CLEAN ENERGY CAREER PATHWAYS CATALOG

Wind Energy
Clean Energy Career Pathways Catalog

Over 300 job descriptions for technical and specialty jobs in clean energy

Created for job-seekers, hiring managers, the existing workforce, and the public, ACP’s Clean Energy Career Pathways Catalog presents over 300 job descriptions for technical and specialty jobs within the clean energy industry.

This catalog shows the upward mobility and opportunities that exist within the industry, alongside highlighting the skills and requirements necessary to work in these positions. The aim is to provide a better understanding of how existing transferrable skills could be applied to clean energy jobs or what a career progression within the workforce could look like.

This massive effort is meant to provide workers in other energy industries, veterans, and workers in underrepresented communities a better idea of the jobs available in clean energy, as well as support the industry with recruiting and retention.

Wind Energy Career Pathways Catalog
This sector-specific catalog presents job descriptions in the Wind Energy sector. For jobs within all sectors, download the full PDF.

If you have questions about the catalog, please email workforcedev@cleanpower.org.
Clean Energy Occupations can be looked at across Clean Energy Sectors, Industry Segments, Industry Sub Segments, and Occupational Groups & Job Families. The catalog is organized by the hierarchy and groups represented here:

### Clean Energy Sectors
- Solar
- Wind Onshore
- Offshore Wind
- Storage
- Transmission

### Industry Segments
- Project Development (System Design)
- Operations & Maintenance
- Manufacturing
- Construction / Installation
- Research & Training

### Industry Sub Segments
- Safety
- Engineering
- Management
- Maintenance & Repair
- Installation
- Services General
- Material Handling, Supply & Processing
- Fabricating/Forging/Manufacturing
- Construction Management
- Foundation Contractor
- General Contractor
- Heavy Equipment Supplier/Operator
- Transportation
- Logistics
- Operations
- Development & Planning
- Business Development / Sales
- Purchasing
- Education / Training

### Occupational Groups/Job Families
- Inspectors & QC
- Technicians
- Project Managers & Construction Managers
- Electricians, Wirers & Installers, including Repairers
- Equipment Operators
- General Laborers & Groundmen
- Maintenance
- Engineers
- Meteorology Specialists
- Remote Control Operators / Dispatchers
- Safety and Incident Investigations
- Assembly, Fabricating & Manufacturing Laborers
- Surveyors
- Logisticians & Warehouse
- Analysts / Specialists
- Buyers / Procurement
- Tradeworkers – Ironworker, Welder, CNC operator, Machinist
- Site Managers
- Truck Drivers
- Business Developers
- Planners
- Asset Managers
- Operations / Facility Managers
- Trainers
- Schedulers

[Groups may also include supervisor & manager roles]
Explanation of Career Maps

Each catalog includes an interactive Career Map that illustrates potential pathways for career growth within the Sector and within five specific Industry Segments.

On the Career Map, each occupation is represented by a clickable dot. Each sector’s Career Map contains three Career Levels:
- Entry Level
- Mid-Level
- Advanced

Dots placed in vertical lines or nearby spaces up through the career levels represent the career progression in a particular field or Industry segment.

Note: The vertical paths are not the only potential career options from any given occupation, since those who acquire further education and experience may also make cross-industry segment and sector moves. The more typical career moves from each occupation are outlined on each Occupation Description page.

Click on a career level in an industry segment and you will be taken to that section.
Wind Energy Career Map

Click on a career level in an industry segment and you will be taken to that section.
Wind Energy Career List

A1 ENTRY-LEVEL PAGE 7-8
- Business Development Specialist
- Site Acquisition Specialist, Land Acquisition Specialist, Land Agent, Land Acquisition Associate

A2 MID-LEVEL PAGE 9-14
- Business Development Manager
- Electrical Systems Engineer, Power Systems Engineer, Electrical Interconnection Engineer, Electrical Design Engineer
- Mechanical Engineer, Design Engineer, Product Engineer, Equipment Engineer
- Project Developer, Pre-Construction Manager
- Site Acquisition Manager, Land Acquisition Manager
- Strategic Procurement Manager

A3 ADVANCED PAGE 15-16
- Civil Engineer, Structural Engineer
- Planner—Renewable Energy

B1 ENTRY-LEVEL PAGE 17-27
- Blade Repair Services Technician, Wind Blade Repair Technician
- Cable Splicer & Terminator
- Composite Blade Technician I
- Composite Blade Technician II
- Control Center Operator or Controller or Remote Access Operator
- Meteorologist—Entry
- Operations Specialist I
- Safety Manager I
- Wind Instrumentation & Electrical Technician—Entry
- Wind Technician I, Wind Farm Technician Trainee, Wind Turbine Tech, Wind Technician, Wind Technician Grade I, Wind Turbine Tech—Entry
- Wind Technician II, Wind Farm Technician Associate, Wind Turbine Tech II, Wind Turbine Tech—Intermediate, Associate Technician

B2 MID-LEVEL PAGE 28-40
- Assistant Facility Manager
- Composite Blade Technician III, Blade Composite Technician
- Environmental Engineer, Regulatory Compliance Manager, Environmental Scientist
- Maintenance Supervisor, Technician Supervisor
- Meteorologist—Intermediate
- Operations Specialist II
- Reliability Engineer
- Safety Manager II
- Wind Instrumentation & Electrical Technician—Intermediate
- Wind Instrumentation & Electrical Technician—Senior
- Wind Technician III, Wind Turbine Tech III, Wind Turbine Tech—Senior, Senior Technician
- Wind Technician Lead, Wind Maintenance Lead, Wind Turbine Tech Lead, Wind Services Lead, Lead Wind Technician
- Wind Technician Supervisor, Wind Turbine Technician Supervisor

B3 ADVANCED PAGE 41-52
- Asset Manager
- Composite Blade Manager
- Director, Meteorology
- Director, Operations & Maintenance, Director O&M
- Director, Quality & Operations Support
- Engineering Manager
- Maintenance Manager
- Meteorologist—Senior
- Operations Manager, O&M Manager, Site Manager, Facility Manager
- Reliability Engineering Manager
- Safety Manager III
- Senior Financial Analyst & Planner

C1 ENTRY-LEVEL PAGE 53-55
- Advanced Manufacturing Technician, Production Technician, Manufacturing Maintenance Technician
- Assembler / Fabricator
- Inspector / Quality Control

C2 MID-LEVEL PAGE 56-58
- Blade Testing Engineer—Intermediate
- Blade Testing Engineer—Entry
- Industrial Engineer, Manufacturing Engineer

C3 ADVANCED PAGE 59-61
- Blade Testing Engineer—Advanced
- Blade Testing Engineer—Senior
- Industrial Engineering Manager, Manufacturing Engineering Manager

D1 ENTRY-LEVEL PAGE 62-70
- Buyer, Procurement Specialist, Procurement Associate
- Commissioning Technician
- Concrete Worker
- Crane Operator
- Equipment Operator—Light
- Laborer, General Laborer
- Site Surveyor
- Truck Driver
- Warehouse Assistant, Warehouse Support

D2 MID-LEVEL PAGE 71-76
- Construction Manager
- Construction Manager II
- Equipment Operator—Heavy, Equipment Operator
- Equipment Operator—Medium
- Journeyman Electrician
- Site Inspector, QA Inspector, Inspector & Quality Control Coordinator, Site Assessor

D3 ADVANCED PAGE 77-80
- Commissioning Manager
- Construction Manager III
- Project Manager I
  (May serve as Construction Manager I)
- Project Manager II, Senior Project Manager
  (May serve as Construction Manager II)

E1 ENTRY-LEVEL
- N/A

E2 MID-LEVEL PAGE 81-83
- Analyst / Researcher
- Research Engineer, Research and Development Engineer
- Technical Trainer, Technical Instructor

E3 ADVANCED PAGE 84-85
- Materials Scientist, Research & Development Engineer
- Training & Development Manager

Click on a career level in an industry segment and you will be taken to that section.
Business Development Specialist

DESCRIPTION
Respond to contact from customers and assess needs and potential for sale (qualify leads). Educate customers about features and benefits of products and services. Develop understanding of client business and their goals and needs. Track leads and results and maintain contacts & opportunities database. Develop an understanding of the client’s goals, needs and concerns and clearly communicate this to Director of Business Development. Assist in establishing marketing goals to ensure market share and profitability of products and/or services. Develop surveys and other marketing tools.

KNOWLEDGE/SKILLS
Strong communication, presentation & negotiation skills, computer skills. Multi-tasking. Reading, analyzing and interpreting common scientific and technical journals, financial reports and legal documents. Calculating figures and amounts.

REQUIREMENTS
Education/Training
Bachelor’s degree in marketing, construction management or business field required.

Experience
1-3 years in direct marketing/sales of construction-related services preferred.

POSITION REPORTS TO
Business Development Director

CAREER PATH MOVES FROM THIS ROLE
Business Development Director
Site Acquisition Specialist
Land Acquisition Specialist, Land Agent, Land Acquisition Associate

DESCRIPTION
Assist in obtaining land for Wind Onshore energy projects. Administer land after it has been purchased or leased. Work with various engineers, scientists, attorneys, developers, permitting specialists, landowners, local governments and community organizations to ensure wind onshore project is constructed and operational. Design and implement land acquisition strategies and plans for development of new sites. Assist developers/owners in projects by providing land options. Conduct research on county building codes and landowner information. Coordinate meetings, develop relationships, and negotiate purchase or lease contracts with owners.

KNOWLEDGE/SKILLS

REQUIREMENTS
Education/Training
Bachelor’s degree required; Graduate degree preferred. Business, real estate law, engineering or related.

Experience
Real estate or land acquisition experience required.

Credentialing Required/Optional
Real estate license preferable. Notary license desirable.

POSITION REPORTS TO
Purchasing Manager

CAREER PATH MOVES FROM THIS ROLE
Purchasing Manager, Asset Manager
Business Development Manager

DESCRIPTION
Develop new business contacts. Manage and maintain existing customer relations, contacts and sales. Identify, develop and lead sales opportunities through industry research, calls to clients, media, etc. Work closely with senior leaders in developing business leads and with business development director to established company budget and sales goals. Develop understanding of client business and their goals and needs. Establish and execute marketing strategies. Track leads and results and maintain contacts & opportunities database.

KNOWLEDGE/SKILLS
Strong communication, presentation & negotiation skills, computer skills. Multi-tasking. Reading, analyzing and interpreting common scientific and technical journals, financial reports and legal documents. Calculating figures and amounts.

REQUIREMENTS

Education/Training
Bachelor’s degree in marketing, construction management or business field required.

Experience
3 years in direct marketing/sales of construction-related services preferred.

POSITION REPORTS TO
Business Development Director

CAREER PATH MOVES FROM THIS ROLE
Business Development Director
Electrical Systems Engineer
Power Systems Engineer, Electrical Interconnection Engineer, Electrical Design Engineer

DESCRIPTION
Support the technical efforts associated with designing electrical power generation, delivery, and control and protection systems for renewable energy projects along with project-related electrical engineering, while providing electrical engineering expertise to development, construction, and operations. Support internal Project Engineers in the management of electrical design engineering firms and/or EPC contractors. Prepare and study specs of electrical systems and technical drawings. Develop construction, installation and manufacturing specifications. Develop and direct/implement commercial and utility scale wind power projects. Assess effectiveness and safety of wind power systems. Work with engineers and manufacturing regarding testing and evaluating equipment.

KNOWLEDGE/SKILLS
Transmission, generation and distribution of electrical power, monitoring of operations, design, qualify control, critical thinking and troubleshooting, engineering and math. Electrical design processes and related computer software: ETAP or similar; use of PSSE/PSLF.

REQUIREMENTS

Education/Training
Minimum Bachelor of Science degree in electrical engineering is required.

Experience
Three years progressively responsible experience in the renewable energy industry with electrical, protection, and/or controls design and engineering.

Credentialing Required/Optional
Familiarity with IEEE electrical standards and NESC.

POSITION REPORTS TO
Power Systems or Energy Systems Manager or Director

CAREER PATH MOVES FROM THIS ROLE
Wind Energy Systems Designer
Mechanical Engineer
Design Engineer, Product Engineer, Equipment Engineer

DESCRIPTION
Design, develop, analyze and test Wind Onshore equipment and products. Design mechanical and electromechanical systems and components for Wind Onshore projects. Develop technical engineering drawings and models. Verify and check project layouts and drawings. Outline materials needed based on engineering and quality standards. Create new and improve upon existing Wind Onshore designs to improve efficiency and reliability, and to reduce costs.

KNOWLEDGE/SKILLS
Project management, design for manufacturability (DFM) principles, mechanical and electromechanical assemblies & mechanisms, Wind Onshore energy, 3D cad modeling and drawing creation using SolidWorks software, product design, quality control.

REQUIREMENTS
Education/Training
BS in Engineering or higher degree from an accredited university.

Experience
Experience with design of mechanical or electromechanical Wind Onshore assemblies and mechanisms. Ideally 3D cad modeling and variety of software.

Credentialing Required/Optional
May require engineering license, PE Professional engineer

POSITION REPORTS TO
Engineering Manager or Director

CAREER PATH MOVES FROM THIS ROLE
Engineering Manager or Director, Materials Scientist
Project Developer
Pre-Construction Manager

DESCRIPTION
Manage and oversee all the Pre-Construction aspects of utility-scale wind onshore renewable energy. Complete cost analysis and budgetary estimates for the engineering, procurement and construction of the renewable generation facilities. Manage the preliminary engineering for the projects. Responsible for managing and developing Request for Proposal's (RFP's) that will be issued to potential Contractors for the competitive bidding process.

