Summerview Wind Farm

Project Timeline

JANUARY 2001: Prospecting and Wind Assessment

MARCH 2003: Development

FEBRUARY 2004: Construction

SEPTEMBER 2004: Commissioning

Summerview Wind Farm was developed by Vision Quest in Alberta. Located near the town of Pincher Creek, it consists of 38 Vestas wind turbines, each rated at 1.8 MW, for a total capacity of 68.4 MW – enough to power 24,000 homes[1].

The site was selected in 2001 and once the design was finalized in 2003, it took only 8 months to build the wind farm and make it operational.

All the turbines are sited on private land and spread over a total area of less than 15 km^2.

photos courtesy of VisionQuest

"Some of the greatest beneficiaries are the farmers on whose land this project resides and the affected land owners. In some cases the revenue received by the landowner made the difference in survival of the farming operation".

PROJECT AT A GLANCE

Operating Data

Installed capacity: **68.4 MW**
Energy production: **209 GWh/year**
Equivalent number of households[1]: **24,000 homes**

Wind Turbines

Number of Turbines: **38**
Manufacturer: **Vestas**
Number of Blades: **3**
Rotor Speed: **16 rpm**
Rotor Diameter: **80m**
Hub Height: **65m**

Local Benefits

Jobs
18 person-years during development & construction
7 full time jobs created for operation & maintenance
Investment (local portion)
$3,520,000[2] for development & construction
+4 M $ / year during operation
Other
Environmental Research ($100,000/year), Tourism

Development Period

January 2001 – September 2004

Developer, operator, owner

Vision Quest:
Vision Quest builds, owns, and operates wind energy facilities, with three major wind farms totalling 189 MW currently in operation. Vision Quest is part of TransAlta Corporation which is one of Canada's largest independent power producers and energy marketing companies.

1. Figure assumes average Canadian household electricity use (not including heating) of 8.66 MWh per household per year. Source: Energy Use Data Handbook, 1990 and 1997 to 2003; "Residential Secondary Energy Use by Energy Source and End-Use", Natural Resources Canada, June 2005.

2. Estimated local expenditures incurred by the project developer only.

"I consider it a privilege to have worked for Vision Quest on the Summerview Wind Farm. My contract was to install the foundations for the 38 turbines that comprise the wind farm today. My belief is that in a free country, the economic environment should be such that all viable options should be explored to help the economy and the country to grow. The obvious benefit is to the ecology but our community has benefited more than most people realize from the wind development that has happened here."

David Willms, Willms Construction Ltd., Pincher Creek, AB

Community Benefits

To conduct the environmental study, the Calgary-based company in charge hired a local person for one year. Other activities organised during the development process such as public consultations and meetings with land owners generated around $20,000 of local income for hall rentals and catering.

Local Benefits: Preparation Phase

Investment	**$20,000**
Employment (person-years)	**1**

Spin-off benefits to the municipal district of Pincher Creek include tourism revenue from visitors from as far away as Russia and $5,000 in annual sales of clothing and souvenirs branded with the "Naturally Powerful Pincher Creek" logo.

DEVELOPMENT

Overview
There are many stages of development before a wind farm can be approved and built. Once a site has been selected for its good overall potential (see CanWEA fact sheets – Planning a Wind Farm and building a Wind Farm), work begins on several main tasks::

Wind assessment:
Usually the first critical step is assessing the wind resource. Scientists and engineers use meteorological masts to measure wind speed and other climatic conditions for at least one year. This data is then used to estimate how much energy the wind farm will produce.

Wind Farm Design:
Wind data is combined with topographical information to design the wind farm. Engineers use this data to model wind flow, turbine performance, sound levels and other parameters to optimize the location of the wind turbines. They also design the access roads, turbine foundations and local electric network, as well as the connection to the electricity grid.

Environmental Study:
Environmental assessments are conducted to identify any impacts on landscape, plants and wildlife, soil and water, land use or other activities such as aviation and telecommunications. If negative impacts are identified, the design is adjusted to avoid or mitigate them.

Land Acquisition:
Early in the process, developers usually approach landowners to negotiate "option" agreements to use their land. As the project progresses, the developer will seek to convert the options into firm land lease agreements

Permitting and Public Consultation:
As with any other major power project, developers must seek municipal, provincial and federal permits before the project can go ahead. They also meet the local communities to present the project, solicit their feedback and seek community support.

Economic and Financial Analysis:
Developers must demonstrate the economic viability of their project to raise the funds to build the wind farm. On one hand, they work to estimate the cost of turbines and their installation, as well as roads, electrical system, operation and maintenance, etc. On the other hand, they estimate the income they will get from the energy production of the wind farm over the lifetime of the project. Then they make sure everything balances.

Contribution of local companies

Nearly 10 local companies participated in the construction of the wind farm. Various services were provided to prepare the site (e.g. dirt work, roads and crane pads building, trenching for underground lines, etc.), install the foundations, assemble the tools and equipment required for construction and transport and erect the turbine components.

Local Benefits: Construction Phase

Phase	Preparation	Foundations	Assembly	Electrical	Commissioning
Total phase duration	1 month	3 months	4 months	5 months	1 month
Investment	**$3,520,000***				
Total Employment: approximately 17 person years					

*Estimated local expenditures incurred by the project developer only.

