

> Solar Power Services



Solar power companies rely on ECT, to obtain regulatory approval for new generation facilities in a timely and economical manner because ECT is distinctly qualified to provide the combination of specialized technical expertise, regulatory understanding and the business skills to reliably deliver results.

These capabilities have enabled ECT to become a resource for developing cost-effective strategies for hundreds of new solar power generation facilities nationwide. ECT provides the following core services to our clients:

- Feasibility studies
- Due diligence & natural resource surveys
- Licensing & permitting services
- Compliance support

Our diverse team of scientists, ecologists, engineers, archaeologists, and planners provide full permitting support for our clients nationwide. Additionally, ECT can provide:

- Landscape plans
- Site plan development; civil engineering support
- Viewshed analyses & renderings
- Planning/local permitting
- Cultural resources
- Pollinator & prairie habitat services
- Threatened & endangered species surveys
- Environmental Assessment (EA) & Environmental Impact Statement (EIS) preparation
- Construction oversight
- Expert witness testimony
- Geodatabase development

FEASIBILITY STUDIES

For decades ECT's power generation permitting expertise has been built around finding appropriate sites for our clients' specific generation needs. For solar siting, ECT staff uses multiple GIS-based tools for site selection. These models, in conjunction with aerial mapping, property databases and our extensive in-house library of GIS data layers, help identify sites with consideration for infrastructure needs, location and environmental and land-use constraints.

ECT can provide issue identification and a permit requirement matrix to facilitate the evaluation of potential solar sites for development. ECT's certified land use planners analyze land use and zoning compatibility of proposed sites. Impacts to infrastructure, surrounding land uses and the local environment to support power developers in obtaining local approvals. ECT also helps clients devise and implement public outreach programs commensurate with the project's complexity and anticipated level of support.



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DUE DILIGENCE & NATURAL RESOURCE SURVEYS

ECT evaluates sites under consideration for lease or purchase by performing due diligence assessments on specific parcels. This is usually done after property identification as a potential site, but before the lease or purchase agreement is completed and permitting begins.

Site due diligence efforts identify potential environmental and land use issues. ECT completes preliminary site assessments, environmental site assessments (ESAs), impact analyses, wetland delineations and T/E species surveys. Each evaluation addresses ecological resources, land use-related characteristics and archeological/cultural resources. The presence or absence of these resources can impact project development costs, permitting feasibility and time frames.

LICENSING & PERMITTING SERVICES

Certain states have major licensing requirements for solar facilities. ECT has successfully licensed solar facilities through some of the most rigorous federal, state, and local permitting processes in the country, keeping projects on-schedule.

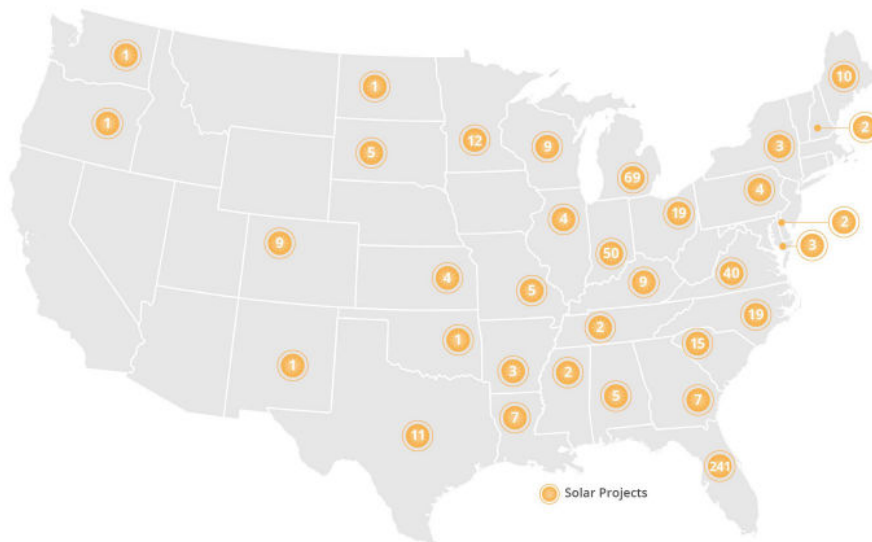
COMPLIANCE SUPPORT

ECT assists power-sector clients with construction monitoring, post-construction, operational support, including development of stormwater management plans and spill prevention, control and countermeasure (SPCC) plans.



ECT also uses environmental asset compliance management system (EACMS), an in-house data management and compliance tool, to assist clients with multiple assets with meeting regulatory deadlines. EACMS is a GIS- and web-based compliance tool that enables the user to conduct inspections, access data and facilitate meeting regulatory deadlines while in the field. Management of a single facility can be difficult. Management of numerous facilities offers significant challenges. EACMS reduces those challenges.

