

Agenda

Special Reliability Workshop

October 23, Albuquerque, NM USA

The meeting on Tuesday, October 23 will be a special workshop meeting on broad reliability topics and will have participants from the American Renewable Energy Standards and Certification Association (ARESca, <https://aresca.us/>) who joins the sponsorship of this meeting along with Vermont Wind Power and Roger R. Hill, LLC. The purpose of this meeting is to present key ideas on reliability topics, advance discussion on the issues, and synthesize approaches for methods to understand and mitigate reliability problems through standards, conformity assessment and certifications. The ARESca concept is supported by multiple standards development committees and organizations that believes renewable energy standards development and certification will be improved.

The organization of this Workshop is two-fold: 1) In the morning session, we will basically address requirements, needs and expectations by examination of the What and Why. 2) In the PM we will continue with the Who, When and How through development of ideas and preliminary criteria for the standards development. Speakers are requested to use up to 10 minutes to address their remarks with extra time built in for workshop topical discussions. Bob and Roger will moderate but attendees are not expected to be shy.

Schedule:

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| 8:00 | <u>Introductions and background</u>
Why are we here?
Requirements, Needs, and Expectations
Attendee self-introductions with brief identification of specific needs | Bob Sherwin, VT Wind Power Int.
Roger Hill, Roger R Hill, LLC |
| 9:00 | <u>Continuous Process Improvement and Reliability</u>
What Now for Industry Maturity?
Large Fleet Tools and Practices
Reliability Practices to Manage Risk | Dan Brake, NextEra
Ryan O'Connor, EDF
Wally Ebner, ARESca |
| 10:00 | Break | |
| 10:15 | <u>Data – Information – Knowledge – Wisdom</u>
Performance, Systems, Why reliability?
Reliability Across Fleets
SCADA, Data and More | Russel Morris, Morris Consulting
Bob Steele, Strategic Power Sys
Michael Rueter, Innogy |
| 11:00 | <u>Looking at Reliability across the Grid</u>
NERC GADS - Wind and PV
Translating GADS to/from IEC and IEEE | Donna Pratt, NERC
Mike Borden, Strategic Power Sys |

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11:45 **Testing and Analysis**

Drivetrain Reliability - Inherent to Operational
Blade Reliability – Design, Test, Field

Shuangwen Sheng, NREL
Josh Paquette, Sandia labs

12:45 **Lunch and networking on own**

2:00 **Availability, Reliability, Systems Engineering, and Performance**

How Reliability?

Niels Raben, Ørsted

The Multiverse of Reliability

John Balfour, High Performance PV

2:45 **Operational Data Supporting Reliability Assessment – Failures**

OEM Fleet Data, the Journey

Joe Pribil, Vestas

Condition Monitoring– Beyond Gearboxes and Generators

Matt Mays, Bachman

3:45 Break

4:15 **Assessments for identifying, understanding, predicting and mitigating**

Dependability and Cost of Ownership

Sumanth Lokanath, First Solar

More Tools, Establishing Weibull Parameters and Use

Thushara Gunda, Sandia

5:00 **Wrap up! What is needed in a reliability standard? (All)**

- Tools, Methods and Standardized Metrics?
- Information Needs and Normative Approaches?
- Selected Uses of Predictive Approaches?
- Review of parking lot notes/topics

Closing

6:00 Hospitality room

(Sherwin, Hill, Brake, and Steele provided verbal address w/o slides)

Data – Information – Knowledge – Wisdom