KNOWLEDGE/SKILLS
Basic engineering concepts associated with renewable energy facilities (geotechnical, civil, structural, electrical). Engineering and cost estimating of medium voltage and high voltage, including, but not limited to collections systems, substations and transmission lines. MS Office software, and Microsoft Project or Primavera.

REQUIREMENTS
Education/Training
Minimum Bachelor of Science degree with preference in engineering and/or construction management

Experience
2-5 years progressive responsible experience in the renewable power industry with significant wind and/or solar energy experience. Direct experience with project and engineering management for wind and/or solar is preferred. Field and estimating experience are a plus.

POSITION REPORTS TO
Director of Wind Onshore Projects, Project Manager

CAREER PATH MOVES FROM THIS ROLE
Construction Manager, Director of Engineering, Director of Wind Onshore Projects
Site Acquisition Manager

Land Acquisition Manager

DESCRIPTION
This is the more senior level of Site Acquisition Specialist. Secure optimal sites for wind onshore energy projects. Identify, structure, negotiate and execute real estate transactions with a wide range of property owners and third parties for the development of wind onshore energy assets. Conduct landowner outreach and establish relationships with a list of targeted landowners. Negotiate terms on all facets of site acquisition, including letters of intent, options, leases, purchase agreements, and easements. Draft real estate documents. Work with outside consultants land agents, counsel, and specialists. Manage & coordinate multiple projects. Educate landowners on wind energy business. Manage land/site acquisition specialists.

KNOWLEDGE/SKILLS
Real estate transactions and title matters, renewable energy, land use, land (ALTA) surveys, GIS and mapping software.
**Strategic Procurement Manager**

**DESCRIPTION**
Lead and support the development of strategy for and the procurement of the key components that comprise projects and products, including Wind Onshore energy solutions, tracking systems and other key technologies with a focus on Wind Onshore energy. Perform technology evaluation that considers potential customers, financial structures, and strategic advantages; build specifications with the engineering teams; collaborate on project development and implementation. Maintain supplier relationships; conduct assessments of suppliers, maintain pricing roadmaps. Procure key components and create contracts with suppliers. Lead competitive RFP processes and manage contracting process. Interface with legal, development, engineering and construction on scope, specifications, testing, etc. Support projects and ongoing supplier management.

**KNOWLEDGE/SKILLS**
Renewable energy industry, negotiations, contracting, quantitative and qualitative analysis.

**REQUIREMENTS**

**Education/Training**
Bachelor’s degree. MBA or MS degree preferred.

**Experience**
At least 3 years experience in the energy field; experience in negotiations and analysis.

**POSITION REPORTS TO**
Director, Wind Onshore Operations

**CAREER PATH MOVES FROM THIS ROLE**
Director of Wind Onshore Operations or Engineering or Construction or Project Manager on other green energy systems (i.e. Wind Onshore)
Civil Engineer

Description
Work with Wind Onshore project contractors by offering civil engineering expertise and meeting with leadership regarding project updates and reporting. Ensure project deliverables are in line with scope of work, quality, budget and schedule. Manage aspects of the onshore civil, structural (and architectural) fields for the Wind Onshore project. Provide input on planning and execution of civil engineering and construction scope. Ensure that all civil engineering complies with regulations, specifications, and best practices. Work with design team to define technical solutions within scope and provide civil and structural input and research-driven solutions. Calculate risks and document through risk management systems. Work with operations team and contractors regarding engineered solutions and structural capabilities. During construction, support field engineers and provide input and responsible decision making regarding civil discipline. Provide input and participate in testing and verification processes.

Knowledge/Skills

Requirements

Education/Training
Master's degree in civil or structural engineering preferred. Minimum bachelor's degree in civil or structural engineering.

Experience
Minimum 10 years' experience with engineering and project execution. Civil/structural engineering experience.

Credentialing Required/Optional
PE (Professional Engineer)—registration. GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered.

Position Reports To
Wind Projects Senior Lead or Director

Career Path Moves From This Role
Wind Projects Civil Lead or Director, Project Manager, other engineering discipline
Planner—Renewable Energy

DESCRIPTION
Responsible for assessment and permitting of renewable energy facilities and associated storage and transmission infrastructure. Prepare proposals and provide direction for the development of environmental impact analysis documents, related technical studies, mitigation monitoring, exemptions/exclusions, and discretionary permit applications. Manage projects. Provide leadership for staff. Review field surveys and reports, cultural resources and geotechnical surveys and reports, air quality reports, wetland delineations (where applicable). Oversee preparation of environmental permit applications with various federal, state, and local agencies for a variety of project types/sizes.

KNOWLEDGE/SKILLS
NEPA practices and regulations. Environmental planning. Analysis of data/information, synthesis, and conclusion development. Writing various reports and documents. Constraint analysis. Developing mitigation measures. Reading and interpreting complex documents. Communication with varied groups, including leading meetings and presentations. Proficiency with MS Office suite (e.g., Microsoft Word, Microsoft Teams, Microsoft Project, Adobe Acrobat, Excel). Federal, state, and county permitting processes and applications. Federal and state habitat conservation planning programs.

REQUIREMENTS

Education/Training
Bachelor’s degree in environmental science or related field required. Masters degree preferred. Training/education in a technical field such as air quality, cultural resources, hazardous materials, biological resources, or environmental law a plus.

Experience
Minimum of 7 years of applicable professional experience, 5 years of demonstrated project lead experience, and 3 years in renewable or traditional energy. Experience with environmental permitting for large, utility-scale solar, wind energy or storage or transmission projects.

Credentialing Required/Optional
Industry-specific training (specialized field surveys methods, NEPA courses), certifications (e.g., PWS, CWB®, AICP, HAZWOPER), or species-specific handling permits a plus.

POSITION REPORTS TO
Director Environmental Assessment, Permitting & Compliance

CAREER PATH MOVES FROM THIS ROLE
Director Environmental Assessment, Permitting & Compliance
Blade Repair Services Technician
Wind Blade Repair Technician

**DESCRIPTION**
In some companies, this role is part of the Wind Technician role. Maintain and repair composite blades and various turbine models. Report to, assist and support supervisors in coordination and execution of maintenance & repair activity of wind turbine blades, nacelles, composite components. Climb wind towers and access wind turbines to perform composites repair & maintenance tasks. Assist in transportation, setup and the operation of up-tower blade access mechanism. Support a team in performing rope, platform, and ground access composite repairs on multiple turbine manufacturers. Assist in mobilization of all repair equipment to site. Assist in major component replacement, which will primarily focus on blades. Assure proper storage, maintenance and handling of all blade repair service equipment.

**KNOWLEDGE/SKILLS**
Equipment and repair of turbine blades of multiple manufactures (i.e. Siemens, GE, Vestas, Mitsubishi). Crane and rigging work. Composite materials and tools used during repairs. Techniques, skills and tools needed to repair the different type of damages in wind turbine blades. Repairs on the first layer of glass, core, & inner laminate.

**REQUIREMENTS**

**Education/Training**
High School diploma or GED & experience.

**Experience**
Minimum 1 year experience in operation & maintenance of electromechanical apparatus, composite systems, or aerospace / marine composites manufacturing & engineering. Demonstrated experience in blade damage assessment and repair required.

**Credentialing Required/Optional**
GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered. American Composites Manufacturers Association (ACMA): Certified Composites Technician (CCT), CCT—Advanced Composites (CCT—AC), and CCT—Wind Blade Repair; Commercial Driver's License (CDL) if transporting wind blades/components.

**POSITION REPORTS TO**
Blade Repair Supervisor, Wind Technician Supervisor

**CAREER PATH MOVES FROM THIS ROLE**
Wind Technician advanced role, Lead, Supervisor
Cable Splicer & Terminator

DESCRIPTION
Perform cable splicing, termination of cables, and electrical testing along cable line and on junction boxes and transformers. Perform new construction, maintenance or repair of energized and de-energized cable work (above & below ground). Operate safely, following all safety procedures and taking care of self and others on the work site. Switch and splice cable, terminate cable, and phase out lines.

KNOWLEDGE/SKILLS
Cable splicing & termination. Electrical skills. Hand tools, testing (PD or VLF), general electrical safety, excavation & trenching, lockout/tagout & grounding.
Composite Blade Technician I

**DESCRIPTION**
Perform internal and external inspections, defect analysis and repair of fiberglass and composite blades, spinners, and nacelles from all categories. Provide maintenance support and perform large component replacements of wind turbine generators. Photograph internal and external blade damage, document findings, and assemble all associated paperwork. Perform coating and minor structural repairs on internal and external blade surfaces, tip repair, leading and trailing edge repair on locations both up tower and down tower. Utilize blade access platforms at heights of 300ft or more. Help in all areas of site preparation (i.e. coordination of labor and materials) with minimal supervision. Communicate site status to engineering, customers, and management. Provide maintenance support and perform large component replacement of wind turbine generators. Provide wind turbine generator LOTO (Lock Out & Tag Out) support.

**KNOWLEDGE/SKILLS**

**REQUIREMENTS**

**Education/Training**
High School Diploma or GED.

**Experience**
Minimum 1 year composite repair experience (OR Graduate of a Wind Tech and/or Composite program).

**Credentialing Required/Optional**
GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered. American Composites Manufacturers Association (ACMA) Certified Composites Technician (CCT), CCT—Advanced Composites (CCT—AC), CCT—Wind Blade Repair

**POSITION REPORTS TO**
Composite Blade Tech III, Composite Blade Manager

**CAREER PATH MOVES FROM THIS ROLE**
Composite Blade Technician II, Composite Blade Technician III
Composite Blade Technician II

DESCRIPTION
Perform internal and external inspections, defect analysis and repair of fiberglass and composite blades, spinners, and nacelles from all categories. Provide maintenance support and perform large component replacements of wind turbine generators. Photograph internal and external blade damage, document findings, and assemble all associated paperwork. Perform coating and minor structural repairs on internal and external blade surfaces, tip repair, leading and trailing edge repair on locations both up tower and down tower. Utilize blade access platforms at heights of 300ft or more. Help in all areas of site preparation (i.e. coordination of labor and materials) with minimal supervision. Communicate site status to engineering, customers, and management. Provide maintenance support and perform large component replacement of wind turbine generators. Provide wind turbine generator LOTO (Lock Out & Tag Out) support.

KNOWLEDGE/SKILLS

REQUIREMENTS

Education/Training
High School Diploma or GED.

Experience
Minimum of 2-3 years' of composite repair experience or minimum 1-2 years' AND Graduate of a Wind Tech/and or Composite Program.

Credentialing Required/Optional
GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered. American Composites Manufacturers Association (ACMA) Certified Composites Technician (CCT), CCT—Advanced Composites (CCT—AC), CCT—Wind Blade Repair

POSITION REPORTS TO
Composite Blade Tech III, Composite Blade Manager

CAREER PATH MOVES FROM THIS ROLE
Composite Blade Technician III
Control Center Operator
Power System Operator, Electrical System Operator

DESCRIPTION
Direct, monitor and coordinate the operation of wind energy assets from an Operations Control Center. Use SCADA and other monitoring and control systems. The Control Center Operator ensures that the operations of Wind Power Plants (WPP) comply with all applicable North American Electric Reliability Corporation (NERC) standards and practices. The Control Center Operator works independently with guidance only in complex situations.

KNOWLEDGE/SKILLS

REQUIREMENTS
Education/Training
Associate’s Degree in Electrical Engineering or an equivalent combination of training and experience.

Experience
0-2 years in power system operations, power production, control center or related energy operations.

Credentialing Required/Optional
PJM or other ISO Certifications, as required, or ability to obtain within 6 months. NERC Certification preferred.

POSITION REPORTS TO
Control Center Manager

CAREER PATH MOVES FROM THIS ROLE
Senior Controller, Control Center Manager
Meteorologist—Entry

DESCRIPTION
Monitor and manage data from meteorological towers to prepare reports and presentations to internal and external stakeholders. Assess site suitability and perform micro-siting for development stage projects to optimize wind farm design. Assist in developing the turbine layout for wind farms based on available meteorological data using advanced mapping software. Analyze performance of operating projects, including evaluation of turbine performance in order to minimize energy losses. Provide analytical support and model capabilities to both finance and development from project conception through project operations. Supervised position.

KNOWLEDGE/SKILLS
Meteorology, atmospheric science, wind energy forecasting, wind farm design, analyses, modeling.

REQUIREMENTS

Education/Training
Bachelor’s and/or Master’s degree in Meteorology, Atmospheric Science or a related science.

Experience
One to two years’ of related meteorological experience.

Credentialing Required/Optional
GWO (Global Wind Organisation) certified.
WINDA (Wind Industry Training Records Database) registered. American Composites Manufacturers Association (ACMA) Certified Composites Technician (CCT), CCT—Advanced Composites (CCT—AC), CCT—Wind Blade Repair

POSITION REPORTS TO
Meteorologist—Senior, Director, Meteorology

CAREER PATH MOVES FROM THIS ROLE
Meteorologist—Intermediate
Operations Specialist I

DESCRIPTION
Support day to day Reporting, Performance, and Monitoring (RPM) for Center Wind-Onshore activities, acting as the on-shift Operations Specialist for assets in the portfolio. Involved in monitoring of plant and system processes. Operate electrical and SCADA systems. Monitor critical elements in a complex and regulated system. Implement real-time actions to ensure the stable and reliable operation. Comply with applicable NERC Reliability Standards and regional rules and tariffs. Monitor and analyze available market information to identify dispatching and trading opportunities. Analyze and evaluate energy transactions.

