articles.

Craig oversees all of Boston Pacific's work as an independent monitor or independent evaluator for electricity markets and competitive solicitations. Since 2004, Boston Pacific has served as an independent advisor to the Board of Directors of the Southwest Power Pool Regional Transmission Organization; much of this work has involved market design and market rules for the wholesale electricity markets. Boston Pacific also has served since 2004 as an independent monitor or evaluator for major competitive solicitations including those in the District of Columbia, Delaware, Hawaii, Illinois, Maryland, Mississippi, New Jersey, Ohio, Oregon, Pennsylvania, and elsewhere; in this work, Boston Pacific generally reports to the state regulatory commission.

Boston Pacific also serves as advisors on major new technology policies and procurements. Examples include evaluations for: (a) offshore wind for New Jersey; (b) major clean coal projects in both Mississippi and Illinois; (c) onshore wind generation in the Pacific Northwest, Oklahoma and

elsewhere; (d) geothermal projects in Colombia, South America and in Hawaii; (e) a full range of advanced technologies for the U.S. Virgin Islands; (f) wind and geothermal projects for the U.S. DOE loan guarantee program; and (g) dozens of natural gas-fired combined cycle projects. Boston Pacific also has conducted substantial financial and market consulting for power investments throughout North America and in about two dozen countries around the world.

Craig earned his Ph.D. in economics from the University of Wisconsin and Bachelor of Science in economics, cum laude, from John Carroll University. He had served on the Advisory Board to the University of Wisconsin's Department of Economics.

Frank Mossburg is a Managing Director with more than 14 years of experience in the electricity business. He is an expert in electricity procurement design and implementation and resource planning and evaluation.

Along with Sam Choi, Frank leads our work in California as the Independent Evaluator for transactions from Pacific Gas & Electric. In this role he reviews formal solicitations and bilateral transactions to ensure that each process is generating the best results for PG&E ratepayers and complying with CPUC directives. He has lead the efforts on a) the RAM V and RAM VI RFOs, b) the ongoing CAES RFO, c) the renegotiation of a PPA between the PG&E and Noble Americas, and d) the bilateral sale from PG&E of Category I Energy and RECs.

Frank leads Boston Pacific's full requirements procurement monitoring in Ohio, New Jersey, Maryland, DC, Pennsylvania and Delaware. Frank works with utilities, commission staff, and bidders to design successful procurement processes and assess the competitiveness of bids. He is responsible for developing the technical analyses that are employed on these engagements, including creating price estimates with Boston Pacific's Benchmark Pricing Model. Frank has authored numerous reports and has appeared formally and informally before commissioners and staff in multiple jurisdictions to make recommendations regarding the acceptance of procurement results. He has submitted formal testimony in Minnesota regarding evaluation inputs, in Oklahoma regarding risk protections of power purchase agreements (PPA) versus utility-built plants, and in Maryland and Pennsylvania regarding procurement results.

Frank led Boston Pacific's work as the independent evaluator for the Oregon Commission for several unit-contingent RFPs from PacifiCorp. He oversaw all phases of each procurement, from analyzing and advising on the RFP design, to evaluating bids, to observing contract negotiations. He appeared before the Oregon Commission on multiple occasions to provide recommendations regarding RFP design and resource selection. He also led Boston Pacific's analysis of PacifiCorp's request for a competitive bidding waiver to purchase the Chehalis plant.

Frank led Boston Pacific's efforts on Maryland's assessment of long-term reliability and subsequent RFP for long-term generating capacity. He was the lead author of a report assessing threats to state reliability and the commission's draft RFP, which resulted in a targeted procurement for in-

state generation. He helped run the RFP, evaluate offers for compliance, designed and ran the bid evaluation and developed a recommendation regarding the winning supplier. After the winning bid was accepted, he coordinated complex multi-party negotiations regarding the RFP's Contract for Differences and developed a recommended set of changes to the contract. He also assisted in defending the process from challenges in Federal District Court by preparing an expert report.

Frank graduated, cum laude, from the Wharton Undergraduate School of the University of Pennsylvania with a Bachelor of Science in economics and a concentration in finance. He received his Master of Business Administration from the University of Virginia's Darden Graduate School of Business Administration.

Sam Choi is a Project Director with more than a decade of experience in the energy and technology fields. He brings together engineering, finance, and policy knowledge to provide investment and market analyses for stakeholders in the energy industry.

Along with Frank Mossburg, Sam jointly performs Independent Evaluator services for transactions from Pacific Gas & Electric. In this role he reviews formal solicitations and bilateral transactions to ensure that each process is generating the best results for PG&E ratepayers and complying with CPUC directives. He has led the efforts on a) the RAM V and RAM VI RFOs, b) the ongoing CAES RFO, c) the renegotiation of a PPA between the PG&E and Nobel Americas, and d) the bilateral sale from PG&E of Category I Energy and RECs.

Since joining Boston Pacific, Sam has provided key resource assessments for a range of energy projects, including emerging and strategic technologies, such as offshore wind and clean coal. Sam has significant experience with both conventional and renewable fuel generation projects, including natural gas combined cycle and combustion turbine technologies, onshore wind, geothermal, solar photovoltaic (PV) and solar thermal, waste-to-energy, and ocean thermal. For these resources, Sam has advised state utility commissions, the federal government, and domestic and foreign utilities.

