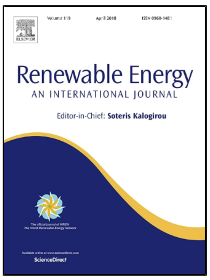
Accepted Manuscript



Optimization under Uncertainty of a Biomass-Integrated Renewable Energy Microgrid with Energy Storage

Yingying Zheng, Bryan M. Jenkins, Kurt Kornbluth, Chresten Træholt

PII:	S0960-1481(18)30130-7
DOI:	10.1016/j.renene.2018.01.120
Reference:	RENE 9725
To appear in:	*Renewable Energy*
Received Date:	17 May 2017
Revised Date:	28 December 2017
Accepted Date:	30 January 2018

Please cite this article as: Yingying Zheng, Bryan M. Jenkins, Kurt Kornbluth, Chresten Træholt, Optimization under Uncertainty of a Biomass-Integrated Renewable Energy Microgrid with Energy Storage, *Renewable Energy* (2018), doi: 10.1016/j.renene.2018.01.120

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.

ACCEPTED MANUSCRIPT

Optimization under Uncertainty of a Biomass-Integrated Renewable Energy Microgrid with Energy Storage

Yingying Zheng[a,*], Bryan M. Jenkins[a], Kurt Kornbluth[a], Chresten Træholt[b],

[a] Department of Biological and Agricultural Engineering, University of California, Davis, One Shields Avenue, Davis, Ca 95616, USA

[b] Department of Electrical Engineering, Technical University of Denmark, Elektrovej, 2800 Kgs. Lyngby, Denmark

Nomenclature

Abbreviations

MG	microgrid
CHP	combined heat and power
BCHP	biomass-based CHP
GS	biomass gasifier
ICE	internal combustion engine
WT	wind turbine
PV	photovoltaic
ES	energy storage
BT	battery
PGS	producer gas storage
TES	thermal energy storage
HOB	heat-only boiler
MCS	Monte Carlo simulation
COE	cost of energy
PDF	probability density function

Symbols

E	electricity demand (kWh)
H	heat demand (kWh)
Z	net acquisition cost ($)
P	purchase and installation (capital) cost ($)
O&M	operation & maintenance cost ($/kWh)
F	feedstock or fuel cost ($/kWh)
C	hourly capital cost ($/h)
M	rated capacity (kW)
N	expected life (years)
s	economic scaling factor
T	length of planning horizon (h)
V	set of all system components that contribute to capital cost
U	set of all system components that contribute to O&M cost
x	decision variable: hourly energy flow (kWh/h)

Superscripts and subscripts

t	time step (s)
p	actual facility

Download English Version:

https://daneshyari.com/en/article/6764526

Download Persian Version:

https://daneshyari.com/article/6764526

Daneshyari.com