KNOWLEDGE/SKILLS

REQUIREMENTS

Education/Training
Bachelor’s degree or formal operations apprenticeship training or equivalent preferred.

Experience
Two years’ experience in Operations or in a Wind Technician Role is preferred. Competent technical knowledge of plant and system processes, and experience in operating electrical and SCADA systems.

Credentialing Required/Optional
Must obtain NERC RC certification within 12-months. GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered.

POSITION REPORTS TO
Operations Manager or RPM Manager

CAREER PATH MOVES FROM THIS ROLE
Operations Specialist II
Safety Manager I

DESCRIPTION
Participate in planning and implementing safety programs for construction projects while ensuring compliance with federal, state and corporate environmental, health and safety regulations. Develop project specific HSE programs and procedures through interface and teamwork with Project / Operations management/supervisory personnel. Maintain Accountability Programs on all projects for safety-related issues and work with supervision to ensure uniform application of safety related discipline. Serve as a mentor to other HSE professionals. May be lead safety manager on small project. Present safety training to support the company and client requirements. Participate in EHS project risk assessments. Assist with conducting accident, near miss, & damage investigations with Root Cause Analysis. With oversight, develop and monitor EHS performance, preventive and corrective action plans.

KNOWLEDGE/SKILLS

REQUIREMENTS

Education/Training
High school diploma or GED.

Experience
Minimum of 1 year of construction safety management experience. Demonstrated ability to provide a high level of safety leadership to both management and technicians.

Credentialing Required/Optional
Certified Hygiene Safety Technician (CHST) preferred. CPR/First Aid certification. GWO (Global Wind Organisation) certified. WINA (Wind Industry Training Records Database) registered.

POSITION REPORTS TO
EHS Senior Leadership or a Group/Senior Safety Manager

CAREER PATH MOVES FROM THIS ROLE
Senior Safety Manager, Safety Manager II
Wind Instrumentation & Electrical Technician—Entry

DESCRIPTION
Under close supervision, perform maintenance, calibrate, install, and repair instrumentation including controls and electrical equipment at a wind energy facility. Maintain drawings, logs, and other project records. Carry out approved switching orders and perform high voltage switching. Troubleshoot and repair automated control systems, maintain and repair meteorological, fiber optic and electrical equipment, as well as instrumentation and SCADA systems. Work with voltages up to 230kV and climb towers in excess of 200 feet tall. Assist with high voltage system maintenance and repair and in inspecting renewable energy equipment. Interact with customers as directed by manager and ensure customer safety. Assist in all areas of site operations. Follow all health and safety and operating procedures.

KNOWLEDGE/SKILLS
Troubleshooting and maintaining equipment. Maintenance, calibration, installation and repair of instrumentation and controls for wind energy equipment. SCADA systems. Customer service. Ability to climb towers in excess of 200 feet tall and work with high voltages.

REQUIREMENTS

Education/Training
High school diploma or GED with completion of an apprentice program or equivalent experience. An Associate's degree from a technical school is common.

Experience
Completion of an apprentice program or equivalent experience. One to two years of experience troubleshooting and maintaining equipment.

Credentialing Required/Optional
ISA CCST certification to Level II is common. GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered.

POSITION REPORTS TO
Wind Instrumentation and Electrical Technician—Intermediate

CAREER PATH MOVES FROM THIS ROLE
Wind Instrumentation and Electrical Technician—Entry
Wind Technician I

Wind Farm Technician Trainee, Wind Turbine Tech, Wind Technician, Wind Technician Grade 1, Wind Turbine Tech—Entry

DESCRIPTION
Assist in the safe operation and performance of scheduled and unscheduled mechanical, electrical and hydraulic maintenance activities for wind turbines and turbine components consistent with policies and procedures established for the wind farm site. Climb towers as required to perform maintenance, replacement and inspection. Assist in the replacement of major turbine components (e.g. generators & gearboxes), heavy equipment rigging and directing, identification of failures, faults, and problems, and implementation of corrective actions. Assist in conducting acceptance and performance tests on systems and equipment following planned maintenance and outages. Write (some using computer) routine reports and correspondence. Maintain service logs, and monitor turbine performance. Read blueprints and schematics. Collect turbine data for testing or research and analysis. May also service underground transmission systems, wind field substations, or fiber optic sensing and control systems. Assist with high voltage system maintenance and repair and in inspecting wind turbines. Interact with customers as directed by manager and ensure customer safety. Assist in all areas of site operations. Follow all health and safety and operating procedures.

KNOWLEDGE/SKILLS
Reading schematics & blueprints. Diagnosing equipment problems. Physically fit enough to free climb 250ft multiple times/day while wearing 25+ lbs. of climbing gear under extraordinary weather conditions. High tower rescue. Basic Electricity, Mechanical Fundamentals, Hydraulics, and Environmental, Health and Safety Fundamentals. Mechanical and electronic testing equipment. Use of power and hydraulic tools. Working around low, medium and high voltage. Reading and interpreting documents such as safety rules, operating and maintenance instructions, and procedures manuals. Writing reports.

REQUIREMENTS
Education/Training
Minimum requirement: High school diploma or GED. An associate’s degree (electrical or technical) helpful. Advanced electrical and mechanical courses helpful. Valid driver’s license.

Experience
0-2+ years related work experience

Credentialing Required/Optional
Certifications required to perform the work, including but not limited to: First Aid / CPR, Tower Climb and Rescue, LOTO, Arc Flash, etc. GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered.

POSITION REPORTS TO
Wind Turbine Technician Lead or Senior, Wind Turbine Technician Supervisor, Wind Farm Site Manager, Manager Renewable Energy

CAREER PATH MOVES FROM THIS ROLE
Wind Technician II (Associate), Wind Technician III (Senior)
Wind Technician II
Wind Farm Technician Associate, Wind Turbine Tech II, Wind Turbine Tech—Intermediate, Associate Technician

DESCRIPTION
Ensure safe operation and perform scheduled and unscheduled mechanical, electrical and hydraulic maintenance activities for wind turbines and turbine components consistent with policies and procedures established for the wind farm site. Climb towers as required to perform maintenance, replacement and inspection. Inspect wind turbines. Replace major turbine components. Assist with heavy equipment rigging and directing. Identify / troubleshoot failures, faults, and problems. Interpret fault reports and implement corrective actions. Conduct acceptance and performance tests on systems and equipment following planned maintenance and outages. Write (some using computer) routine reports and correspondence. Maintain service logs, and monitor turbine performance and SCADA systems. Read blueprints and schematics. Collect turbine data for testing or research and analysis. Lead and train more junior technicians to complete required duties. Interact with customers. Assist in all areas of site operations. Ensure all health and safety and operating procedures are followed.

KNOWLEDGE/SKILLS
Reading schematics & blueprints. Diagnosing equipment problems. Physically fit enough to free climb 250ft multiple times/day while wearing 25+ lbs. of climbing gear under extraordinary weather conditions. High tower rescue. Basic Electricity, Mechanical Fundamentals, Hydraulics, and Environmental, Health and Safety Fundamentals. Mechanical and electronic testing equipment. Use of power and hydraulic tools. Working around low, medium and high voltage. Reading and interpreting documents such as safety rules, operating and maintenance instructions, and procedures manuals. Writing routine reports and correspondence. Dealing with problems involving several variables.

REQUIREMENTS
Education/Training
High School diploma or GED and some experience. Preference for one-year technical college or trade school or associate's degree. Advanced electrical and mechanical courses helpful. Valid driver's license.

Experience
2-3 years of related work experience

Credentialing Required/Optional
Certifications required to perform the work, including but not limited to: First Aid / CPR, Tower Climb and Rescue, LOTO, Arc Flash, etc. GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered.

POSITION REPORTS TO
Wind Turbine Technician Lead or Senior, Wind Turbine Technician Supervisor, Wind Farm Site Manager, Manager Renewable Energy

CAREER PATH MOVES FROM THIS ROLE
Wind Technician III (Senior) or Lead
Assistant Facility Manager

DESCRIPTION
Support the Facility Manager in all areas of the operating site. Ensure a positive working environment by maintaining morale and employee relations. Lead the use of maintenance documentation, reporting tools and performance systems necessary for reporting and performance improvement. Provide hands-on technical support and supervision for generation equipment and power delivery systems, as well as with other facility civil work, building maintenance, and upkeep.

KNOWLEDGE/SKILLS
Ability to climb turbine tower > 100m. Computer skills, mechanical and electrical troubleshooting and maintenance. Leadership & supervisory skills.

REQUIREMENTS
Education/Training
BA/BS degree in electrical engineering or experience equivalent.

Experience
Supervision and technical experience in the power generation industry or related fields. Experience using computers and with mechanical and electrical troubleshooting and maintenance.

Credentialing Required/Optional
GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered.

POSITION REPORTS TO
Facility Manager, Operations Manager

CAREER PATH MOVES FROM THIS ROLE
Facility Manager, Operations Manager
Composite Blade Technician III

DESCRIPTION
Perform internal and external inspections, defect analysis and repair of fiberglass and composite blades, spinners, and nacelles from all categories. Provide maintenance support and perform large component replacements of wind turbine generators. Photograph internal and external blade damage, document findings, and assemble all associated paperwork. Perform coating and minor structural repairs on internal and external blade surfaces, tip repair, leading and trailing edge repair on locations both up tower and down tower. Utilize blade access platforms at heights of 300ft or more. Help in all areas of site preparation (i.e. coordination of labor and materials) with minimal supervision. Communicate site status to engineering, customers, and management. Provide maintenance support and perform large component replacement of wind turbine generators.

KNOWLEDGE/SKILLS

REQUIREMENTS
Education/Training
High School Diploma or GED.

Experience
Minimum of 3-5 years' of composite repair experience or minimum 2-4 years' AND Graduate of a Wind Tech/and or a Composite Program.

Credentialing Required/Optional
GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered. American Composites Manufacturers Association (ACMA) Certified Composites Technician (CCT), CCT—Advanced Composites (CCT—AC), CCT—Wind Blade Repair

POSITION REPORTS TO
Composite Blade Manager

CAREER PATH MOVES FROM THIS ROLE
Composite Blade Manager
Environmental Engineer
Regulatory Compliance Manager, Environmental Scientist

DESCRIPTION
Using knowledge from various engineering disciplines, develop processes, policies, and practices to prevent or mitigate health, safety, or environmental issues with Wind Onshore operations. Conduct environmental impact studies and recommend management and mitigation strategies. Monitor and address environmental and hazardous concerns such as materials and facility practices. Work with regulatory personnel. Conduct inspections of Wind Onshore sites and facilities, evaluating compliance with environmental, health and safety regulations. Monitor improvements and needed changes to practices.

KNOWLEDGE/SKILLS
Variety of software for analysis and compliance purposes, CAD programming, graphic imaging, system analysis, operations analysis, environmental / health / safety standards and regulations, hazardous materials and chemicals, problem solving.

REQUIREMENTS
Education/Training
Bachelor’s degree in engineering. For advancement, a MS or PhD.

Experience
5+ years’ experience.

Credentialing Required/Optional
PE (Professional Engineer) may be required

POSITION REPORTS TO
Engineering Manager, Materials Scientist, EHS Director

CAREER PATH MOVES FROM THIS ROLE
Materials Scientist
Maintenance Supervisor

Technician Supervisor

**DESCRIPTION**
Supervise and perform corrective, preventive, and emergency maintenance and operations for Wind Onshore systems and associated equipment. Support the site / facility manager in operating the site. May provide first line of supervision for technicians. Oversee safe operation and performance of mechanical, electrical and hydraulic maintenance activities. Schedule all maintenance, replacement and inspection. Ensure the troubleshooting of failures, faults, and problems; interpret fault reports, and implement corrective actions. Write reports. Read blueprints and schematics. Assist with high-voltage system maintenance and repair. Develop strategy for improved maintenance diagnostics and operation. Lead and train more junior maintenance personnel. Interact with customers. Ensure all health and safety and operating procedures are followed.

**KNOWLEDGE/SKILLS**
Diagnosing equipment problems. Electricity, Mechanical, Hydraulics, and Environmental, Health and Safety Fundamentals. Mechanical and electronic testing equipment. Use of power and hydraulic tools. Working around low, medium and high voltage. Reading and interpreting operating and maintenance instructions, and procedure manuals. Writing routine reports and correspondence. Developing strategy. Troubleshooting involving complex variables. Leading and training crews. Supervision of others and site management. Customer service, public relations.

**REQUIREMENTS**

**Education/Training**
Technical School Diploma preferred or equivalent combination of education and experience. High school diploma or GED required.

**Experience**
3 years’ experience in the operation of commercial Wind Onshore facilities or 5 years’ equivalent experience in instrumentation & controls, MV/ HV (medium voltage/high voltage) electrical work. Qualified to perform all routine and emergency operations at an electric generation facility and HV Switchyard. Experience working with plant systems and computerized maintenance management systems.

