

Accepted Manuscript

An optimization procedure for Microgrid day-ahead operation in the presence of CHP facilities

B. Aluisio, M. Dicorato, G. Forte, M. Trovato

PII: S2352-4677(16)30216-8

DOI: <http://dx.doi.org/10.1016/j.segan.2017.07.003>

Reference: SEGAN 111

To appear in: *Sustainable Energy, Grids and Networks*

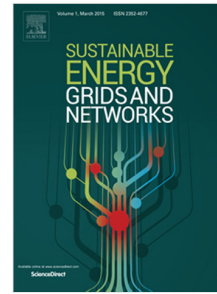
Received date: 18 January 2017

Revised date: 22 June 2017

Accepted date: 6 July 2017

Please cite this article as: B. Aluisio, M. Dicorato, G. Forte, M. Trovato, An optimization procedure for Microgrid day-ahead operation in the presence of CHP facilities, *Sustainable Energy, Grids and Networks* (2017), <http://dx.doi.org/10.1016/j.segan.2017.07.003>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



1 **An optimization procedure for Microgrid day-ahead operation in the** 2 **presence of CHP facilities**

3 B. Aluisio^a, M. Dicorato^a, G. Forte^a, M. Trovato^{a,*}

4 ^aDEI – Politecnico di Bari, via E. Orabona 4, 70125, Bari, Italy

6 **Abstract**

7 Microgrids are more and more called to satisfy, through the management of distributed
8 generation sources and the electricity network, the demand for energy by local users.
9 The simultaneous production of electrical and thermal energy by means of Combined
10 Heat and Power (CHP) systems represents one of the features of a Microgrid and can
11 contribute to improve system reliability, efficiency and economic performance. In this
12 paper, an optimization procedure for day-ahead scheduling of a CHP-based Microgrid is
13 developed, aiming to minimize operation and emission costs of Microgrid components
14 in the presence of electric and thermal loads and renewable forecasts. To this purpose,
15 four different operating strategies for CHP are accounted in Microgrid framework. The
16 proposed methodology is based on a non-linear optimization technique and it is applied
17 to the determination of day ahead operation program, with 15-minutes time step, for
18 realistic model of an experimental Microgrid.

20 **Keywords**

21 Microgrid

22 Combined Heat and Power

* Corresponding author.

Mail to: DEI – Politecnico di Bari, via E. Orabona 4, 70125, Bari, Italy

E-mail: micheleantonio.trovato@poliba.it

Ph.: +39 080 5963244

Fax: +39 080 5963410

Download English Version:

<https://daneshyari.com/en/article/4968346>

Download Persian Version:

<https://daneshyari.com/article/4968346>

[Daneshyari.com](https://daneshyari.com)