

2012 assessment of wind energy costs in British Columbia Background

Noted wind energy consultants GL Garrad Hassan (GL GH) reassessed every onshore wind energy resource included in BC Hydro's Resource Options Database using cost and productivity inputs appropriate for British Columbia in 2012. Relative to BC Hydro's draft Integrated Resource Plan (IRP), the new report indicates a lower and much flatter cost curve for BC wind energy resources.

The IRP cost curve already showed that wind energy is the most cost-effective renewable energy technology for large amounts of new generation – the new cost curve suggests that an increasing number of wind energy resources from around the province are now available at a lower cost than ever before.

About decreased wind turbine prices since 2009-2010

- Wind Turbine prices have dropped due to:
 - the global economic recession which has resulted in less upwards pressure on demand for wind turbines
 - The anticipated expiry of the US production tax credit (PTC) and other incentives for wind energy production in the United States has increased the availability of turbines from European and North American manufacturers.
 - Emergence of several Chinese wind turbine manufacturing firms seeking to export their products into the North American market has increased competition.
- The US National Renewable Energy Laboratory first reported on price drops in June 2011, and confirmed in February 2012 that the average cost of European and North American wind turbines is now 20% below their peak in 2009.

About increased wind turbine productivity since 2009

- New wind turbine models optimized for sites with lower average wind speeds have resulted in large increases in electricity generation from these locations.
- Of the 121 wind energy resource areas assessed by BC Hydro and GL GH 112 sites have average wind speeds suitable for these newly designed wind turbines.

About the cost of development in BC:

- The study takes BC's higher development costs into account. These are a result of challenging geography, remoteness, short construction season, high labour costs, and high royalty costs.

Report Methodology and Results:

- Assuming the same average wind speed, the same installed capacity, and the same hub height at each wind resource area, the total amount of electricity generated increased by 27% overall, including a 34% gain for all Class III sites, a 7% gain from Class II sites, and a 3% gain from Class I sites.
- The report calculated a "lifetime cost of energy" for each assessed site.
- This cost was calculated in a manner similar to BC Hydro's calculation of Unit Energy Costs (UEC)
- The GL GH report could not accurately assess the cost of interconnection for each resource area; interconnection costs need to be added before being directly compared with BC Hydro's UEC.
- Inclusion of interconnection costs are likely to change which projects are most cost-effective.

- According to BC Hydro's draft IRP, 19 of the top 20 most cost-effective sites are located in the Peace Region. The report indicates that sites in other regions are also likely to be amongst the most cost effective in the province.

Conclusions

- The assessed cost of wind energy in BC is significantly lower than indicated in BC Hydro's draft IRP.
- The cost curve for BC wind resources is flatter than previously thought because lower-speed wind resources have had largest the cost drop relative to BC Hydro's draft IRP.
- Wind energy resources outside of the Peace region now appear to be more competitive.

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