Sam has led the technical and financial evaluation of offshore wind projects for the New Jersey Board of Public Utilities as a part of their application process for approving Offshore Wind RECs (ORECs). He assessed the merits of the first application received under the program, which covered key aspects of the project, including a review of the turbine and foundation technology, financial capability, energy production, and permitting. In Maine, Sam consulted for the Governor's Energy Office and co-authored a report on ocean energy resources. Sam also led Boston Pacific's technical and economic evaluation efforts of the Taylorville Energy Center and Kemper County integrated gasification combined cycle (IGCC) clean coal projects for the Illinois and Mississippi Commissions. He developed financial models for these projects to independently determine their costs, and vetted the technical model assumptions with an engineering team for the Taylorville Energy Center. Recently, Sam advised the Illinois Commission regarding the benchmark cost of the proposed FutureGen 2.0 oxy-combustion facility.

Sam directed Boston Pacific's market and financial advisory services for the Department of Energy's Loan Guarantee Program for innovative wind, geothermal and clean coal projects. This effort required Sam to perform due-diligence on new technological features, energy production estimates, and cash flow waterfalls to analyze their impact on debt service. In Oklahoma, Sam provided expert testimony in the procurement of 600 MW of new wind project PPAs by the Public Service Company of Oklahoma. Sam also played a major role in evaluating numerous wind, solar, and gas generation projects as independent evaluator for PacifiCorp's unit-contingent renewable and conventional fuel RFPs, leading to the contracting and/or acquisition of more than 1,000 MW of power.

In the Caribbean and Hawaii, Sam has and is currently overseeing competitive solicitations for renewable energy. Sam designed and managed a RFP for alternative energy on behalf of the Virgin Islands Water and Power Authority and is currently directing Boston Pacific's efforts as independent observer for renewable energy and geothermal RFPs in Hawaii. Internationally, Sam conducted a feasibility study for geothermal power in Colombia on behalf of the U.S. Trade and Development Agency.

For Boston Pacific's auditing services, Sam conducted a reliability audit of a major utility for FERC and NERC. Sam also supported Boston Pacific's audit of fuel procurement practices of Entergy Mississippi's generation portfolio on behalf of the Mississippi Public Service Commission.

Sam earned a Master of Science in engineering management from George Washington University and a Bachelor of Science in electrical engineering from Virginia Polytechnic Institute and State University.

Vincent Musco is a Project Director with more than 13 years of experience in electric industry policy, market design, and market operations. Vincent began his career at the Federal Energy Regulatory Commission (FERC) where he worked for eight years as an economist on market design issues in many of the organized markets in the United States, including California ISO, ISO New England, PJM, and New York ISO. Vincent's work at Boston Pacific has focused on market design through his work on behalf of the Southwest Power Pool (SPP), state commissions, and wholesale market participants.

Vincent was a leading member of the team that wrote Boston Pacific's report on Southwest Power Pool's Integrated Marketplace design. As part of this project, Vincent performed analysis on SPP's day-ahead market design, including resource adequacy issues, financial transmission rights, virtual bidding, creditworthiness requirements, settlements, and market monitoring. Vincent has consulted for SPP's Board of Directors on a variety of issues, including demand response, distributed generation, bid cost recovery and resettlements, transmission cost allocation, retail electricity pricing, and compliance matters such as FERC's Order No. 1000 and Dodd-Frank legislation.

Vincent has served as an expert witness and provided expert testimony on a variety of energy market issues, such as transmission loss pricing in U.S. organized electricity markets, the economics of

fuel and power purchases by a major U.S. utility, and open access transmission issues. Vincent has submitted expert testimony on behalf of both private and public clients and has testified before the Alberta Utilities Commission and the Mississippi Public Service Commission on multiple occasions, where he examined the coal, natural gas, oil, nuclear, and power procurement practices of a major U.S. utility, including visiting coal-fired and gas-fired generation facilities, a transmission operations center, and energy trading floors. Vincent also led Boston Pacific's reliability audit of a major U.S. utility on behalf of FERC and the North American Electric Reliability Corporation (NERC), and helps lead Boston Pacific's practice monitoring open season solicitations for capacity on merchant transmission lines.

At Boston Pacific, Vincent has consulted on behalf of the firm's state clients, including co-authoring a report on terms and conditions for long-term contracting for renewable ocean energy in Maine and assisting in procurements for new generation capacity and other electricity projects in Illinois, Oklahoma, Maryland, and Ohio. Vincent has also supported other expert witnesses at Boston Pacific in developing testimony regarding merger and acquisition analysis, PJM's energy markets, U.S. rules on transmission open access, and financial transmission rights issues.

At FERC, Vincent worked on U.S. regional transmission organization (RTO) market rule and market design issues, including the California ISO, PJM, ISO New England, and New York ISO markets. While there, he was a trusted source of information and advice for FERC commissioners on market-related issues, such as backstop capacity procurement, virtual bidding, financial transmission rights, scarcity pricing, and market mitigation.

Vincent earned a Master of Arts in economics from American University and a Bachelor of Science in economics from James Madison University, with distinction.

Katherine Gottshall is a Project Director with over 10 years of experience, the majority of which is focused in the electricity industry. She specializes in designing and monitoring electricity procurements, evaluating utility resource planning decisions, and data analysis.

