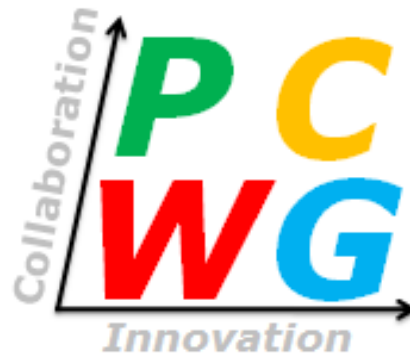


# PCWG Data Sharing Initiative

Glasgow

8 May 2015



# PCWG Data Sharing Initiative

- Working together there is a lot we can achieve...



## Sharing: What?

- A new innovative industry collaborative exercise based on data aggregation across organizational boundaries.
- The exercise will seek to unlock the potential of data that already exists for the benefit of the whole industry.

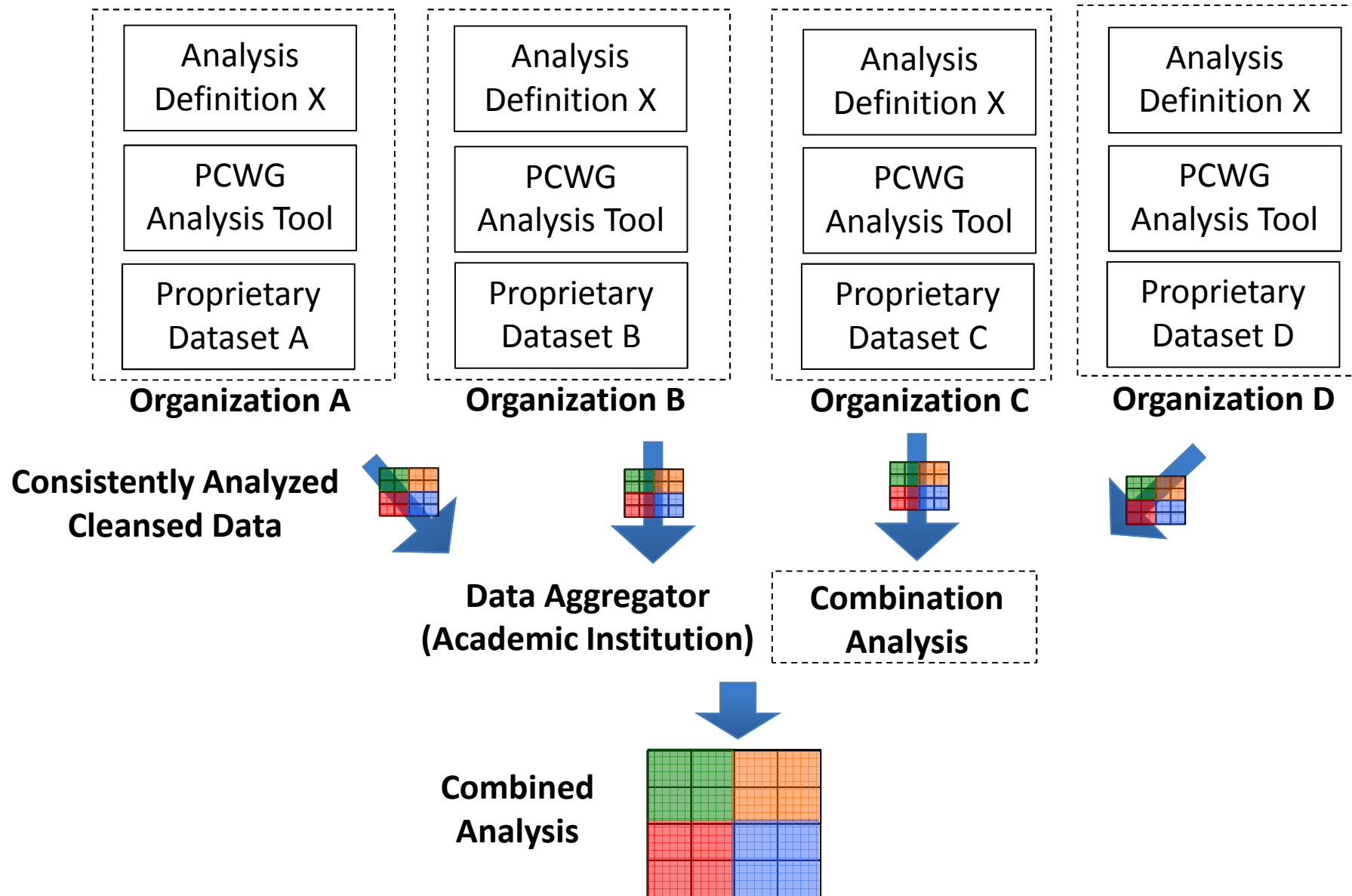
## Sharing: Why?

