

Land Use and Recreational Impacts of Wind Energy Projects

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Impacts on Land Use

Commercial or large-scale wind energy development must be located in a high wind resource area. In Vermont, this means at or near the tops of ridgelines between 2500 feet and 3500 feet in elevation. With the important exception of commercial ski areas and mountaintop communication facilities, Vermont's mid to high elevation ridges remain forested and are largely undeveloped. For the most part, commercial development of any kind in these areas, including wind energy development, would represent a significant change in land use.

The predominant land use along Vermont's ridgelines is forestry. Utility-scale wind energy development would preclude most forest management within the immediate project area. However, such development is not necessarily incompatible with surrounding forestry uses, and could possibly enhance forest management activities on adjacent lands through establishment of access roads.

Most state-owned mid to high elevation ridges are managed for protection of important wildlife habitat, sustainable forest management, compatible outdoor recreation activities, and other open space and conservation purposes. In many cases, management objectives are established by restrictions prohibiting commercial development, including wind energy development. On other state lands where there are no legal restrictions prohibiting wind energy development, the development of wind projects would represent a major change in land use.

The change in land use associated with wind energy development along ridgelines that are already developed, such as at ski areas, may be less dramatic. However, while much of the infrastructure necessary to support wind energy development may already be in place in such locations (i.e., roads, power, etc.), safety considerations associated with "ice throw" from wind turbines (see below) may preclude the co-location of such facilities in many areas.

Impacts on Public Access and Recreation

Regardless of whether wind energy projects are located on public or private land, they would affect a number of recreational activities and can affect recreational access in different ways. The degree to which proposed wind energy developments would provide for or restrict public access and recreation is an important issue that requires careful consideration.

Public recreational access can be both negatively and positively impacted by wind energy development. If left open to the public, access roads associated with utility-scale wind energy projects could conceivably open up areas that were previously difficult to get to, potentially serving to enhance or increase public recreational access to mountain tops. The views as well as the wind generation facilities themselves could be attractive destinations for school groups, organizations, and the general public.

However, security and safety concerns associated with the wind generation facilities can limit public recreational access to wind sites. The public is typically excluded from accessing the turbines and related facilities unless specific arrangements are made and they are accompanied by a representative of the wind energy project. Additionally, the terms of the lease may limit or restrict public access.

Public recreational access can also be affected by the phenomenon of “ice throw” off a wind turbine. This is a concern in colder climates such as Vermont where icing of the turbine blades can limit winter recreational activities such as snowshoeing, snowmobiling, and backcountry skiing in the area near the turbines.

Today’s wind turbines can throw ice chunks distances of several hundred yards. The actual range of ice trajectories varies according to the mass and shape of the ice, wind speed and direction, point on the blade when ice is released, the blade angle at the instant the ice is released, and other physical factors. Data is lacking regarding the distances ice is thrown by today’s wind turbines. A 1998 study by the Finnish Meteorological Institute suggested that possibility of being hit by ice thrown off a wind turbine blade diminishes greatly beyond distances of 250 meters or 820 feet. The impact of ice throw on winter recreational access can be mitigated in part by siting wind turbines away from areas used for winter recreation, curtailing operations during periods of icing, posting warning signs, and other precautionary measures.

While ice throw can directly affect winter recreational access in and near wind energy projects, other types of recreation may be indirectly impacted by wind power development. If a project adversely affects wildlife and wildlife habitat, water quality, and ecosystems it will also affect resource-dependent recreational activities such as hunting, fishing, bird watching, etc. Additionally, the aesthetic impacts of wind energy development could diminish the quality of certain recreational activities located within the viewshed of the project.