Senior Scientist and Project Manager



JoAnne serves as a senior scientist in the Energy Market Sector, specializing in feasibility, permitting and compliance of power and renewable energy projects across the United States. She has been involved in the design and permitting of more than 3.0 GW of wind and other renewable energy projects. Her project and management experience include federal, state and local permitting, feasibility analyses, expert witness testimony, project siting, shadow/flicker analyses, sound studies, environmental permitting, NEPA documents (EA and EIS), CPCN and CA applications, FAA permits, preliminary engineering design, Phase I site assessments, property surveys, erosion control plans, geospatial information analysis and management, and post-construction compliance. JoAnne's management experience with contractors, utilities, regulatory agencies and energy developers has provided her with a broad understanding of the processes and requirements necessary for the successful development, monitoring and post-construction compliance of energy projects.

#### **EDUCATION**

Master of Science Atmospheric and Oceanic Sciences, University of Wisconsin, Madison, Wisconsin, 2000

Master of Science Environmental Monitoring, University of Wisconsin - Nelson Institute for Environmental Studies, Madison, Wisconsin, 2000

Bachelor of Science Atmospheric and Oceanic Sciences, University of Wisconsin, Madison, Wisconsin, 1996

Photovoltaics – Design and Siting, Northeast Wisconsin Technical College, Green Bay, Wisconsin, 2010

FERC Environmental Compliance Seminar, 2014

FERC Regulatory Overview and Guidance Seminar, 2014

### PROJECT EXPERIENCE

Wind, Solar and Other Renewable Energy Two Creeks Solar Energy Project, Wisconsin (Project Manager)

Currently managing the environmental services for a large utility-scale solar plant in Wisconsin. Services include environmental field studies and historic cultural resource assessments, state CPCN permitting and additional support studies.

## Polaris Wind Energy, Gratiot County, Michigan (Project Manager)

Managed the environmental permitting and support studies for Invenergy's proposed 168-MW wind farm. Support included Gratiot County permit application, shadow and sound modeling, and decommissioning plan.

### Decommissioning Plans – Solar and Wind Energy, Midwestern U.S. (Project or Task Manager)

Managed the preparation of numerous decommissioning plans for solar and wind energy projects throughout the midwestern U.S. Scope includes describing triggering mechanisms, deconstruction methods and costs, potential revenues from salvaged equipment and land reclamation activities. Reports are used to support permitting efforts at local and state levels.

# Pine River Wind Energy, Isabella and Gratiot Counties, Michigan (Project Manager)

Managed the environmental permitting and support studies for Invenergy's proposed 161-megawatt wind farm. Support included the Pine River and Coe Township permit applications, shadow and sound modeling, and decommissioning plan.

<sup>\*</sup> denotes projects completed with other firms

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## Acoustic and Shadow Flicker Studies – Wind and Solar Energy

Extensive experience in the management, modelling and analysis of potential sound and shadow impacts at wind and solar sites in the U.S. Assisted clients in analyzing and designing proposed renewable energy sites to demonstrate compliance and obtain required regulatory permits.

#### Projects include:

Two Creeks Solar, Wisconsin; Polaris Wind, Michigan; Richland Wind, Iowa; Pine River Wind Energy, Michigan; Adair Wind, Iowa; Arbor Hills (Phase I and II), Iowa; Beaver Creek (Phase I and II), Iowa; Duel Harvest, South Dakota; Ivester Wind, Iowa; McLean Wind, Illinois; Cardinal Point, Illinois; Orient Wind, Iowa; Pleasant Ridge Wind Energy, Illinois; Apple Blossom Wind, Michigan; Kenowa Ridge Wind, Michigan; Radford's Run/Twin Creeks Wind, Illinois; Grand Prairie Wind, Nebraska; Summit Wind, South Dakota; Ida Grove Wind (Phase I and II), Iowa; Palo Alto Wind, Iowa; O'Brien Wind, Iowa; California Ridge Wind II, Illinois; Highland Wind, Wisconsin; Beautiful Hills Wind, Wisconsin; Tisch Mills Wind, Wisconsin; Windy Acres, Wisconsin

### Confidential Wind Farm, Wisconsin (Task Manager)

Managed the preparation of a Study Review and Work Plan for a confidential wind farm proposed in Wisconsin. Assisting client with agency consultations and potential joint PSCW/WDNR CPCN application to construct the project.

## Pleasant Ridge Wind Energy, Livingston County, Illinois (Project Manager)

Managed the environmental permitting and support studies for Invenergy's proposed 230-megawatt wind farm. Support included the Livingston County permit application, expert witness testimony, shadow and sound models, wetland and waterway permits, cultural studies, stormwater permit, decommissioning plan and local permitting presentations.

## Apple Blossom Wind Farm, Huron County, Michigan (Task Manager)

Task manager for development of the Geronimo Wind Energy 10,000-acre, 100-megawatt Apple Blossom Wind Farm. Managed the preparation and submission of the Huron County Permit Application, sound/noise modeling, sound survey, shadow/flicker analysis, and decommissioning plan.

## Bemidji Solar Assessment, Beltrami County, Minnesota

Assisted with the assessment of potential solar sites for a municipal solar installation in Bemidji, Minnesota.

### Highland Wind Energy, O'Brien County, Iowa

Provided permitting and support studies for the Invenergy, LLC 40,000-acre, 500-megawatt Highland Wind Farm. Lead author on the critical issues analyses and provided support for the permit application and Phase I Environmental Site Assessment.

#### O'Brien Wind Energy, O'Brien County, Iowa

Assisted in the permitting and support studies for the Invenergy, LLC 50,000-acre, 250-megawatt O'Brien Wind Energy Center. Completed sound and shadow impact modeling in support of the county permit application.

