

Opportunity in the Wind

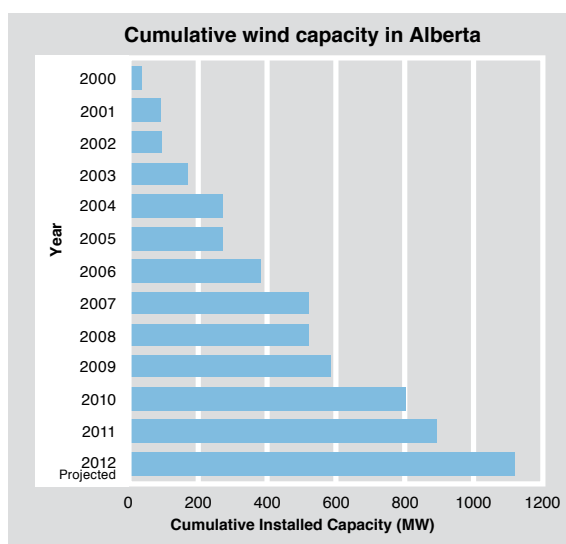
Alberta has one of the largest and strongest wind energy resources in Canada



Alberta depends heavily on burning coal to generate electricity, but there are huge opportunities in the province for cleaner and safer options.

Today, Alberta relies on coal-fired power for over two-thirds of its electricity. This makes Alberta's electricity the most polluting in Canada. For example, around 60 per cent of the airborne mercury released in Alberta is from coal power plants.

Wind power can play an important role in providing the province's cleaner electricity of the future. In fact, it already is.



Data: Canadian Wind Energy Association

In 2011, nearly 3.5 per cent of the electricity generated in Alberta was from wind. This contribution is continuing to grow. Still, Alberta is only scratching the surface of the potential for wind energy in the province.

Despite the growth in recent years, it is not certain that wind energy development will continue at the same pace in Alberta. Alberta's open electricity market enabled some early wind energy projects to be developed, but the market's up-and-down nature has made long-term project planning difficult.

In fact, some fairly advanced projects in Alberta have been shelved or abandoned because of this uncertainty. This can be a problem for landowners who have signed on to wind energy projects if companies are not able to complete them.

Alberta has the wind resource to become one of Canada's leading provinces, but is only likely to happen if there is:

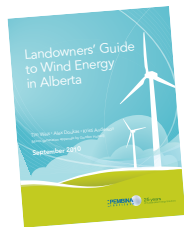
- good policy to support wind development
- best practices from industry
- healthy relationships between landowners and developers, and
- improved awareness and understanding among Albertans.

It is for these reasons that the Pembina Institute partnered with Alberta Agriculture's Farmers' Advocate Office and Southern Alberta Economic Development to ensure landowners understand the opportunities as well as the trade-offs that participating in local wind energy development presents in their communities. This fact sheet is a summary of some of the common concerns and important questions for landowners to ask when wind energy development is being proposed.

Project development

From testing wind resources to decommissioning a wind turbine at the end of its life, there are numerous steps to developing a wind project in Alberta. The typical stages of development are outlined in this graphic.

Some of the steps may not occur linearly but may be concurrent or overlap to some degree, and some aspects of project development are an iterative process. Communication with local communities and First Nations bands should continue throughout the project, from the earliest stages through to construction and operation. Developers must obtain permits and approvals for wind energy projects at the federal, provincial and municipal levels.



For more information refer to Part II of the *Landowners' Guide to Wind Energy in Alberta*, pages 38 to 47.

Approximate timeline for a hypothetical medium-to-large wind energy project



Data: Nova Scotia Department of Energy, *Wind Energy in Nova Scotia: A guide for landowners and communities*

Working with developers — Doing your homework

Landowners who have done their homework and know their options tend to have the best results when negotiating land agreements. Successful negotiation ensures that landowners are fairly compensated for the use of their resource, land and risks, while developers are able to build a financially and environmentally responsible project. To ensure they have all the information they need to have an informed negotiation, landowners should seek out education materials, government resources and professional help.