Katherine has extensive experience designing, monitoring, and implementing a wide range of competitive procurements. These procurements have sought long-term baseload or renewable energy in Oklahoma and Illinois as well as short-term standard offer service (SOS), energy, capacity, or renewable energy credits (REC) in the District of Columbia, Delaware, Illinois, Maryland, Ohio, and Pennsylvania. Katherine also worked on a transmission capacity auction for TransCanada's merchant line open season. She developed many of Boston Pacific's in-house models used to evaluate these procurements, from models to verify and rank uniform bids to more complex models that assess all the details of unit-contingent bids. In addition, she provides valuable insight into the drivers of winning prices. Katherine regularly presents the results of SOS Request for Proposals (RFP) in DC and Maryland to the commissions in confidential sessions and has publicly testified before the Maryland Commission on the RFP results.

Katherine supports Boston Pacific's expert witnessing, from merger cases to utility planning decisions. Most recently, on behalf of the Oklahoma Attorney General and Oklahoma Corporation Commission staff, Boston Pacific assessed Public Service Company of Oklahoma's (PSO) settlement to comply with EPA's Regional Haze regulations. The scope of the settlement involved PSO installing less-expensive and less-effective emissions controls on one coal unit and retiring the other unit, rather than installing scrubbers on both its coal units. Katherine assessed PSO's Strategist modeling (their planning analysis tool) to determine the effectiveness of the settlement and how Boston Pacific should advise the commission. She monitored PSO's RFP to procure a 260 MW natural gas power purchase agreement (PPA) beginning in 2016, including participating in the final contract negotiations. Additionally, she reviewed the utility's integrated resource plan (IRP).

From 2007 to 2010, Katherine helped lead Boston Pacific's work as the independent market monitor for the Southwest Power Pool (SPP) Regional Transmission Organization (RTO). She co-authored SPP's annual State of the Market Report, including the first two annual reports after the start of the Energy Imbalance Service Market. Katherine analyzed hourly market load and pricing data for over a dozen balancing authorities to determine consistent patterns and particular areas of concern, generation and transmission outages and constraints, transmission expansion, and revenue adequacy for building new generation. This helped determine whether it would make sense to build new generation (and what type of generation) in SPP as a whole and in specific regions, especially those which tended to be more congested.

Katherine joined Boston Pacific from the Quantitative Research Group at Cambridge Associates, where she built sophisticated quantitative models, including Monte Carlo simulations and Markowitz's Efficient Frontier, to assess and measure returns and risk of investment portfolios. She received a Bachelor of Arts in mathematics and economics from Wellesley College.

9. Describe your level of experience preparing and orally delivering significant presentations to diverse audiences.

Boston Pacific has considerable experience preparing for and delivering oral presentations to diverse audiences. Since 2004, Boston Pacific has served as an advisor to the Board of Directors of the SPP RTO, which encompasses a great diversity of stakeholders – over 72,000 MW of generation capacity, 48,000 miles of transmission lines and more than six million customers across nine states. In that role, we assisted in the design and implementation of a real-time, locational marginal pricing energy market. This market came on-line in February of 2007. We were tasked with helping to design screens and metrics for this market that are vital for monitoring for generation and transmission market power. Boston Pacific produced the first three monthly reports and the first quarterly report for this new market, and provided extensive analysis to assess any causes of price volatility. Further, we produced the 2004 through 2008 *State of the Market Reports* and acted as an external advisor for the 2009 *State of the Market Report*. We also created a report that assesses SPP's Market Monitoring Plan and market power mitigation measures. Since 2011 we have produced an annual *Looking Forward*

Report which surveys the strategic landscape and reports on major issues that have or will have a major effect on the electricity industry and SPP's operations. As we develop the report we present our findings and research to the members orally. All of our work for SPP is high profile in nature and nearly all of it requires presentations to various diverse stakeholder bodies

Many of our procurement monitoring engagements, for example, those in New Jersey, and Maryland, require us to orally present the results of the RFP or Auction to the Commissioners, including a recommendation to accept or deny the results, along with any written reports we are required to make. In California we presented to the PG&E PRG regarding the results of the RAM RFO. In some cases we are presenting in a closed confidential session with just Commissioners and their staff, other times we also have an open session that is public. Given the diversity of our audiences, we are specifically adept at tailoring our presentations to everyone from Staff and Commissions with vast experience and knowledge of the industry to others who are relatively new to the industry. We must be able to explain, in plain English, why we are making the recommendations that we are and answer any questions in a way that all can understand.

Our staff is also frequently engaged to give speeches. Our President, Dr. Craig Roach, is frequently engaged to present in high profile forums. Most recently he spoke at the 2015 Platts Transmission Forum on the topic "Does the AC Grid Still Provide What Customers Want?" He has spoken to a large variety of forums, from his Congressional briefing providing an overview of the electricity market structure, to more specialized forums such as Haynes & Boone's series on "What Drives the Choice Among Technologies." Frank Mossburg has significant experience in this field as well. For example, he gave presentations to stakeholders on Maryland's Capacity RFP and Pennsylvania's Proposed Default Service Procurements.

Sam Choi recently presented for the Electric Power Research Institute regarding the potential profitability of clean coal technology relative to natural gas and the necessity for properly evaluating risk. In particular, the speech focused on the inability of natural gas suppliers to lock in prices for long term contracts and provide pricing stability, thus increasing the risk assumed by the ratepayers. Vincent Musco has also been involved in high-profile cases as an expert witness, testifying on US energy markets and regulations as established by the FERC, and has helped lead multi-party discussions at FERC regarding various issues in forums such as technical conferences.