**Credentialing Required/Optional**
Journeyman electrician preferred

**POSITION REPORTS TO**
Maintenance Manager, Project Manager

**CAREER PATH MOVES FROM THIS ROLE**
Maintenance Manager
Meteorologist—Intermediate

DESCRIPTION
Monitor and manage data from meteorological towers to prepare reports and presentations to internal and external stakeholders. Assess site suitability and perform micro-siting for development stage projects to optimize wind farm design. Assist in developing the turbine layout for wind farms based on available meteorological data using advanced mapping software. Analyze performance of operating projects, including evaluation of turbine performance in order to minimize energy losses. Provide analytical support and model capabilities to both finance and development from project conception through project operations. Mentor less-experienced team members.

KNOWLEDGE/SKILLS
Meteorology, atmospheric science, wind energy forecasting, wind farm design, analyses, modeling.

REQUIREMENTS
Education/Training
Bachelor’s and/or Master’s degree in Meteorology, Atmospheric Science or a related science.

Experience
Three to five years’ of related meteorological experience.

Credentialing Required/Optional
Journeyman electrician preferred

POSITION REPORTS TO
Meteorologist—Senior, Director, Meteorology

CAREER PATH MOVES FROM THIS ROLE
Meteorologist—Senior
Operations Specialist II

DESCRIPTION
Support day to day Reporting, Performance, and Monitoring (RPM) for Center Wind-Onshore activities, acting as the on-shift Operations Specialist for assets in the portfolio. Involved in monitoring of plant and system processes. Operate electrical and SCADA systems. Monitor critical elements in a complex and regulated system. Implement real-time actions to ensure the stable and reliable operation. Comply with applicable NERC Reliability Standards and regional rules and tariffs. Monitor and analyze available market information to identify dispatching and trading opportunities. Analyze and evaluate energy transactions.

KNOWLEDGE/SKILLS

REQUIREMENTS

Education/Training
Bachelor’s degree or formal operations apprenticeship training or equivalent preferred.

Experience
3-4 years’ experience in Operations or in a Wind Technician Role is preferred. Competent technical knowledge of plant and system processes, and experience in operating electrical and SCADA systems.

Credentialing Required/Optional
Must obtain NERC RC certification within 12-months. GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered.

POSITION REPORTS TO
Operations Manager or RPM Manager

CAREER PATH MOVES FROM THIS ROLE
Operations Manager or RPM Manager
Reliability Engineer

DESCRIPTION
Assess wind turbine technical performance and reliability. Identify opportunities for improvement, and recommend remediation actions for operations. Conduct failure mode and effect analysis, root cause assessments, equipment troubleshooting, and system impact studies. Support field operations by performing studies in response to major component and systemic equipment failures. Use information / data to evaluate the future risk to wind turbines.

KNOWLEDGE/SKILLS
Rotational, generational, and power converter equipment knowledge. Reading and understanding plans, specifications, drawings, and technical documents. Assessing performance and reliability. Conducting failure mode and effect analysis, root cause assessments, equipment troubleshooting, and system impact studies. Analyzing and synthesizing data.

REQUIREMENTS
Education/Training
Bachelor’s degree in mechanical, civil, or electrical engineering, OR demonstration of equivalent work experience is required as a minimum.

Experience
2-3 years’ experience in reliability or design engineering. Wind power operations or Electric Utility operations preferred.

POSITION REPORTS TO
Engineering Manager

CAREER PATH MOVES FROM THIS ROLE
Engineering Manager, Project Manager
Safety Manager II

DESCRIPTION
Plan and implement the company safety programs. Demonstrate management skills and the ability to manage all aspects of a project safety program. Develop project specific HSE programs and procedures through interface and teamwork with Project / Operations management/supervisory personnel. Maintain Accountability Programs on all projects for safety-related issues and work with supervision to ensure uniform application of safety related discipline. Be the lead safety manager on a project. Serve as a mentor and manage other direct report safety/EHS managers. Demonstrate skills of a Safety Manager III by progressively increasing responsibility and authority. Develop and facilitate EHS project risk assessments. Lead and conduct accident, near miss, and damage investigations with Root Cause Analysis. Develop and monitor EHS performance, progress, preventive and corrective action plans.

KNOWLEDGE/SKILLS

REQUIREMENTS

Education/Training
Associates / Bachelor’s degree

Experience
Minimum of 3 years of construction experience managing safety. Demonstrated ability to provide a high level of safety leadership to both management and technicians.

Credentialing Required/Optional
Certified Hygiene Safety Technician (CHST) preferred. Or other BCSP certification preferred. Certification as an OSHA, MSHA. CPR/First Aid instructor preferred. GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered.

POSITION REPORTS TO
EHS Senior Leadership or a Group/Senior Safety Manager

CAREER PATH MOVES FROM THIS ROLE
Senior Safety Manager, Safety Manager III
Wind Instrumentation & Electrical Technician—Intermediate

DESCRIPTION
Perform maintenance, calibrate, install, and repair instrumentation including controls and electrical equipment at a wind energy facility. Maintain drawings, logs, and other project records. Carry out approved switching orders and perform high voltage switching. Troubleshoot and repair automated control systems, maintain and repair meteorological, fiber optic and electrical equipment, as well as instrumentation and SCADA systems. Work with voltages up to 230kV and climb towers in excess of 200 feet tall. Assist with high voltage system maintenance and repair and in inspecting renewable energy equipment. Interact with customers as directed by manager and ensure customer safety. Assist in all areas of site operations. Follow all health and safety and operating procedures.

KNOWLEDGE/SKILLS
Troubleshooting and maintaining equipment. Maintenance, calibration, installation and repair of instrumentation and controls for wind energy equipment. SCADA systems. Customer service. Ability to climb towers in excess of 200 feet tall and work with high voltages.

REQUIREMENTS

Education/Training
High school diploma or GED with completion of an apprentice program or equivalent experience. An Associate’s degree from a technical school is common.

Experience
Completion of an apprentice program or equivalent experience. Minimum three years of experience troubleshooting and maintaining equipment.

Credentialing Required/Optional
ISA CCST certification to Level II is common. GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered.

POSITION REPORTS TO
Wind Farm Site Manager

CAREER PATH MOVES FROM THIS ROLE
Wind Instrumentation and Electrical Technician Lead or Supervisor, Engineer (with degree), Project Manager
Wind Instrumentation & Electrical Technician—Senior

DESCRIPTION
Perform maintenance, calibrate, install, and repair instrumentation including controls and electrical equipment at a wind energy facility. Maintain drawings, logs and other project records. Carry out approved switching orders and perform high voltage switching. Troubleshoot and repair automated control systems, electrical equipment, instrumentation and SCADA systems. Provide guidance to less experienced technicians. Work with voltages up to 230kV and climb towers in excess of 200 feet tall. Assist with high voltage system maintenance and repair and in inspecting renewable energy equipment. Interact with customers as directed by manager and ensure customer safety. Assist in all areas of site operations. Follow all health and safety and operating procedures.

KNOWLEDGE/SKILLS
Troubleshooting and maintaining equipment. Maintenance, calibration, installation and repair of instrumentation and controls for wind energy equipment. SCADA systems. Customer service. Ability to climb towers in excess of 200 feet tall and work with high voltages.

REQUIREMENTS

Education/Training
High school diploma or GED with completion of an apprentice program or equivalent experience. An Associate's degree from a technical school is common.

Experience
Completion of an apprentice program or equivalent experience. Minimum five years of experience troubleshooting and maintaining equipment.

Credentialing Required/Optional
ISA CCST certification to Level II is common. GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered.

POSITION REPORTS TO
Wind Farm Site Manager

CAREER PATH MOVES FROM THIS ROLE
Wind Instrumentation and Electrical Technician Lead or Supervisor, Engineer (with degree), Project Manager
Wind Technician III
Wind Turbine Tech III, Wind Turbine Tech—Senior, Senior Technician

DESCRIPTION
Oversee safe operation and performance of scheduled and unscheduled mechanical, electrical and hydraulic maintenance activities for wind turbines and turbine components consistent with policies and procedures established for the wind farm site. Climb towers as required to perform maintenance, replacement and inspection. Inspect wind turbines. Assist with heavy equipment rigging and directing. Identify / troubleshoot failures, faults, and problems. Interpret fault reports, and implement corrective actions. Conduct acceptance and performance tests on systems and equipment. Write (some using computer) routine reports and correspondence. Maintain service logs, and monitor turbine performance and SCADA systems. Read blueprints and schematics. Collect turbine data for testing or research and analysis. Develop strategy for improved maintenance diagnostics and operation. Lead and train more junior technicians. Read and write business, operations and financial reports. Serve as the person in charge for work team. Interact with customers. Ensure health, safety and operating procedures are followed.

KNOWLEDGE/SKILLS
Reading schematics & blueprints. Diagnosing equipment problems. Physically fit enough to free climb 250ft multiple times/day while wearing 25+ lbs. of climbing gear under extraordinary weather conditions. High tower rescue. Electricity, Mechanical Fundamentals, Hydraulics, and Environmental, Health and Safety Fundamentals. Using mechanical and electronic testing equipment. Use of power and hydraulic tools. Working around low, medium and high voltage. Reading and interpreting operating and maintenance instructions, and procedures manuals. Writing routine reports and correspondence. Troubleshooting involving several variables. Leading and training other technicians.

REQUIREMENTS

Education/Training
Minimum one-year technical college or trade school or associate's degree. Preference for bachelor’s degree in technical field or equivalent experience. Advanced electrical and mechanical courses helpful. Valid driver’s license.

Experience
Minimum of 4 years of related work experience; ideally 6-8 years as a Wind Technician

Credentialing Required/Optional
Certifications required to perform the work, including but not limited to: First Aid / CPR, Tower Climb and Rescue, LOTO, Arc Flash, etc. GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered.

POSITION REPORTS TO
Wind Farm Site Manager

CAREER PATH MOVES FROM THIS ROLE
Wind Technician Lead or Supervisor, Engineer (with degree), Project Manager
Wind Technician Lead

Wind Maintenance Lead, Wind Turbine Tech Lead, Wind Services Lead, Lead Wind Technician

DESCRIPTION
Support the site/facility manager in operating the site. Oversee safe operation and performance of scheduled and unscheduled mechanical, electrical and hydraulic maintenance activities for wind turbines and turbine components consistent with policies and procedures established for the wind farm site. Climb towers as required to perform maintenance, replacement and inspection. Replace major turbine components. Assist with heavy equipment rigging and directing. Ensure the troubleshooting of failures, faults, and problems; interpret fault reports, and implement corrective actions. Conduct performance tests on systems and equipment. Write (some using computer) routine reports and correspondence. Maintain service logs, and monitor turbine performance and SCADA systems. Read blueprints and schematics. Collect turbine data for testing or research and analysis. Assist with high-voltage system maintenance and repair. Develop strategy for improved maintenance diagnostics and operation. Lead and train more junior technicians. Read and write business, operations and financial reports. Serve as the person in charge for work team. Interact with customers. Support public relations.

KNOWLEDGE/SKILLS
Reading schematics & blueprints. Diagnosing equipment problems. Physically fit enough to free climb 250ft multiple times/day while wearing 25+ lbs. of climbing gear under extraordinary weather conditions. High tower rescue. Electricity, Mechanical, Hydraulics, and Environmental, Health and Safety Fundamentals. Mechanical and electronic testing equipment. Use of power and hydraulic tools. Working around low, medium and high voltage. Writing routine reports and correspondence. Troubleshooting involving several variables. Leading and training other technicians. Customer service, public relations.
Wind Technician Supervisor

**Wind Turbine Technician Supervisor**

**DESCRIPTION**
Support the site / facility manager in operating the site. Provide first line of supervision for technicians. Oversee safe operation and performance of mechanical, electrical and hydraulic maintenance activities for wind turbines and turbine components consistent with policies and procedures established for the wind farm site. Schedule all maintenance, replacement and inspection. Ensure the troubleshooting of failures, faults, and problems; interpret fault reports, and implement corrective actions. Write (some using computer) routine reports and correspondence. Maintain service logs, and monitor turbine performance and SCADA systems. Read blueprints and schematics. Collect turbine data for testing or research and analysis. Assist with high-voltage system maintenance and repair. Develop strategy for improved maintenance diagnostics and operation. Lead and train more junior technicians. Interact with customers. Assist in the selection of team members and performance evaluations and coaching. Assume site manager role temporarily as needed. Balance and support facility public relations and community interactions. Ensure all health and safety and operating procedures are followed.

**KNOWLEDGE/SKILLS**
Diagnosing equipment problems. Physically fit enough to free climb 250ft under extraordinary weather conditions and for high tower rescue. Electricity, Mechanical, Hydraulics, and Environmental, Health and Safety Fundamentals. Mechanical and electronic testing equipment. Use of power and hydraulic tools. Working around low, medium and high voltage. Reading and interpreting operating and maintenance instructions, and procedure manuals. Writing routine reports and correspondence. Developing strategy. Troubleshooting involving complex variables. Leading and training crews. Customer service.

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**REQUIREMENTS**

**Education/Training**
Minimum High school diploma or GED, along with additional training in electrical/mechanical theory and leadership skills. Associate’s degree or Bachelor’s degree (electrical or technical) is preferred. Valid driver’s license.

**Experience**
Minimum of 3 years repair and maintenance with all wind turbine power generation equipment and systems. Experience with operating and maintenance procedures and planning techniques. Experience leading crews highly preferred. Demonstrated ability to maintain wind turbines at high availability. Experience creating reports and using MS Office software.

