Scott Perrie, PE | Team Leader

EDUCATION
Bachelor of Science
Electrical Engineering
The University of Colorado

REGISTRATIONS
Professional Engineer –
Arizona #54562
Hawaii #14770
Illinois #62.066234
Maine #13188
Michigan #6201060982
Nevada #22135
North Carolina #36311
Ohio #77495
Pennsylvania #79624

SOFTWARE
- AutoCAD
- PLS-CADD & POLE
- SKM PTW
- ASPEN OneLiner
- ETAP
- CYMCAP
- AmpCalc
- Milsoft WindMil
- SynerGEE
- MathCAD
- Siemens EMS
- GE SmallWorld
- GE PowerON
- Centricity
- Advantex

YEARS OF EXPERIENCE
17+

Scott is a Team Leader in the firm's Power & Energy division. With more than 17 years of industry experience, he leads the design of renewable energy systems, power system studies, substations, underground and overhead distribution, and underground transmission lines. He has served as lead engineer on more than 2,000 MW of renewable energy projects throughout the United States and Canada.

PROFESSIONAL EXPERIENCE *Additional Experience Available Upon Request*

Project Management
Project manager for multiple substation and distribution system design projects. Supervised safety inspections of distribution equipment. Proposal preparation, material/procurement estimating, engineering labor estimating and budgeting, engineering economic analysis.

Collector/Distribution Design, Development & Specification Projects
Collector system engineering and design for large-scale wind farms. Optimized collector system routing and conductor sizing for power loss and ampacity. Designed and specified equipment. Generated Step Up transformers, grounding transformers, medium and low voltage cable, fiber and meteorological tower systems. Electrical Engineer-of-record for small-scale solar farms. Approved design of cable sizing, routing, grounding, protection per NESC, NEC and local codes. Lead Engineer for 13.8 kV overhead to underground conversion to double circuit duct bank. Various Overhead 34.5 kV line designs including single-circuit and multi-circuit, long single-span, under-build design and aerial cable systems.

Substation & Transmission Line Design Projects
Engineer-of-record for 138 kV – 34.5 kV substation for wind-farm. Project Manager/Engineer on expansion/upgrade designs for eight substations. Lead Engineer for 66 kV underground transmission line in concrete-encased duct bank. Lead Engineer for 44 kV underground transmission line in direct-buried conduit. Conceptual design and analysis for 138 kV underground transmission line in concrete-encased duct bank. Conceptual transmission line routing designs for multiple wind farm projects. Created weather, clearance and strength criteria based on NESC and state codes. Analyzed structural results for proper strength requirements.

Power System Modeling & Analysis Projects
Utilized load flow analysis including reactive compensation for power factor requirements, short circuit analysis for proper sizing of conductors, grounding and breakers. Oversaw model conversion for client. Arc flash analysis of wind power sites including analysis within the generator tower. Researched electrical system and consulted with the software vendors for accurate breaker and fuse modeling. Performed analysis, prepared written reports, consulted personnel and procured hazard labels. Underground cable ampacity calculations and magnetic field analysis featuring various configurations (direct burial, thermal backfill, duct bank, triplex, shield bonding) and various cable sizes and voltage classes including 34.5 kV, 69 kV, 138 kV and 230 kV. Reviewed geotechnical testing of soil thermal resistivity and moisture content.

Estimating & Preliminary Design Projects
Preliminary wind farm design comparing various layouts, transmission voltage comparison, substation placement and collector system routing, including engineering economic analysis. Material cost estimation for bids on several wind projects.

Data & Statistical Analysis
Gathered weather data from various sources to find correlation with reliability data. Created new methods of stratifying data to determine what outages varied most. Determined the extent to which the manual reporting systems underreported results. Created different methods of adjusting historical reliability results to match accuracy. Utilized reliability engineering techniques. Analyzed interruption data to ensure proper

operations and corrected anomalies. Used quality control tools to identify areas of concern. Addressed underground cables, transformers and breakers. Solutions included condition assessment, replacement, inspection and automation. Created multi-year cost estimates as well as benefit projections for each program.

Research Projects
Investigated unique power quality issues at feeder level. Identified issues using customized power quality and fault recording devices. Coordinated operations to pinpoint source of power quality issues. Investigated service quality related inquiries from various company departments. Investigated and answered customer complaints with regards to service quality.

SPECIFIC PROJECT EXPERIENCE *Additional Experience Available Upon Request*

Transmission, Substation & Distribution Line

- Escondido Energy Storage BESA, 37.5 MW total battery energy storage at two sites, Escondido, California
- NWTC Generation Upgrade, 1 mile 115 kV transmission line, three transformer 115/34.5/13.2 kV substation and various service upgrades, Louisville, CO – NREL
- Holland Energy Switchyard, generation station step-up substation featuring three transformers to 115 kV, Holland, Michigan
- New Creek Wind Farm, 49 Turbine, 102.5 MW Collection system plus 500-34.5 kV substation – Casteel Corporation, WV
- Ford Substation, 115 – 34.5 kV substation, Dodge City, Kansas
- Koch Substation Expansion – 34.5-4.16 kV Substation, Dodge City, KS – ElectriComm (Victory Elec.)
- Twin Ridges Wind, 138-34.5 kV Substation and OH 34.5 kV Collector, Somerset, PA – RES (EverPower)
- Tierra Vista Solar, Interconnect Study & Review – Mountain View Electric Co-op
- Palouse Wind, OH 34.5 kV Collector, Oakesdale, WA - RMT (First Wind)
- CCDLP Wind, 66kV UG/OH Transmission and 34.5kV Collector System, Tehachapi, CA
- Top of the World Windpower, 34.5kV Collector System, Glenrock, WY – Duke Energy
- Freightliner Solar, 600V distribution, Cleveland, NC – Duke Energy
- Alta Phase I, 34.5kV Overhead Collector Line, Tehachapi, CA
- Greens of Rock Hill, 13.8kV Underground Conversion, Rock Hill, SC
- North River Substation, 115/34.5/13.2 kV substation, Liberal, Kansas
- Pleasant Prairie Substation, 115/13.2 kV substation, Ulysses, Kansas
- PRC/NOG Compliance, Power system studies for PSS/E modeling of various wind projects to ensure voltage/frequency ride-through compliance with NERC PRC/NOG guidelines, Texas
- Arkalon Bus Modification, retrofitting existing two-transformer substation with automated bus-transfer scheme, Kansas
- Dighton Substation Upgrade, 115/24.9 kV substation, Kansas
- Ruleton/Dobson-Morris Relay Replacements/Irsik-Doll, retrofitting existing 115 kV substation's line protection system from electromechanical to modern solid-state relays, Ruleton, Kansas
- Tallahassee Solar PSSE Modeling, power system studies for interconnecting utility-scale solar generation to various interconnection points, Tallahassee, Tennessee