

## ENERGY

# Update on IEC 61400-15 activities for the PCWG

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UK IEC 61400-15  
representatives:

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# IEC 61400-15 Scope of Work

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## Scope:

The scope of this standard is to define a framework for assessment and reporting of the wind resource, energy yield and site suitability input conditions for both onshore and offshore wind power plants. This includes:

1. Definition, measurement, and prediction of the long-term meteorological and wind flow characteristics at the site
2. Integration of the long-term meteorological and wind flow characteristics with wind turbine and balance of plant characteristics to predict net energy yield
3. Characterizing environmental extremes and other relevant plant design drivers
4. Assessing the uncertainty associated with each of these steps
5. Addressing documentation and reporting requirements to help ensure the traceability of the assessment processes

### Needs and Motivation:

- Diverse and disparate documents and approaches exist on wind site assessment
- Challenges exist in assessing the analyses carried out by different parties due to lack of common language and reporting methods
- Uncertainties associated with wind resource assessments, energy yield estimates and WTG suitability inputs are not consistent or comparable

### Consensus goals:

- Improve consistency, quality, uniformity of reporting of Wind resource and energy yield calculation and site suitability inputs
  - This does not preclude the consideration of codifying the procedures; the priority will start with reporting
- Enhance ability to compare results of assessments and suitability inputs through common reporting and calculation framework

## IEC-15 work plan & status

- Develop a standard reporting format and uncertainty categorization for wind resource and energy yield assessments (replace DNV loss and uncertainty framework)

[Status: Draft framework in circulation to national shadow committees]

- Develop a standard reporting format and assessment approaches for site suitability inputs as a supplement to information presented in IEC 61400-1, -2, and -3

[Status: Draft “universal” suitability inputs sheet gathered and agreed from most major OEMs]

- Develop a standard approach to uncertainty assessments in wind resource, energy yield calculations, and site suitability input parameters

[Status: not started]

- Provide **informative** best practices on wind resource and energy yield assessment methods for the global wind community

[Status: not started]

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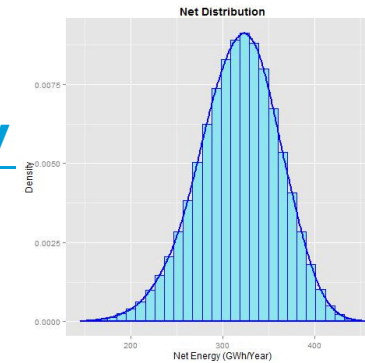
Framework for the Categorisation of  
Losses and Uncertainty for Wind  
Energy Assessments

In collaboration with:



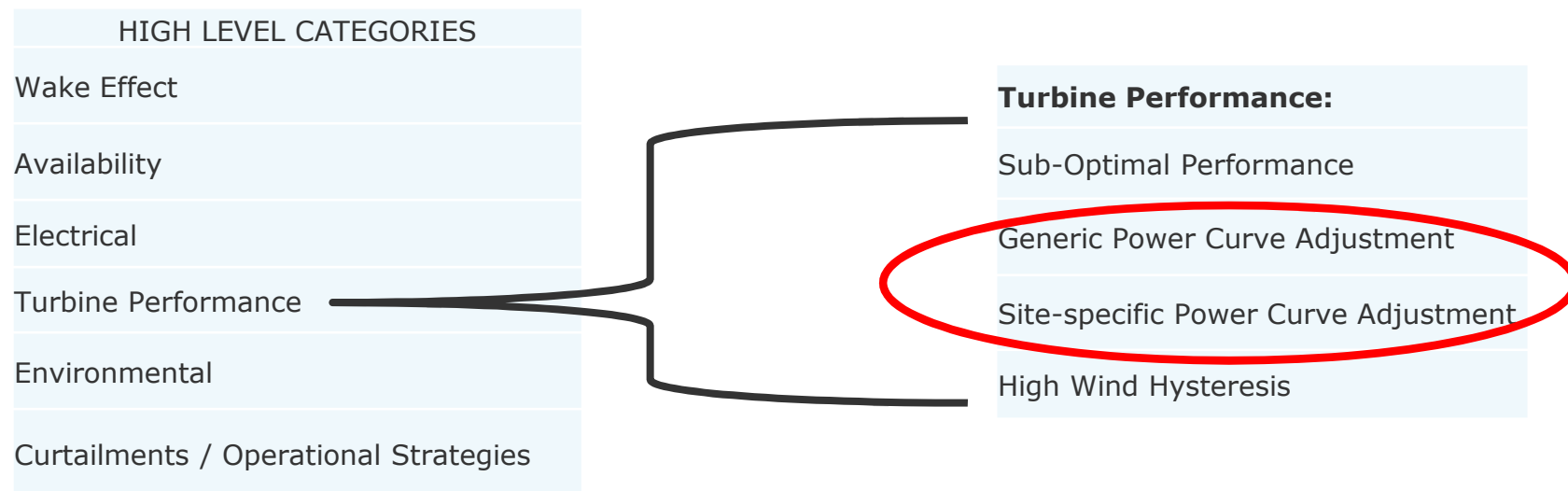
## Normative vs Informative, Redline vs Uncertainty