ECT NATIONAL SOLAR EXPERIENCE



200+

SOLAR SITE PROJECTS NATIONWIDE

100+ Licensing & Permitting Projects

3-4 Gigawatts Affiliated with Nationally

40+ Operational Compliance Support Projects

80+ Due Diligence & Site Survey Projects

> Wind Energy Services



ECT is a leader in the wind energy market.

We offer a collaborative technical approach with a comprehensive understanding of natural systems, and environmental policy experience - this yields cost-effective, invaluable solutions.

Our team of experts in permitting, licensing, and ecology successfully manage local and state requirements on projects nationwide.

WIND ENERGY

Wind energy projects involve many of the same issues other power infrastructure projects face. While a wind energy facility does not combust fuels, emit air pollutants, or require water for cooling towers and processes like most other power generation facilities, wind energy facilities typically require large sites and introduce man-made structures in areas where they may not otherwise exist. Most issues that must be addressed by wind energy developers result directly from these two points. For example, the disturbance of land associated with project construction will potentially impact the natural ecology, and the construction of large wind turbine structures will generally impose a new visual impact, often representing a land use not previously anticipated or planned. In fact, some wind energy projects involving a large number of turbines sited over several miles can be considered more like electrical transmission projects than generation projects in terms of the environmental and land use issues that must be resolved. Likewise, wind energy projects in remote areas will typically require miles of transmission lines to interconnect the electrical grid, which adds to the issues and impact associated with ecological resources and land use.

GENERATING WIND ENERGY SOLUTIONS

Highly credible staff and the ability to work closely with clients and reviewing agencies are essential to the success of a wind energy project. ECT staff who support wind energy project development efforts are experienced, highly credentialed, seasoned experts who have worked closely with numerous private- and public-sector clients, and who have successfully provided testimony in support of controversial projects with entrenched opposition.

WORK SCOPE BY DISCIPLINE

- Assembly of and immersion in specific site and project data and information from online databases and other readily available sources.
- Critical review of all materials and close coordination with clients to identify gaps in information and any problems or shortcomings in the planned approach, based on the team's experience with similar projects.
- Field studies as appropriate to characterize site conditions (e.g., ecology) and fill in information gaps.
- Strategic oversight and assistance by team technical experts to identify solutions to issues or problems (e.g., reconfiguring turbine locations to avoid sensitive and/or problematic site features).
- Facilitation and coordination for the preparation of environmental documents and related permit applications such that all applicable regulatory requirements are efficiently met.
- Participation by team managers and technical experts in support of licensing and permitting processes to their successful ends.
- Post-construction compliance studies and reports.

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Accordingly, ECT will typically focus on characterizing the existing environmental conditions that will/may be impacted by a proposed wind energy project within the following technical disciplines:

- Ecological resources (terrestrial & avian)
- Surface water resources
- Hydrogeological resources
- Land use (including zoning)
- Socioeconomics
- Transportation
- Cultural resources
- Aesthetics
- Noise
- Public participation

ECOLOGICAL RESOURCES

Ecological resources are typically a significant technical discipline addressed in most licensing/permitting processes for a wind energy project. Often, large areas of land are disturbed by project construction, which creates the possibility of impacts to wetlands and on sensitive species or habitats. Resolving issues with birds and bats are also critical to the success of most wind projects.

SURFACE WATER RESOURCES

ECT prepares a baseline description of surface waters and their uses. This baseline description relies on existing information in publications, reports to agencies, and other existing data. The first step is generally to conduct a search for existing data. An online literature search of the most promising databases is conducted to identify any published

information available for a particular area. In addition, a number of agencies will be contacted to identify any existing surface water data. Information collected is used to prepare the baseline descriptions and impact assessments required in most applications and permitting documents.

Wind projects have only limited potential to impact surface water, that being stormwater runoff during construction and operation. These construction projects generally cause minor incremental surface water impacts (e.g., soil erosion) and necessitate the use of sediment control measures. Impacts are typically minor both in an absolute sense and in comparison to the impacts associated with existing area features and activities and are generally evaluated only in the context of the character of a site. ECT assesses the potential hydrologic, erosion, and water quality impacts from project construction. Based on assessment results, management practices to alleviate significant adverse impacts are implemented, using best engineering practices and construction technology.

HYDROGEOLOGICAL RESOURCES

Wind energy projects have minimal impact on the surrounding area once construction is completed. Accordingly, the main focus of hydrogeological studies in support of wind energy projects is on potential subsurface impacts from construction, including infiltration of stormwater, possible spills, and their potential effect on groundwater quality. ECT characterizes baseline topographic and soil conditions from the available literature and onsite engineering data to assess potential impact, including:

- Effects on existing groundwater quality of the surficial aquifer due to increased suspended and/or dissolved solids loading as a result of earth-moving activities during site preparation and construction.
- Effects of construction activities on present aquifer users adjacent to a proposed site.
- Effects on groundwater quality from infiltration of stormwater from project facilities.