- Aggregation of information across organization boundaries offers the potential for a step change in industry understanding of turbine performance.
- The initiative aims to deliver an effective and practical parameterization of real world turbine performance to an entire industry.
- It will deliver a strong message to the investment community that wind energy is serious about improving its value proposition.

## Sharing: How?

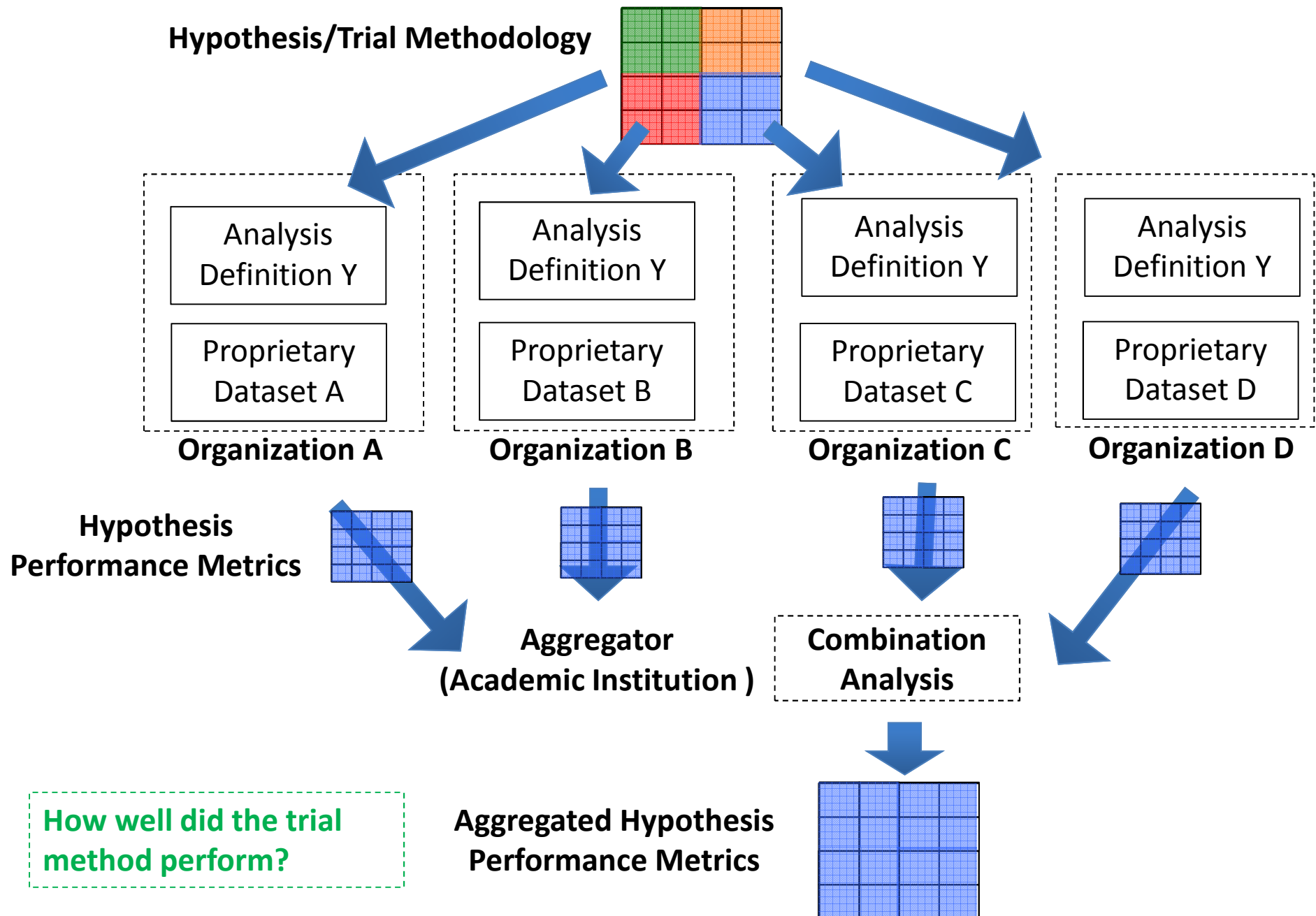
- **2 Possible Approaches:**
  - **Option 1:** Aggregated Data Sharing
  - **Option 2:** Aggregated Intelligence Sharing

## How? Aggregated Data Sharing (Option 1)



\* 'Cleansed Data' means that all commercially sensitive information is removed e.g. site, site wind speed etc.

