Operating conditions of batteries in off-grid renewable energy systems

Operating conditions in off-grid renewable energy systems (RES) vary significantly in different applications and locations. To describe RES and the operating conditions of their components it is useful to define categories of similar operating conditions. Categories can also be used for lifetime considerations of RES components, for making recommendations and for analysing the properties and performance of a RES and its components. Categories support system designers and an economic analysis. This paper describes the process and the results of creating RES categories of similar operating conditions for batteries. Categories are defined in such a way that batteries belonging to the same category are subjected to similar operating conditions and a similar combination of stress factors. The results provide a comprehensive overview of battery operating conditions in existing off-grid renewable energy systems. This work is part of the EU research project Benchmarking.(1) (C) 2007 Published by Elsevier Ltd.