Katherine Palacios, PE

Managing Consultant

Kate leads our grid services team. She works closely with clients to provide strategic power system solutions. She advises project developers and utilities who are navigating new business opportunities and evolving market environments. Her expertise includes renewable energy, energy storage interconnection, and transmission planning. Kate is a registered professional engineer.

SELECTED PROFESSIONAL EXPERIENCE

Transmission Planning

- Leveraged QGIS and Powerflow results to correlate transmission power flow results with transmission lines on a map, effectively identifying high-congestion regions within the grid.

- Identified locations where gas lines and transmission lines intersected with high-capacity lines using, ensuring efficient connectivity.

- Developed Transmission Planning Models for company area which included over 400 Transmission and Distribution substations in coordination with the ERCOT Steady State Working Group (SSWG) to develop new modeling techniques. Developed procedures and tools for steady-state model validation and tracking.

  o Worked with ERCOT SSWG to develop quarterly updates to the state-wide transmission system model.

  o Active role in SSWG meetings, advocating for company's needs and ultimately taking part in writing ERCOT procedure manual revisions.

  o Developed first CenterPoint nodal based planning model. Worked with real-time engineers to integrate NMMS data into system planning model.

  o Developed Python and VBA tools to automate steady-state analysis, increasing the number of projects delivered for the entire team.

Interconnection Studies

- Used QGIS to perform comprehensive analysis and determine optimal locations for Point of Interconnection (POI) for a new generator developer.

- Developed a methodology that incorporated the use of QGIS, proprietary maps, open-source land use data, and statistical analysis to identify the most viable POI locations.

- Developed Full Interconnection Studies for multiple wind, solar, and natural gas generation customers in parallel. Developed solutions for transmission level upgrades and reconfigurations to meet NERC TPL, and ERCOT requirements. Worked in internal compliance task forces, providing evidence and creating procedures for CIP compliance tracking.

- Created interconnection studies for large (50 MW – 500 MW) transmission level load interconnections. Developed solutions for Transmission level upgrades and reconfigurations to

meet NERC TPL standards. Managed capital projects budget of over $300 Million for Transmission Planning based on electrical and financial needs.

- Completed FIS packages for 7 renewable generation stations, (150 MW – 750 MW), 4 battery storage facilities, 3 natural gas facilities; including:
  - Steady state impact analysis
    - Developed equivalent steady state models, performed contingency analysis using NERC TPL, ERCOT, and CenterPoint standards. Short Circuit Modeling and Analysis using ANSI standards.
    - Created solutions and worked with customers to develop the best cost-effective option for interconnection.
  - Transient stability analysis
    - Integrated dynamic data parameters from datasheets and customer provided sources into PSSE analytical models.
    - Performed Voltage Ride Through analysis and model validation analysis.
    - Worked with customer to provide updates and changes to models if necessary.
    - Provided a clear and concise report that summarizes the impact analysis to all stakeholders.

- Developed transmission upgrade and reconfiguration solutions and proposed several $30 Million projects to perform necessary system upgrades identified through analysis which included:
  - Power flow analysis, motor start and voltage droop mitigation analysis, short circuit ANSI studies, reactive device and voltage support, PV and QV analysis, N-1-1, long-term autotransformer replacement outages.

- Worked with internal Asset Management team to develop standards of project priority ranking based on the DCA per MW for the entire Transmission Planning project portfolio.

- Presented large transmission level projects at public meetings to advocate for the company's project need.

- Developed with executives and management, the annual 5-year forecasted budget for Transmission Planning sponsored projects totaling over $300 Million. Provided critical evidence for transmission projects' needs depending on NERC TPL criteria and internal criteria.

- Presented large project updates with executives in quarterly meetings, showcasing presentation capabilities across all levels of the organization.

Power System Modeling

- Developed a Python automation tool to expediate the FIS process. Integrated Excel input and created automated plot reporting tools that utilize parallel multiprocessing, increasing the workflow for the Special Studies group.

- Performed model validation analysis to check existing generators' new models with MOD-025, MOD-026, and MOD-027 standards.

- Performed steady state analysis for projects converting older 69kV lines to 138kV. Developed PSSE and system modeling skills with the help of excellent mentors. Developed tools in Python and PSSE to automate breaker-level load rollover into the bus-branch PSSE model.

EMPLOYMENT HISTORY

Daymark Energy Advisors, Inc.   Worcester, MA
Managing Consultant   2023 – *Present*
Senior Consultant   2021 – 2023

Centerpoint Energy   Houston, TX
Staff Engineer – Special Studies   2018 – 2021
Staff Engineer – Transmission Planning   2014 – 2018
Engineer – Transmission Planning System Modeling   2010 - 2014
Associate Engineer – Transmission Planning   2009 - 2010

EDUCATION

Texas A&M   College Station, TX
B.S., Electrical Engineering   2009

Continuing Education

- Advanced PSSE Training, Advanced Dynamics PSSE Training, PSSE Version 34 Training

- Siemens Digital Grid Summit 2019 Courses, Siemens PTI MOD Training, Siemens PTI NMMS Training

- Integrating Python and PSSE Training

- ERCOT Dynamics Working Group, ERCOT Steady State Working Group

LICENSES

Texas Certified Professional Engineer License#118980 (current)