## How? Aggregated Intelligence Sharing (Option 2)



## How? PCWG Open Source Analysis Tool

- Both Option 1) and Option 2) are supported by the PCWG Open Source Analysis Tool

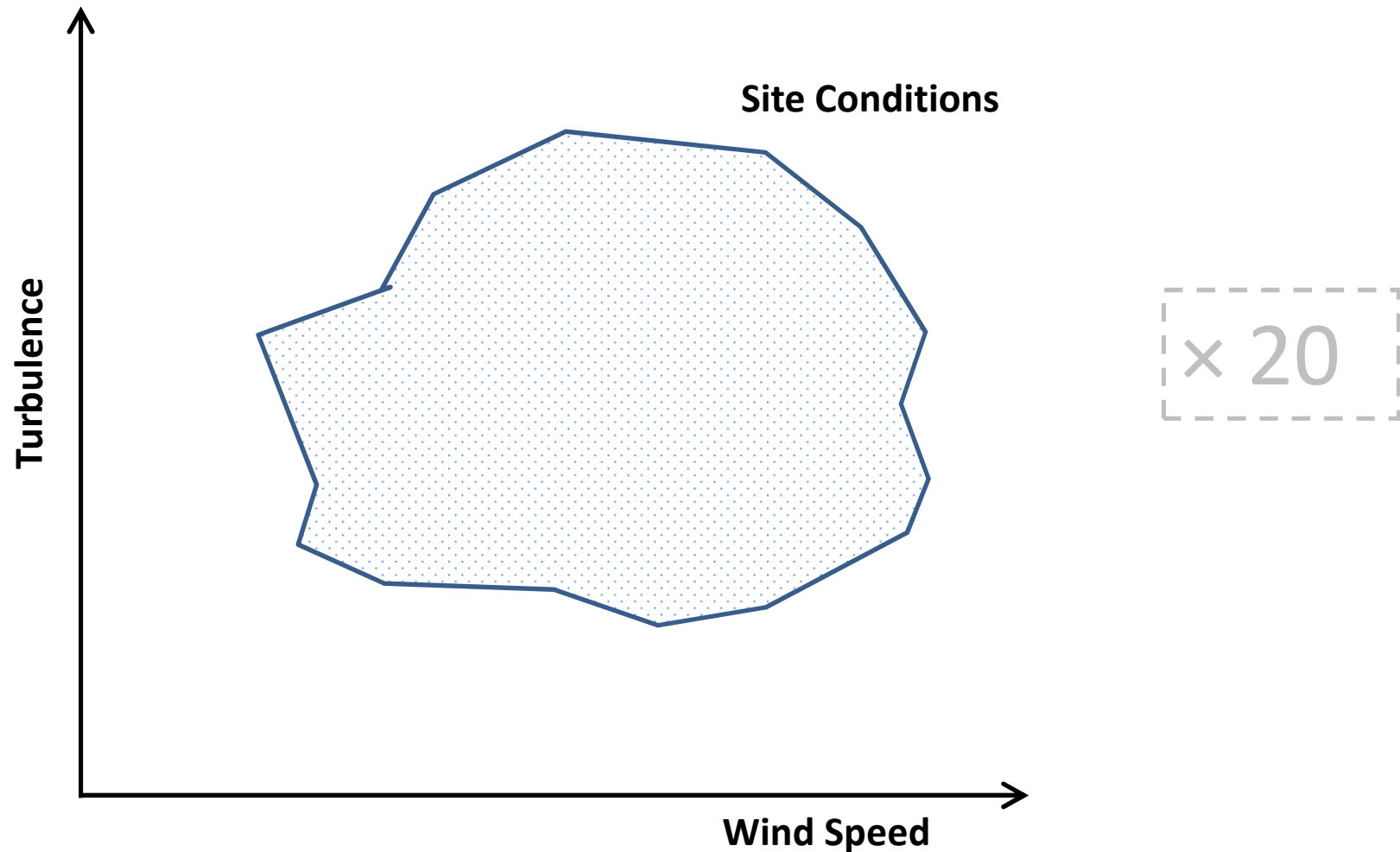
### PCWG Open Source Analysis Tool: Vision

- Provide an Open Source Tool to **perform** IEC Compliant Power Performance Analysis (including uncertainty analysis)
  - **Facilitate** the work of the PCWG e.g. the PCWG Data Sharing Initiative.
  - **Demonstrate** IEC (+other) correction methods implemented in open source code.
- The PCWG Analysis Tool is a work in progress, but already it can do a lot!
  - Visit [www.pcwg.org](http://www.pcwg.org) to find out more and download (**current version 0.5.3**)
  - The next release **Version 0.5.4** is planned for May 2015.

