

LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU PEER REVIEW
KARYA ILMIAH : PROSIDING

Judul Karya Ilmiah : Implementation of 10% Cutting Movement in Building a Lighting System on Postgraduate Diponegoro University

Jumlah Penulis : 3 Orang (R W Wijayanti, E Prianto, and J Windarta)

Status Pengusul : Penulis ke – 3

Identitas Prosiding :

- a. Judul Prosiding : The 9th International Seminar on New Paradigm and Innovation of Natural Sciences and its Application
- b. ISBN/ISSN : Online ISSN: 1755 – 1315, Print ISSN: 1755 – 1307
- c. Thn Terbit, Tempat Pelaks. : 2019, Bandung, Indonesia
- d. Penerbit/Organiser : Institute of Physics Publishing
- e. Alamat Repository/Web : <https://iopscience.iop.org/article/10.1088/1755-1315/520/1/012014>
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- f. Terindeks di (jika ada) : Scopus
H Index : 18
SJR Index : 0,18

Kategori Publikasi Makalah : ☒ Prosiding Forum Ilmiah Internasional
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Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Reviewer		Nilai Rata-rata
	Reviewer I	Reviewer II	
a. Kelengkapan unsur isi prosiding (10%)	3	2,5	2,75
b. Ruang lingkup dan kedalaman pembahasan (30%)	8	7,5	7,75
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	8	8	8
d. Kelengkapan unsur dan kualitas terbitan/prosiding(30%)	8	8	8
Total = (100%)	27	26	26,5
Nilai Pengusul = $(40\% \times 26,5)/2 = 5,3$			

Semarang,

Reviewer 2



Mochammad Facta, S.T., M.T., Ph.D.
 NIP. 197106161999031003
 Unit : Teknik Elektro FT UNDIP

Reviewer 1



Dr. Wahyudi, ST, MT
 NIP. 196906121994031001
 Unit : Teknik Elektro FT UNDIP

**LEMBAR
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Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Maksimal Prosiding		Nilai Akhir Yang Diperoleh
	Internasional ☒ 30	Nasional ☐	
a. Kelengkapan unsur isi prosiding (10%)	3,00		3
b. Ruang lingkup dan kedalaman pembahasan (30%)	9,00		8
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	9,00		8
d. Kelengkapan unsur dan kualitas terbitan/prosiding(30%)	9,00		8
Total = (100%)	30,00		27
Nilai Pengusul = $(40\% \times 27)/2 = 5,4$			

Catatan Penilaian Paper oleh Reviewer :

- Kesesuaian dan kelengkapan unsur isi paper:**
Unsur pada paper : pendahuluan, metode, hasil dan diskusi, kesimpulan serta referensi.
- Ruang lingkup dan kedalaman pembahasan:**
Pembahasan terkait konsumsi energi pada ruang Pascasarjana dan implementasi serta analisis terhadap metode yang ditawarkan.
- Kecukupan dan kemutakhiran data/informasi dan metodologi:**
Tahapan metode penelitian tidak secara rinci, referensi yang digunakan hanya 8 dengan 6 diantaranya terbit kurang dari 10 tahun.
- Kelengkapan unsur dan kualitas terbitan:**
Kualitas terbitan kurang baik : Pengurutan/letak gambar 2 tidak standar dan tidak disitasi. Tabel 4 salah sitasi. Gambar 3 terdapat keterangan pada Gambar 1. Tabel 2 masih terdapat penggunaan Bahasa Indonesia dan penggunaan koma sebagai tanda desimal.

Semarang,

Reviewer 1



Dr. Wahyudi, ST, MT
NIP. 196906121994031001
Unit : Teknik Elektro FT UNDIP

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b. Ruang lingkup dan kedalaman pembahasan (30%)	9,00		7,5
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	9,00		8
d. Kelengkapan unsur dan kualitas terbitan/prosiding(30%)	9,00		8
Total = (100%)	30,00		26
Nilai Pengusul = (40% × 26)/2 = 5,2			

Catatan Penilaian Paper oleh Reviewer :

1. Kesesuaian dan kelengkapan unsur isi paper:

Makalah telah ditulis sesuai dengan format dan kaidah ilmu yang berlaku secara umum untuk penulisan makalah prosiding internasional. Makalah ditulis secara lengkap dan sistematis yang mencakup abstract, introduction, methods, result and discussion, conclusion dan reference.

