

Senior Structural / Civil Engineer at Pecos Wind Power - Job Description

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Role Summary:

In this role, you will lead development of Pecos Wind Power's distributed wind turbine support structure (tower and foundation) from conceptual design to analysis, fabrication, prototyping, testing, certification, and commercialization.

Pecos Wind Power is an early-stage wind turbine manufacturer developing a community-scale, 85kW distributed wind turbine (the PW85). The PW85 is designed for onsite renewable power generation at commercial and industrial businesses, schools and universities, agricultural facilities, municipalities, and communities. The PW85 utilizes an innovative tilt-up tower and installation system to reduce overall cost of energy. The patented system uses a re-useable tilt-up fixture to hydraulically tilt the wind turbine from horizontal to vertical position, thereby eliminating the need for a crane and expediting on-site installation. The tower is mounted to a novel prefabricated foundation that is currently under development by our foundation design partner. The tower, foundation, and hydraulic systems are currently in conceptual stages of development. Under your leadership, these systems will be brought to commercialization.

Due to the early-stage nature of Pecos Wind Power, you will be given more responsibility than a typical Structural/Civil Engineer and depending on the needs of the company, you may be asked to wear multiple hats.

Pecos Wind Power will rely on your structural and/or civil engineering expertise to quickly advance the company's cumulative wind turbine engineering knowledge so that we can achieve our goal of reducing the leveled cost of distributed wind power.

Essential Responsibilities:

Tasks within your first 12 months are likely to include:

- Reviewing and evaluating the conceptual design of the tilt-up tower and installation system.
- Collaborating with Pecos Wind Power's third-party foundation design partner to understand the structural, civil, and geotechnical parameters that drive design and cost of the foundation.
- Overseeing geotechnical analysis of soil conditions at the prototype test site.
- Identifying and collaborating with third-party hydraulic system suppliers to understand the parameters that drive design and cost of the hydraulic system.
- System engineering to optimize the cost of the tower, hydraulics, and foundation without sacrificing quality and performance.
- Optimizing the tower, hydraulics, and foundation design for manufacturing, procurement, and assembly.
- Leading the detailed design and structural analysis (FEA) of the tower system based on common structural and building codes.
- Leading the detailed design and structural analysis of the tilt-up fixture.

- Managing third-party design and analysis of the hydraulic system and foundation.
- Performing FMEA (failure modes and effects analysis) on the tower, hydraulic, and foundation systems.
- Creating a bill of materials and associated cost model.
- Creating manufacturing drawings.
- As needed, supporting structural design and analysis of other turbine components (hub, bedframe, shaft, etc.)

Who we are looking for:

We put enormous value on practical and hands-on experience with structural and civil engineering systems. We want to know about your previous experience whether it be with buildings, oil & gas, automotive, aircraft, farm equipment, turbines, motors, etc. As a Structural/Civil Engineer at Pecos Wind Power, it is essential that you understand not only how to design and analyze components, but also how to manufacture them and service them so they will last 20 years or more. We are not researching technology to be deployed in 20 years, we are building a wind turbine that will be deployed in less than 2. Therefore, we place extremely high value on practical and demonstrated solutions for structural/civil engineering challenges.

Qualifications/Requirements:

- Minimum Bachelors degree within structural or civil engineering.
- 5+ years of industry experience in structural or civil engineering that can be transferred to wind turbine support structures.
- Proficiency in IBC, ASCE 7, AISC, ACI, NBCC, EuroCode and other common structural design codes.
- Industry experience with fasteners and bolted joint design, service, and maintenance.
- Industry experience with material selection and corrosion protection.
- Fluency in structural analysis using ANSYS (or comparable FEA software) as well as analytical methods for extreme and fatigue analysis.
- Practical, hands-on, and in-depth experience leading the development of structural components.
- Excellent communication, interpersonal and presentation skills.
- In depth knowledge of the product development process.
- Willingness and ability to travel.

Preferred Experience:

- Masters degree within structural or civil engineering.
- 5+ years of experience in design/analysis of wind turbine support structures.
- 10+ years of industry experience in structural or civil engineering that can be transferred to wind turbine support structures.

- P.E. or P.Eng. license.
- Structural Engineer (S.E.) license (NCEES SE Exam compliant).
- Practical experience with reinforced concrete foundations.
- Practical experience with hydraulic systems.
- Fluency in Solidworks or comparable parametric modeling software.
- Experience with product development of structural components from back of the envelope brainstorming through detailed design, prototyping, and testing.

About Pecos Wind Power:

Pecos Wind Power is developing a low cost, 85kW distributed wind turbine to compete on cost with distributed solar and utility-provided electricity. In the United States alone, there is sufficient distributed wind resource to meet 100% of the nation’s electricity demand. This resource, however, has been largely untapped because the cost of distributed wind turbines has failed to keep pace with the declining costs of other electricity sources like distributed solar and utility-scale wind. We founded Pecos Wind Power in 2017 to develop a low cost distributed wind turbine to take advantage of the increasing trend toward a decentralized grid and a growing customer demand for on-site renewable electricity. Our founding team consists of three engineers with design and manufacturing backgrounds from some of the top utility-scale wind turbine manufacturers: Vestas, Siemens Wind Power, and Boulder Wind Power. While working in the utility-scale turbine industry, we witnessed a reduction in the cost of utility-scale turbines over 50% in 10 years. At Pecos Wind Power, we are applying the same design techniques to bring similar cost reductions to distributed wind turbines.

Location:

Remote or Greentown Labs (444 Somerville Ave, Somerville, MA 02143). 20% travel with possibility for multiple week visits to our manufacturing and prototyping location in Kansas

Timeframe:

We are looking to hire for this position in Q4 of 2021 or Q1 of 2022.

Contact:

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