## How? Aggregated Data Sharing Trial Run (1)

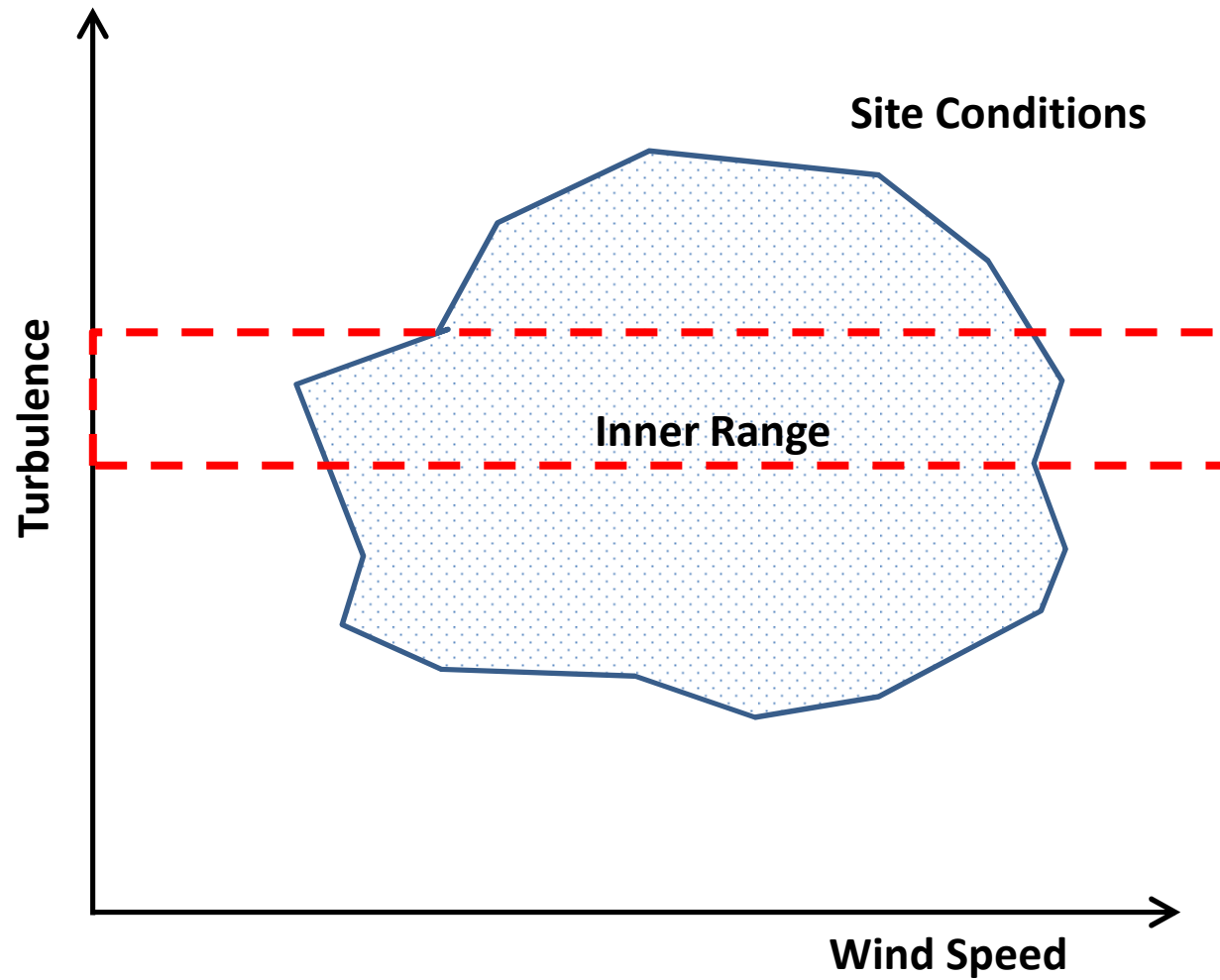
In the March PCWG meeting a trial run of the **Aggregated Data Sharing Process (Option 1)** was performed using a synthetic data set

1) 20 data files synthetic data files were generated with a range of site conditions