- Review any proposed agreements with your lawyer and accountant.
- Research corporate background and the development and operations history of the developer to ensure this is a company you want to work with, but be aware that projects may be sold to companies with more resources to develop the project.
- Assess non-monetary values that the project could impact, such as what features on the land must be avoided. Work with the developer to create solutions to make it easier to live and work near the wind farm, for example constructing “low profile roads” that allow farm equipment to get across them.
- Think about how you may want to use the land in the future and make sure that this will still be possible.
- Assess the revenue potential and financial impacts of the wind farm, for example calculate lost crop production values. Compensation levels should be related to rights the landowner is relinquishing. Ask for projections of the revenue to be generated by the turbines that will be located on your land.
- Ensure you are aware of any liabilities you may be responsible for during operation of the wind farm and in the event that the developer goes bankrupt. Landowners are typically responsible for additional property tax associated with a wind farm, but this can be contractually transferred to the proponent. Seek advice from your municipality, lawyer and accountant.
- Review the contract to make sure you are comfortable with all the clauses including but not limited to lease area, access times, turbine appearance, wind farm transferability, tenant rights, term of lease, setback distances, and noise protection.
- Work with neighbouring landowners to ensure you get a fair deal and to increase negotiating power.
- It is in everyone’s best interest to have win-win negotiations. Successfully working with the developer will be an ongoing process. Inform the developer and put into writing early that you wish to be consulted at all planning stages of the project.

Ownership models

There are a number of different financial and ownership models that can be used to develop wind projects. The most familiar model in Alberta is currently developer-owned projects, which offer landowners guaranteed payments but gives them limited say in the design and operation of the facility. Utility-scale wind turbines may also be developed, owned and operated by the landowners themselves — giving them more control and revenue, but exposing them to all financial, technical and legal risk — or be owned jointly by neighbouring landowners or investors from neighbouring communities — where risk is spread out while landowners retain some say in the project plus higher returns from electricity produced.

Risk and reward in different ownership categories



Source: Pembina Institute

Alberta's Micro-Generation Regulation (small-scale turbines)

The Alberta government introduced its Micro-Generation Regulation in early 2009 to streamline the process of connecting any micro-sized, renewable energy generator to the electrical grid. This regulation applies to people who wish to produce electricity using an environmentally-friendly renewable fuel source to power their home, farm or business.

To qualify under this regulation, the generator must exclusively use sources of renewable or alternative energy, and the amount of energy generated is intended to meet all or a portion of the customer's electricity needs.

See the Appendix to *The Landowner's Guide to Wind Energy in Alberta* for a detailed description of submitting an application under Alberta's Micro-Generation Regulation.



Photo: David Dodge, The Pembina Institute

Case studies have shown that investments in wind energy bring economic opportunities to rural areas through:

- Royalties to landowners and benefits generated for the community from an infusion of revenue from this new cash crop
- Revenue to municipalities to fund and improve municipal services — wind power accounts for over a quarter of the tax revenue in the Municipal District of Pincher Creek
- Jobs for local residents and economy — 1,650 MW of new wind capacity in Southeast Alberta is expected to create nearly 5,000 full-year jobs in construction and over 500 full-year jobs for ongoing operation and maintenance, including direct, indirect, and induced employment.