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Data dan informasi disajikan dengan sangat baik dengan merujuk 8 referensi. Jumlah dan tahun terbit paper-paper yang dijadikan sebagai acuan atau referensi pada paper ini cukup lengkap, demikian pula data dan informasi yang disajikan berdasar paper yang diterbitkan dalam referensi yang sesuai dengan konservasi energi.

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International Conference on Renewable Energy and Sustainable Built Environment 2019, Online ISSN: 1755-1315, Print ISSN: 1755-1307, 2019, <https://iopscience.iop.org/article/10.1088/1755-1315/520/1/012014/pdf>, Terindex Scopus. Prosiding ini diterbitkan oleh publisher IoP conference series yang rutin menerbitkan konferensi internasional yang telah dikenal dan tersitasi di SCOPUS yang secara konsisten menerbitkan setiap edisinya lengkap dan memiliki kualitas cetakan yang baik. Ukuran dan font tulisan dapat terbaca dengan jelas

Semarang,

Reviewer 2

A handwritten signature in black ink, appearing to read 'Mochammad Facta', enclosed within a simple, hand-drawn rectangular border.

Mochammad Facta, S.T., M.T., Ph.D.

NIP. 197106161999031003

Unit : Teknik Elektro FT UNDIP



**INTERNATIONAL CONFERENCE ON RENEWABLE ENERGY
AND SUSTAINABLE BUILT ENVIRONMENT**

awarded to

Ratih Wahyu Wijayanti, S.T.

as PRESENTER

*of the paper entitled "Implementation of 10% Cutting Movement in Building A Lighting System
on Postgraduate Diponegoro University."*

September 14th, 2019

Luxton Hotel, Bandung, INDONESIA



Dr. Eng. M. Donny Koerniawan

*Coordinator
International Conference on Renewable Energy
and Sustainable Built Environment*

Dr. Rachmawan Budiarto, ST., MT.

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Volume 520, Issue 1, 19 June 2020, Article number 012014
International Conference on Renewable Energy and Sustainable Built Environment 2019,
ICRESBE 2019; Bandung; Indonesia; 14 September 2019 through ; Code 161370

Implementation of 10% Cutting Movement in Building a Lighting System on Postgraduate Diponegoro University (Conference Paper) (Open Access)

Wijayanti, R.W.^a ✉️, Prianto, E.^{a,b}, Windarta, J.^{a,c}

^aMagister Program of Energy, School of Postgraduate Studies, Diponegoro University, Semarang, Indonesia

^bArchitecture Engineering, Diponegoro University, Semarang, Indonesia

^cElectrical Engineering, Diponegoro University, Semarang, Indonesia

Abstract

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Until now, the need for energy continues to increase while the energy source is running low. Therefore, the Government issued various policies to conserve resources and improve the efficiency of energy utilization. One is through energy conservation programs in all sectors of life, called the 10% Cutting Movement. The program is promoted in the hope that people can reduce energy consumption up to 10% of daily energy use as well as in the academic environment. This research aims to implement a 10% cutting movement in lighting system in Diponegoro University postgraduate building and find out how much savings can be achieved. The implementation is carried out purely and modified by following existing standards. Pure implementation is done by setting a target of 10% savings on the overall energy consumption of the lighting system. While modification implementation is done by determining the 10% savings target, then adjusting the lamp usage hours. The savings obtained from the pure implementation amounted to 1.91 MWh / year, whereas in modifications implementation results obtained in the amount of 1.99 MWh / year. The savings from both methods is bigger than the specified savings target. © 2020 IOP Publishing Ltd. All rights reserved.

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Indexed keywords

Engineering
controlled terms:

Energy utilization Lighting Lighting fixtures Sustainable development

Engineering
uncontrolled terms

Academic environment Conservation programs Conserve resources Cutting movement
Energy source In -buildings Lighting systems Reduce energy consumption

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- ☐ 2 Ministry of Energy and Mineral Resources. Pemerintah Galakan Program Potong 10 Persen-Kementerian ESDM Republik Indonesia [Internet]. 2019 [cited 2019 May 4]
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Preface

Dear professors and distinguished delegates,

On behalf of the ICRESBE 2019 Organizing Committee, I would like to welcome you to International Conference on Renewable Energy and Sustainable Built Environment (ICRESBE) 2019. The aim of the conference is to bring together researchers and practitioners working on Renewable Energy Technologies and Sustainable Built Environment. We hope that the conference will create as many opportunities as possible for further collaboration and technical interchanges between individuals. Participants will make presentations and discussions over 6 topics, i.e. Passive Design in Architecture; Net Zero-Energy Building; Building Performance Simulation; Renewable Energy; Biorefinery; and Sustainable Matrix, which provide more opportunities for experts and scholars to communicate with each other. Your suggestions are warmly welcomed for the further development of the conferences in the future. Wish you have a fruitful and memorable experience. We look forward to meeting you again next time.

