# Journal of Earth Energy Engineering

## P-ISSN 2301-8097 E-ISSN 2540-9352

## VOL. 10 NO. 1, MARCH 2021

An Integrated Analysis for Post Hydraulic Fracturing Production Forecast in Conventional Oil Sand Reservoir Dedy Kristanto, IMD Saputra Jagadita Page 1-17

A Deliverability Method for Estimating Stabilized Gas Well Performance during Transient Flow in Unconventional Reservoir Amega Yasutra, Calvin Orliando Page 18-31

Saving Hydrogen Fuel Consumption and Operating at High Efficiency of Fuel Cell in Hybrid System to Power UAV Baba Omar, Al Sayyaris, Rahil O, Abdulhadi, M Khairul Afdhol, M Y Hasibuan Page 32-42

> Thermal Energy Estimation by In-situ Combustion in An Abandoned Oil Well Maryam Ansari, Ghufran Alam Page 43-51

Well Integrity Management: A Recommendation for Indonesia's Well Life Cycle Ganesha R Darmawan Page 52-62





Go



**JIR PRESS** 

Publisher

### Journal of Earth Energy Engineering

Accredited by Directorate General of Strengthening for Research and Development, Ministry of Research, Technology, and Higher Education of Republic Indonesia No: 10/E/KPT/2019

#### VOL. 10 NO. 1, MARCH 2021

#### PUBLISHER

Universitas Islam Riau (UIR) Press

#### **EDITOR IN CHIEF**

Muslim

#### **ASSOCIATE EDITOR**

Nguyen Xuan Huy (Vietnam) Adi Novriansyah (Indonesia) Farizal Hakiki (Kingdom of Saudi Arabia) Ryanda Enggar Anugrah Adhi (South Korea)

#### **EDITORIAL BOARDS**

Asep Kurnia Permadi (Indonesia) Taufan Marhaendrajana (Indonesia) Zulkifli Abdul Majid (Malaysia) Medhat (Med) Kamal (USA) Madi Abdullah Naser (Libya) Wisup Bae (South Korea) Hyundon Shin (South Korea) Yuichi Sugai (Japan) Razif Muhammed Nordin (Malaysia)

#### **TECHNICAL EDITOR**

Fiki Hidayat Tomi Erfando

#### **SCOPE OF JOURNAL**

This journal aims to promote excellence in the fields of earth science and energy. The journal welcomes contribution in such areas of current analysis particularly in fossil energy exploration, extraction, and processing. The priority areas include enhanced oil recovery, reservoir engineering, formation evaluation, production technique, drilling and drilling fluids, petroleum geology, and petroleum economics. This journal also publishes original works, from fundamental principles to practical applications in the field of energy utilization, energy conservation, and sustainable energy.



## Journal of Earth Energy Engineering

Accredited by Directorate General of Strengthening for Research and Development, Ministry of Research, Technology, and Higher Education of Republic Indonesia No: 10/E/KPT/2019

This journal accepts articles on any earth and energy-related subjects and any research methodology that meet the standards established for publication in the journal. The primary criterion for publication in Journal of Earth Energy Engineering is the significance of the contribution an article makes to the literature in earth and energy research area, i.e., the significance of the contribution and on the rigor of analysis and presentation of the paper. The acceptance decision is made based upon an independent review process that provides critically constructive and prompt evaluations of submitted manuscripts.

#### ABOUT THE JOURNAL

Journal of Earth Energy Engineering (pISSN 2301-8097, eISSN 2540-9352) is the leading primary research journal in the fields of earth science and energy with a particular focus on fossil energy exploration, extraction, and processing. Journal of Earth Energy Engineering is published by Universitas Islam Riau (UIR) Press, three times a year, every March, July, and November. From its launch in 2012 to the present day, Journal of Earth Energy Engineering publishes papers on every aspect of fossil energy-based, from the start of the extraction process in drilling and completion technology, reservoir studies, and new method of recovery to the various production technique (see Focus and scope). Our authors and readers reflect a broad interdisciplinary group of scientists who study fossil energy exploration, extraction, and processing.

All research articles published in Journal of Earth Energy Engineering are subject to rigorous doubleblind peer review, and editorial decisions are made by a team of expert researchers in the field, supported by an International Editorial Board. Journal of Earth Energy Engineering is indexed in Directory of Open Access Journal (DOAJ), Google Scholar, Science and Technology Index (SINTA S3), Indonesian Publication Index (IPI), and BASE, and has been ACCREDITED by Ministry of Research, Technology, and Higher Education of the Republic of Indonesia, No.10/E/KPT/2019, April 4, 2019 as 3rd Rank, SINTA S3.

#### EDITORIAL OFFICE OF JOURNAL OF EARTH ENERGY ENGINEERING

"A" Building Faculty of Engineering, Universitas Islam Riau. Jalan Kaharuddin Nasution No. 113 Pekanbaru, Riau 28284, Indonesia Email: jeee@journal.uir.ac.id Website: https://journal.uir.ac.id/index.php/jeee

## Journal of Earth Energy Engineering

Accredited by Directorate General of Strengthening for Research and Development, Ministry of Research, Technology, and Higher Education of Republic Indonesia No: 10/E/KPT/2019

# LIST OF CONTENT

EOR, Reservoir, and Production Engineering Section	
An Integrated Analysis for Post Hydraulic Fracturing Production Forecast in Conventional	1
Oil Sand Reservoir	
A Deliverability Method for Estimating Stabilized Gas Well Performance during Transient	18
Periods on Unconventional Reservoir	
Energy Storage, Conservation, and Sustainable Energy Section	
Saving Hydrogen Fuel Consumption and Operating at High Efficiency of Fuel Cell in	32
Hybrid System to Power UAV	
Thermal Energy Estimation by In-situ Combustion in An Abandoned Oil Well	43
Drilling, Completion, Surface Facility, and Petroleum Economics	
Well Integrity Management: A Recommendation for Indonesia's Well Life Cycle	52