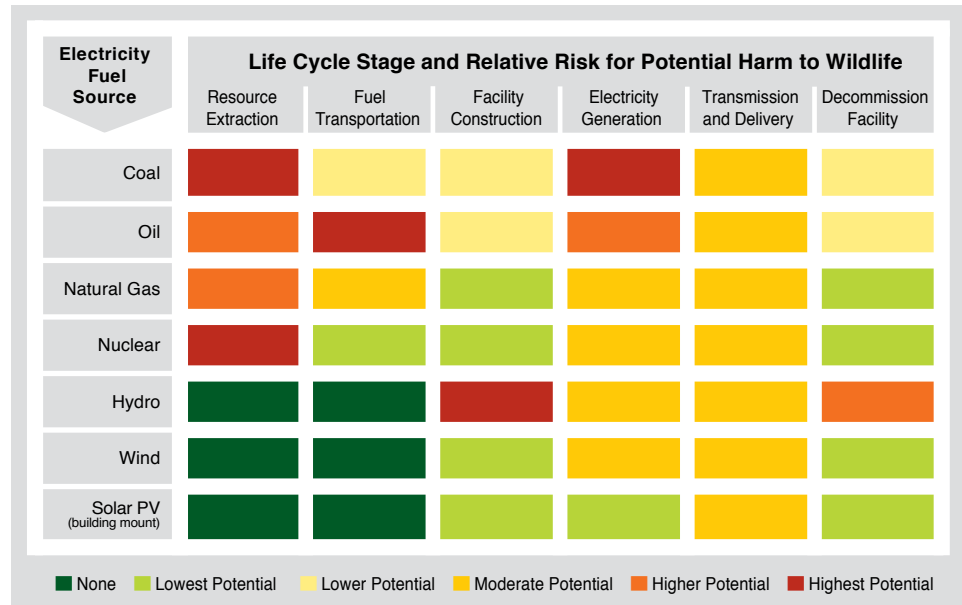
Photo: David Dodge, The Pembina Institute

Health and environment

No form of energy is without impacts, either local, global, or both. It is important to examine the relative impacts of our energy choices. Compared to fossil fuels such as coal or natural gas, or even other renewable energy options such as large hydro systems, wind turbines are widely recognized to have one of the lowest life cycle environmental footprints of any electricity-generation choice.

Wind turbines produce no local air pollution, unlike fossil fuels which produce sulphur dioxide, nitrogen oxides and volatile organic compounds as well as, in the case of coal, airborne mercury. All of these cause serious health effects such as respiratory illnesses and, in the case of mercury, brain development problems in children.

All forms of electricity generation present risks to wildlife, and wind turbines are not excluded from this reality. However, the scale of the impacts as well as the impacts of other alternatives is very important to bear in mind. The combustion of coal results in the highest potential risks to wildlife because it contributes to acid rain, which damages plant life and water systems, and to mercury magnification through the food chain, which results in poisoning of



Source: New York State Energy Research and Development Authority and Gordon Howell

higher level predators, including hawks and eagles, and affects us too.

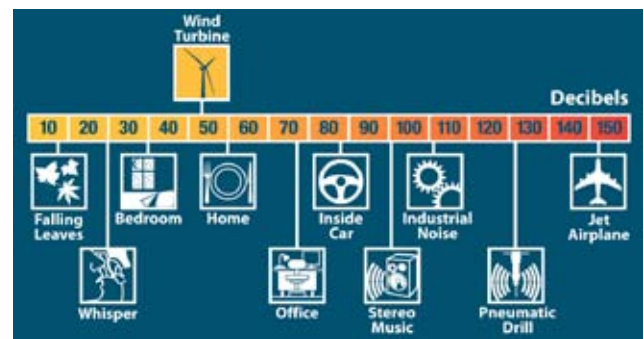
Birds and bats may be killed through collisions with wind turbine blades or towers. Bats may also be killed by air pressure changes associated with spinning turbine blades. These impacts can be diminished through careful site studies

to make sure turbines avoid bird staging areas and common flyways, as well as ridges where air currents may increase collisions with raptors. Other measures can be taken to restrict the operation of turbines at certain times of year (e.g., spring and fall bird and bat migration) and during certain weather conditions when adverse effects on birds and bats are more likely.

Wind turbine noise

Wind turbines are not silent. However, newer turbines are much quieter than older technology as a result of decades of research and development. Each site can be different due to local wind patterns and geographic features; however, commonly, at a distance of about 350 metres, the sound from modern wind farms is about equivalent to the noise level in a home (30–50 decibels). Because of the characteristic “swooshing” sound of the blades, some people can find the sound of a wind turbine to be annoying. It is important that the proximity to dwellings be considered when siting turbines and that landowners work with developers to see what steps can be taken to minimize any potential noise from nearby turbines.

Noise levels from modern wind turbines compared to other noise sources



Source: Canadian Geographic Magazine

More information

See the Pembina Institute's Wind Energy in Rural Alberta page:
www.pembina.org/re/wind-power-rural-alberta

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