- Lots of healthy discussion around this issue
- Consensus approach is:
  - Reporting is always normative; → transparency, ability to compare results
  - Some methodologies will be normative where straightforward to do so, and where this doesn't preclude innovation and improvement;
  - Informative annexes will be provided, collecting industry best practice and multiple methods to solve same problem;
  - Eg: normative = you shall use a flow model; you shall consider the uncertainty in the flow model, according to the uncertainty framework.
  - **Not** taking the redline approach of, for example: if its complex terrain you shall use a CFD model (but the uncertainty framework should capture consideration given to the appropriateness of model for the use case)



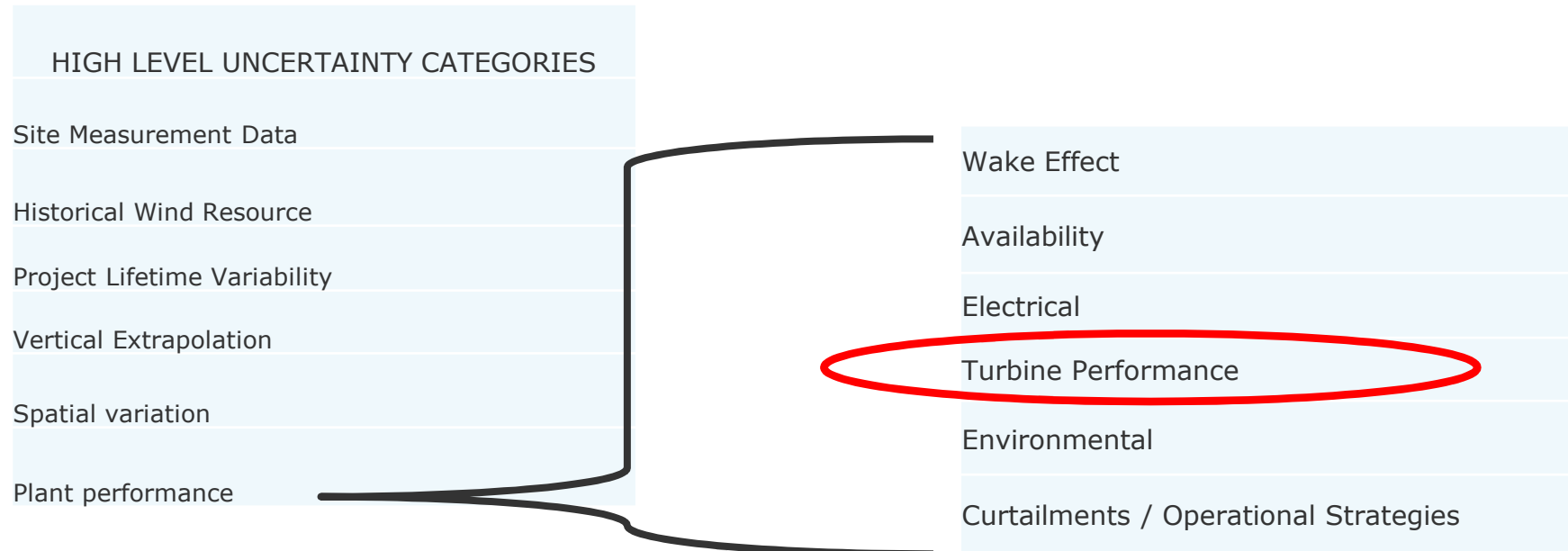
## Where does PCWG fit in?

- Principle that IEC-15 should avoid duplication of effort, and leverage other initiatives (eg IEA, MEASNET, PCWG, NEWA )
- Expectation that PCWG will provide the industry consensus methodologies/best practice for how to calculate turbine performance and uncertainty
- Liaison formally appointed between -15 & PCWG? (Rich W has offered to do this)
- Consensus loss register draft:



## Where does PCWG fit in?

- Consensus uncertainty framework draft:



- Can PCWG develop best practice for turbine performance uncertainty?
- Can PCWG publish some interim relevant outputs from IEC-15 which the IEC cannot formally publish?

## How to get involved

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- Influence your national committee representatives through national shadow committees:
- For the UK, Rich, Malcolm and Shona are using the Wind Resource Group (WRG) as defacto UK shadow committee. Contact us directly, or to join the WRG contact:

Anabel.Gammidge@rwe.com



# Thank you (esp to Malcolm for standing in!)

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