

## LEMBAR PENGESAHAN

Judul : **Public Sector Policy of Estimating Model for Renewable Energy**  
Penulis : Saring Suhendro  
Jenis Publikasi : Jurnal Internasional Bereputasi (terindeks pada database internasional dan berfaktor dampak)  
ISSN/ E-ISSN : **2146-4553, Vol 11, Issue 5, 2021**  
Penerbit : **International Journal of Energy Economics and Policy**  
Website : <http://www.econjournals.com>  
<https://econjournals.com/index.php/ijeep/article/view/11323/6063>  
Repository : <http://repository.lppm.unila.ac.id/id/eprint/38736>

Bandar Lampung, 31 Januari 2022

Mengetahui,

Ketua Jurusan Akuntansi  
Fakultas Ekonomi dan Bisnis  
Universitas Lampung

Prof. Dr Lindrianasari., S.E., M.Si., Akt  
NIP. 197008171997032002

Penulis

Dr. Saring Suhendro, S.E., M.Si., Ak., CA  
NIP. 19740312 200112 1003

Menyetujui

Ketua LPPM  
Universitas Lampung

Dr. Ir. Lusmellia Afriani, D.E.A  
NIP. 196505101993032008

Dekan  
Fakultas Ekonomi dan Bisnis Unila

Dr. Nairobi., S.E., M.Si  
NIP. 196606211990031003

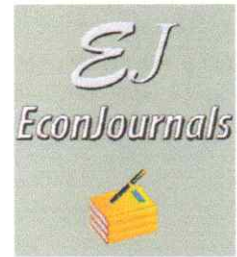
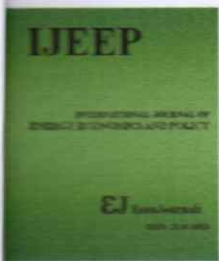
DOKUMENTASI LAYANAN PENELITIAN DAN PENGABDIAN KEPADA MASYARAKAT UNIVERSITAS LAMPUNG	
TGL	9/2/2022
NO. INVEN	31812/1B/1/FEB/2022
JENIS	Jurnal
PARAF	DW

# IJEP

INTERNATIONAL JOURNAL OF  
ENERGY ECONOMICS AND POLICY

**EJ** EconJournals

ISSN: 2146-4553



## Public Sector Policy of Estimating Model for Renewable Energy

Saring Suhendro\*, Mega Metalia, Sari Indah Oktanti Sembiring

Department of Accounting, Faculty of Economics and Business, Universitas Lampung, Indonesia.

\*Email: [saring\\_suhendro@feb.unila.ac.id](mailto:saring_suhendro@feb.unila.ac.id)

Received: 13 March 2021

Accepted: 14 June 2021

DOI: <https://doi.org/10.32479/ijEEP.11323>

### ABSTRACT

Renewable energies are crucially needed right now. One of the them is ethanol as a non-fossil energy source. Data time-series of world demand for ethanol are very interesting to find its forecasting models, so that the production targets can be more accurate. Generalised auto-regressive conditional heteroskedasticity is one of the best models we use. Our findings AR(1) - Generalised Auto-Regressive Conditional Heteroskedasticity (GARCH) (LJ) models are considered as a good-fit measurement in predicting ethanol demand. Increasing the number of demand should be considered with the number of its processes. In this paper, we combine an analysis of economic considerations (predicting demand levels) with a political analysis of policies (describing renewable energy policy options).

**Keywords:** Renewable Energies, Ethanol, GARCH Model, Forecasting, Energy Policy

**JEL Classifications:** C5, C53, H2, H25, Q4, Q47

### 1. INTRODUCTION

Consumption of energy has increased significantly since the 1990s which has caused environmental quality to decline at an alarming level, in turn causing climate change (Kasman and Duman, 2015). Fossil-based energy production leaves a negative impact on the environment due to the use of unfriendly technologies in exploring, expanding, and producing energy. Hill et al. (2006) studied that the consequences of fossil fuels and concerns about petroleum supplies have encouraged the search for renewable transportation fuels that are clean, environmentally beneficial, economically competitive, and suitable for mass production.

Ethanol is one of the most important volume organic chemicals utilized in industrial and individual products that can be mass produced from plants (Strohm, 2014). Taghizadeh-Alisaraei et al. (2019) explored the use of date wastes as a basis of ethanol production, of which three design updated technologies are essential. Another organic waste applied to produce ethanol is sugarcane bagasse that reduces the necessity for oil associated

with an environmental friendly method (de Araujo Guilherme et al., 2019). Agro residues have also been utilised for bio-ethanol production as an auspicious technology (Gupta and Verma, 2015). While several renewable energy sources have been discovered through time, world population also keeps increasing, as well as industrialisation. Hence, there becomes a massive demand for the use and necessity of renewable energy (Yeboah and Shaik, 2021). Forecasting studies are therefore essential to predict the amount of energy demand in the future. Applying an econometrics model is one of the methods to have an framework for accurate decision making (Diebold and Mariano, 1995).

To do forecast we build a model that has accurate estimating parameters. Bollerslev (1986) introduced GARCH model as an analytical tool in forecasting a time-series data set with an error level approaching zero. The model is able to capture three important empirical features observed on the data: leptokurtosis, skewness, and volatility clustering. The model is relatively complicated, but flexible enough that enables estimation of parameters with a high level of accuracy.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58