**Credentialing Required/Optional**
Certifications required to perform the work, including but not limited to: First Aid / CPR, Tower Climb and Rescue, LOTO, Arc Flash, etc. GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered.

**POSITION REPORTS TO**
Wind Site Leader, Project Manager

**CAREER PATH MOVES FROM THIS ROLE**
Site Leader, Engineer (with degree), Project Manager
Asset Manager

DESCRIPTION
Safely maximize the profitability of clean energy assets. Develop budgets for projects and determine project performance. Conduct variance analysis and financial analysis. Develop cash flow forecasting. Assist with managing cash flow to meet budget and contractual needs, and financial targets. Develop other analyses as needed. Collaborate with the operations engineering team to evaluate and improve operational performance. Work with project team in contracting process from vendor bid solicitation to contracting. Work with other staff on operational and maintenance improvements, repair & replacement. Assist project team with compliance with regulations and legal contract requirements, as well as with purchase, operating, and credit agreements, and deliverables. Interface and collaborate with engineers, service providers, local and state authorities, operations, landowners investors. Develop reports regarding asset optimization, and provide recommendations to field teams.

KNOWLEDGE/SKILLS

REQUIREMENTS

Education/Training
Bachelor’s degree in finance or engineering

Experience
Minimum 5 years’ experience in the utilities / energy sector; experience with financial metrics & analyses.

POSITION REPORTS TO
Director of Wind Operations or CFO

CAREER PATH MOVES FROM THIS ROLE
Director of Wind Operations or Engineering or Project Manager on other green energy systems
Composite Blade Manager

DESCRIPTION
Oversee and support blade repair crews and assist in performing complex repairs as necessary. Evaluate and approve employee blade competency levels for blade repair training. Develop new and amend existing work instructions for blade repairs used on renewables’ sites. Oversee certification for Composite Blade Training Program. Perform evaluations of blade repairs and blade teams in accordance with Safety, Quality and Productivity expectations. Evaluate and document blade damage dispositions for all categories of blade repairs. Perform and/or review blade repair reports, quality reviews, open cases and ensure appropriate follow-up measures are taken. May be required to review and certify blade repair. Monitor and report blade failure rates using reliability methodology. Support and review the procurement of blade assets necessary to complete jobs in timely manner.

KNOWLEDGE/SKILLS
Blade damage assessment, multiple manufacturers and repair types. EHS requirements. Non-Destructive Testing, composite materials. Integral, spar/shell and web blades, manufacturing of blades and/or designing blade repairs, performing quality inspections from damage identification to repair reporting. Operations and maintenance of electrical, mechanical, hydraulic, or pneumatic systems.

REQUIREMENTS
Education/Training
Associate (minimum 2-year) degree in aerospace, mechanical or related technical field, or equivalent experience.

Experience
7+ years’ of wind energy composite experience, experience working on integral, spar/shell and web blades, proven experience in manufacturing of blades and/or designing blade repairs, performing quality inspections from damage identification to repair reporting.

Credentialing Required/Optional
GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered. American Composites Manufacturers Association (ACMA): Certified Composites Technician (CCT), CCT—Advanced Composites (CCT—AC), and CCT—Wind Blade Repair

POSITION REPORTS TO
Maintenance Manager, O&M Manager, Director Wind

CAREER PATH MOVES FROM THIS ROLE
Maintenance Manager, O&M Manager, Director Wind
Director, Meteorology

DESCRIPTION
Develop and manage the meteorology program to support the company's wind energy generation business and to provide wind energy forecasts for locations of interest. Oversee the compilation of meteorological database for wind projects including archiving of past meteorological data, current operating projects, data, and development project data. Oversee the assessment of site suitability and micro-siting for development stage projects to optimize wind farm design. Manage Data Analysts, Field Technicians, and/or contractors providing meteorological tower erection, data analysis, numerical modeling, and forecasting. Provide analytical support and modeling capabilities to both finance and development from project conception through project operations.

KNOWLEDGE/SKILLS
Technical, commercial, and political aspects driving the wind industry, Meteorology, atmospheric science, wind energy forecasting, wind farm design, analyses, modeling.

REQUIREMENTS
Education/Training
Bachelor's and/or Master's degree in Meteorology, Atmospheric Science or a related science.

Experience
10-15 years’ of related meteorological experience.

POSITION REPORTS TO
Vice President Operations, VP Wind Business

CAREER PATH MOVES FROM THIS ROLE
Vice President Operations, VP Wind Business
Director Operations & Maintenance

DESCRIPTION
Manage overall strategic and operational activities for O&M projects in wind farms and potentially other clean power operations. Manage scheduled and unscheduled maintenance work, out of scope transactional work and inspection work. Monitor subcontractors with regard to crane, mechanical, electrical and other work. Develop mid-term and long-term strategic plans for all O&M site operations. Include business plans, hiring strategies, development of strategic capabilities, and contributions to new site setup.

KNOWLEDGE/SKILLS
Strong business acumen, ability to run O&M projects as a business. Highly familiar with site management structure in the US for complex technical projects in the clean power industry. Strong knowledge and appreciation of the technical, commercial, and political aspects driving the wind industry.

REQUIREMENTS
Education/Training
Bachelor’s degree in relevant discipline or similar degree/ experience required.

Experience
Minimum 5 years’ experience Wind Energy Service Operations with project planning, execution, and history of improvements.

POSITION REPORTS TO
Vice President Operations, VP Wind Business

CAREER PATH MOVES FROM THIS ROLE
Vice President Operations, VP Wind Business
Director, Quality & Operations Support

DESCRIPTION
Standardize and strengthen the company’s quality, environmental, and health & safety approach. Contribute to the quality culture throughout the company. Develop, document, and implement technical documentation, training programs and quality policies to facilitate continuous improvement and the development of a solid QHSE framework. Ensure that subject matter experts review the project specifications, engineering design, and OEM requirements and identify all Quality Control requirements. Train others and manage project QC inspections and documentation to verify compliance with construction or operations Quality Plan(s). Ensure that projects and processes are in line with statutory obligations.

KNOWLEDGE/SKILLS
Business development, site assessments and quality checks. Setting scopes and cost bases for service contracts. Optimizing Operation IT programs, managing and administering subcontractors and partner contractors, conducting investigations, analyzing and reporting findings. Developing and monitoring quality performance. Preventative and corrective action plans.

REQUIREMENTS
Education/Training
Bachelor’s degree required. Master’s degree is preferred.

Experience
10+ years’ of management experience.

POSITION REPORTS TO
Vice President Operations, VP Wind Onshore Business

CAREER PATH MOVES FROM THIS ROLE
Vice President Operations, VP Wind Onshore Business
Engineering Manager

DESCRIPTION
Provide engineering expertise and general support to the onsite operations and maintenance teams. Ensure successful operations strategy. Implement processes and procedures. Lead and develop the engineering team to work on engineering solutions. Read and interpret documents such as operating and maintenance instructions, procedures manuals, blueprints and schematics. Write reports and correspondence. Solve complex problems in various situations. Make presentations to customers and at trade shows. Conduct root cause analysis and support troubleshooting, fault analysis and technical investigations. Lead development of upgrades. Ensure repairs are performed according to standards and procedures. Develop and implement strategic and tactical plans.

KNOWLEDGE/SKILLS
Engineering expertise. Implementing and advising on operations strategy. Implementing processes and procedures. Leading and developing people. Developing engineering solutions. Reading and interpreting documents such as operating and maintenance instructions, procedures manuals, blueprints and schematics. Writing reports and correspondence. Solving complex problems. Making presentations to customers and at trade shows. Conducting root cause analysis and technical investigations. Leading development of upgrades.

REQUIREMENTS
Education/Training
Bachelor’s degree in Electrical Engineering or related field.

Experience
Minimum of 5 years of wind technical experience. Collaboration with and leadership of other teams. Experience with various equipment manufacturers, platforms, systems and components. Experience with system design and development of upgrades.

Credentialing Required/Optional
PE (Professional Engineer) certification may be required. GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered.

POSITION REPORTS TO
Director of Operations

CAREER PATH MOVES FROM THIS ROLE
Director of Operations, Project Manager
Maintenance Manager

DESCRIPTION
This position may also be combined with Operations manager (See Operations Manager / O&M Manager). Oversee operations and staff. The primary objective is accountability for the safe and compliant operations of the utility scale Wind farm. Support the site / facility manager in operating the site. Develop strategy for improved maintenance diagnostics and operation. Lead and train more junior maintenance personnel. Interact with customers. Ensure all health and safety and operating procedures are followed.

KNOWLEDGE/SKILLS

REQUIREMENTS

Education/Training
Technical School Diploma preferred or equivalent combination of education and experience. High school diploma or GED required.

Experience
5+ years’ experience in the operation of Wind Onshore facilities, or 7 years of equivalent experience in instrumentation & controls, MV/HV Electrical work. Qualified to perform all routine and emergency operations at an electric generation facility and HV Switchyard. Experience with operations financial management, forecasting and controls preferred. Experience working with facility systems and computerized maintenance management systems (SAP).

Credentialing Required/Optional
Journeyman electrician preferred.

POSITION REPORTS TO
Maintenance Director, Wind Onshore Director, Facility Manager

CAREER PATH MOVES FROM THIS ROLE
Maintenance Director, Construction Manager, Facility Manager
**Meteorologist—Senior**

**DESCRIPTION**
Monitor and manage data from meteorological towers to prepare reports and presentations to internal and external stakeholders. Assess site suitability and perform micro-siting for development stage projects to optimize wind farm design. Assist in developing the turbine layout for wind farms based on available meteorological data using advanced mapping software. Analyze performance of operating projects, including evaluation of turbine performance in order to minimize energy losses. Provide analytical support and model capabilities to both finance and development from project conception through project operations. Mentor less-experienced team members.

**KNOWLEDGE/SKILLS**
Technical, commercial, and political aspects driving the wind industry, Meteorology, atmospheric science, wind energy forecasting, wind farm design, analyses, modeling.

**REQUIREMENTS**

**Education/Training**
Bachelor’s and/or Master’s degree in Meteorology, Atmospheric Science or a related science.

**Experience**
Five to eight years of related meteorological experience.

**Credentialing Required/Optional**
Journeyman electrician preferred.

**POSITION REPORTS TO**
Director, Meteorology

**CAREER PATH MOVES FROM THIS ROLE**
Director, Meteorology
Operations Manager
O&M Manager, Site Manager, Facility Manager

DESCRIPTION
Manage all wind farm operations day-to-day at the site for operations (and if job also includes, maintenance). Provide hands-on technical support and supervision for generation equipment and power delivery systems, as well as with other facility civil work, building maintenance, and upkeep. Work with engineering for diagnostics, and to ensure operations. Manage the monitoring of error codes and ensure reporting occurs. If job entails, manage schedule for maintenance and major repairs and ensure parts are ordered and coordinated. Ensure a positive working environment by maintaining discipline, morale, and employee relations. Set goals, prepare performance reviews, salary recommendations, and disciplinary recommendations. Manage the hiring and training of personnel on site. Meet or exceed production and financial targets. Work closely with asset management and accounting to manage P&L/budget, including planning, management and reporting.

KNOWLEDGE/SKILLS
Leadership & supervision in renewable energy, management and communication skills, organization, detail orientation, preparing budgets, keeping records, computer skills, renewable energy, wind farm operations, maintenance practices in renewable energy, mechanical and electrical troubleshooting and maintenance. Reading blueprints, schematics, and operating and maintenance manuals, as well as procedures. Ordering materials, tools & supplies. Ability to climb towers > 400ft.

Requirements

Education/Training
BA/BS in engineering, business; related field or commensurate experience.

Experience
Leadership and technical experience in the power generation, renewable energy industry, electrical marine lines, military operations or related fields. Experience with mechanical and electrical troubleshooting and maintenance.

Credentialing Required/Optional
GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered.

Position Reports To
Director O&M (Operations & Maintenance), Regional Operations Manager, Asset Manager/ Director

Career Path Moves From This Role
Director O&M (Operations & Maintenance), Regional Operations Manager, Asset Director
Reliability Engineering Manager

DESCRIPTION
Deliver reliability analytics to the organization. Provide leadership and expertise to the reliability team, which is responsible for development of the reliability analytics for installed energy components, new products under development, and quality issues in the field. Coordinate with other areas across the organization to develop reliability models that provide cost projections to assess and manage cost risk for wind assets. Work cross-functionally to develop a strategy that supports risk management through reliability modeling. Track and trend reliability predictions compared against actuals and targets. Provide input in new product development through reliability modeling. Provide reliability insights to properly develop and prioritize productivity & repairs projects.

KNOWLEDGE/SKILLS
Reliability modeling techniques and technologies, problem solving; Reliasoft, JMP, and/or SAS modeling software, R or Python programming language.

REQUIREMENTS

Education/Training
Bachelor’s degree in Engineering, Physics, Chemistry, Mathematics, or Computer Science.

Experience
Minimum 7 years’ experience, including technical and leadership experience. Wind experience in design, installation, operation and maintenance.

POSITION REPORTS TO
Reliability Director, Wind Onshore Director

CAREER PATH MOVES FROM THIS ROLE
Reliability Director, Installation or Design Engineer
Safety Manager III

DESCRIPTION
Plan and implement the company safety programs. Demonstrate management skills and the ability to manage all aspects of a project safety program. Develop project specific HSE programs and procedures through interface and teamwork with management/supervisory personnel. Maintain Accountability Programs on all projects for safety-related issues and work with supervision to ensure uniform application of safety related discipline. Be the lead safety manager on a project when necessary. Lead job site safety/EHS department. Function under the authority and direction of EHS Leadership. Serve as a mentor & provide active leadership for Safety/HSE personnel. Develop and facilitate EHS project risk assessments. Lead and conduct accident, near miss, and damage investigations with Root Cause Analysis. Develop & monitor EHS performance, preventive and corrective action plans.