# California Ridge Wind Energy II, Vermillion County, Illinois (Task Manager)

Managing the permitting and support studies for the Invenergy, LLC 44-megawatt phase for the California Ridge Wind Farm. Support included the Vermillion County permit application, sound modeling, photo simulations and decommissioning plan.

<sup>\*</sup> denotes projects completed with other firms

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## Highland Wind Farm, Saint Croix County, Wisconsin (Project Manager)

Project manager for development of the Emerging Energies, LLC 6,000-acre, 102-megawatt Highland Wind Farm. Lead-author of the PSCW CPCN permit application. Responsible for the wind farm design, environmental field studies and permitting, erosion control permitting, sound/noise modeling, shadow/flicker analysis, photo-simulation studies, road and infrastructure preliminary assessments and agency/public meeting support.

## Beautiful Hills Wind Farm, Manitowoc County, Wisconsin

Project manager for development of the Emerging Energies, LLC 900-acre, 30-megawatt Beautiful Hills Wind Farm. Managed environmental studies, shadow flicker impact analyses, sound modeling studies and provided public meeting support.

## Confidential Wind Farm, Midwest US (Project Manager)

Assisted the owners of a Midwest wind farm with post-construction compliance related to shadow/flicker impacts on properties. An automatic turbine curtailment system was installed to mitigate flicker on residential buildings.

# Glacier Hills Wind Park\*, Columbia County, Wisconsin (Project Manager)

Managed multiple projects in support of the We Energies Glacier Hills Wind Park development. The 7,500-acre, 91-turbine, 150-megawatt wind farm. Completed the preliminary site design and was responsible for the environmental field studies and permitting, sound/noise studies and support of land owner negotiations. Assisted We Energies with preparation and submittal of the CPCN application to the PSCW.

## Forward Wind Energy Center\*, Southeastern Wisconsin (Project Manager)

Managed multiple projects in support of the permitting, design and construction of Invenergy LLC's 86-turbine, 129-megwatt wind farm. Responsible for the successful completion of each phase including micrositing and facility layout, Environmental Site Assessments (Phase I's), erosion control plans, wetland permitting and pre/post ALTA property surveys. When Invenergy made the decision to expand the Forward wind farm, JoAnne managed and completed the same phases for the additional development.

## Blue Sky Green Field Wind Project\*, Fond du lac County, Wisconsin (Project Manager)

Managed support services for the We Energies 10,000-acre, 88-turbine,145-megawatt wind farm. Pre-construction responsibilities included facility micrositing, site civil design, environmental assessments and permitting, land owner agreement documentation and CPCN permit application assistance, including expert witness testimony. Construction and post-construction support included environmental compliance, access road erosion assessments, TV and radio interference mitigation and expansion planning.

# Windy Acres, Sheboygan County, Wisconsin (Project Manager)

Project manager for development of the Emerging Energies, LLC 30-megawatt Windy Acres Wind Farm. Managed environmental studies, shadow flicker impact analyses, sound modeling studies and provided public meeting support.

# Shirley Wind Farm\*, Brown County, Wisconsin (Project Manager)

Managed services for the development of the Emerging Energies, LLC 8-turbine, 20-megawatt wind farm. Natural resource assessments, geotechnical investigations Phase I Environmental Site Assessments and property surveys were completed in support of this development.

<sup>\*</sup> denotes projects completed with other firms

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# Dominion Wind Power, Multiple Confidential Sites\* (Project Manager)

Responsible for the feasibility and analysis of several proposed wind farm sites for Dominion Power across the United States. Research and analyses included assessment of resources, permit restrictions, constructability, environmental and natural resource impacts and community support. The reports and conclusions assisted Dominion in reaching a go/no-go decision on development.

### Confidential Client\*, Wisconsin

As the phase manager for preliminary siting of a biomass-fired power generation facility in northern Wisconsin, JoAnne was responsible for the research and analysis of data deemed critical for the successful development of a brownfield or greenfield biomass facility. Existing facilities, natural and sensitive resources, transportation, transmission, fuel source, and water resources were analyzed to provide the client with information for preliminary siting decision.

### Federal Energy Regulatory Commission (FERC) Experience – Natural Gas

Northern Natural Gas – Federal and State Permitting, FERC Compliance Projects (Project Manager – over 60 projects)

Project manager for more than 60 Northern Natural Gas FERC 2.55(a), 2.55(b) and automatic blanket authorization projects for facilities within the Midwestern United States. Projects have included procurement of the Federal, state and local permits necessary to provide compliance with the FERC's regulations.

#### Des Moines B-line Loop Project, Iowa

Assisted with preparation of documents in support of the Northern Natural Gas' looping project in Boone and Polk Counties, lowa. Authored several resource reports and conducted final reviews of all reports to ensure compliance with the FERC filing requirements.

### Ventura North A-line Capacity Replacement Project, Minnesota and Iowa

Assisted with preparation of documents in support of the Northern Natural Gas' looping project in Dakota County, Minnesota and Worth County, Iowa. Authored several resource reports and conducted final reviews of all reports to ensure compliance with the FERC filing requirements.

## Transmission and Utility Routing ANR Pipeline Company, Stevens Point, Wisconsin

JoAnne served as the phase manager for preparation of resource reports in support of a FERC filing under Section 7(c) of the Natural Gas Act. JoAnne performed needed research and analysis; wrote reports and managed the overall preparation of the documents.

### Xcel Energy\*, Wisconsin

JoAnne assisted with the preparation of the CPCN application for the CAPX 2020 transmission line through Minnesota and Wisconsin. Her involvement included data research and acquisition, geo-spatial data management and writing of report sections.

<sup>\*</sup> denotes projects completed with other firms