Supplemental Project Notice

WIND NETWORK FOR ENHANCED RELIABILITY (WINNER™) WEB-BASED TOOL AND USER-GROUP

Improve Safety, Reliability, and Performance, and Reduce Costs

Energy Industry Worldwide Collaboration of Owners/Utilities/Operators

PROJECT HIGHLIGHTS

- Wind turbine digitalization and reliability data standardization
- Reliability benchmarking and OEM/ supplier comparisons
- Wind plant operations and maintenance (O&M) budgeting and forecasting
- Total cost of ownership analysis, capital budget investments, and repowering and life extension assessments
- Technical user group for owners, operators, and off-takers from wind power plants
- Worldwide peer to peer networking, knowledge sharing, and best practices for improving wind turbine safety and O&M

Background, Objectives, and New Learnings

Reliability tracking of wind turbine major systems and components such as blades, pitch, main bearing, gearbox, generator, and transformers, is key for safety, future failure rate predictions, and O&M optimization. The many variants of the design and configuration complicate the efforts of turbine owners/operators to effectively manage their wind plants.

User groups provide an important function in facilitating information sharing and collaboration among the organizations across the energy industry.

The following are some of the key issues the industry has been trying to address for effective management of their wind assets, which EPRI is trying to address:

- Are there data specifications and standards for turbine reliability data collection and tracking?
- What is the impact of design, supplier quality and operating conditions on system life and reliability?
- What are the critical components and their failure modes?
- How failure rates change as wind plant ages?
- How to use reliability data for O&M budget forecasting for next year and beyond?
- How to leverage reliability data for life extension vs. repowering decision making?
- How to benchmark wind fleet reliability with the industry?
- Is there a user group and/or a platform to interact with worldwide owners/operators in addressing current and future wind fleet challenges proactively?

Benefits

EPRI's WinNER™ web-based tool provides access to anonymized wind turbine reliability data, along with specificity of certain major systems/components failures, providing unbiased qualitative and quantitative results. Additional benefits may include:

- Wind turbine reliability data digitalization guidelines and standardization
- Improve safety, reliability, and operational efficiency

- Optimum O&M budget allocation based on reliability forecasts at the fleet-level, turbine-level, and system-level
- Reduction in O&M costs through more preventive maintenance.
- Informed decision making specific to capital budget investments, turbine selections, supplier selections, repowering vs. life extension.
- Technical and business intelligence for wind assets
- Collaborative forum to share lessons learned with a network of experts.

Project Approach and Summary

This project provides access to WinNER™ platform to funders for reliability benchmarking and forecasting at industry-level, fleet-level, turbine-level, and system-level. This includes the following, most of which recur annually:

1. WinNER™ Access
2. Reliability Data Specifications, Collection, and Quality Assurance (QA)
3. WinNER™ Development and Implementation
4. User Group, Collaboration and Results Review.

Deliverables

EPRI expects to deliver the following deliverables:

Access to WinNER™ http://windturbinereliability.epri.com/).

There are two View Levels in WinNER™:

1. **Industry Level View**: Anonymized dataset for industry-wide reliability analysis. Funder can compare turbine OEM and supplier specific reliability information against an aggregate of anonymized data.
2. **Funder-specific View**: Reliability dataset filtered to focus on the funder's specific fleet. Funders can benchmark their wind fleet against an aggregate of anonymized reliability data.

Limited WinNER™ Access: Funders with no reliability data to contribute to WinNER™ can only access anonymized Industry Level View.

Full WinNER™ Access: Funders who contribute their fleet reliability data to WinNER™ get full access. This includes Industry Level View and Funder-Specific View.

An annual in-person workshop and periodic webcasts.

Price of Project

The annual cost of this project is:

- $18,000 for funders of EPRI Program Wind Generation (206) or Leverage Energy, Availability, and Performance (LEAP™)

or

- $28,000 for non-funders.

There is a three-year commitment to join the project.

Project Status and Schedule

Membership in WinNER™ is based on a calendar year and can be renewed each year.

The WinNER™ website is updated with reliability data and new modules/features on a regular and as-needed basis during the year.

The annual workshop is usually held in the Spring or Summer at a U.S. based location. Multiple webcasts are intended to be held throughout the year.

Who Should Join

Utilities and companies that own/operate wind plants with a desire to improve safety and reliability and reduce costs could benefit from participation in this project.

Contact Information

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