

Integrated Environmental Assessments

Integrated assessment programs and projects in the Environmental Science Division (EVS) consider combined evaluations from the physical, ecological, social, and policy sciences to identify key environmental issues and support agency decision making.

PROBLEM/OPPORTUNITY

Federal organizations are being challenged to fully integrate environmental considerations into their decision-making processes at all levels through the use of decision strategies and environmental cost/benefit and risk analyses that meet the requirements of the National Environmental Policy Act (NEPA). Federal agencies require assistance in completing environmental assessments that are timely, cost-effective, and understandable by both governmental and public participants in the decision-making process.

APPROACH

EVS staff have been proactive in assisting federal agencies to develop more effective and efficient NEPA compliance strategies and methodologies. From developing and applying unique computer-aided tools to assess impacts and environmental variables, to incorporating emerging technologies into the NEPA compliance process, EVS has maintained its position as a source of both experience and innovation.

EVS 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, typically within a NEPA framework.

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. The teams also assist in providing effective stakeholder communication.

Integrated assessments not only address environmental, social, and economic issues but also involve external interactions with federal and state agencies, Tribal Nations, and the public. An important area of EVS innovation in recent years has been incorporation of Internet-based technologies into the NEPA process to make it easier for members of the public to obtain information and participate in the process. This also



results in an increase in the efficiency of the NEPA process for federal agencies.

Advanced tools for spatial analysis and visualization have also contributed to the effectiveness of the NEPA process in assisting decision makers.

RESULTS

The following are examples of major integrated assessments that are ongoing or recently completed by EVS.

Energy Corridor Study in the Western United States

EVS was chosen to assist federal agencies in preparing a Programmatic Environmental Impact Statement (PEIS) to site and evaluate West-wide energy corridors on federal lands in 11 western states as required by the Energy Policy Act of 2005. The corridors connect major supply and demand areas for electrical, oil, gas, and hydrogen energy resources.

Alaska Pipeline Renewal EIS

Argonne evaluated likely environmental impacts of renewing the right-of-way of the 800-mile-long Trans-Alaska Pipeline System (TAPS) for up to 30 years. The EIS provided the first comprehensive evaluation of impacts of the TAPS since the pipeline was constructed and began operations in the 1970s.

Depleted Uranium Hexafluoride (DUF6) Management Program

The U.S. Department of Energy (DOE) is responsible for managing its inventory of DUF6, a product of the uranium enrichment process. EVS supported the management effort through preparation of one PEIS and two project-specific EISs to analyze the potential impacts of long-term activities at several locations. The EIS process required significant public participation among stakeholders across the country, access to numerous EIS-related documents, and opportunities for public comment.

Outer Continental Shelf (OCS) Renewable Energy and Alternate Use

EVS prepared this PEIS to evaluate potential development of wind, wave, ocean current, and solar energy resources and hydrogen generation, on the U.S. OCS. EVS is supporting the entire NEPA process, including all technical analyses, public involvement activities, and publications.

NRC Power Plant License Renewal

EVS is supporting the U.S. Nuclear Regulatory Commission's nuclear power plant license renewal process. Each review includes preparation of a plant-specific supplemental EIS that includes consideration of potential individual and cumulative impacts over the license renewal period related to human health, air quality, water and soil, ecosystems, waste management, land use, resource requirements, environmental justice, cultural resources, and socioeconomics.

Wind Energy Development on BLM-Administered Lands in the Western United States

Argonne prepared a PEIS covering wind energy development on public lands in an 11-state region of the western United States. The PEIS established a uniform program to facilitate wind energy development on public lands. Potential development on public lands by 2025 was projected to be about 3,240 MW.

Construction and Operation of a Mixed Oxide Fuel Fabrication Facility at the Savannah River Site

EVS assisted the DOE in the preparation on an EIS for the construction and operation of a proposed fabrication facility in South Carolina that would convert depleted uranium and weapons-grade plutonium into mixed oxide

fuel. The purpose of the DOE program is to ensure that plutonium produced for nuclear weapons and declared excess is converted to proliferation-resistant forms.

Evaluation of Oil Shale and Tar Sands Development on Public Lands

EVS is preparing the PEIS to evaluate a commercial leasing program for development of oil shale and tar sands resources in Colorado, Utah, and Wyoming. EVS is also supporting preparation of related documents in ethnohistory, paleontology, and archaeological resources, and supporting government-to-government consultations with native Tribes.

FUTURE

Energy concerns and development involving federal lands will continue in the foreseeable future. Future potential opportunities associated with national-level energy projects include:

- Designation of energy corridors in the eastern United States
- Alaska Natural Gas Pipeline
- Energy development in the Arctic National Wildlife Refuge,
- Methane hydrates on the Outer Continental Shelf, and
- Programmatic and site-specific EISs for licensing future new nuclear power plants.

EVS is well positioned to assist federal agencies in assessing the impacts of these and other proposed energy projects, programs, and policies. The Division has (1) strong relationships with DOE and other federal agencies, (2) extensive experience with spatial databases, and (3) in-house expertise in conducting integrated assessments of energy projects. EVS will maintain and enhance its capabilities for conducting integrated assessments, as well as its capabilities in technology development and application.