These activities generated $3.5 million of local sales and created the equivalent of 17 jobs over a period of one year.

CONSTRUCTION

Overview

This is the stage where the project gets its green light. The project has been approved and an agreement signed to sell the power. The design has been finalized and contractors can be engaged to build the wind farm. The overall process consists of a manufacturing stage off-site and a construction stage on-site.

Manufacturing:

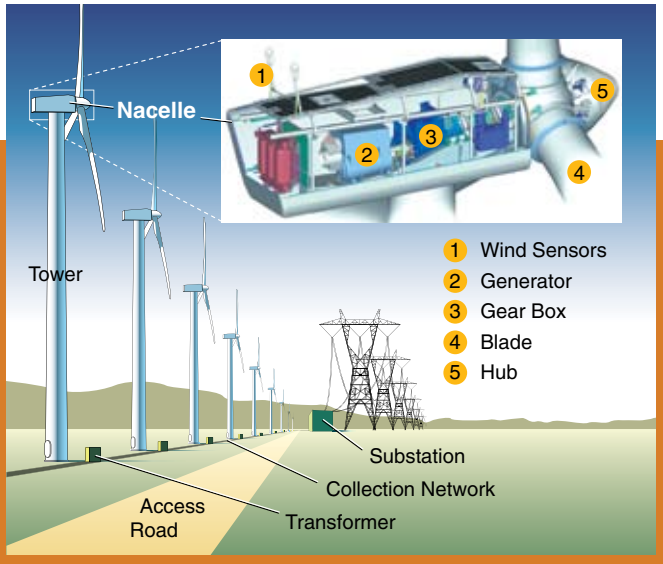
The wind turbine parts are manufactured and pre-assembled into the main components at the factory, then shipped to the wind farm site where the final assembly will take place.

Site preparation:

In the meantime, the crews have to prepare the site. They build access roads and clear the areas where turbines will be erected. Then they prepare the foundations; excavating, installing the formworks and pouring concrete.

Construction:

Once all components have been received, the assembly can take place. A crane is used to erect the tower and install the nacelle and rotor with its hub and blades. On the ground, the electrical collection network is installed and connected to the grid through the substation.



Commissioning:

Finally, the wind farm is tested before becoming fully operational.

Currently in Canada, the construction phase presents the best opportunities for local business and jobs. Other activities related to logistics, travel, lodging and material supply generate significant additional local revenue.

Local Benefits from Operation and Maintenance

Operation and maintenance at Summerview Wind Farm created 7 full time jobs. All O&M activities result in approximately $2.9 million of annual local spending.

Land Lease and Tax Payments

A total amount of $1,100,000 is paid annually, mainly as royalties to the private landowners hosting the wind turbines and as property taxes to the Municipal District of Pincher Creek.

According to D.D., landowner and farmer, the new revenue for hosting several turbines on his property, is a definite advantage. Because the turbines use such a small land area, there is little impact on his farming activities. This combination really helps build a good perception of wind energy at Pincher Creek.

Other Benefits

Vision Quest participates in environmental Research and Development resulting in local jobs, local purchases and income for motels and restaurants. This participation represents around $100,000 of income and about 6 months of full time employment per year.

Vision Quest has also produced an audio tour on CD that is available at no cost to local toursim offices. Early results indicate that these free CDs have helped bring additional benefits to the area.

"The entire community benefits from the wind energy projects – the land owner who lease their land for the placement of the turbines; the M.D. who recognizes substantial tax revenue from wind energy projects and the community which recognizes tourism dollars as a result of the turbines."

Loretta Thompson,
Chief Administrative Officer,
Municipal District of Pincher Creek

Local Benefits: Operation & Maintenance

Investment	**$2,900,000**
O&M employment	**7**

OPERATION & MAINTENANCE

Overview

Wind farms are designed to last 25 years and longer, producing clean energy for the region and accruing a variety of additional benefits for the host community.

Operation and maintenance

A variety of skill sets are required to ensure the effective operation of a Wind Farm. The activities that have to be performed on a regular basis throughout the project's life include monitoring and analyzing performance, conducting environmental surveys and performing preventative maintenance and repairs on the turbines and other components of the facility.

In addition to the permanent employment created to perform these tasks, a region with several wind farms may take the opportunity to develop and deliver new training programs for the specialized workers needed for these jobs.

Local Revenues

Wind energy is a special kind of commodity because it can deliver a stable financial reward with little or no effort on the part of the landowners. Rural communities are in an excellent position to benefit from wind farms. More than co-existing peacefully with agricultural land uses, wind farms provide an alternative income stream to farmers and ranchers and help them weather the ups and downs of farming. They therefore preserve communities and livelihoods that are precious to us. Wind farms also provide a new tax revenue stream for local municipalities that can benefit all community members. New choices can be made: community centers, roads, parks and other local initiatives can be assisted through this new tax base.

The wind farm workers' use of local lodging, transportation and other services also benefits the community directly.

And more…

Wind farms are objects of fascination for many and as such they can generate tourism for the local community. The benefits of drawing new visitors to the community can be felt by many businesses including shops, restaurants and hotels. Access roads built for the project may even open routes to new outdoor recreation opportunities.

Industry Canada Industrie Canada

CanWEA acknowledges the contribution of Industry Canada.

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