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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Wind Energy: Power for Canada

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

<table>
<thead>
<tr>
<th>Year</th>
<th>Data Reporting</th>
<th>Consistency</th>
<th>Confidentiality</th>
<th>Conclusion</th>
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This Report
External
Generator/Exciter
Drive train
Control system
Rotor
Balance of plant
Hydraulic system
Human performance
Gearbox
Brake
Yaw system
Electrical
Pitch system
Structures

This Report
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