KNOWLEDGE/SKILLS

REQUIREMENTS

Education/Training
4-year degree in Safety or related field.

Experience
Minimum of 5 years of construction experience managing safety or a related field. Demonstrated ability to provide a high level of safety leadership to both management and technicians.

Credentialing Required/Optional
Certified Hygiene Safety Technician (CHST) or higher BSCP certification. OSHA, MSHA and CPR/First Aid instructor. GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered.

POSITION REPORTS TO
EHS Senior Leadership or a Group/Senior Safety Manager

CAREER PATH MOVES FROM THIS ROLE
Senior Safety Manager
Senior Financial Analyst & Planner

DESCRIPTION
Manage the range of assets for the business, from a financial standpoint. Prepare financial statements, forecasts, and reports. Manage the project financing process for various projects. Obtain construction loans, ensure development of equity, and secure debt vehicles. Manage project debts. Assist CFO and CEO with developing expansion or acquisition opportunities based on knowledge of the wind energy market. Manage financial close process. Ensure that business is in compliance and legal requirements are met. Provide supervision to other financial staff. Analyze and propose ways for the company to reduce costs. Assist management in making financial decisions. Perform data analysis and advise senior management on maximizing business profits and reducing costs.

KNOWLEDGE/SKILLS

REQUIREMENTS
Education/Training
Bachelor’s degree required; Graduate degree often required.

Experience
5-10 years of experience in another business or financial occupation, such as an accountant, financial analyst or auditor.

POSITION REPORTS TO
Finance Manager or Director, or CFO

CAREER PATH MOVES FROM THIS ROLE
Finance Manager
Advanced Manufacturing Technician

Production Technician, Manufacturing Maintenance Technician

DESCRIPTION
Use mechanical, hydraulic, electrical, electronic, pneumatic or CNC technologies to set up, test, adjust and perform maintenance on Wind Onshore manufacturing equipment. With appropriate training and experience, these technicians may also repair or operate, or develop programming for electronic or computer-controlled mechanical systems. Observe and track quality and productivity of manufacturing processes and equipment. Work with mechanical engineers to analyze processes and equipment and develop solutions and improvements. Inspect finished products for quality and adherence to specifications.

KNOWLEDGE/SKILLS
Assembler / Fabricator

DESCRIPTION
Assemble the parts that go into wind products. Use various machines and hand tools to create and assemble wind turbine components, wind blades, tower structures, instrument / electronic panels & devices, and other parts. Use schematics and blueprints to create and assemble. Conduct quality assurance of parts and assemblies. Collaborate with engineering and design in product development or changes to product design. Use various electronic, robotic, computer, or hand tools to fit components together and make alignment adjustments. Create wind blades by combining layers of fabrics, adhesives and protective coatings. Cut, trim, mold components. For assembly, connect parts with bolts & screws or by welding or soldering. Use hand tools, robots, etc. to assist in assembly. Assist in the testing of new products.

KNOWLEDGE/SKILLS

REQUIREMENTS

Education/Training
High school graduate or GED.

Experience
At least one year of experience in the assembly of small, intricate parts and assemblies and in performing expert soldering. Two years of technical experience preferred.

Credentialing Required/Optional
GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered.

POSITION REPORTS TO
Manufacturing Supervisor or Lead

CAREER PATH MOVES FROM THIS ROLE
Machinist, Tool & Die Maker
Inspector / Quality Control

**DESCRIPTION**
Responsible for verifying that Wind Onshore components of tower, nacelle and blades, are manufactured according to specifications, move correctly and are properly lubricated. (Some inspectors may focus on the nacelle, others on the blades, etc.) Perform type of inspection required for part or component—quick visual or longer, detailed one. Record results of examinations and submit quality control reports. Ensure that design specifications are followed precisely, to maintain the quality of the manufacturing process.

**KNOWLEDGE/SKILLS**
Quality control and inspection practices, material science, reading design schematics and specifications, testing procedures and tools, writing quality control reports.

**REQUIREMENTS**

**Education/Training**
Minimum associate's degree in quality control, material science, or related field. Bachelor's degree preferred.

**Experience**
2+ years’ inspection and quality control of manufactured wind energy components and structures. Inspection and quality control of Wind Onshore components preferred.

**Credentialing Required/Optional**
GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered.

**POSITION REPORTS TO**
Quality Control Manager

**CAREER PATH MOVES FROM THIS ROLE**
Quality Control Manager, Mechanical or Electrical Engineer (with education)
Blade Testing Engineer—Intermediate

**DESCRIPTION**
Under broad supervision, support the continuous improvement of blade product quality to control and improve upon the non-conformities across manufacturing facilities. Test composite materials, working in the range from small scale testing to full scale testing of wind turbine blades. Update team regarding test findings for all alarms and warnings. Perform troubleshooting on Wind Turbine anomalies to determine root cause and communicate action needed. Aid in the support of blade repair methods using a statistical approach for continuous improvement. Review mechanical design, composite material, and systems. Review material defects. Help to develop, verify, and validate test methods in blade testing and repair documentation.

**KNOWLEDGE/SKILLS**
Strong knowledge of composite materials and process. Basic knowledge in SAP or QDA. Mechanical design and Mechanical system in wind blade production.

**REQUIREMENTS**

**Education/Training**
Bachelor’s Degree in Mechanical/Composites.

**Experience**
At least three to five years of experience in mechanical engineering or other relevant experience.

**Credentialing Required/Optional**
GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered.

**POSITION REPORTS TO**
Senior or Advanced Blade Testing Engineer

**CAREER PATH MOVES FROM THIS ROLE**
Senior or Advanced Blade Testing Engineer, Other Senior or Advanced Engineer
Blade Testing Engineer—Entry

**DESCRIPTION**
Under close supervision, support the continuous improvement of blade product quality to control and improve upon the non-conformities across manufacturing facilities. Test composite materials, working in the range from small scale testing to full scale testing of wind turbine blades. Update team regarding test findings for all alarms and warnings. Perform troubleshooting on Wind Turbine anomalies to determine root cause, and communicate action needed. Aid in the support of blade repair efforts using a statistical approach for continuous improvement. Review mechanical design, composite material, and systems. Review material defects. Help to develop, verify, and validate test methods in blade testing and repair documentation.

**KNOWLEDGE/SKILLS**
Strong knowledge of composite materials and process. Basic knowledge in SAP or QDA. Mechanical system in wind blade production. Mechanical design and systems.

**REQUIREMENTS**

**Education/Training**
Bachelor’s Degree in Mechanical/Composites.

**Experience**
At least one to two years of experience in mechanical engineering or other relevant experience.

**Credentialing Required/Optional**
GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered.

**POSITION REPORTS TO**
Intermediate, Senior or Advanced Blade Testing Engineer

**CAREER PATH MOVES FROM THIS ROLE**
Intermediate Blade Testing Engineer, Other Intermediate Engineer
Industrial Engineer
Manufacturing Engineer

DESCRIPTION
Using knowledge from various engineering disciplines, develop processes, policies, and practices to prevent or mitigate health, safety, or environmental issues with Wind Onshore operations. Conduct environmental impact studies and recommend management and mitigation strategies. Monitor and address environmental and hazardous concerns such as materials and facility practices. Work with regulatory personnel. Conduct inspections of Wind Onshore sites and facilities, evaluating compliance with environmental, health and safety regulations. Monitor improvements and needed changes to practices.

KNOWLEDGE/SKILLS
Quality control, Wind Onshore systems, process and system design, operations analysis, statistical analysis, technology design, computer programming, equipment evaluation, mathematical modeling.
Blade Testing Engineer—Advanced

DESCRIPTION
Provide leadership and direction to employees who are training in their roles. Ensure continuous improvement to control and improve upon the non-conformities in blade product quality, across the manufacturing plants. Understand the mechanical system in wind blade production. Test composite materials, working in the range from small scale testing to full scale testing of wind turbine blades. Update team regarding test findings for all alarms and warnings. Perform troubleshooting on Wind Turbine anomalies to determine root cause and communicate action needed. Support blade repair methods using a statistical approach for continuous improvement. Review and understand mechanical design, composite material, and systems. Review material defects. Develop, verify, and validate test methods in blade used in testing and repair documentation.

KNOWLEDGE/SKILLS
Strong knowledge of mechanical engineering, composite materials and process, SAP or QDA. Mechanical design and systems.
Blade Testing Engineer—Senior

**DESCRIPTION**
Mentor less-experienced team members. Ensure the continuous improvement in blade product quality to control and improve upon the non-conformities across manufacturing plants. Test composite materials, working in the range from small scale testing to full scale testing of wind turbine blades. Update team regarding test findings for all alarms and warnings. Perform troubleshooting on Wind Turbine anomalies to determine root cause and communicate action needed. Aid in the support of blade repair methods using a statistical approach for continuous improvement. Review mechanical design, composite material, and systems. Review material defects. Help to develop, verify, and validate test methods in blade testing and repair documentation. Support blade repair methods use a statistical approach for continuous improvement. Review and understand mechanical design, composite material, and systems. Review material defects. Develop, verify, and validate test methods in blade testing and repair documentation.

**KNOWLEDGE/SKILLS**
Strong knowledge of composite materials and process. Basic knowledge in SAP or QDA. Mechanical system in wind blade production. Mechanical design.

**REQUIREMENTS**

**Education/Training**
Bachelor’s Degree or Master’s Degree in Mechanical/Composites.

**Experience**
At least five years of experience in mechanical engineering or other relevant experience.

**Credentialing Required/Optional**
PE (Professional Engineer) desirable. GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered.

**POSITION REPORTS TO**
Engineering Manager or Director, or Manufacturing or Operations Manager

**CAREER PATH MOVES FROM THIS ROLE**
Engineering Manager or Director, Project Manager
Industrial Engineering Manager
Manufacturing Engineer Manager

DESCRIPTION
Direct research & development activities that support engineering initiatives. Plan and lead engineering activities (industrial / manufacturing). Provide leadership to engineers. Design and develop components and systems. Work with engineers to develop quality standards for components, parts, assembly and testing. Manage engineering support needed for sales group for contracts, proposals, and customer meetings. Make detailed resource plans and schedules to reach technical goals. Direct and coordinate the design of equipment and machinery. Discuss organizational engineering needs with other leaders. Determine budgets, staff needs, and resource needs. Hire and train staff.

KNOWLEDGE/SKILLS

REQUIREMENTS
Education/Training
Bachelor’s degree in relevant engineering discipline required. Masters degree preferred.

Experience
6-10 years experience as an engineer. Experience leading engineering teams and working on complex projects.

Credentialing Required/Optional
PE (Professional Engineer) a plus.

POSITION REPORTS TO
Engineering Director, Director Wind Onshore

CAREER PATH MOVES FROM THIS ROLE
Engineering Director, Manager of other engineering discipline
Buyer
Procurement Specialist, Procurement Associate

DESCRIPTION
Provide commercial support to pre & post award projects and report to the assigned Procurement Manager or Director of Procurement. Prepare and issue RFP equipment packages to suppliers. Work with engineering to answer RFP questions. Receive and evaluate proposals. Negotiate pricing with suppliers. Work closely with engineering project management, scheduling, legal and insurance. Secure completed purchase requisition and purchase terms and conditions, and confirm final purchase order. Monitor, support and administer all issued purchase orders. Manage stakeholder & supplier interaction. Assist in schedule development for project proposals. Assist estimating with equipment scope and price.

KNOWLEDGE/SKILLS

REQUIREMENTS

Education/Training
4 year college degree in business field or combination of education and experience. Additional financial, business or legal degree and additional wind training needed for advancement.

Experience
Minimum 3 years' experience in procurement (preferably with engineering or construction industries).

POSITION REPORTS TO
Senior Buyer or Procurement Manager or Director

CAREER PATH MOVES FROM THIS ROLE
Senior Buyer or Procurement Manager or Director
Commissioning Technician

DESCRIPTION
Work with team to perform required system inspections on utility wind power facilities. Perform visual and mechanical inspections and electrical testing to specifications of construction documents, prior to energization date. Document all inspection findings and test results, and communicate the findings and test results with Commissioning Lead. Document and assist with wind system troubleshooting and corrective actions. Oversee third party testing and inspections. (Transformers, audits, cable tests, Fiber optics, etc.) Ensure site documentation is prepared for upcoming sites. Ensure proper use of PPE and conformity to safety procedures. Care for tools and report any missing or broken tools and needed supplies to Lead.

KNOWLEDGE/SKILLS
Wind systems, use of multi-meter, reading and using electrical single-line and three-line diagrams, safe work practices, visual and mechanical inspections and electrical testing.
Concrete Worker

DESCRIPTION
Perform duties such as concrete placement, rebar tying, concrete finishing, and manual lifting.

KNOWLEDGE/SKILLS
Concrete pouring. Rebar tying. Concrete finishing.

REQUIREMENTS

Education/Training
HS Diploma, experience in concrete work, Apprenticeship preferred

Experience
1-2 years’ experience

Credentialing Required/Optional
GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered.