## How? Aggregated Data Sharing Trial Run (3)

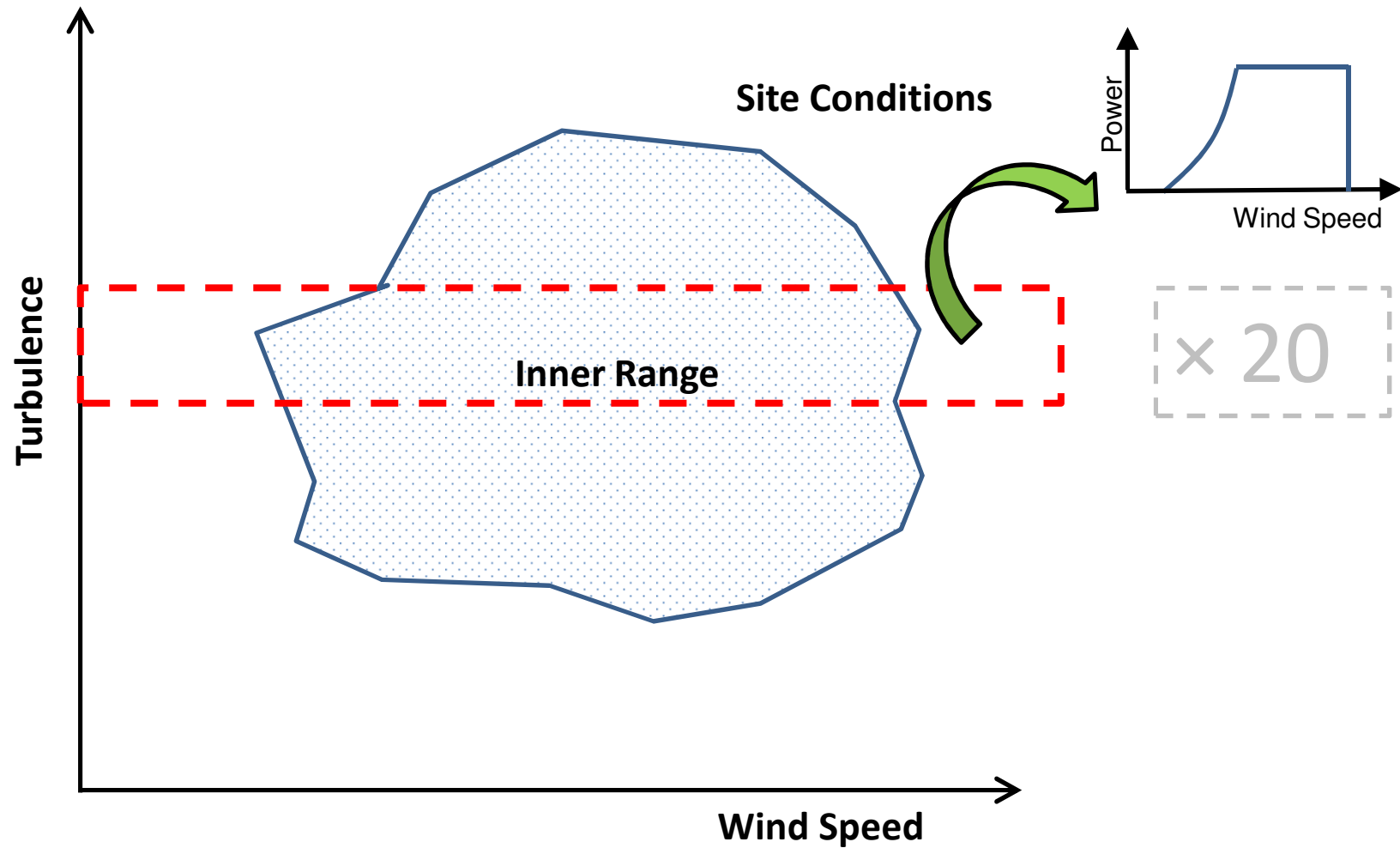
2) Each participant extracted an Inner Range Power Curve From their dataset





