Autor(en) des Beitrags:
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Titel des Beitrags:
Increasing Data Resolution through Harmonics Additions and its Effect on Micro-CHP Economics.

Abstract:
Economic analysis of micro CHP cogeneration using a low-resolution data could raise several accuracy doubts, especially if the data input that is being dealt with is a household demand profile. Household demand profiles have been always showing dynamics that could be hidden within the low-resolution data. Such dynamics could significantly affect the output result of modeled simulation and consequently affect the overall economic analysis of the system. Modeling the dynamics of the demand profiles could enhance the economy-based decisions of the micro CHP system. Through out the paper, a mean was found to increase the data resolution of an electrical load profile through adding harmonics to the low-resolution load profile to simulate secondly measured electrical load profile. An economic analysis of micro-CHP cogeneration is discussed through comparing the effect of increasing the data resolution through harmonics addition versus using the mean value of the available data. The harmonics frequencies and amplitudes are extracted from any available load profile of one-day measurements, or could be estimated from the available load profile on the account of accuracy. Through this one-day accurate measurement, a noise profile is created and applied on the low-resolution load profiles. Such load profiles could be daily, monthly, yearly, or of a longer time frame. Only one condition applies, which is the noise profile extracted from certain system, must be applied to the same system. The algorithm of extracting the noise profiles and applying it to the low-resolution load profiles was developed on Matlab and tested on several load profiles of different sampling frequencies. The results show a noticeable increase in accuracy of the data in comparison to the used average values of the available data, which in turn affect the economics of the micro-CHP.
Jahr: 2013

Monat: April

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