

## Background

Canada has over 11,000 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 pilot benchmarking data project, several wind farms across Canada are implementing 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 initial 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 broader wind energy industry
- Support future wind energy research

## To Date

In 2015, 28 wind farms, representing 1.67 GW of nameplate capacity, reported GADS data for 2014 in the pilot project. These same wind farms have also reported their 2015 GADS data, which is still being analyzed.

## Results

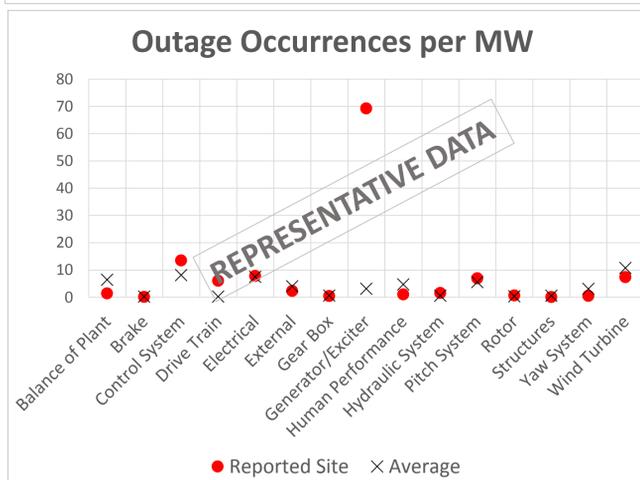
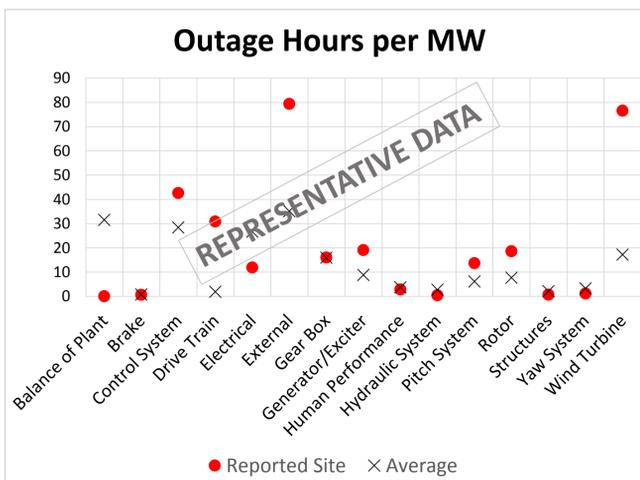
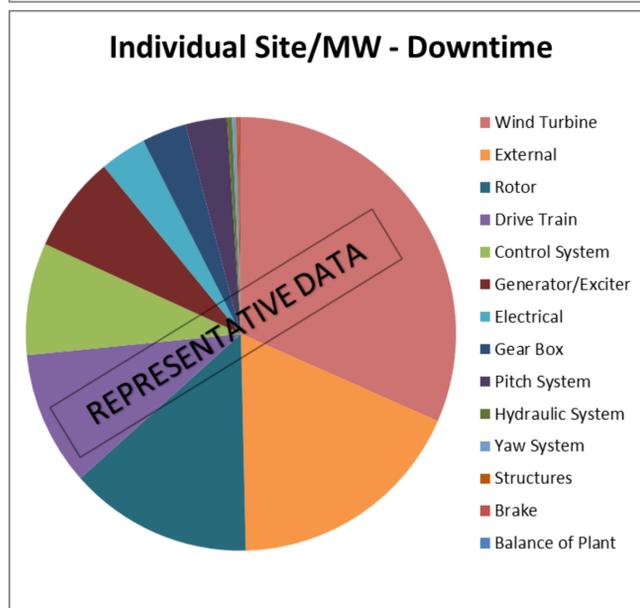
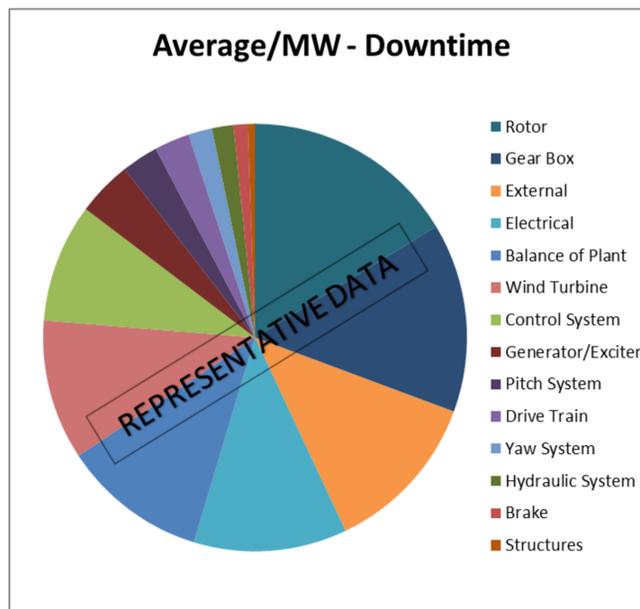
The figures on the right demonstrate the opportunity for the industry. Individual site data comparison to the average 2014 data can be made. Each participating wind farm receives both average and individual site results for the percentage of downtime caused by each system component per MW of installed 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. Average 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 plans to build on the pilot with a larger scale project in 2017.

## WEICan Wind R&D Park Characteristics

Wind R&D Park Capacity	10 MW
Number of Wind Turbines	5
Model	DeWind D9.2
Storage Capacity	2 MWh
Storage Rating	1 MW
Inverter Model	S&C Purewave
Battery Model	GE Durathon
Temperature Range	-30°C to +27°C
Topography	10 m cliffs, 300° ocean exposure



## Wind R&D Park Performance Statistics (2015):

- 43.5 GWh energy produced
  - 49.5% + Capacity Factor
  - 97% + OEM Availability
- ### Wind R&D Park Performance Statistics (2014):
- 42.05 GWh energy produced
  - 48% Capacity Factor
  - 94% OEM Availability
  - 85.6% GADS Availability



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