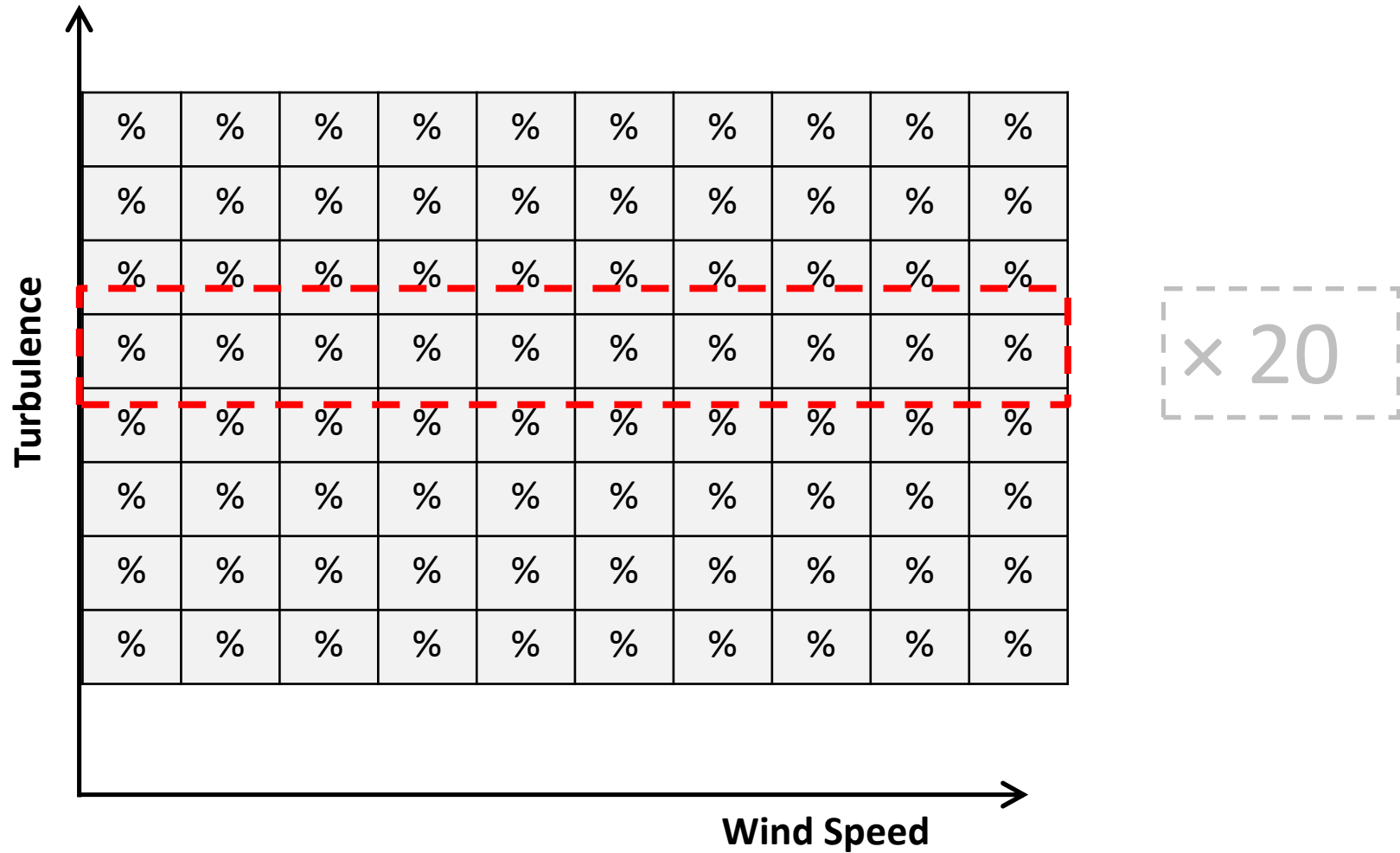
## How? Aggregated Data Sharing Trial Run (2)

3) Each participant extracted an Inner Range Power Curve From their dataset



## How? Aggregated Data Sharing Trial Run (4)

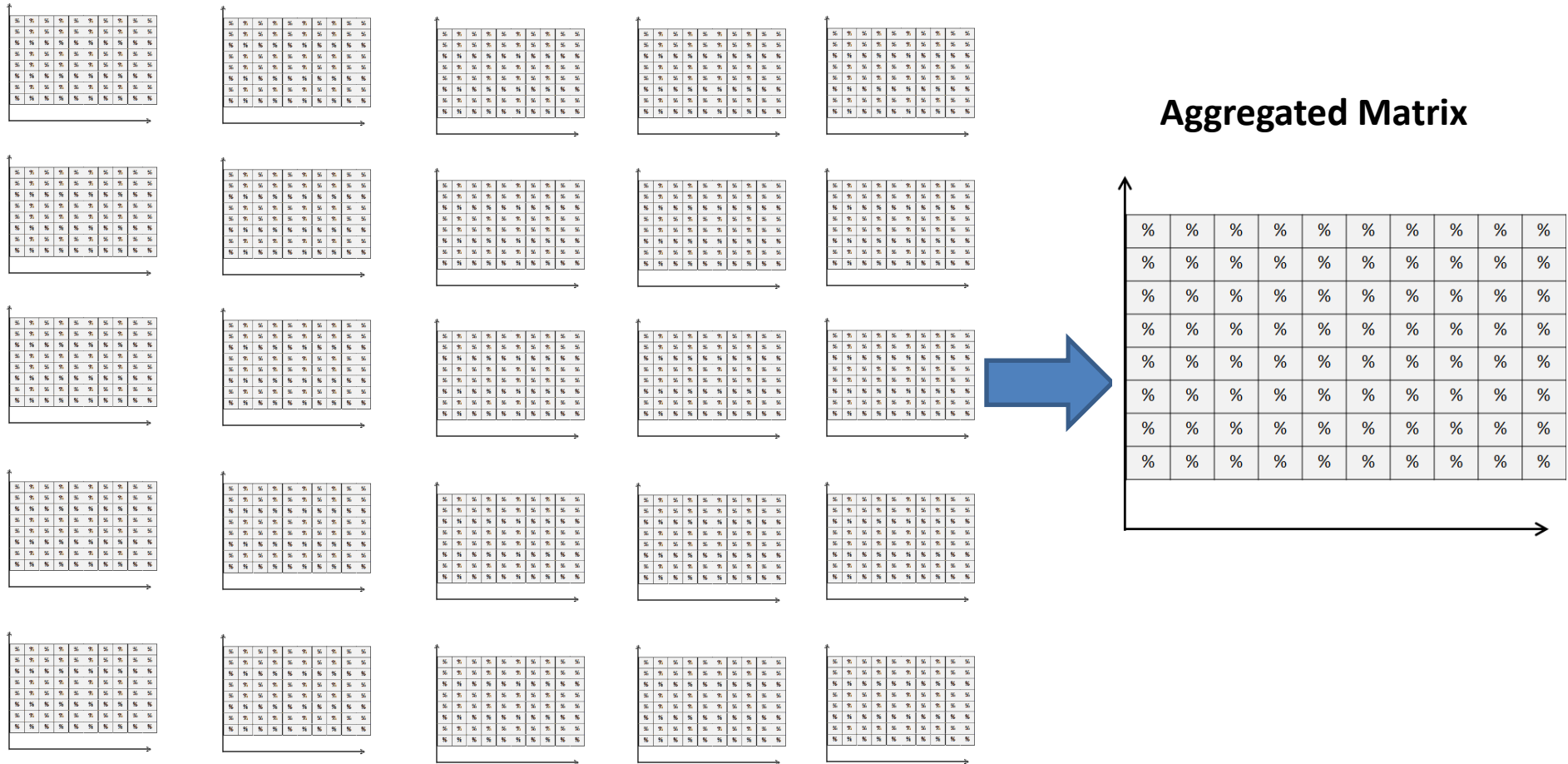
**4) Each participant used their inner range power curve and dataset to derive a power deviation matrix**



