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Operation Strategies of Residential Micro Combined Heat and Power Technologies

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Abstract : Reduction of CO2 emissions has become a priority for several countries due to increasing concerns about global warming and climate change, especially in the developed countries. Residential sector is considered one of the most important sectors for considerable reduction of CO2 emissions since it represents a significant amount of the total consumed energy in those countries. A significant CO2 reduction cannot be achieved unless some initiatives have been adopted in the policy of these countries. Introducing micro combined heat and power (μCHP) systems into residential energy systems is one of these initiatives, since such a technology offers several advantages. Moreover, μCHP technology has the opportunity to be operated not only by natural gas but it could also be operated by renewable fuels. However, this technology can be operated by different operation strategies. Each strategy has some advantages and disadvantages. This paper provides a review of different operation strategies of such a technology used for residential energy systems, especially for single dwellings. The review summarizes key points that outline the trend of previous research carried out in this field.

Keywords : energy management, μCHP systems, residential energy systems, sustainable houses, operation strategy.
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