

***Environmental Impacts of Wind-Energy Projects*, Committee on Environmental Impacts of Wind Energy Projects, National Research Council (2007)**

Available on-line at:

http://books.nap.edu/catalog.php?record_id=11935#toc. (executive summary (PDF) is freely downloadable)

The National Research Council's *Environmental Impacts of Wind-Energy Projects* documents the results of a study aimed at examining the adverse and beneficial environmental effects of wind energy development, developing an analytic framework for evaluating those effects to inform siting decisions, and identifying major areas of research and development needed to better understand the environmental effects of wind energy projects and to minimize or mitigate adverse effects.¹ While the Council's study focuses on the "Mid-Atlantic Highlands region" (mountain areas in Virginia, West Virginia, Maryland and Pennsylvania) as a case example, its findings and recommendations are not similarly limited but offered for consideration nationally.

The following paraphrases and summarizes the report's conclusions and recommendations regarding key features of the framework for review of wind energy development projects²:

- **Distinguishing National and State Roles**

Conclusion

The appropriate national role regarding wind energy is development of "national-level energy policies (implemented through such mechanisms as incentives, subsidies, research agendas, and federal regulations and guidelines) to enhance the benefits of wind energy while minimizing the negative impacts would help in planning and regulating wind-energy development at smaller scales." Planning and regulation of wind energy should occur at the local, county or state level. Additional certainty about available policy tools (e.g., federal incentives) may facilitate proactive planning for wind-energy development.

- **Planning in Anticipation of Wind Energy Development**

Conclusion

There's little anticipatory planning for wind-energy projects and it's not evident that there are mechanisms for effectively incorporating such planning in regulatory decisions.

Recommendation

Advance planning for wind development should be undertaken (at the regional, state and/or local level) and precede regulatory review of individual wind-energy projects as practicable. Such an approach may help prompt developers to focus proposals on

¹ *Environmental Impacts of Wind-Energy Projects*, Committee on Environmental Impacts of Wind Energy Projects, National Research Council (2007) (pre-publication copy), p. 2

² This summary is derived from conclusions and recommendations in chapter 5 of the report and is excerpted from pages 11-14 of the report's summary. The report also contains recommendations regarding ecological effects (e.g., bird and bat effects) and impacts on humans (e.g., noise) that are not summarized here.

locations and site designs most likely to be successful and help researchers target efforts to be most informative for future wind-development decisions.

- **Choosing the Appropriate Decision-Making Level**

Conclusion

Decisions about the level of regulatory authority for reviewing wind-energy proposals (e.g., local, state and/or regional) have implications regarding evaluation of cumulative effects of wind-energy development; balancing beneficial and detrimental environmental and socioeconomic impacts of wind energy; and incorporating public opinions into the review process.

Recommendation

In choosing the level of regulatory review, consideration should be given to all three issues listed above and means identified to ameliorate the disadvantages of the option chosen ("for example, enhancing opportunities for local participation in state-level reviews").

- **Ensuring Clear Yet Flexible Review Procedures**

Conclusion

While "well-specified, formal procedures for regulatory review enhance predictability, consistency, and accountability for all parties to wind-energy development", flexibility and informality also have advantages in allowing the nature and extent of review processes and decisions, decision criteria, and/or information requirements to be uniquely tailored to a project.

Recommendation

"When consideration is given to formalizing review procedures and specifying thresholds for decision criteria, this consideration should include attention to ways of retaining the advantages of more flexible procedures."

- **Developing and Using Project Siting Guidance**

Conclusion

Wind energy is new to many state and local governments; accordingly "the quality of processes for permitting wind-energy developments is uneven in many respects."

Recommendation

Pertinent regulatory authorities (e.g., state agencies) should provide guidance on planning for wind-energy development which addresses information requirements and review procedures as well as technical assistance on gathering and assessing information needed for decision making. Stakeholder working groups made up of government agencies, wind developers and NGOs with diverse views of wind-energy development could be used to develop such guidance.

- **Using a Project Evaluation Guide**

Conclusion

Use of a publicly available evaluation guide by regulators to organize regulatory review processes can facilitate comprehensive and consistent decision making that is "coordinated across jurisdictional levels and across types of effects."

Recommendation

"Regulatory agencies should adopt and routinely use an evaluation guide in their reviews of wind-energy projects. The guide should be available to developers and the public."

- **Addressing the Local Cost/Societal Benefit Problem**

Conclusion

While the primary environmental benefits of wind-energy development, mainly related to atmospheric pollutant reduction, are realized over a broad area (and thus generally benefit individuals and society in common with those in the area affected by the development), the primary environmental costs, mainly adverse aesthetic and ecological effects, such as bird and bat mortality, are realized more locally. There are "similar, less dramatic" disparities regarding economic and societal benefits and costs. Such disparities, "although not unique to wind-energy development, complicate the evaluation of tradeoffs."

Recommendation

"Representatives of federal, state, and local governments should work with wind-energy developers, nongovernmental organizations, and other interest groups and experts to develop guidelines for addressing tradeoffs between benefits and costs of wind-energy generation of electricity that occur at widely different scales, including life-cycle effects."