10. Provide two references with contact information concerning work assignments you have performed that demonstrate application of the range of skills, experience, and qualifications required for the Independent Evaluator assignment.

Reference: Oklahoma Corporation Commission
Contact Information:
Brandy Wreath
Director
Public Utilities Division
Oklahoma Corporation Commission

(405)522-3356

Reference: Maryland Public Service Commission
Contact Information:
H. Robert Erwin, Jr.
General Counsel
Maryland Public Service Commission
(410) 767-8039

11. What particular topics would you anticipate to be included in the terms and conditions of a) PPA and b) turn-key contract for a power plant?

The central topics in any PPA include the level and structure of prices, reliability guarantees and penalties, performance assurance and related credit or collateral requirements, the definition of Force Majeure, the grounds for and payments related to contract termination, and the presence or absence of regulatory out clauses. If the project has yet to be constructed, the PPA or turn-key should include development milestones, consequences for construction delays, and a description of tests to be performed on new facility. Who pays for transmission interconnection and network upgrades is also a central issue. In some particular cases, additional documents related to the financing of the plant may be attached as well. For example, a Form of Consent would spell out the rights of financing parties in the event of a default by the supplier.

For turn-key power plants in particular, we would anticipate terms and conditions focused around warrantees or guarantees to make sure that the plant meets expectations. It is typical in a PPA contract to lay out those reliability guarantees and penalties, since the utility does not own the plant. However, since owning the plant does come with additional risks, there needs to be some assurance provided to the utilities at least in the first few years. Typical terms may include heat rate guarantees or warranties on various pieces of equipment.

12. In your opinion, what contract terms and conditions are toughest to evaluate, and why? Cite examples from your experience, as appropriate (use generic descriptions to avoid disclosing confidential information).

Some of the more difficult areas to assess when it comes to resource choice have to do with risks placed upon ratepayers. Typically we strive to have bidders absorb as much risk as possible, but there are still some areas that they are unwilling or unable to mitigate. For example, a bidder will typically not absorb fuel price risk for a natural gas fired plant. While this risk can be assessed via modeling, it still ultimately will require a judgment to be made about how much risk to place in a portfolio. Another example that often occurs when utilities are offering self-build options is that the IOU will be reluctant to agree to any sort of firm and fixed cost cap for construction costs. Again, our strategy is typically to push for caps and, if this is not possible, reflect the risk of cost overruns in an evaluation such as we did for the Kemper IGCC. Even so, measure this risk can be tricky, especially

with first-of-a-kind technologies such as IGCC.

Non-price terms are the also difficult to evaluate, particularly terms related to performance assurance and credit requirements. A typical problem might be one bidder may be willing to put up more credit versus another who may be willing to offer a higher availability guarantee, versus a third who will accept higher levels of liquidated damages. All these things have value, but measuring that value, particularly for things like liquidated damages which only come into play when something goes wrong, can be difficult. The evaluation gets tougher when comparing resources with radically different risk profiles. For example, in several procurements we have had to compare existing resources with proposed resources. We had to decide how much credit to give a resource that can definitely satisfy all existing terms versus one that may be able to do so.

These difficulties highlight the reason for most well-designed procurements to use a standard form contract and standardize to the best extent possible key requirements such as credit and performance, so as to have all bidders offering the same terms and conditions. This allows for a price-only or price-mostly evaluation that is much more fair and transparent.

13. In your opinion, which cost components are difficult to evaluate while making cross-comparison between PPAs and turn-key contracts for power plants, and why?

1- Operating Costs

It is the difference in ratepayer risks that makes it difficult to compare PPAs and turn-keys on cost components. Typically, the PPA offers more risk mitigation because both its capital and operations costs are covered by the contract and thus these prices will reflect the risk borne by the bidder. With a turn-key PSA, while capital costs are set by contract, the capital revenue requirement and both fuel and non-fuel operating costs are treated as cost pass-throughs. Those pass-throughs allow the bidder to take less risk and possibly bid a lower price than it would have if the bid was a PPA. It is this, the higher ratepayer risk of cost pass-through, which must be included in the cost comparison of the bid evaluation. Complicating this choice, in some areas, is the fact that there exists the potential for PPAs to be imputed as debt on the utility balance sheet, although practices vary as to whether this effect should be included in the evaluation.

One of the most important risk factors is the difference in future operating costs among different sources of power. The clearest example is fuel prices. While up-front costs of construction can be estimated within a certain degree of confidence, fuel prices such as natural gas cannot be predicted with a great deal of accuracy and different fuels have different costs paths and volatilities. This unpredictability creates difficulty when trying to value the variable price risk arising from different energy sources, and thus is central in the PPA / PSA cost comparison (assuming, of course, that the PPA offers some form of fixed energy payment). Such difficulties raise questions about whether a premium should be paid to hedge against future rises in variable costs, and if so how much? Boston Pacific has examined these questions throughout its experience in procurement and knows how they affect the decision between purchasing power or building new plants. More broadly, stochastic risk analysis must be done. This will reveal cost performance under a range of assumptions about future fuel prices. We also find it is important to do stochastic risk analysis in regards to the cost of emissions, since those cost have a potential to affect the results of a long term PPA contract or a turn-key contract.