LAND USE (INCLUDING ZONING)

In many states, counties are required to have a comprehensive plan that serves as the framework for other development plans and ordinances related to growth management. Local zoning and land use regulations assure implementation of these plans. ECT field teams survey proposed sites to field-truth land use characteristics described within these plans and development regulations. ECT then determines the consistency of the proposed facility with these plans and land use regulations, and prepares applications for zoning changes/variances/conditional uses and also for amendments to these comprehensive plans, as dictated by individual project circumstances.

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The socioeconomic impacts are assessed by ECT in terms of the revenues and expenditures generated by a proposed facility and the distribution of the revenues to the state, county, and municipal jurisdictions. Economic development benefits such as jobs, salaries, and expenditures for construction supplies are also evaluated.

Traffic generated by project construction cannot exceed specified level of service (LOS) standards on impacted roadways. Applications prepared by ECT staff provide general information demonstrating a proposed facility's compliance with the approved LOS standards. In addition, an assessment of wind turbine heights will be made in reference to any airports or landing fields within a 5-mile radius of a site, as aviation-related infrastructure can impose significant constraints on wind energy projects. Where necessary, ECT staff will conduct detailed investigations of airport runway glide slopes and protected air space.

CULTURAL RESOURCES

ECT often prepares a written request for information from state historic presentation offices (SHPO) and other agencies to evaluate the likelihood of the presence of known historic and/or archaeological sites within a project boundary and vicinity. ECT staff will research, obtain, and evaluate current information related to the archaeological and historical resources on a site and within the surrounding properties. As available, this information is often obtained from a variety of public sources.

The purpose of these data and records searches is to identify the closest known or suspected cultural resource sites. Based on the distance of a project site from the identified resources

and their resource characteristics and values, ECT evaluates the likelihood of impact and the need to incorporate these surrounding areas into an impact analysis.

AESTHETICS

Visual and aesthetic impacts can be associated with wind turbine structures because of their large size and the large area often occupied by turbine arrays. Whether impacts are positive or negative in relation to the natural environment is highly subjective, and can only be resolved by reference to the attitudes and values of the beholder. Some might see wind turbines as incursions on the natural environment; others may perceive them as harmonious with the environment because they effectively harness an elemental force of nature.

ECT assesses the aesthetic and visual impacts to surrounding land/water uses qualitatively in the context of existing area features (e.g., topographic features, vegetation, and/or existing manmade features that might at least partially interrupt views). Where necessary, limited visual simulations are prepared using conceptual design engineering information.

In evaluating potential visual impacts, focus is typically on the wind turbines. Assessments of visual and aesthetic impacts are performed qualitatively by examining the relationships of the surrounding uses and their distances from a site. Permanent or long-term visual and aesthetic impacts generally focus on the impact of the wind turbine towers and strobe lights (if required). These impacts are generally analyzed from various viewpoints. The impacts of the strobe lights are assessed based on the brightness and height of the lights.



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The degree of impact is determined by the quality of the existing view shed, amount of existing buffer, and the quality of the alternative view (i.e., industrial, commercial, vegetation, transmission lines).

ECT's assessment of aesthetic impacts often begins with the development of three-dimensional (3D), color renderings of the project facilities on a selected site. Typically, these renderings are prepared for one representative view that would be the most publicly accessible viewpoint, plus one oblique (i.e., elevated) view. The renderings are often supported by computer-animated, 3D models that incorporate existing landform textures, lighting and shadow mapping, and photographic simulations.

NOISE

A qualitative evaluation and assessment of the noise impacts resulting from the construction and operation of a wind energy project will normally suffice. The only potential operational noise source is typically the wind turbines themselves, and most turbines generate only modest levels of noise when operated at their maximum-rated capacity. However, noise from construction will originate from heavy equipment (and possibly blasting) during site development and from the physical construction of individual project components.

ECT staff has extensive experience demonstrating compliance with applicable noise regulations and standards. Impacts are often assessed in the context of existing activities and their associated background noise, and a proposed project's

potential to impact noise levels beyond short distances. ECT typically surveys the area surrounding a site to identify the nearest inhabited residences and/or other noise sensitive areas. The potential impacts of a proposed project are then evaluated using literature information and equipment specifications. Noise emission levels for construction and operation sources are developed by ECT staff based on construction plans and project layout and design provided by the client. Noise source information is then related to distances in terms of the nearest potential receptors. Typically, impacts can be shown qualitatively to be well within the applicable regulatory limits. If necessary, ECT conducts modeling studies to more precisely (quantitatively) predict project noise impacts.