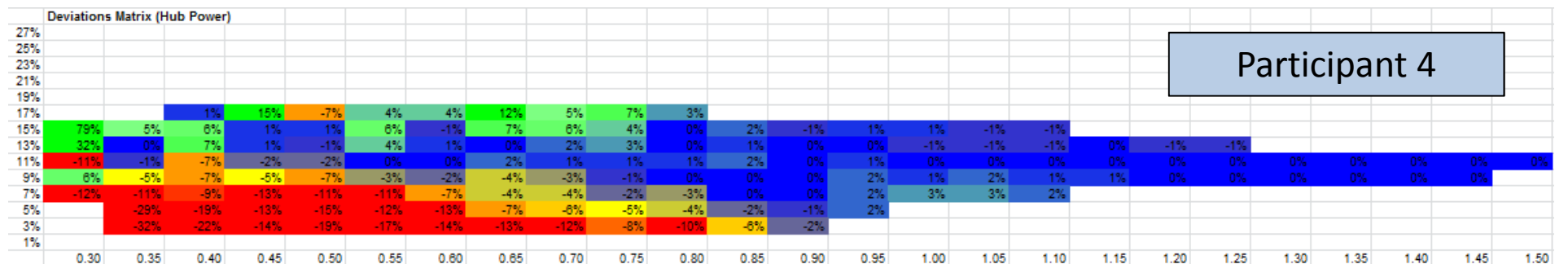
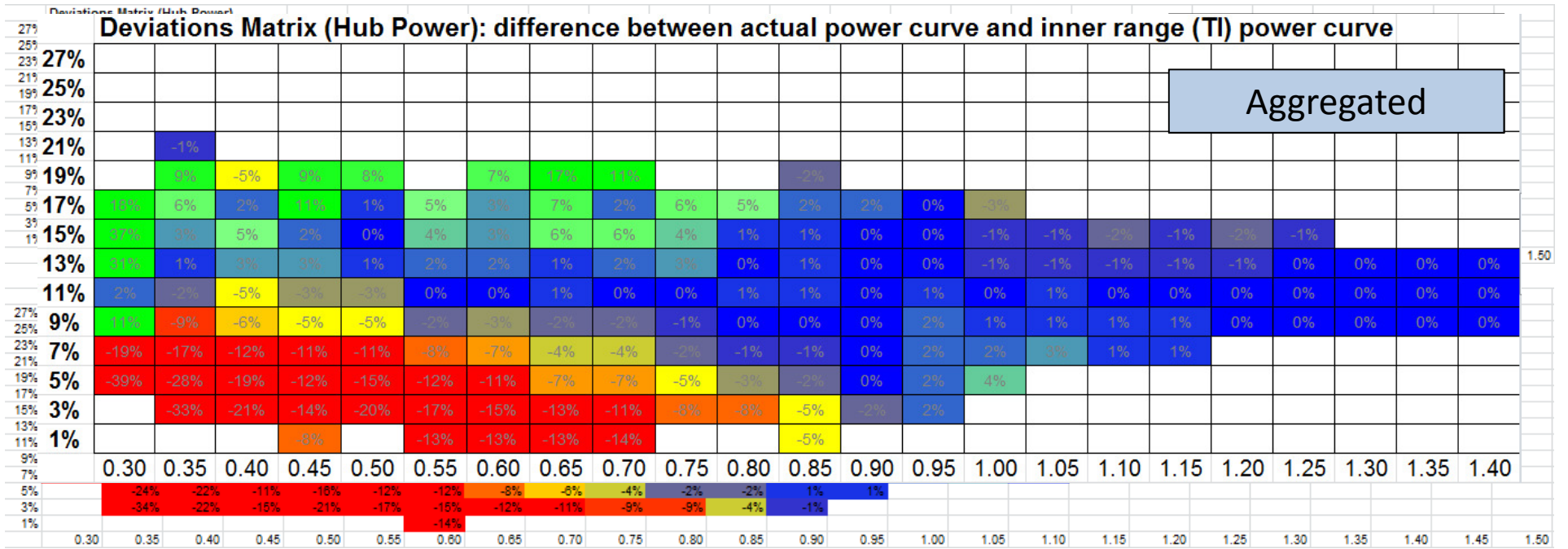
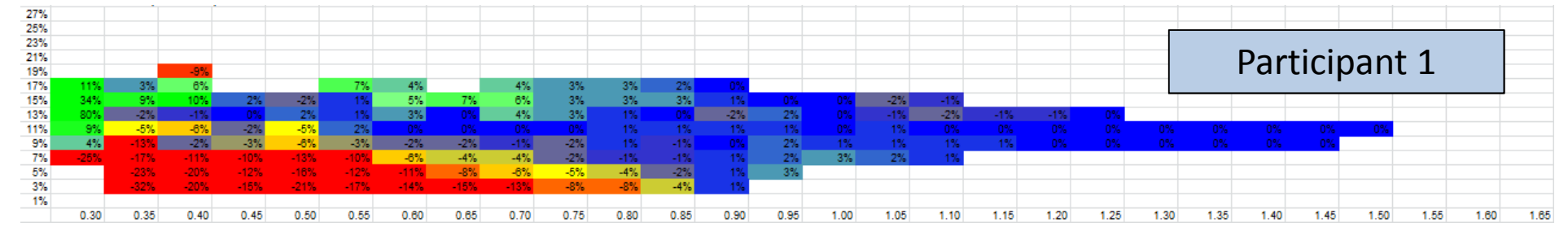
## How? Aggregated Data Sharing Trial Run (5)