POSITION REPORTS TO
Foreman, Construction Manager

CAREER PATH MOVES FROM THIS ROLE
Foreman, Technician (with education)
### Crane Operator

**DESCRIPTION**
Responsible for operating crane (hydro cranes, crawler cranes, and/or pile driving hammers) to hoist, move, and place materials and objects. Operate levers and pedals to raise and lower loads, and move loads around. Monitor load hook-up and safety. Clean and maintain equipment. Perform daily inspections of equipment. Read and interpret procedures, directions, drawings, and calculate loads.

**KNOWLEDGE/SKILLS**
Equipment capacity, rigging, inspections, maintenance, equipment operation, reading & interpreting documents (safety rules, operating & maintenance instructions, procedure manuals); Writing reports, math skills, computing rate, ratio, percent. Drawing & interpreting graphs.

### REQUIREMENTS

**Education/Training**
HS diploma or GED preferred. May require apprenticeship on equipment.

**Experience**
1-3 years' related experience and/or training or equivalent combination of training & experience.

**Credentialing Required/Optional**
Class A CDL to haul equipment; NCCCO Certification, GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered. Municipality may require license to operate or transport equipment. Pile-driver operators may need a crane license in some cities & states.

### POSITION REPORTS TO
Construction Manager or Foreman or Supervisor, Equipment Company Operator

### CAREER PATH MOVES FROM THIS ROLE
Construction Foreman or Construction Supervisor
Equipment Operator—Light

**DESCRIPTION**
Perform miscellaneous light equipment operations across the project for construction, installation or maintenance.

**KNOWLEDGE/SKILLS**
Equipment capacity, rigging, inspections, maintenance, equipment operation, reading & interpreting documents (safety rules, operating & maintenance instructions, procedure manuals); Writing reports, math skills, computing rate, ratio, percent. Drawing & interpreting graphs.

**REQUIREMENTS**
**Education/Training**
HS Diploma. Training on equipment. May require apprenticeship on equipment.

**Experience**
1-3 years’ experience operating light equipment.

**Credentialing Required/Optional**
May require some certifications (i.e. forklift operator), Class A CDL to haul equipment;

**POSITION REPORTS TO**
Construction Manager or Foreman or Supervisor, Equipment Company Operator, Medium or Heavy Equipment Operator

**CAREER PATH MOVES FROM THIS ROLE**
Equipment Operator—Medium, Equipment Operator—Light
Laborer
General Laborer

DESCRIPTION
Responsible for performing tasks involving physical labor at construction projects, excavations, and demolition sites while operating hand and power tools of all types, and other equipment and instruments. Lift and carry materials, tools & supplies. Fill expansion joints with caulking and rebar placement. Clean and prepare sites, dig holes & trenches, clean up rubble, and assist other craft workers. Dig, spread and level dirt and gravel is a pick or shovel. Perform variety of routine, non-machine tasks.

KNOWLEDGE/SKILLS

REQUIREMENTS
Education/Training
High School diploma or GED.

Experience
1-3 months related experience and/or training or equivalent combination of education & experience.

POSITION REPORTS TO
Craft Supervisor or Foreman

CAREER PATH MOVES FROM THIS ROLE
Craft / Tradesman (with training)
Site Surveyor

**DESCRIPTION**
Perform miscellaneous duties across the project to include surveying, quality control, and scheduling. Survey and inspect site readiness and capabilities for projects. Conduct land title surveys, topographic surveys, boundary surveys, and construction-staking and as-built surveys. Prepare legal descriptions. Coordinate with crews and technicians. Perform quality control of field activities, project deliverables and related calculations.

**KNOWLEDGE/SKILLS**
Surveying, Quality Control, Calculations/math, GIS & mapping, LIDAR, Auto-CAD.
Truck Driver

DESCRIPTION
Drive a truck / trailer to transport several types of construction equipment and materials throughout and between jobsites. Load and unload equipment and materials. Secure loads according to load limits. Perform basic vehicle and equipment maintenance such as filling tank with gas, checking oil, keeping vehicle and equipment clean and ensuring required inspections are completed. Haul counterweights for cranes, construction equipment, and also water, sand, and gravel. Ensure safety procedures and safe driving practices are followed. Communicate between office / shop / jobsite regarding status of hauls, any concerns or issues with equipment and materials. Perform daily inspection of truck. Obtain required permits. Advise supervisor if truck needs major repairs and maintenance.

KNOWLEDGE/SKILLS
Reading cargo manifests and delivery instructions, writing correspondence, math skills and able to figure or calculate load size versus requirements.

REQUIREMENTS

Education/Training
HS diploma or GED; 1-year certificate from college or technical school, driving school.

Experience
1-2 years experience transporting construction equipment and materials.

Credentialing Required/Optional
Valid Class A commercial driver’s license. Wind Energy Transportation Professional Advanced Certification (WITPAC—NAPVSA.org) desirable.

POSITION REPORTS TO
Transportation Manager or Superintendent, Site Manager

CAREER PATH MOVES FROM THIS ROLE
Equipment Operator, Transportation Supervisor or Coordinator
Warehouse Assistant
Warehouse Support

DESCRIPTION
Responsible for working directly with Warehouse Manager to coordinate the shipping, receiving and inventory. Responsible for cleanliness and organization of warehouse. Inspect all equipment and rigging coming in or leaving the warehouse. Assist with loading and unloading trucks. Prepare orders, process requests, and pull equipment and materials. Assist with inventory management. Interpret specifications and work orders. Requisition, obtain and distribute supplies and materials. Read, prepare, collect and maintain reports.

KNOWLEDGE/SKILLS
Construction practices, warehouse practices, reading and interpreting specifications and reports. Using tools and equipment. Inventory. Data entry and computer skills. Lifting and moving objects regularly between 10 and 50 pounds; occasionally lifting much heavier.

REQUIREMENTS
Education/Training
HS Diploma or GED preferred. 1-2 year certificate from college or technical school and/or 6 months to one year of related experience.

Experience
Training or 6 months to a year of related experience.

POSITION REPORTS TO
Warehouse Foreman, Supervisor or Manager; Supply Chain Manager

CAREER PATH MOVES FROM THIS ROLE
Warehouse Foreman
Construction Manager

DESCRIPTION
Responsible for directing, planning, and managing Wind Onshore construction project(s) on jobsite. Oversee all construction contracts within area of responsibility, and supported by Site Teams. Monitor and oversee construction activities and personnel. Keep Superintendent II and Construction Manager II informed of overall construction activity progress and performance. Monitor and review construction performance indicators. Manage construction package elements of procurement process. Follow all health and safety procedures.

KNOWLEDGE/SKILLS
Business development, Wind Onshore systems, estimating, construction management, electrical systems and SCADA, planning, procurement, health & safety, MS Office, reading and interpreting blueprints, procedures, government regulations, presentations to management and public groups, writing reports, managing construction crew, interpreting technical instructions using math, algebra & geometry.

REQUIREMENTS
Education/Training
Bachelor’s degree (BS) in Construction management, engineering or related field; equivalent combination of education and experience.

Experience
Three years of construction industry experience / knowledge of construction techniques, estimating and construction management.

POSITION REPORTS TO
Project Manager or Director of Wind Onshore Projects

CAREER PATH MOVES FROM THIS ROLE
Construction Manager II or Project Manager or Superintendent
Construction Manager II

DESCRIPTION
Responsible for directing, planning, and managing Wind Onshore construction project(s) on jobsite. Oversee all construction contracts within area of responsibility, and supported by Site Teams. Monitor and oversee construction activities and personnel. Keep Superintendent II and Construction Manager II informed of overall construction activity progress and performance. Monitor and review construction performance indicators. Manage construction package elements of procurement process. Follow all health and safety procedures.

KNOWLEDGE/SKILLS
Business development, Wind Onshore systems, estimating, construction management, electrical systems and SCADA, planning, procurement, health & safety, MS Office, reading and interpreting blueprints, procedures, government regulations, presentations to management and public groups, writing reports, managing construction crew, interpreting technical instructions using math, algebra & geometry.

REQUIREMENTS

Education/Training
Bachelor’s degree (BS) in Construction management, engineering or related field; equivalent combination of education and experience).

Experience
Five years in a supervisory role of construction industry including construction techniques, estimating and construction management.

POSITION REPORTS TO
Project Manager or Director of Wind Onshore Projects

CAREER PATH MOVES FROM THIS ROLE
Construction Manager III or Project Manager or Superintendent
Equipment Operator—Heavy

Equipment Operator

DESCRIPTION
Operate heavy machinery, such as a tractor, bulldozer, backhoe, or excavator, for the purposes of construction, demolition, or excavation. May be responsible for routine maintenance or repairs.

KNOWLEDGE/SKILLS
Equipment capacity, rigging, inspections, maintenance, equipment operation, reading & interpreting documents (safety rules, operating & maintenance instructions, procedure manuals); Writing reports, math skills, computing rate, ratio, percent. Drawing & interpreting graphs.

REQUIREMENTS

Education/Training
HS Diploma. For Crane—NCCCO or similar training on other Equipment. May require apprenticeship on equipment.

Experience
Minimum 5 years experience operating heavy equipment.

Credentialing Required/Optional
Class A CDL to haul equipment; NCCCO Certification, Municipality may require license to operate or transport equipment. Pile-driver operators may need a crane license in some cities & states. GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered.

POSITION REPORTS TO
Construction Manager or Foreman or Supervisor, Equipment Company Operator

CAREER PATH MOVES FROM THIS ROLE
Construction Foreman or Construction Supervisor
Equipment Operator—Medium

DESCRIPTION
Operate medium machinery, for the purposes of construction, demolition, or excavation. May be responsible for routine maintenance or repairs.

KNOWLEDGE/SKILLS
Equipment capacity, rigging, inspections, maintenance, equipment operation, reading & interpreting documents (safety rules, operating & maintenance instructions, procedure manuals); Writing reports, math skills, computing rate, ratio, percent.  Drawing & interpreting graphs.

REQUIREMENTS

Education/Training
HS Diploma.  For Crane—NCCCO or similar training on other Equipment. May require apprenticeship on equipment.

Experience
3 Years’ experience operating medium equipment.

Credentialing Required/Optional
Class A CDL to haul equipment; NCCCO Certification, Municipality may require license to operate or transport equipment. Pile-driver operators may need a crane license in some cities & states.

POSITION REPORTS TO
Construction Manager or Foreman or Supervisor, Equipment Company Operator, Heavy Equipment Operator

CAREER PATH MOVES FROM THIS ROLE
Equipment Operator—Heavy, Construction Foreman or Construction Supervisor
Journeyman Electrician

DESCRIPTION
Responsible for installing, maintaining, and repairing electrical wiring, equipment, fixtures and ensuring that work is in accordance with relevant codes. Ensure the proper functioning of all electrical units and components. Complete scheduled checks to spot malfunctions. Use electrical testing and repair equipment. Maintain records of all electrical inventories and place orders for spare parts and equipment. Maintain a log of electrical repair and maintenance works. Journeyman Electricians may supervise Apprentice Electricians.

KNOWLEDGE/SKILLS
Long-term on the job training. Repair or replace complex electrical lines and equipment. Electrical systems and the appropriate tools needed to fix and maintain them. Troubleshooting skills—must diagnose problems in increasingly complex electrical systems. Able to lift heavy tools, cables, and equipment on a regular basis.

REQUIREMENTS

Education/Training
Bachelor’s degree or an Associate’s degree or diploma in electrical engineering, mechanical engineering or related field.

Experience
4+ years working as an electrician.

Credentialing Required/Optional
“Journeyman” electrical license, GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered.

POSITION REPORTS TO
Construction Manager, Project Manager, Electrician Supervisor or Manager

CAREER PATH MOVES FROM THIS ROLE
Electrician Supervisor or Manager
Site Inspector
QA Inspector, Inspector & Quality Control Coordinator, Site Assessor

DESCRIPTION
Inspect the wind project, job site, construction, and maintain quality control. Determine degree of conformance of materials, equipment and installation of materials and equipment to specifications, codes and design requirements. Generate reports of conditions found during inspection activities. Notify management of significant problems. Complete documentation to attest to satisfactory completion of inspection or test activities. Provide oversight of activities relating to the construction for mechanical, civil, and electrical components of wind sites including: substations, roads, environmental, excavations, concrete, rebar, transmission lines, underground utilities, steel erection, and a wide variety of other mechanical and electrical equipment. Ensure that defined requirements of schedule and quality are met. Prevent deficiencies through pre-construction quality control inspections, while working with field teams. Interface with field supervision to maintain an open line of communication and reporting. Monitor job progress, schedules and subcontractor performance.

KNOWLEDGE/SKILLS
Understanding of how the project is to be completed properly per code and customer requirements. Work plans or work process documentation. GPS operations. NEC, NESC, ASTM’s, ANSI, IEEE and local building and construction codes. 29 CFR 1910 and 1926, ensuring OSHA standards are being maintained.

REQUIREMENTS

Education/Training
Minimum High School diploma & experience; degree preferred. 4 year apprentice program or other training (combined with experience). An OSHA 30 hour is preferred.

Experience
Previous skilled labor experience; minimum 3 years’ experience in wind onshore; prefer experience with work plans or work process documentation. Familiarity with GPS operations. 5 years supervising crews in electrical, structural, mechanical or civil work.

Credentialing Required/Optional
GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered.