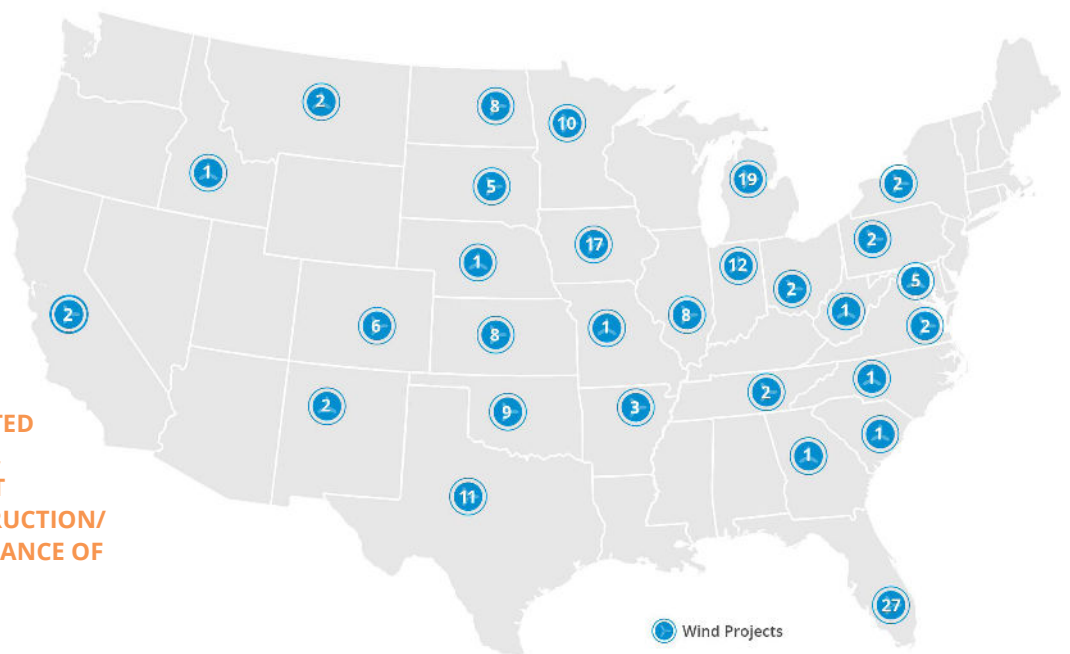
PUBLIC PARTICIPATION

Public participation or outreach should be an integral component of any potentially controversial project. ECT has extensive experience designing and incorporating outreach programs into projects. Each project's outreach plan is tailored to meet the project's needs and developer's commitment to such a program. The primary components of outreach programs successfully employed by ECT include:

- Development of stakeholder lists
- Mailing lists, project email or telephone updates
- Community surveys
- Community advisory panels
- Open houses/workshops
- Media communications
- Web page development

25+

STATES WHERE ECT HAS ASSISTED CLIENTS WITH DUE DILIGENCE, SITING, FIELD STUDIES, PERMIT COORDINATION, AND CONSTRUCTION/ POST-CONSTRUCTION COMPLIANCE OF WIND PROJECTS



Wind Projects

> Transmission Capabilities



ECT is advancing the energy transfer movement.

The need for resiliency, continued renewable energy generation activity, and focused public infrastructure funding are driving increased transmission and power delivery investments. ECT offers environmental and engineering capabilities that support the upfront planning and permitting project stages as well as design, delivery, and maintenance of electric transmission lines and related power delivery infrastructure.

Routing and Siting

Alternative Analysis, Land-Use Support, GIS/Mapping, Public Engagement

Due Diligence

Critical Issues Analyses, Permit Matrices, Phase I & II Environmental Site Assessments (ESAs)

Ecological and Cultural Surveys

Constraints, Wetlands, Species, Cultural, Tree, Vegetation

Planning & Engineering Support

Land and Resource Planning, Corridor Access/Drainage/Stormwater Design

Permitting and Agency Coordination

Local/State/Federal Permitting, HCPs and Take Permits, USACE, USFWS, FERC, NEPA, Endangered Species Act, Clean Water Act

Environmental Construction Support

Documentation, Biomonitoring, SPCC / SWPPP Monitoring

Post-Construction Restoration & Monitoring

Restoration, Mitigation Planning and Monitoring, and Re-vegetation Monitoring

Environmental Compliance

SPCC, GHG, SARA Tier II Reporting, Mitigation Monitoring

Progressive Consulting

ESG Services, Environmental Justice, Research & Grants, Wildlife Habitat Council, Wildlife Corridors

Our experts deliver a range of support from engaged program and project management to specialized expertise such as:

- Threatened and Endangered Species Surveys
- Local, state, and federal permitting expertise (e.g. Power Siting Board application prep)
- Vegetation Management Programs
- Cultural resources experts (architectural historians and professional archaeologists)



ECT provides similar services to pipeline and other linear infrastructure.