

Indicating resilience of energy systems - A novel assessment framework



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Title of the Paper

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Form of Presentation

- Poster
- Presentation

Short Description (maximum 2500 characters)

The scope of this document is to explore how the concept of resilience can be applied to energy systems. Different notions of the term resilience used in the scientific literature and Characteristics of the concept in various contexts, social and techno-economic systems, will be outlined and applicability for energy systems analysis will be discussed. This shall enable to make an informed decision to choose upon a methodology and underlying indicator set.

Thus the three major questions to be addressed are:

1. Which definitions and underlying concepts of resilience are used in the scientific literature?
2. How can resilience be defined with respect to energy systems and which underlying principles can be identified? (Bearing in mind that an applicable methodology for assessment is needed)
3. Which selection of indicators is suited to specifically assess the resilience of the energy system?

Finally, a novel approach to structure resilience indicators in order to provide a quantifiable resilience index is presented.

Furthermore the concept of ascendancy as an measure of network resilience and a possible application to energy grids is discussed.

The submitted paper is a "spin-off" from the KLIEN project PRESENCE - Power through Resilience of Energy Systems: Energy Crises, Trends and Climate Change