WIND TURBINE DATA ANALYSIS USING A STANDARD REPORT FORMAT (GADS)

Wind Energy Institute of Canada | Institut de l'énergie éolienne du Canada

Natural Resources Canada | Ressources naturelles Canada

canwea — Canadian Wind Energy Association | Association canadienne de l'énergie éolienne

Wind Energy: Power for Canada

Background

Canada has over 12,000 MW of wind power installed and, as wind parks transition from construction to operation and maintenance, the need for comparative statistics increases. CanWEA, along with wind turbine owners and operators throughout Canada, recognizes the need for standardized reporting to support wind industry internal benchmarking, research, and preventative maintenance. Under a CanWEA benchmarking data project, several wind farms across Canada have implemented Generating Availability Data System (GADS) reporting, which allows comparison of downtime data across the wind industry and with traditional electricity generators. The Wind Energy Institute of Canada (WEICan) is processing the data and providing statistics to data contributors of the project.

Objectives

This data will:

- Allow wind turbine owners to benchmark their performance and perform preventative maintenance
- Provide baseline renewable energy data for climate change discussions and the wind energy industry
- Support future wind energy research

To Date

In 2015 and 2016, 28 wind farms, representing 1.67 GW of nameplate capacity, reported GADS data for 2014 and 2015, respectively. In 2017 NRCan provided funding allowing WEICan to continue to collect, analyze, and report data for this project. There are 4.7 GW of nameplate capacity represented in the current agreement.

Results

The figures on the right demonstrate the opportunity for the industry. Individual site data comparison to the average yearly data can be made. When participants have contributed over several years, yearly comparisons can be made. Each participating wind farm receives both average and individual site results for the percentage of downtime caused by each system component per MW of installed capacity.

Data Reporting and Consistency

Data validation and quality control of the dataset is ongoing. As the number of participating parties increases and multiple years of data are accumulated, the value of trends, performance benchmarking, and overall accuracy of the dataset will improve.

Confidentiality

All data shared remains strictly confidential and Non-Disclosure Agreements (NDA) are in place between participating parties. Results shown are representative only.

Conclusion

Owners, operators, and the wind industry can benefit from compiling baseline availability data through an established format, such as GADS. Individual site and industry benchmarking is the basis for short and long term O&M planning. CanWEA has been building on the 2015 pilot with a larger scale project in 2017.

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