Ritvik Jain

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ENERGY AND ENVIRONMENTAL ECONOMICS, INC. San Francisco, CA
Consultant

Mr. Jain supports E3's Integrated System Planning group on projects analyzing resource adequacy, operational reserves, and capacity expansion planning. He applies E3's in-house suite of resource planning tools and models to examine questions such as the how the penetration of renewables in a highly-decarbonized grid would impact operations and how different climate scenarios would create different reliability needs. Prior to joining E3, Mr. Jain served as a fellow for Bright Power where he completed performance analysis for heat pump water heaters. A native of India, he holds a Bachelor of Science in Mechanical Engineering from the University of Mumbai, D.J. Sanghvi College of Engineering. He received his Master of Science in Environment & Sustainability from the University of Michigan.

California Public Utilities Commission, Offshore Wind Analysis Long Lead Time Resource Planning (2023-2024). Ran E3's RESOLVE model under future scenarios and performed benefit-cost analysis. Project and analysis informed PUC's decision to procure the amount of offshore wind in California and its implications on ratepayers.

NV Energy, Integrated Resource Planning (IRP) Support (2023). Used E3's Machine learning based RESERVE tool to establish both near-term and long-term operational requirements for NV Energy's system. Modeling also contributed an understanding of the impacts of different levels of wind and solar on operation reserves. Analysis contributed to how NVE plans its system as well as its control and dispatch of resources.

Puget Sound Energy, Integrated Resource Planning Support (2023-2024). Supported PSE's 2025 IRP as a technical analyst. Applied E3's RECAP model to inform the utility's resource adequacy need and as well as ELCCs for its resource portfolio. Also incorporated regional impacts of imports, exports and market purchases as well as running the portfolio through different climate models for planning decisions.

Confidential California Load Serving Entity, Clean Energy Matching (2024). Provided modeling and analysis for E3's support of a California LSE's planning efforts to study opportunities and challenges for meeting clean energy matching goals within their portfolio.

BRIGHT POWER Oakland, CA
Environmental Defense Fund (EDF) Climate Corps Fellow May 2022 – August 2022

- Determined operational cost savings of $63,700 and emissions reductions of 222 metric tons of CO_2 for California's largest multifamily residential electrification and energy efficiency project at Sacramento Manor
- Executed performance analysis for heat pump water heaters (HPWHs) and set up a framework to track performance for future upgrades

- Created data visualization and processing modules on Python to aid building owners, engineers, consultants, and policy designers make informed data-driven decisions for various energy efficiency measures

ASSET LAB Ann Arbor, MI
Graduate Student Research Assistant January 2022 – April 2023

- Estimated energy consumption for single-family homes in the contiguous United States by implementing a custom framework consisting of cloud computing on AWS, energy modeling on EnergyPlus, and statistical modeling using NREL's ResStock analysis tool
- Simulated energy consumption under future climate conditions using forecasted weather data to determine the type and characteristics of households that would be most susceptible to increasing energy burdens
- Constructed a pipeline in Python to process future climate and weather data and to analyze extensive hourly timeseries data

Education

University of Michigan, School for Environmental and Sustainability, Ann Arbor, MI
M.S., Environment & Sustainability, Specialization: Sustainable Systems April 2023

University of Mumbai, D.J. Sanghvi College of Engineering Mumbai, INDIA
B.Eng., Mechanical Engineering, Specialization: Energy Systems May 2021

Publications

1. Jain, R., & Dhadke, Y. (2020, July). A Multi-Faceted Assessment of the Impact of Preliminary Lockdown due to COVID-19 Pandemic on the Indian Energy Sector. Parana Journal of Science and Education (PJSE) – v. 6, n.5, (pp. 9-14).

2. Jain, R. (2022, December). "Will more energy be a strength or weakness? Global South perspectives from COP-27", Climate Blue, University of Michigan.

3. Baxi, P., Jain, R., Dhadke, Y., Chhabra, Y., & Khatawate, V. H. (2021, January). Design and Analysis of Bell-Parabolic De Laval Rocket Exhaust Nozzle. 4th Biennial International Conference on Nascent Technologies in Engineering (ICNTE) (pp. 1-6). IEEE.