

Environmental Services for Renewable Energy



Areas of Expertise

- Land and Offshore Wind Power
- Geothermal Energy Production
- Solar Power and Solar Photovoltaics
- Waste Conversion
 - Biosolids
 - Landfill Gas Energy Recovery
 - Agricultural Methane Recovery

Overview

Renewable energy has experienced a substantial resurgence in interest from its earlier activities in the late 1970s. The push to limit greenhouse gas emissions from conventional energy production sources, coupled with the federal and in many cases, state or local push for green energy, have combined to a "gold rush" of interest in renewables. Several factors may inhibit investments in green energy, however. Many renewable technologies are either land-intensive, such as utility-scale solar or wind, have a legacy of negative public perceptions, such as waste-to-energy or corn-based ethanol, or are technologies not yet proven on a commercial scale, such as cellulosic ethanol or hydrogen-based fuel systems.

Our Approach

AECOM's energy-related services include site evaluation, permitting, licensing, acquisition assistance, and construction management. Our breadth and depth of talent and experience allows us to take on projects ranging from small scale, innovative actions up to massive scale development projects.

PROJECT PLANNING AND CONCEPTUAL DESIGN. Our experts quickly determine and largely mitigate potential regulatory pitfalls as well as key issues of concern to the general public and local agencies thereby saving the client time and money.

CRITICAL ISSUES ANALYSIS. Client risk is reduced by identifying potential fatal flaws to permitting a proposed project before a full development commitment is made.

SITE SELECTION AND SITE UTILIZATION. Siting components include baseline characterizations of environmental conditions and considerations, wetlands delineation, review of water supply issues, alternative site development plans, recommended development options, and suggested measures for mitigating potentially adverse environmental impacts.

ENVIRONMENTAL IMPACT ASSESSMENTS. AECOM has prepared hundreds of environmental site assessments, environmental assessments, and environmental impact statements and reports for energy projects including solar, wind, geothermal, waste-to-energy, small-scale hydro, transmission lines and other linear facilities.

AIR QUALITY SERVICES. Air quality consulting for permitting, compliance, and variance is a cornerstone of our services. We are one of the few firms with complete in-house capabilities for New Source Review and full technical and managerial support for any size project. In addition, our air quality scientists have designed air-monitoring systems for virtually every climate and terrain.

PERMITTING. For both small and large scale industrial and commercial operations, we have obtained wetlands, air quality, land use, water discharge, and other environmental permits by working closely with the client team, project engineers, as well as the regulators and other stakeholders.

BIOLOGICAL SERVICES. Wildlife biologists, ecologists, botanists, wetlands scientists, and permitting specialists comprise our team. AECOM biologists regularly develop baseline inventories, special status species surveys, habitat characterizations and mapping, regulatory consultations, construction monitoring, and habitat restoration for project mitigation.

ARCHAEOLOGICAL/CULTURAL RESOURCES ASSESSMENT. We have a full staff of cultural resource specialists experienced with both historic and prehistoric resources, as well as geologists specializing in paleontological resources.

VISUAL RESOURCES. Our visual resource analysts can develop simple visual simulations showing how a new project will look or prepare sophisticated, three-dimensional video clips that show changes over time such as changes in shadows over a day or a season.

NOISE/ACOUSTICAL ANALYSIS. AECOM offers a full range of resources designed to evaluate noise impacts by comparing calculated or measured noise emissions against existing noise levels and community/regulatory standards.



Environmental Services for Renewable Energy *(continued)*



Areas of Expertise

LAND AND OFFSHORE WIND POWER. Wind power is the fastest growing form of power generation. The technology has advanced significantly in recent years, and the economics of wind power are becoming competitive with fossil fuel-based sources. In the past two years, AECOM has prepared permitting documents for utility-scale wind farms in Canada, Australia, New Zealand, Fiji, the United Kingdom and throughout the US with a combined capacity in excess of 45,000 MW. AECOM's Impact Assessment and Permitting expertise together with our Energy Engineering capabilities provide a balanced team of experts that understand both how the systems work and what the environmental impacts will be. This integrated team allows for efficiencies in design and planning allowing our customers to respond quickly to advances in technologies and changes in market conditions.

GEOTHERMAL ENERGY PRODUCTION. Where available, geothermal resources are making a significant contribution to the renewable energy mix. Geothermal power generation provides a high power output on a fairly small footprint, although it is restricted to only a few locations with active geothermal resources. AECOM has worked on geothermal projects in the US, Africa, New Zealand, Indonesia, South America, Asia, and Russia. We are currently helping permit the development of geothermal in the US southwest balancing development of the geothermal resource against a fragile, rapidly changing ecosystem affected by a variety of other human activities including competing water and land use demands. Our understanding of both the technological and engineering challenges allows us to develop cost-effective solutions that address all sides of the issues.

SOLAR POWER AND SOLAR PHOTOVOLTAICS. Solar thermal power and Photovoltaic (PV) solar power are at the center of a rush to permit and construct large power facilities in the desert southwestern US and elsewhere with significant incident solar radiation. AECOM has been active in permitting and designing solar fields since we helped permit the world's first commercial solar electric generating station (SEGS) in the California desert in the late 1980s. Since that time we have helped numerous clients determine the most feasible sites, identify significant environmental challenges, mitigate social and natural resource impacts, permit new developments, and manage public perceptions. With the scramble for land, yet strong concerns for cumulative impacts to the desert ecosystem, the challenges for a balanced approach is critical to the success of any solar project.

WASTE CONVERSION. Energy production from biomass and waste is under increasing scrutiny in many countries, particularly in the developing world. AECOM has completed power projects using all sorts of renewable sources: rice husks, timber waste, sugarcane stalks, landfill gas and sewage gas. We recently completed the engineering and construction management for a 7MW eco-generation plant burning waste methane gas (biogas) from a sewage treatment plant to produce 6.7 MW of electricity and hot water. We are also helping a municipal landfill permit a pilot advanced pyrolytic system on a biosolids drying facility we also permitted in the US.

