Renewable Energy Development

AWA supports the Government of Alberta's commitment to increase renewable energy in Alberta's electricity system to no less than 30 percent by 2030. The shift will contribute to reducing Alberta's greenhouse gas emissions and improve the health of Albertans. As important as these climate change and public health goals are, renewable energy sources such as wind and solar must proceed in a fashion respecting and promoting wildlife and landscape protection and health values.

AWA opposes locating any renewable energy project (including related transmission lines and other infrastructure) on public lands (leased or not-leased). Prohibiting these projects from public lands is especially important because:

1. the landscape footprint of wind energy development is significantly greater than the footprint of natural gas electricity development (72.1 square kilometres per terawatt versus 18.6 square kilometres per terawatt).[i]
2. the landscapes most often proposed for these renewable energy projects are very poorly represented in Alberta's protected areas and are home to many of the province's species-at-risk. For example, Grasslands constitute 14.42 percent of Alberta and only 1.24 percent of this region is protected in some way. Twenty-six of the 42 species Alberta listed as "at risk" in 2015 were grassland species.[ii] Given this correlation we cannot afford to lose any more of these lands to industrial or agricultural development.
3. AWA also believes native habitats on private land that are part of environmentally significant areas should also not be developed.

AWA also believes prioritization for development should be given to previously disturbed brownfield sites. Furthermore, AWA believes the province of Alberta needs to:

- designate *Environmental Assessment (Mandatory and Exempted Activities) Regulation* as a mandatory activity in Schedule 1 of the any renewable energy project with a proposed contract capacity equal to or greater than 5 megawatts;
- establish a research program with sufficient funding to investigate and confirm the seasonal pathways of migratory birds and bats; in the absence of such research wind farms should not be located on private lands containing or adjacent to ridge tops and wetlands known to be important to these species;
- fund substantial research into the wildlife mortality impact of industrial and utility scale development;
- monitor extensively and report wildlife mortality resulting from these developments;
- regulate to ensure that, if renewable energy facilities kill and or injure significant numbers of wildlife, facility operations will be adjusted or suspended in order to reduce those mortalities;
- regulate and ensure that if industrial or utility-scale renewable energy projects destroy or disturb native grassland, foothills, or parkland on private lands, the project's owners restore the native habitat; and
- formulate laws, regulations, and policies to increase the percentage of Alberta's 2030 renewable energy portfolio provided by micro-generators.

Background

AWA approaches this issue in a similar fashion to the United States The Nature Conservancy (TNC). Joseph Kiesecker, the lead scientist for the Conservancy's Conservation Lands Team, is addressing the "energy sprawl" phenomenon associated with wind power in the U.S. and notes that "a renewable energy future without a plan is not necessarily a green one."[iii]

The recommendation to include industrial and utility-scale renewable energy projects in Schedule 1 of the *Environmental Assessment (Mandatory and Exempted Activities) Regulation* would make environmental assessments of these projects mandatory. Currently, there is no requirement to conduct an environmental assessment of these projects under Alberta's *Environmental Protection and Enhancement Act* (Sections 44 and 47 of that Act leave it to the discretion of the Director or the Minister to require an environmental assessment of a non-mandatory activity that is not exempted by regulation.).

In Germany environmental impact assessments are mandatory for wind energy projects with 20 or more turbines and conditional for projects involving three to 19 turbines (the conditionality depends on the results of an initial screening process). Mandatory assessments are particularly appropriate given the fact that Alberta, at this time, unlike Germany, has not conducted comprehensive "suitable area" or regional/local spatial development plans. Geissler, Köppel, and Gunther write: "These suitable areas are identified by a restriction analysis comparable to the following sequence: (1) mapping all categorical no-go areas (e.g. nature conservation areas, areas with high sensitivity of landscape scenery, forests, residential and industrial areas etc.) and buffer zones, (2) analysing wind potential of remaining sites, and (3) designating the remaining areas."[iv]

Industrial and utility-scale renewable energy development Alberta should be guided by basic knowledge about the ecological consequences of these types of industrialization. Consequently, the need to fund research and monitor impacts is essential. The need to fund research is vital for several reasons. First, the research of Baerwald, Patterson, and Barclay on the wind turbine mortalities of bats in southern Alberta warns that "fatalities at a single wind energy site have the potential to have far-reaching ecological and population consequences."[v] Policy makers should invest the funds needed to see how serious this potential could be. Second, species such as bats provide important ecological services to economic sectors such as agriculture. Boyles et al estimated that bats, by eating insect pests, likely provided $22.9 billion in ecological services to U.S. agriculture. Those benefits didn't include secondary effects of predation such as reducing the potential for insects to evolve and increase their resistance to pesticides. Nor did it include the similar pest-reduction services bats provide to the forest products sector.[vi]

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[i] Dustin Solberg, "Wind's Big Footprint: Clean Energy Still Needs Safeguards for Nature," November 29, 2017, https://blog.nature.org/science/2017/11/29/winds-big-footprint-clean-energy-still-needs-safeguards-for-nature/.

[ii] Alberta Environment and Sustainable Resource Development, *A Guide to Endangered and Threatened Species, and Species of Special Concern in Alberta, Version 2,* (2015).

[iii] Solberg, "Wind's Big Footprint."

[iv] Gesa Geissler, Johann Köppel, and Pamela Gunther, "Wind energy and environmental assessments – A hard look at two forerunners' approaches: Germany and the United States," *Renewable Energy*, 51 (2013), 73.

[v] E.F. Baerwald, W.P. Patterson, and R.M.R. Barclay, "Origins and migratory patterns of bats killed by wind turbines in southern Alberta: evidence from stable isotopes," *Ecosphere*, Vol. 5(9), (September 2014), 1.

[vi] Justin G. Boyles, Paul M. Cryan, Gary F. McCracken, and Thomas H. Kunz, "Economic Importance of Bats in Agriculture," *Science*, Vol. 332, (April 1, 2011), 42.