

# Alankar Sharma

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## **ENERGY AND ENVIRONMENTAL ECONOMICS, INC.**

Remote

*Senior Managing Consultant*

Mr. Sharma supports E3's Asset Valuation team and brings more than a decade of experience in utility planning and energy industry M&A's. He is a multi-faceted energy risk professional with demonstrated expertise in commodity risk management, quantitative risk analytics, resource planning, and power markets advisory. He has led quantitative risk analysis on several engagements for setting up and running hedge programs, long term resource planning focusing on valuing storage for renewable integration, merchant asset valuation, system reliability measures and achieving target environmental compliance. He joined E3 from Black & Veatch, where he led nodal transmission modeling to support merchant transactions and used nodal models to conduct basis and congestion analytics studies using PLEXOS. Mr. Sharma holds an MBA from the University of Texas Permian Basin, and Master of Engineering from Cornell University, and a Bachelor of Technology from the Indian Institute of Technology (ISM) Dhanbad.

Select E3 projects include:

- Nodal framework evaluation for Southeastern Regional Transmission Planning: evaluated nodal production cost model to assess benefits to SERC members from projected transmission projects.
- Alberta power market forecast (AESO): contributed to E3's power market outlook and price forecasts for AESO system.
- Power cooperative in northern MISO: due diligence support for >1GW combined cycle asset portfolio procurement in MISO and PJM markets.
- Illinois CEJA compliance modeling: assisting multiple Illinois utilities with ongoing zonal market modeling to evaluate energy outlook with CEJA policy implementation in the state.

## **BLACK & VEATCH**

Toronto, ON

*Transaction Advisory Manager*

January 2022 – April 2025

- Revenue and Billability Management
  - Exceeding revenue targets of new business and earned revenue (PGM) target of \$500,000 annually. Also maintaining 80% annual billability goals for myself and 2 direct consultant and analyst level team members.
- Product Manager - Nodal Transmission Modeling Practice
  - Responsible for growing and leading nodal modeling practice to support merchant transactions. Established best practices for setting up Energy Exemplar's nodal models to conduct basis and congestion analytics studies using Plexos.
  - Successfully conducted basis, congestion and curtailment studies for merchant assets in all ISOs. Supported merchant transactions for over 10 GW solar and 1 GW wind interconnections across CAISO, MISO, PJM, SPP, ERCOT.
  - Expanded team of in-house modelers with nodal modeling know-how from 2 to 6 in two years. Managed project revenues of \$500k in first year and \$800k in second year.
- Production Cost Modeling Activities for major utilities and transaction support for investors:

- Nodal Modeling using Plexos: Eastern Interconnect (EI) Dataset used to model NYISO specific price trends with power flows to neighboring ISOs; Used the EI dataset to create breakout of South VACAR region between multiple utilities to model flows between different PJM and Carolinas regions.
- Zonal Modeling using Plexos: Modeled all ISOs for Eastern Interconnect (EI) and WECC regions to create in-house view of power price predictions and scarcity pricing trends.
- Market Monitoring Reports for IOU (Investor Owned Utilities) transaction support:
  - ERCOT; SPP; WECC market monitoring activities with due diligence reports for solid state storage and wind and solar proposals.
  - Expert Due Diligence services for nodal basis trends and established power flow trends.
- IRP and Scenario Based Modeling for utilities:
  - Leading Integrated Resource Planning efforts on behalf of LUMA Energy for planning 100% clean energy portfolio for Puerto Rico.
  - Reliability Metrics including LOLE, LOLP, ELCC and Reserve Margin calculation studies for islanded systems. Stress testing of established portfolio to extreme weather modeling affecting prices, consumption and renewable production.

## **SIEMENS CORPORATION**

*Senior Risk Consultant*

Fairfax, VA

June 2019 – Dec 2021

- Hedge and Load Requirement Procurement Activities for two major utilities in PJM ISO
  - Provided full-service procurement monitoring technical consultant services
  - Conducted seasonal analysis for setting Summer and Winter bid prices for Block market purchases and Full Requirement Load Following requirements.
  - Interacted with PUC on behalf of the utility to submit Pre and Post bid process letters and presentations on market monitoring findings; Oversight of Bid process in real-time and timely resolution of human errors from bidders; Oversight of final contracts between bid winners and utility.
- Risk Management and Hedge Procurement Activities for universities
  - Provided market monitoring services with monthly presentations to the board covering Power and Gas market macro trends affecting power and gas budgets for facilities.
  - Monitored and stochastically modeled Power, Gas, Basis, REC (Renewable Energy Credit) prices.
  - Make Hedge Recommendations based on Budget and Risk-Adjusted market prices with objective of protecting budget levels.
  - Interface with market trader to ensure transaction accuracy and verify proposed hedge prices.
- Power Purchase Agreement Oversight and Contracting Process Oversight for utilities and Municipal entities in PJM and CAISO
  - Provided full-service bid processing oversight services. Included client visits to gather requirements, host conference calls with “Green” bidders and set minimum base bid price.
  - Created quantitative models with time series forecasting and artificial intelligence based models to simulate renewable generation and market prices.
  - Created quantitative models for assessing storage assets, independent and inter-tied to renewables
  - Provided litigation support for Post-Bid activities for CAISO municipalities.

