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## Barbara Sands

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Ms. Sands provides over 25 years of experience in the energy industry with a specific focus on asset valuations and the renewable markets. She is a certified appraiser with the American Society of Appraisers (ASA). Through managing the valuation process for numerous renewable and non-renewable power assets, she has applied her knowledge of wholesale electric markets with a specific focus on the underlying key drivers of value. She has provided strategic guidance for electric utilities on conventional and renewable resource planning and competitive rate design issues. Her expertise also includes the development and application of electric market modeling tools including renewable specific models. She has evaluated the value, risk and opportunities of long term purchase power agreements for both buyers and sellers. She serves as an Independent Evaluator of renewable-specific contract solicitations by a California utility. Ms. Sands has a BS in mechanical engineering and is an Accredited Senior Appraiser in the ASA.

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Primary expertise	Related experience	Qualifications	Client list
<ul style="list-style-type: none"> <li>• Renewable resource evaluation</li> <li>• Valuation of generation assets</li> <li>• Energy market analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Contract valuation</li> <li>• Renewable energy credit modelling</li> <li>• Capacity market modelling</li> </ul>	<ul style="list-style-type: none"> <li>• BSME</li> <li>• Accredited Member American Society of Appraisers</li> </ul>	<ul style="list-style-type: none"> <li>• Entergy</li> <li>• ExxonMobil</li> <li>• NYPA</li> <li>• Grant County PUD</li> <li>• San Diego Gas &amp; Electric</li> </ul>

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### Primary expertise

**Renewable Resource Evaluation** – Ms. Sands manages projection of renewable resource economics to support PA's US power market modeling and led the development of PA's renewable market model that PA uses to project the value of renewable energy attributes.

**Valuation of Generation Assets** – Ms. Sands valued generating assets under alternative funding and ownership scenarios focusing on the primary drivers of value.

**Energy market analysis** – Ms. Sands developed market price projections and key market factors.

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### Key client achievements

**Confidential client** – As the Independent Evaluator for a utility renewable solicitation, Ms. Sands reviewed and evaluated the overall process including the detailed evaluation of bids as well as participated in the procurement review group meetings. She prepared an Independent Evaluator report describing the process, analysis and selected projects.

**Confidential client** – Ms. Sands prepared an appraisal of a combustion turbine located in the Southwest region of the US. She developed the fair market value and appraisal report compliant with the Uniform Standards of Professional Appraisal Practice. The facility included a contract for 100% of the output of the plant for a portion of the remaining life of the facility. The analysis considered the different risk profiles associated with the contracted term of the facility and the post-contract (or "merchant") term of the facility.

**Confidential client** – Ms. Sands helped manage the analysis supporting long-term strategic planning for a rural electric cooperative regarding their options for two coal-fired facilities. The client was the target of potential New Source Review (NSR) violations and needed to analyze how to optimize the value of the assets. The findings were presented in a detailed report and board presentation outlining the recommended plan including consideration of the associated risks.

**Confidential client** – Ms. Sands prepared the summary appraisal report for a sale-leaseback arrangement for a nuclear plant located in the Eastern region of the US. The company needed to evaluate their end of lease options including purchasing the undivided interest, entering into a new lease, or turning the facility over to the lessor. PA provided fair market sales value and fair market rental value analyses compliant with the Uniform Standards of Professional Appraisal Practice. The valuation included consideration of decommissioning costs as well as specific

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contract terms for common facilities. PA identified the primary drivers of the valuation and how alternative views on these assumptions may affect the value.

**Confidential client** – Ms. Sands manages the semi-annual independent review of the financial derivatives valuations for a Northeastern power organization. As part of the review effort, PA prepares an analysis of several hundred individual trades in four different market regions of the NYISO using methodology consistent with industry standards. PA's report is used by the organization to validate the clients valuation methodology for its external auditors.

**Confidential client** – Ms. Sands prepared the summary appraisal report for the fair market value of a contracted combustion turbine located in Southwest region of the US. As part of the contract, the off-taker had first right of refusal to purchase the plant. The value was used to support the purchase of the plant.

**Confidential client** – Ms. Sands prepared the summary appraisal report for a sale-leaseback arrangement for a coal plant located in the Eastern region of the US. As part of the end of lease options, the lessor was interested the fair market sales value for the leased interest. The analysis required careful reading of the lease documents to appropriate account for all factors in the analysis. PA was as the third appraiser in the specified appraisal process.

**Confidential client** – As assignment manager for this valuation project, Ms. Sands managed the valuation of more than 100 purchase and sale agreements for hydro, nuclear, gas-fired, and coal-fired generating to support the appraisal of the assets for US tax purposes. Ms. Sands managed the development of the unique models required to value the various contracts. She also led the development of the valuation reports used to successfully support the analysis for the IRS.

**Confidential client** – On behalf of a company in Texas, Ms. Sands managed the valuation of several wind contracts for US tax appraisal purposes. The contracts involved the purchase of both energy and renewable attributes. To value the renewable attributes, she forecasted the expected price, a process that considers the supply/demand balance, the marginal renewable supply unit, the market price of electricity, and the production tax credits. The valuation of the contracts also entails consideration of system integration costs, the temporal distribution of wind production as it relates to market prices, and the uncertainty of wind generation.

**Confidential client** – Ms. Sands led the renewable analysis for the valuation PA prepared for a portfolio of landfill gas generating assets in the state of New York. The portfolio valuation was conducted in support of a potential acquisition and included analysis related to energy, capacity, and renewable energy credit (REC) markets. The results of the analysis were presented in a market expert report to the client outlining the Northeast power markets and the portfolio's ability to sell into both the New York and New England markets.

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## Additional experience

**Various clients** – Ms. Sands has prepared energy market analysis and asset evaluation for various restructuring assignments. These assignments have included most of the largest recent North American energy sector bankruptcy litigation processes including NRG, Mirant, PG&E National Energy Group and Calpine.

**Confidential client** – Ms. Sands conducted an extensive analysis of supply side options for an electric cooperative to support the Board's decision on resource acquisition. The analysis included supply-side modeling, analysis of alternative fuel and generation technology options, and analysis of build vs. buy decisions. She developed multiple scenarios to investigate how to take advantage of near term regional surpluses and provide supply and price stability for the customers as well as transmission constraints.

**Confidential client** – As part of due diligence related to a bankruptcy, Ms. Sands prepared an analysis of the risk position for a large midstream gas company including a mark-to-market analysis. More than 100 contracts covering over 350 wells were evaluated. The specific financial and other terms were reviewed to determine risk and incorporated into a larger overall risk reporting system for the company. The reports provide for the timely and accurate reporting the company was required to demonstrate as part of its successful emergence from bankruptcy. Ms. Sands also led the development of the documentation materials for the entire risk reporting process to provide reference for the process and facilitate the training for the risk reporting system.

**Confidential client** – In support of a potential acquisition, Ms. Sands led the valuation of the power purchase contracts associated with 15 generating assets for a confidential client. Detailed models were developed to correctly capture the economics of the contracts. The client was under a very tight timeline and Ms. Sands was able to lead the team to provide the detailed analysis the client required in a timely manner and allow the client to meet its internal deadlines in the evaluation of the potential acquisition.

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