2- Performance

Asset performance is another area that is somewhat difficult to compare between PSAs and PPAs. Again, this is because PPAs are typically pay-for-performance and therefore the risk of non-performance sits with the seller. The PSA in contrast puts ratepayers at risk. Because of this, comparing these two transaction types can be difficult. This difficulty is heightened when dealing with new and evolving technology. For example, many wind projects initially underperformed their expectations. With PPAs ratepayers did not need to worry about this risk since they only paid when power was generated. In contrast, if a utility signed a PSA for an underperforming wind project, ratepayers would still be responsible for the full cost of the project and the dollar per MWh cost for energy from the facility would rise. To counter this risk many lenders and some evaluators began looking a stricter output measurements –such as P90 and P95 rather than the more lenient P50 measurement. Performance is also an issue for newer technologies. For the Kemper County IGCC, we recommended setting a cap on capital cost recovery based on the utility's installed cost estimate used in the proceeding regarding the project. We also recommended that capital cost recovery be tied to successful plant performance as measured by availability and pay-for-performance features for fuel, operations and maintenance costs, and byproduct revenues.

3- Asset Life

The problem of unequal lives presents yet another difficulty for evaluators. With a PSA the utility permanently controls the asset, but PPAs rarely run for the entire asset life and can often be for just a few years. While bids of unequal lives can be compared (via annuitizing the costs) a long-term portfolio evaluation must also consider what supply will replace the PPA, adding another level of judgment to the process. Asset life is an additional difficulty for new and evolving technologies that don't have an accurate track record. For example, some utilities regard twenty years as an appropriate lifespan for a wind project while others say 25 years is acceptable

14. Capital expenses associated with new power plant construction are anticipated to be a significant element in determining the cost for both PPA Offers and utility turn-key Offers. What capability and experience does your proposed project team have in determining whether such capital expenses are reasonable as presented in the Offers received by SDG&E?

We have seen hundreds of bids under PPAs and PSAs for renewable and conventional technologies in all the places we have worked, keeping us up-to-date on what it costs to build power plants. We have evaluated the costs and performance of a broad range of technology types, including wind, solar, geothermal, natural gas CTs and CCCTs, offshore wind, conventional coal, and integrated - gasification combined cycle. In many cases we review bids from the ground up, examining every cost component. For our work with the DOE and the New Jersey BPU we have reviewed detailed financial models for several technologies, including new technologies like offshore wind. For our work in Oregon we review self-build proposals and EPC/turn-key contracts on a line-item basis to ensure all costs are included and reasonable. In Illinois we have recent real experience with reviewing hundreds of bids to sell RECs from new distributed generation facilities ranging in size from individual household units up to 2 MW. There we also compared the coal of the proposed Taylorville IGCC facility to those of a variety of technologies. In California we have been fortunate to be on the front lines of PG&E's asset choices, directly reviewing bids for new solar, wind and baseload renewable

supply made into the RAM RFOs.

Our longstanding, hands-on experience with power project development also provides us with the capabilities to assess whether proposed capital expenses are reasonable. This experience has been throughout North America and in more than two dozen countries around the world. Our experience also includes performing financial and feasibility assessments for a wide range of project development projects which include renewable and other types of generating technologies. Boston Pacific understands the impact and sensitivity of capital expenses on the total cost of offers and we provide proven advanced cost modeling to support our conclusions.

As a further example, in Oregon a key piece of our work has been assessing the reasonableness of utility self-build or "Benchmark" bids. We review each component of the self-build proposal on a line-by-line basis to ensure that the cost is reasonable and that no costs are omitted. Outside of our RFP work we also assisted the Commission in evaluating PacifiCorp's proposed acquisition of the Chehalis facility. This acquisition, under which PacifiCorp sought a waiver of competitive bidding rules for a limited-time transaction, required us to evaluate whether the proposed offer was necessary and superior to what could be found in the competitive marketplace.

In Minnesota Boston Pacific was selected by the Commission to develop a range of inputs that could be used in evaluating a proposal for a new coal-fired power plant. Using our experience and a review of industry data, we proposed a range of natural gas prices, potential CO2 emissions costs and capital costs for alternate technologies that could be used in an evaluation.

15. Operating characteristics of power plants are anticipated to be a significant element of each Offer. a) What capability and experience does your proposed project team have with how operating characteristics are specified in contracts of the type SDG&E may execute? b) What capability and experience does your proposed project team have with how operating characteristics specified in an Offer and/or contract may be represented in models used to assess the value of the Offer and/or contract?

Boston Pacific has substantial experience with how operating characteristics are (a) reflected in contracts and (b) reflected in models. As part of our work in California we are familiar with standard contracts used in RFOs as well as how those contracts can be evaluated. We are also familiar with California specific processes such as the interconnection process. We are also familiar with other standard industry contracts such as the EEI Master PSA and the ISDA Master Agreement. In each of our unit-contingent procurements noted above we look to drive toward a final contract which will spell out which key operating parameters the supplier must manage. These typically are items that are within the control of the bidder such as availability, heat rates, and plant capacity. These characteristics can change somewhat depending on the technology type employed, for example, wind projects have no heat rates.

