Environmental Evaluation of Energy Programs on Federal Lands

Argonne National Laboratory's Environmental Science Division (Argonne's EVS) has extensive experience in conducting complex analyses of national-level energy development issues. Specifically, EVS has assisted a variety of federal agencies in preparing programmatic environmental impact statements that meet the requirements of the National Environmental Policy Act of 1969 and support decisions regarding energy development and/or the implementation of new federal energy programs.

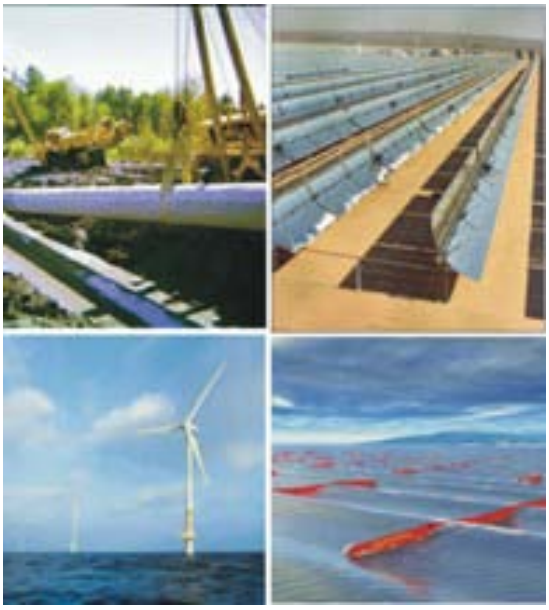
PROBLEM/OPPORTUNITY

Federal agencies have recognized the need for further development of both traditional and alternative energy supplies in the United States, and have implemented energy development programs in response to a number of drivers, including the Energy Policy Act of 2005 (EPAct, Pub.L. 109-058). Energy development must evolve in a manner that maximizes effective use of available energy resource while ensuring the preservation of natural and environmental resources.

APPROACH

In recent years, many federal agencies have sought Argonne's assistance in the preparation of environmental impact statements (EISs) under the requirements of the National Environmental Policy Act of 1969 (NEPA) , in order to assess the direct, indirect, and cumulative impacts associated with significant energy development activities. Many of these studies have been programmatic in scope and evaluate the impacts of establishing broad agency-wide programs and related policies. Specific developments at individual sites may require additional environmental evaluations that tier off the programmatic EISs (PEISs).

Argonne brings together multidisciplinary teams with expertise in the social, economic, engineering, and environmental sciences; data management and visualization; and information technology to support decision making for major federal actions and policies. These assessment teams work interactively to identify issues and impacting factors; potential impacts; mitigating measures; and alternative actions, programs, or policies to reduce impacts while meeting agency goals and needs. Argonne staff also assist in supporting interactions with federal and state agencies, Tribal nations, and the public.



RESULTS

The energy-related PEISs prepared by Argonne cover a wide array of energy issues. In general, these projects have addressed high-profile issues of national interest and involved extensive interagency collaboration. Argonne typically supports the full array of NEPA activities, including conducting all public meetings, conducting technical analyses and document preparation, assisting with distribution of the documents, and managing the public comment and response process. Specific energy-related PEISs have addressed the following topics:

Alternative energy development on the Outer Continental Shelf (OCS) was evaluated in a programmatic PEIS[1], with EVS technical support, for technologies that were deemed to have potential for implementation prior to 2014. Technologies evaluated included offshore wind energy, wave energy, ocean current energy, offshore solar energy, and hydrogen generation**.** Also included were projects that

make alternate use of existing oil and natural gas platforms in federal waters on the OCS. The evaluation determined that, in general, most impacts would be negligible to moderate, assuming that proper siting and mitigation measures are followed. A potential major impact would be from a collision or other non-routine event involving construction or maintenance vessels or fixed facility structures and a resulting spill of fuel, lubricating oil, or dielectric oil with associated impacts to threatened or endangered ecosystems.

The Energy Policy Act of 2005 identified *oil shale and tar sands* as strategically important domestic energy resources that should be developed. EPAct made provisions for a commercial leasing program on public lands where these resources occur, primarily in Colorado, Utah, and Wyoming. The programmatic EIS[2] developed by the Bureau of Land Management with technical assistance from EVS evaluated potential impacts and possible mitigation measures for commercial development of oil shale and tar sands resources, including the potential amount of land disturbed, amount of water and power that may be required, existing ecological resources, proximity to visual resources, and potential socioeconomic impacts of commercial development.

Potential adverse environmental impacts from wind energy were evaluated by EVS in support of a PEIS for development of this energy alternative on BLM-administered lands in 11 states in the western United States[3]. Potential direct impacts from wind turbine installation that were investigated focused on land disturbance and its effect on airborne dust and ecological, and water resources. Potential operation effects that were considered include noise, visual impacts, and impacts on migratory birds. Effective mitigation measures could be implemented to address many of the potential direct and indirect adverse impacts.

EPAct set forth various provisions to expedite the designation of *preferred energy corridors* on federal lands in 11 western states. The provisions, which affect multiple agencies, are to apply to construction or modification of oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities. The early designation and preliminary environmental review of several thousand miles of energy transportation corridors in the PEIS, developed with technical support from EVS,[4] allows the agencies to seek public input very early in the process. Potential typical direct impacts that were evaluated in the PEIS include the use and possible degradation of geologic and water resources; fugitive dust, air emissions, and noise from construction equipment; disturbance of cultural resources; degradation or loss of fish and wildlife habitat; invasive vegetation establishment; and alteration of visual resources. More detailed study of local environmental impacts will be conducted during site-specific proposals.

The EVS-supported PEIS on *solar energy development*[5] occurring on BLM-administered lands in six western states provides review of federal programs to increase the use of large-scale solar systems that generate enough power for tens of thousands of homes. The PEIS includes identification of land that is appropriate for solar deployment from both a technology and an environmental stand point. Future site-specific assessments will tier off the PEIS.

FUTURE

Argonne's staff are well-versed in the requirements of NEPA; understand how federal agencies operate; and are adept at identifying solutions to issues of approach, scope, and assessment methodology. In addition, Argonne's assessment teams have a long history of working together on complex NEPA projects, with a majority of the staff having been engaged with one another in this type of assessment for more than 10 years. This collective experience translates into highly efficient, well-integrated project teams.

Argonne also has a well-developed suite of tools to support stakeholder communications, most of which are Web-based and include (1) templates for communicating information about the NEPA process in general, the background/context for the specific PEIS, and how the public can participate in the process; (2) a repository for all documents related to the project; (3) an online comment collection process; and (4) a mailing list for distributing project updates. These public information Web sites are highly effective at conveying detailed information at a relatively low cost.

REFERENCES

1 OCS Alternative Energy and Alternate Use Programmatic EIS Information Center; http://ocsenergy.anl.gov

2 Oil Shale and Tar Sands Programmatic EIS Information Center; http://ostseis.anl.gov

3 Wind Energy Development Programmatic EIS Information Center; http://windeis.anl.gov

4 West-wide Energy Corridor Programmatic EIS Information Center; http://corridoreis.anl.gov

5 Solar Energy Development Programmatic EIS Information Center; http://solareis.anl.gov.