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On the Essential Renewable Energies Variables

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In a similar way to the well-known Essential Climate Variables, an identification of the Essential Renewable Energies Variables has been performed in several domains in renewable energies. Essential Renewable Energies Variables are defined as a minimal set of variables that determine the state of the energy system, are crucial for predicting its developments, and support metrics that measure its trajectory. The Essential Renewable Energies Variables should be relevant, technically and economically feasible for systematic observation. Relevance: the variable is critical for the objective to achieve, i.e. it should support the goals and targets defined by the community of stakeholders. Feasible: quantifying the variable, either from observations or derived methods, on a global scale is, in principle, technically feasible using proven and scientifically understood methods. Cost effective: generating and archiving data on the variable is affordable with proven technology, taking advantage where possible of historical datasets, observing systems established for other purposes and interoperability technologies. The approach that has been adopted for the identification of the variables is of a bottom-up and user-driven type with various interactions with various stakeholders, including researchers, academics, enterprises, consultants, other experts, energy agancies at local, national and international levels. The approach has spanned over several years and interactions have been reported in several dispered documents. This communication documents the approach, synthetises the outcomes and proposes lists of variables in solar, wind and marine energies.