POSITION REPORTS TO
Construction Manager, Director of Wind Projects

CAREER PATH MOVES FROM THIS ROLE
Construction Manager, Project Manager
Commissioning Manager

DESCRIPTION
Oversee project development, construction and commissioning operations from the Wind Onshore project kickoff through customer acceptance. Responsible for planning, checking, quality assurance, monitoring, evaluation, and preparation of commissioning reports to management. Staff, train, and manage Wind Onshore commissioning team personnel. Ensure all EHS policies and procedures are followed. Create guidelines and procedures to ensure all project activities are completed according to a standard process, project plan and budget. Conduct routine audits as necessary. Interact with engineering to troubleshoot any technical issues. Manage budgets.

KNOWLEDGE/SKILLS
Electrical and mechanical theory. Team supervision. Budgeting procedures. Commissioning operations and practices for Wind energy projects. Interpreting engineering drawings.

REQUIREMENTS

Education/Training
Bachelor’s degree in engineering or technical discipline; Masters degree preferred.

Experience
5-7 years Experience with power generation equipment and commissioning procedures. Construction and commissioning experience in structural assembly, electrical protection and control systems related to the site work.

Credentialing Required/Optional
Optional: REP—Renewable Energy Professional and Certified Energy Manager from the Association of Energy Engineers (aeecenter.org)

POSITION REPORTS TO
Director, Wind Onshore Commissioning; Director, Wind Onshore

CAREER PATH MOVES FROM THIS ROLE
Project Manager—Commissioning; Director, Wind Onshore Commissioning
Construction Manager III

DESCRIPTION
Responsible for directing, planning, and managing Wind Onshore construction project(s) on jobsite from inception to completion. Responsible for overall direction and evaluation. Oversee all construction contracts within area of responsibility, and supported by Site Teams. Monitor and oversee construction activities and personnel. Keep Superintendent II and Construction Manager II informed of overall construction activity progress and performance. Monitor and review construction performance indicators. Manage construction package elements of procurement process. Follow all health and safety procedures.

KNOWLEDGE/SKILLS
Business development, Wind Onshore systems, estimating, construction management, electrical systems and SCADA, planning, procurement, health & safety, MS Office, reading and interpreting blueprints, procedures, government regulations, presentations to management and public groups, writing reports, interpreting technical instructions using math, algebra & geometry, Supervising construction crew, Construction tools, machinery methods & procedures, Forecasting for projects.

REQUIREMENTS

Education/Training
Bachelor’s degree (BS) in Construction management, engineering or related field; equivalent combination of education and experience.

Experience
Seven years in a supervisory role of construction industry including construction techniques, estimating and construction management.

POSITION REPORTS TO
Project Manager or Director of Wind Onshore Projects

CAREER PATH MOVES FROM THIS ROLE
Director of Wind Onshore Projects
**Project Manager I**
(May serve as Construction Manager I)

**DESCRIPTION**
Provide technical support of development activities. Manage project(s) from office location and/or remote project site and the construction of wind sites, concentrating on safety, schedule, budget, labor relations, customer satisfaction, costs and quality compliance. Responsible for holding and understanding specifications of job in regards to the specific project. Serve as the construction manager OR work with the construction manager. Handle contract management—change orders, change in scope, change in field conditions, change in ability to perform as bid with means and methods. Create and manage budgets. Manage contractor and vendor relationships including identifying and mitigating potential risk exposure and cost overrun exposure. Plan needed equipment and personnel and manage purchase orders. Manage and update reports, order logs, and communication logs. Manage costs of the project and projected changes based on weather change orders, etc. Complete due diligence of all construction practices, procedures, and construction documents.

**KNOWLEDGE/SKILLS**
Knowledge of basic engineering concepts. Familiarity with wind power generation systems and equipment, overhead and underground cable installation, reactive power compensation equipment, SCADA systems, cost analysis, constructability knowledge, safety, leadership, familiarity with equipment and creating / managing contracts and contract law.

**REQUIREMENTS**

**Education/Training**
High school diploma plus experience required. Bachelor of Science degree in engineering or construction management is desired.

**Experience**
5-10 years progressively responsible experience in the clean energy industry with wind energy experience.

**Credentialing Required/Optional**
PMP certification preferred. GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered.

**POSITION REPORTS TO**
Project Manager II, Construction Manager, Site Manager, Director of Wind Onshore

**CAREER PATH MOVES FROM THIS ROLE**
Project Manager II, Construction Manager, Site Manager
Project Manager II
(May serve as Construction Manager II)

DESCRIPTION
Provide technical support of development activities. Manage project(s) from office location and/or remote project site and the construction of wind sites, concentrating on safety, schedule, budget, labor relations, customer satisfaction, costs and quality compliance. Responsible for holding and understanding specifications of job in regards to specific project. Serve as construction manager OR work with construction manager. Handle contract management—change orders, changes in scope, changes in field conditions, changes in ability to perform as bid with means and methods. Create and manage budgets. Manage contractor and vendor relationships including identifying and mitigating potential risk exposure and cost overrun exposure. Plan needed equipment and personnel, and manage purchase orders. Manage and update reports, order logs, and communication logs. Manage costs of the project and projected changes based on weather change orders, etc. Complete due diligence of all construction practices, procedures, and construction documents.

KNOWLEDGE/SKILLS
Knowledge of basic engineering concepts. Familiarity with wind power generation systems and equipment, overhead and underground cable installation, reactive power compensation equipment, SCADA systems, cost analysis, constructability knowledge, safety, leadership, familiarity with equipment and creating / managing contracts and contract law.
**Analyst / Researcher**

**DESCRIPTION**
Work across Wind Onshore project phases including development, permitting, construction, and operational. Support or lead conceptual design studies, Wind Onshore constraint analyses, site suitability, Wind Onshore permitting and technical studies, O&M analysis, constructability analyses, cost studies, decommissioning studies, and market and supply chain assessment. Maximize revenue and efficiency for Wind Onshore customers by identifying and initiating organizational responses for conditions, opportunities, and issues related to safety, production, and performance. Collect production data and perform energy analyses. Use technical knowledge of Wind Onshore systems. Support and serve the production team, field technical operations and asset management to address all Wind Onshore related production issues. Assist in the technical evaluation of proposals. Build and manage dashboards with performance and operations data. Assist in the development of forecasts and pro-forma analyses.

**KNOWLEDGE/SKILLS**
Knowledge of field applications is needed to translate the data to usable results and procedures for development and operations teams. Database structures, engineering calculations. Analyzing equipment performance and identifying performance issues using software tools. Performing calculations and collecting and analyzing data.

**REQUIREMENTS**

**Education/Training**
Bachelor’s degree in engineering or technical discipline; Masters degree preferred.

**Experience**
3+ years in asset management and/or field operations. 1 year experience in Wind Onshore desirable. Data analytics and statistics, building models. Experience working with large data sets, conducting root cause analyses, and visualizing data in a variety of formats for identifying trends and outliers.

**POSITION REPORTS TO**
Energy Project Manager, Operations Manager or Director

**CAREER PATH MOVES FROM THIS ROLE**
Project Manager Wind Onshore, Operations Director, Construction Manager; Wind Onshore Optimization Engineer
Research Engineer
Research and Development Engineer

DESCRIPTION
Plan and manage engineering projects to develop wind technologies and processes that produce the most efficient and cost-effective electricity. Design, develop and analyze/evaluate wind turbine components and wind power systems. Conduct research and develop improved technology. Prepare financial estimates. Build processes and systems for testing. Lead teams of technicians, engineers and scientists. Produce and analyze designs.

KNOWLEDGE/SKILLS
Conducting research, interviewing subject matter experts. Developing solutions from research and analysis. Advanced engineering and design. Solving complex engineering problems. Communicating results and information. Writing reports. Collaborating with others to solve problems, and develop and implement projects.

REQUIREMENTS
Education/Training
Bachelor’s degree required. Masters degree preferred.

Experience
3 years’ engineering experience. Design and research experience.

Credentialing Required/Optional
PE (Professional Engineer certification) may be required.

POSITION REPORTS TO
Engineering Manager

CAREER PATH MOVES FROM THIS ROLE
Engineering Manager, Project Manager
Technical Trainer
Technical Instructor

DESCRIPTION
Educate employees about wind energy in various technical topic areas related to processes, equipment, environment, resources, etc. Facilitate classroom training and on the job coaching for businesses, colleges or learning providers. Continue to develop knowledge regarding changes and industry updates, and update training to reflect this. Use field experience to provide real-life scenarios and discussion. Develop training programs, guides, assignments and skill assessments/evaluations. Instruct training and conduct demonstrations on equipment. Suppose trainees in the safe use of equipment and walk-through of procedures. Assess skills, evaluate performance and monitor trainee progress. If applicable, develop relationships with other businesses to provide training experiences for students.

KNOWLEDGE/SKILLS
Training & communicating on technical topics. Developing training curriculum. Writing procedures and instructions. Creating successful learning environments, and developing variety of methods of teaching topics so students can learn in ways that work for them. Developing and using JPM's (job performance measures). Evaluating / assessing skills.

REQUIREMENTS
Education/Training
Bachelor’s degree preferred, but may not be required.

Experience
Minimum 2 years in the topic area in which Trainer will be providing training.

Credentialing Required/Optional
GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered. Requirements for licensing and certification vary by state.

POSITION REPORTS TO
Training Manager

CAREER PATH MOVES FROM THIS ROLE
Training Manager, Operations Manager
Materials Scientist
Research & Development Engineer

DESCRIPTION
Develop processes and new materials to reduce cost, improve efficiencies with Wind Onshore projects. Test research materials and structures to be used in various environments on Wind Onshore projects. Conduct research to develop new materials and improvements to Wind Onshore blades and structures.

KNOWLEDGE/SKILLS
Effects of various temperatures and environments on materials, materials properties, process optimization, advanced math & science, materials fabrication and processing, Wind Onshore innovations and design.

REQUIREMENTS

Education/Training
MS or PhD. In applied physics, materials science or chemistry.

Experience
5+ years experience.

Credentialing Required/Optional
May require engineering license.

POSITION REPORTS TO
Director or VP of Manufacturing / Fabrication or Director of Wind Onshore or Director of Engineering

CAREER PATH MOVES FROM THIS ROLE
Senior Engineer, Director of Fabrication or Manufacturing
Training & Development Manager

DESCRIPTION
Strategically manage all elements of the company’s technical and non-technical training programs. Define the training requirements for each staff position and oversee a system of online, classroom and OJT training using a network of trainers. Track progress in the company's online Learning Management System (LMS). Generate new course content and modify existing courses for changes and updates needed. Work collaboratively with trainers and operations. Manage employee development and new hire orientation. Plan (with organizational leaders), develop, and facilitate or procure training and staff development programs that meet the needs of the organization. Proactively manage all aspects of T&D program delivery from start to finish, including content creation, instructor coordination, project planning, and logistics. Monitor training for effectiveness. Coach leaders in skill assessment and performance evaluation. Develop testing / assessment tools and procedures. Support continuous improvement. Manage training materials, supplies & the training budget.

KNOWLEDGE/SKILLS

REQUIREMENTS
Education/Training
Generally bachelor’s degree desired; Master’s degree preferred.

Experience
5 years’ experience in similar role or combination of knowledge and experience in leading training efforts.

Credentialing Required/Optional
GWO (Global Wind Organisation) certified. WINDA (Wind Industry Training Records Database) registered.

POSITION REPORTS TO
Director of Operations, Human Resources Director

CAREER PATH MOVES FROM THIS ROLE
Director of Operations, Project Manager, Human Resources Director
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Thank You to Research Contributors:

Acciona  GE Renewable Energy  Pattern Energy
Clearway Energy Group  IEA (International Energy Agency)  RWE Renewables
Deutsche Windtechnik  Martin Up Consulting  Wanzek
Duke Energy  Olsson

Additional Research Sources listed on following page.

For questions about this report, please contact Tom Vinson at tvinson@cleanpower.org
American Clean Power Occupations & Career Maps

Additional Research Sources:

BLS – Bureau of Labor Statistics
CANWEA “A Roadmap to Standardized Core Competencies for Wind Turbine Technician Training”
Department of Energy (DOE) https://www.energy.gov/eere/education/explore-clean-energy-careers-0
Energy Futures Initiative (EFI) https://energyfuturesinitiative.org/
Green Citizen https://greencitizen.com/renewable-energy-jobs/
Illinois Solar Energy Association https://www.illinoissolar.org/jobs
Indeed https://www.indeed.com
Interstate Renewable Energy Council (IREC) https://www.irecsolarcareermap.org
Job Descriptions previously compiled by American Clean Power (ACP)
LinkedIn https://www.linkedin.com
Midwest Renewable Energy Association (MREA) (solar) https://www.solarenergyjobs
National Association of State Energy Officials (NASEO) https://www.naseo.org
NAICS/SOC codes
National Solar Jobs Census 2019, Washington, DC, February, https://www.thesolarfoundation.org/national/#:~:text=As%20of%202019%2C%20the%20National,nationwide%20from%202018%20to%202019
US Energy Jobs https://www.usenergyjobs.org/
American Clean Power is the voice of companies from across the clean power sector that are powering America's future, providing cost-effective solutions to the climate crisis while creating jobs, spurring massive investment in the U.S. economy and driving high-tech innovation across the nation. We are uniting the power of America’s renewable energy industry to advance our shared goals and to transform the U.S. power grid to a low-cost, reliable, and renewable power system. Learn more about the benefits clean power brings to America at www.cleanpower.org.

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