When modeling operations we take care to ensure that inputs are reasonable and reflect any split between operational inputs and contractual inputs. For example, in Maryland we developed a

contract for differences that would repay the unit to cover its return of and on capital and pass excess revenues to ratepayers. This required us to both develop contractual terms that would be used to calculate costs – for example a contract heat rate and fuel index to value fuel costs – and then model the bids with actual operating parameters (i.e. real heats rate curves, availability, etc.) to see how much revenue they would earn and how much ratepayers would pay or receive under the contract.

16. Describe the ability and experience of your proposed project team in verifying transmission characteristics that may affect the suitability of certain bids.

Boston Pacific works with transmission characteristics in two primary ways: monitoring unit contingent RFPs and as Advisor to the Southwest Power Pool (SPP) RTO's Board of Directors. In our monitoring engagements for unit-contingent RFPs we (a) examine transmission cost estimates and hold discussions with utility personnel over how the estimates were generated and their overall reasonableness, and (b) review and discuss with utility personnel assumptions regarding transmission cost and expansion plans. We do this in order to ascertain the true costs involved in each bid. For example, in PSO's wind RFP we worked with the company and SPP in order to evaluate integration costs for various bids and determine whether those costs have an impact on bid selection. In our work in California we routinely review Interconnection documents to ascertain if bids are qualified to offer in each procurement, and assess any potential issues in the bid. For the RAM VI RFO we worked with PG&E personnel to assess the timing needed for bids without interconnection agreements to complete the process and meet contractual deadlines for coming on line.

In our engagement as the Advisor to the SPP Board of Directors for the Energy Imbalance Service Market, we assess problematic flowgates and transmission constraints to advise the Board on methods to improve congestion and reduce generation interconnection costs. Boston Pacific was asked by the SPP's Board of Directors to review and opine on a cost/benefit analysis performed by SPP Staff in support of $1.1 billion of new transmission investment. To do this, we performed an in-depth review of the modeling methodology and assumptions used in the cost/benefit analysis. In addition, we reviewed recent SPP wind integration studies, which discuss the challenges of integrating large amounts of wind into the transmission system. We worked closely with SPP Staff to run additional model runs to capture the effect of changes in assumptions such as (a) the amount of wind additions resulting from new transmission, (b) natural gas price forecasts, and (c) carbon allowance prices. Through this work, Boston Pacific gained valuable knowledge of the costs and operation of new transmission facilities and its interaction with both conventional and renewable energy sources. Our work for SPP also familiarized us with the interconnection process and requirements for new generation facilities. These experiences allow us to verify transmission characteristics that may affect the suitability of bids.

17. Describe the ability and experience of your proposed team to evaluate different types of renewable resources.

Boston Pacific has longstanding experience with evaluating a range of renewable energy

technologies. In California alone we have evaluated dozens of offers into the RAM process for wind, solar, and Baseload (e.g. biomass) renewable projects. We reviewed and ranked each offer and worked with PG&E to develop both an initial and final selection of bids. We also evaluated a sale of energy and Procurement Cost Category I RECs from PG&E renewable resources.

Our work in the Virgin Islands has exposed us to a greater variety of renewable technologies due to the unique geography of the Islands and the considerable amount renewable resources available there. For that solicitation we evaluated bids from an array of renewable resources from wind power, solar photovoltaic, ocean thermal energy conversion (OTEC), biomass, hydrokinetic power, and geothermal power.

We have experience with innovative renewable energy technologies from our work as consultants to the DOE Loan Guarantee Program. A part of the funds appropriated for the DOE Loan Guarantee Program required renewable energy projects to have innovative technological improvements. Some examples of these projects that we were engaged in include a wind farm with a battery energy storage system, a geothermal power plant using advanced alloys to prevent corrosion and scaling of wells and piping, and a geothermal power plant using an advanced well and pumping system to purge non-condensable gases.

In New Jersey, we evaluated offshore wind projects on behalf of the New Jersey Board of Public Utilities. There are no commercially operating offshore wind projects in the United States, and thus, our work in New Jersey gives us valuable insight into this nascent technology. In our review of offshore wind projects, we conduct a comprehensive assessment that includes an analysis of a project's economics, technology, financing capability, permitting, costs and benefits, and permitting.

As Independent Evaluators for PacifiCorp's renewable RFPs, we have reviewed numerous wind and solar proposals, which included different solar technologies, ranging from solar thermal to different thin-film solar PV technologies, and wind turbines of different turbine manufacturers. We also have reviewed geothermal proposals. We independently evaluated these projects, providing price and non-price scores using our in-house models to vet the Utility's evaluation and scores. We also provided comments on key issues of renewable valuation like asset life and predicted output and reviewed turbine performance histories.

Elsewhere, Boston Pacific reviewed Oklahoma Gas & Electric's (OG&E) application for a new wind farm and a waiver from the Commission's competitive bidding rules on behalf of the Oklahoma Commerce Commission. In this role we performed price and risk comparisons of OG&E's proposal to other recent proposals provided from the market and carefully reviewed project contracts to determine the extent and value of the risk protections laid out in the project contracts. In addition, Boston Pacific reviewed OG&E's modeling analyses such as its levelized cost of energy analysis and its production costs savings analysis. This project served to deepen Boston Pacific wealth of knowledge concerning the current capital and operational costs of wind projects and what types of risk protections are available.

