

Accepted Manuscript

Research Paper

Energy and environmental efficiency evaluation based on a novel Data Envelopment Analysis: An application in petrochemical industries

Yaxun Chen, Yongming Han, Qunxiong Zhu

PII: S1359-4311(17)31653-8

DOI: <http://dx.doi.org/10.1016/j.applthermaleng.2017.03.051>

Reference: ATE 10055

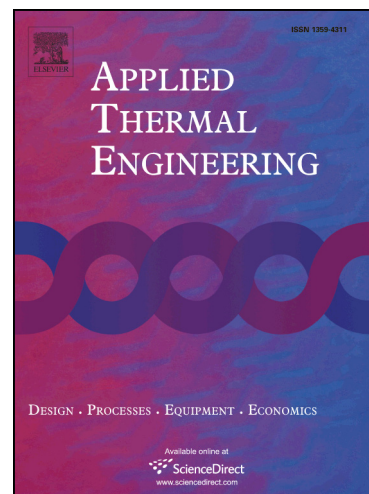
To appear in: *Applied Thermal Engineering*

Received Date: 5 September 2016

Accepted Date: 10 March 2017

Please cite this article as: Y. Chen, Y. Han, Q. Zhu, Energy and environmental efficiency evaluation based on a novel Data Envelopment Analysis: An application in petrochemical industries, *Applied Thermal Engineering* (2017), doi: <http://dx.doi.org/10.1016/j.applthermaleng.2017.03.051>

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.



Energy and environmental efficiency evaluation based on a novel Data Envelopment Analysis: An application in petrochemical industries

Yaxun Chen^{a,b}, Yongming Han^{a,b,*}, Qunxiong Zhu^{a,b,*}

^a College of Information Science and Technology, Beijing University of Chemical Technology, Beijing 100190, PR China

^b Engineering Research Center of Intelligent PSE, Ministry of Education in China, Beijing 100029, PR China

*Corresponding author.

E-mail addresses: hym200542029@126.com (Yongming Han),

zhuqx@mail.buct.edu.cn (Qunxiong Zhu)

Abstract

Petrochemical industry is a high energy consumption and heavy pollution industry. Therefore, energy and environmental efficiency evaluation becomes extremely important to achieve sustainable development of the petrochemical industry. This paper proposes a novel DEA model to estimate the energy and environmental efficiency of the petrochemical industry thoroughly. The proposed method introduces the efficiency variable to each energy input and undesirable output and uses environmental performance index (EPI) to represent the overall performance of different decision making units (DMUs). Moreover, the scores of efficiency variables reflect the environmental performance of energy inputs and undesirable outputs, and the larger score represents the greater performance of the DMUs. Meanwhile, the EPI

Download English Version:

<https://daneshyari.com/en/article/4991277>

Download Persian Version:

<https://daneshyari.com/article/4991277>

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