**4) The individual power deviation matrices were aggregated to form a single matrix**

## Per participant matrices



## How? Aggregated Data Sharing Trial Run (5) - Results



## Initiative Comparisons

Data Sharing (Option 1)	Intelligence Sharing (Option 2)
<ul style="list-style-type: none"><li>• <b>Pro</b>: Feasibility/practicality demonstrated via trial run</li><li>• <b>Pro</b>: Some participants relaxed about sharing data without legal agreements (e.g. NDAs or Data License Agreements)</li><li>• <b>Con</b>: Some potential participants foresee the need for legal agreements prior to sharing data.</li><li>• <b>Con</b>: More work needed on PCWG Analysis tool to support all participant datasets and resolve issues.</li><li>• <b>Pro</b>: Matrix is output as opposed to input</li></ul>	<ul style="list-style-type: none"><li>• <b>Pro</b>: should be as least as feasible to execute as Option 1 and probably easier.</li><li>• <b>Pro</b>: Candidate methods already identified; matrix method, rews/turbulence (IEC) methods, production by height (AWS)...</li><li>• <b>Pro</b>: Acceptable to all participants without requirement for legal agreements? Discuss!</li><li>• <b>Con</b>: More work needed on PCWG Analysis tool to support all participant datasets and resolve issues.</li><li>• <b>Con</b>: Need to establish hypothesis matrix upfront, how?</li></ul>

**Pros/cons** to be discussed!

## Data Sharing: Expression of Interest

- A nominal target of 100 datasets has been set.
- Prospective participants can register their interest via the form at:  
[https://docs.google.com/forms/d/1IF6oSCjCmtqmgmcPCesFtUPSsgH4\\_uXlIP4ZcHikX3A/viewform](https://docs.google.com/forms/d/1IF6oSCjCmtqmgmcPCesFtUPSsgH4_uXlIP4ZcHikX3A/viewform)
- Current status of expression of interest (8<sup>th</sup> May 2015):

Category	Datasets (Mast)	Datasets (Inc. Remote Sensing)
I have both data and the time/resources to analyse it.	65	16
I have data, but no time/resources to analyse it.	8	1
<b>Total</b>	<b>73</b>	<b>17</b>

Note: three organisations have responded that they have time to analyse, but no data. These organisations will be paired with organisations with data, but no time.

- Expression of interest form will stay open until May 31<sup>st</sup> (extended deadline).