On behalf of the OCC we also monitored a wind RFP from PSO for a twenty-year PPA from a local wind resource. We reviewed proposals and evaluated them on both a price and non-price basis.

We worked with PSO and the transmission operator to estimate the cost of transmission service from different shortlisted projects and evaluated the impact this cost may had on overall bid rankings. We also looked at production cost modeling to determine the effects of taking more supply than originally planned on customer rates. We also monitored final contract negotiations and testified as to the reasonableness of signing three contracts with 600 MW of new wind supply.

In addition, in Illinoi we monitored the development of new RFPs for RECs from small-scale (25 kW to 2 MW) solar distributed generation – reviewing everything from contracts, to procurement documents to cost benchmarks to final offers - and are doing the same with a procurement for similar sized distributed generation from both wind and solar resources. We have also monitored the procurement of over 1.2 million Renewable Energy Certificates (RECs) to meet the renewable energy objectives of the State of Illinois. While there is a preference for wind generated RECs, the solicitation is open to all renewable energy sources. We also monitored West Penn Power's purchase of long-term RECs from Solar and Tier One resources.

18. In your experience, what evaluation criteria and methodologies have been used in assessing and selecting among Offers in long-term Requests for Offer (RFO) and Request for Proposal (RFP)?

Typically, bids are reviewed on the basis of what they will cost consumers. Costs can be judged in either busbar cost models or via larger portfolio optimization and dispatch models. The difficulty really arises in assessing and modeling the unique risks faced by each bid. This can include:

1. Transmission assessments of bidders – evaluation of deliverability (interconnection, system upgrades, network resource status);
2. Cost plus offers versus pay for performance – risk assessment of cost-plus based offers versus fixed prices;
3. Comparing bids with unequal lives – Evaluation of offers with different time periods and associated costs;
4. Creditworthiness concerns – Evaluation of financial credibility of bidders;
5. Balance Sheet penalties – Evaluation of negative effects to client Balance Sheets due to new agreements;
6. Air Emissions – CO_2, NO_X, SO_2, Particulates;
7. Portfolio Fit.

Often these risks can be modeled with scenario or stochastic modeling to see which bids perform best over a wide variety of possible futures, but some risks (e.g. credit risk) require more judgment. Boston Pacific weighs each of these evaluations with the needs of our clients. Based on the portfolio, we help to select the offer which is most likely to minimize rate-payer costs.

In all of the procurements that we monitor both non-price and price factors are considered, though how these factors are weighed varies. For the full requirements procurements in New Jersey, DC, Maryland and elsewhere non-price factors are handled via qualification requirements. As along as a bidder satisfies all requirements of the RFP they are considered qualified. Because all bidders sign the same contract the selection of winning bidders from the pool of qualified bidders can then be done entirely on price.

In unit contingent procurements we typically look for a "price mostly" evaluation that gives more weight to the price aspect of a bid. This results in a more fair and transparent evaluation but still recognizes that some bids may have advantages that cannot be encapsulated in their price. For example, for the Maryland Commission's Long-Term Capacity RFP we designed a scoring system that awarded 70% of the bid score to a bid's price and 30% of the score to non-price terms. This method also allows us to demonstrate whether or not non-price terms have any effect on bid rankings and selection.

19. SDG&E has proposed to use Least Cost Valuation and Portfolio Best Fit as two evaluation criteria in their RFO's. (Least Cost Valuation means how a bid's total costs compare to the other bid's total cost. Portfolio Fit means how well a bid's features match SDG&E's portfolio needs.) How would you independently verify the analysis performed by SDG&E?

Boston Pacific has designed and monitored RFPs with exactly these two evaluation criteria – both Least-Cost Valuation and Portfolio Fit. We have independently verified the choices made among bidders with both of these criteria by working with the utility to (a) assess the modeling method used – is it systematic, are there any biases embedded in the method, is the method used for other corporate choices, etc. and (b) to assess the inputs to the models – are the inputs matching what the bidders have offered, how do the inputs compare to other forecasts, how were the variations for risk assessment determined, etc.

We typically will construct our own busbar levelized cost models in order to independently verify and sanity check the modeling efforts of the utility. For example, in the RAM RFO we built our own models to double-check the levelized cost calculations of PG&E for energy payments, RA credits and network upgrade costs. We compared these with PG&E's results for every bid. This exercise allowed us to spot issues in their calculations and define key decisions made in the evaluation effort.

For more sophisticated modeling efforts like production cost modeling we review the detailed modeling results to see if such items like plant output, retirements and new additions make sense given the inputs. In some cases where more sophisticated portfolio modeling is used we may employ dummy bids as inputs to a modeling run to see if the modeling favors bids with certain characteristics. We also can (and have) worked with subcontractors to perform our own portfolio

modeling should the need arise.

In all of this, Boston Pacific's concern is not purely analytic, but rather our focus is on whether the method or the input makes a difference in which bids win and lose. Put more bluntly, we focus on whether the method or input (or range of variation in the inputs) creates a bias for or against a technology or supplier. We review how the results compare in each scenario to make sure the pattern makes sense. For example, do gas-based resources get selected when gas prices are low? Are coal resources discouraged when CO2 emissions costs are high? We have frequently come back to a utility to ask for additional runs in order to help us understand any oddities that may be coming from a model. These scenarios have allowed us to help utilities find errors in their inputs or further aid our understanding and comfort with the results.

