Alexandra Thompson

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SUMMARY

Mechanical Engineer with eight years of experience in the energy sector. Three years of experience in the design and pre-construction diligence of utility scale wind farms and over four years of experience in maintenance engineering and project management of process control and safety equipment.

EXPERIENCE

Invenergy *June 2021 – Present*

Senior Project Engineer

Manage design of commercial and utility scale wind farms totaling over 3,500 MW of capacity.

- Lead design of turbine layout, access roads, and site electrical cabling.
- Manage pre-construction diligence including but not limited to geotechnical investigations, site hydrology studies, noise and shadow flicker assessments, and road-use optimization.
- Analyze on-site meteorological data and perform statistical regressions with long-term reference datasets to model long-term wind resource at projects.
- Build energy models to estimate annualized energy production and time-series production to inform project financial models and bids.
- Designed and supported successful county permit applications for projects totaling 1,000 MW of capacity.

PBF Delaware City Refining Complex *January 2020 – May 2021*

Project Engineer

Implement and maintain process control and safety systems for the 190,000 barrel per day oil refining complex.

- Managed over $2MM in projects to improve instrument and control infrastructure.
- Designed control infrastructure and managed project to enable remote operation of a process unit.
- Programmed flow rate simulator to design instrumentation required for a new safety shutdown system.
- Programmed control valve PID loops to optimize heat exchanger performance.

Philadelphia Energy Solutions *June 2016 – August 2019*

Instrument Reliability Engineer

Provided instrument engineering support to Operations, Maintenance, and Technical Services departments for the 330,000 barrel per day oil refining complex.

- Implemented improvements to critical equipment safety systems regulated under the ISA 84 standard, without increasing maintenance requirements.
- Presented incident investigations, safety audit findings, and improvements to refinery management.
- Used Lean Six Sigma process to identify vulnerabilities and execute solutions to improve compliance with EPA Refinery Sector Rule flare regulations.
- Initiated and executed instrument and controls modernization projects valued up to $400K.
- Upgraded analyzer communication equipment to improve data collection and reporting for local, state, and federal environmental regulations

EDUCATION

Cornell University, College of Engineering *2012 – 2016*

B.S. Mechanical Engineering

UNIVERSITY PROJECTS & RECOGNITIONS

Wind Power Science, Engineering and Policy Graduate Coursework *University of Delaware, 2020-2021*

Courses in the Graduate Certificate program included Wind Power Meteorology, Geological Aspects of Offshore Wind, and International Perspectives on Energy and Environment

Passive Acoustic Detection of Bird Strikes on Wind Turbine Blades *Cornell University, 2016*

Project to evaluate feasibility of using acoustic monitoring to identify and quantify bird fatalities. The project was awarded the Bart Conta Prize in Energy and the Environment from Cornell University.

Optimization of a Small Scale Wind Turbine Blade *Cornell University, 2015*

Project to design and optimize a 9-inch wind turbine blade. Wrote Matlab code using Blade Element Theory to maximize power coefficient, C_P.