- Quantitative modeling solutions created for utility traders through implementation of ETRM systems
  - Risk quantification (Sub-Hourly analysis) for hybrid solar and battery asset procurement based on reliability and performance metrics. Deployed for entities in California and Arizona.
  - Manage risk program and manage trader books for a major utility in Texas. Deliver Cost of gas report, recommend monthly objective, programmatic, defensive hedge strategies. Risk Program shielded \$1 Billion gas cost losses during COVID 19 gas price decline.
  - Deployed Hedge Strategy optimization program for a major electric cooperative for single commodity hedging, 2 legged long and short spread hedging and diesel surcharge hedging. Decisions from risk analysis were used to procure Monthly fixed energy instruments (PPAs).
  - Developed Stochastic Time-Series models for Gas and Carbon prices, Capital Costs and Load for production cost model through MATLAB modeling.
  - Financial debt amortization analysis for production cost modeling new resource build results.
  - Time of Use based load rate analysis for a California CCAs with Machine Learning algorithm.

## **ASCEND ANALYTICS**

*Energy Analyst*

Boulder, CO  
June 2016 – May 2019

- Lead IRP efforts of Glendale Water and Power, Burbank Power and Water, Los Angeles Department of Water and Power. Building and validating candidate resources for achieving SB 350 targets in CAISO markets through stochastic analysis of weather driven variability of generation, load and market prices.
- Modeling ancillary services, energy generation, and liquid price forecasting mechanisms for NorthWestern Electric for RFP evaluation of new capacity proposals. Assisted with stochastic analysis of Distributed Solar and small wind and solar QF resources (non-firm, stochastic driven energy contracts). Modeled hydro facilities with intermittent outages evaluating goodness-of-fits and tweaking distribution parameter to get optimal results for hourly generation shapes.
- Software sales assistance with LADWP, HECO with proposal writing, product demo and initial pilots.
- Developed Real Time and Ancillary Price forecasting mechanism for Invercova, Mexico. Created monetary valuation analysis for proposed ICE projects in region.
- Evaluated economical viability of different battery sizes in CAISO day ahead and real time energy markets as well as optimization of revenue with ancillary markets.
- DMEA-TriState exit litigation analysis regarding forward contract pricing for Distributed Generation Resources for fair payment of “lost-revenue fee”.
- Created analysis on stochastic based position exposure for NRG Energy based on stochastic simulations of prices in PJM, MISO, ERCOT. Analyzed and presented reports on Mark-to-market prices of commodity trading, evaluation of put and call energy options, Gross Margin at Risk (GmaR) and Value at Risk (VaR).
  - IRP efforts for Hawaiian Electric Company (HECO), conducting resource expansion optimization studies for different renewable portfolio mixes and building spreadsheet models to analyze associated project costs and communicate big data effectively for weekly presentations. Created battery augmentation studies including load shifting and regulation batteries for managing HECO’s renewable heavy portfolios.

## Education

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|----------------------------------------------------------------------------------------------------------|--------------------|
| University of Texas Permian Basin<br><i>Master of Business Administration (MBA), Finance</i>             | Odessa, TX<br>2024 |
| Cornell University<br><i>Master of Engineering, Environmental Engineering</i>                            | Ithaca, NY<br>2016 |
| Indian Institute of Technology (ISM) Dhanbad<br><i>Bachelor of Technology, Environmental Engineering</i> | India<br>2015      |

## Publications

*"Source Apportionment Study of Polycyclic Aromatic Hydrocarbons (PAHs) in New Delhi, India", Alankar Sharma, Tyagi S.K., Dolly Kulshrestha, Jamson M., International Journal of Environmental Sciences, Vol4 Issue6, May 2014, 1141-49, ISSN: 0976 – 4402*

*"Study of Air Pollution trends at Lodhi Road, New Delhi through Online Monitoring", Alankar Sharma, Peshin S.K., International Journal of Environmental Sciences, Volume 5 Issue 2, September 2014, ISSN: 0976-4402*

*"Trend Analysis of Ambient Air Benzo[a]Pyrene in New Delhi", S.K. Tyagi, Dolly Kulshrestha, Alankar Sharma, Indian Journal of Air Pollution Control, Vol XIV, No.2, September 2014, ISSN: 0250-523.*