20. How would you determine whether or not the RFO process is transparent and fair?

In general, Boston Pacific believes the most transparent RFPs are those in which bid evaluation is based entirely, or as much as possible, on price. This price-only evaluation can only be achieved when the product and all non-price criteria are standardized in a single PPA or turn-key that all winning bidders will sign. Additionally, the RFO is a transparent process to the extent that there are clear qualification guidelines for eligibility and bid submission, and clear criteria for determining winning bids. Moreover, each of these aspects of the bid or bid evaluation must be made known to bidders in a timely matter, such as through a website and/or, when appropriate, bidder conferences.

Transparency also promotes fairness. The RFO is a fair process to the extent that each bidder is evaluated on the same criteria within the same timeframe, and bidders have an opportunity to comment on the manner of bid submission. Such comments should be evaluated based on their contribution to a utility's resource adequacy requirements, accounting for their effects on bids' market value, viability, portfolio fit, credit, transmission cost adders and integration costs, modifications, and other criteria. While making sure all bidders are treated fair, it is important to make sure that when an affiliate bids it is also treated as any other bidder, and other bidders are aware that an affiliate will not be given special treatment. In some instances, a Chinese Wall might be necessary to guarantee that an affiliate is not privy to confidential information.

Finally, if the judgment is being made after the fact, we can look at what the market tells us about the RFP. If we receive a good deal of participation, and if bidders appear to understand the RFP's bid ranking system, then we can say that the procurement was transparent and fair. Our extensive procurement experience allows us to easily judge participation levels and bidder feedback to make this determination.

21. Conflict of Interest: [NOTE TO RESPONDENTS: The existence of a conflict of interest in response to the questions listed under Section 21(a) and (b) and Section 22 shall not necessarily disqualify a Respondent. Furthermore, the threshold amounts

contained in question (a)(iii)(1) and (2) below shall be considered triggers for additional inquiry as to conflict of interest and shall not be considered thresholds for disqualification.]

a) Do you have an existing contractual relationship with, or financial interest in, a market participant (including SDG&E and any other Sempra affiliate, but excluding Independent Evaluator work performed for any other California utilities; please identify any contracts with California utilities) in the California energy markets? ii) Does any member of your proposed project team have an existing contractual relationship with, or financial interest in, a market participant (including SDG&E and any other Sempra affiliate, but excluding Independent Evaluator work performed for any other California utility) in the California energy markets? iii) Does the business entity that would be the contracting party for the Independent Evaluator engagement, or any of its affiliates or subsidiaries or directly related companies, have an existing contractual relationship with, or financial interest in, a market participant (including SDG&E and any other Sempra affiliate, but excluding Independent Evaluator work performed for any other California utility) (1) in an aggregate amount of more than One Million Dollars or (2) having more than 20 percent of contract revenue with any entity buying or selling energy in California, excluding work conducted as an approved Independent Evaluator (as such term is used in referenced in Decision 07-12-052)? iv) Are there any other business or personal relationships that you, a family member, your employees or your company has that could possibly influence your judgment or create an appearance of impropriety in executing the duties of the Independent Evaluator?

Boston Pacific does not have an existing contractual relationship or financial interest in any California utility (with the exception of our IE work for PG&E). We are not aware of any of our clients being in the California energy market. In general, most of our clients are Public Utility Commissions.
ii) No member of the project team has a direct financial interest in any market participant, though some project team members may passively hold mutual funds that may make investments in market participants (e.g. Vanguard 500 index funds).
iii) No

1) No
2) No

iv) No. One employee, Joanne Lepanto, who would not work on these projects, was a PG&E employee in the mid 1980's and has a small amount of stock from her time there.

b) For a period of five years prior to the issuance of this RFP, did you have a contractual relationship with, or financial interest in, a market participant (including SDG&E and any other Sempra affiliate, but excluding Independent Evaluator work performed for other California utilities; please identify any contracts with California utilities) in the California energy markets? ii) For a period of five years prior to the issuance of this RFP, did any member of your proposed project team have a contractual relationship with, or financial interest in, a market participant (including SDG&E and any other Sempra affiliate, but excluding Independent Evaluator work performed for other California utilities) in the California energy markets? iii) For a period of five years prior to the issuance of this RFP, did the business entity that would be contracting party for the Independent Evaluator engagement, or any of its affiliates or subsidiaries or directly related companies, have a contractual relationship with, or financial interest in, a market participant (including SDG&E and

any other Sempra affiliate, but excluding Independent Evaluator work performed for other California utilities) (1) in an aggregate amount of more than One Million Dollars or (2) having more than 20 percent of contract revenue with any entity buying or selling energy in California, excluding work conducted as an approved Independent Evaluator (as such term is used in referenced in Decision 07-12-052) in the California energy markets?

a) In the past five years, Boston Pacific did not have a contractual relationship or financial interest in any California utility outside of our IE work. We are not aware of any of our clients currently being in the California energy market. In general most of our clients are Public Utility Commissions, thus allowing us to be clear of any conflicts of interest.
ii) No
iii)No

22. **Do you, any member of your proposed project team, the business entity that would be contracting party for the Independent Evaluator engagement, or any of its affiliates or subsidiaries or directly related companies, own or operate power facilities or otherwise participate in any manner in the California energy market?**

No.