Yours sincerely,

M.Donny Koerniawan

ICRESBE 2019 Coordinator





ICRESBE

INTERNATIONAL CONFERENCE ON RENEWABLE ENERGY AND SUSTAINABLE BUILT ENVIRONMENT

September 13th, 2019

International Conference on Renewable Energy and Sustainable Built Environment (ICRESBE) 2019 is a conference held in 2019. This conference is focused on renewable energy technology, especially in biofuel and microalgae, as well as the development of Net Zero Energy Building (NZEB) as one of the solutions for sustainable built environment.

ICRESBE is an initiative from Center for Development of Sustainable Region (CDSR) through the Sustainable Higher Education Research Alliance (SHERA) Program, funded by USAID. CDSR is a collaborative effort from six universities in Indonesia and one university from the US to promote sustainable development in some remote area and cities in Indonesia.

KEYNOTE SPEAKERS



Mostapha S. Roudsari, Ladybug Tools*



Bernard Amadei, PhD, NAE, CU Boulder



John Bronlund, Massey University, NZ



Moh. Ali Hassan, Univ. Putra Malaysia



Kementerian ESDM Republik Indonesia*
PT. PLN Persero*

*to be confirmed

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Contact: (w) www.icresbe.com (e) icresbe2019@gmail.com

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Important Dates

Full Paper Submission: June 30, 2019

Early Bird Registration: July 15, 2019

International Conference: September 13, 2019

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1. Renewable Energy
2. Biorefinery
3. Building Energy Simulation
4. Net Zero-Energy Building
5. Passive Design in Buildings
6. Sustainable Matrix

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**International Conference on Renewable Energy and Sustainable Built Environment 2019 14
September 2019, Bandung, Indonesia**

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Application of Web 3D GIS to Display Urban Model and Solar Energy Analysis using The Unmanned Aerial Vehicle (UAV) Data (Case Study: National Cheng Kung University Buildings)

B G Dewanto, D Novitasari, Y C Tan, D D Puruhito, Z A Fikriyadi and F Aliyah

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Implementation of 10% Cutting Movement in Building a Lighting System on Postgraduate Diponegoro University

R W Wijayanti¹, E Prianto^{1,2}, J Windarta^{1,3}

¹ Magister Program of Energy, School of Postgraduate Studies, Diponegoro University, Semarang - Indonesia

² Architecture Engineering, Diponegoro University, Semarang - Indonesia

³ Electrical Engineering, Diponegoro University, Semarang – Indonesia
E-mail: ratih.maret@gmail.com

Abstract. Until now, the need for energy continues to increase while the energy source is running low. Therefore, the Government issued various policies to conserve resources and improve the efficiency of energy utilization. One is through energy conservation programs in all sectors of life, called the 10% Cutting Movement. The program is promoted in the hope that people can reduce energy consumption up to 10% of daily energy use as well as in the academic environment. This research aims to implement a 10% cutting movement in lighting system in Diponegoro University postgraduate building and find out how much savings can be achieved. The implementation is carried out purely and modified by following existing standards. Pure implementation is done by setting a target of 10% savings on the overall energy consumption of the lighting system. While modification implementation is done by determining the 10% savings target, then adjusting the lamp usage hours. The savings obtained from the pure implementation amounted to 1.91 MWh / year, whereas in modifications implementation results obtained in the amount of 1.99 MWh / year. The savings from both methods is bigger than the specified savings target.

1. Introduction

Indonesia is a country with abundant energy resource potential. However, the source of energy in Indonesia has not been fully utilized to meet the needs of its citizens. While most of the available energy sources come from fossils, which are decreasing.

The government issued several policies to conserve energy resources, one through energy conservation contained in Regulation No. 70 of 2009 (1). Energy conservation is an act of using energy efficiently and rationally (8). This policy is expected to apply to all energy resources. According to Pramono Hadi, savings opportunities from the implementation of energy conservation when applied to all sectors can achieve 10% - 35%. The savings that are easy to do can provide savings opportunities up to 10-15%, while savings by issuing several investments able to achieve up to 30% (8).

The government saw the opportunity and implement in the cut 10% energy conservation movement. This program appeared in 2012 and was introduced in 2016. This program aims to encourage awareness and increase responsibility for using energy efficiently in our daily lives. In 2017 this program campaigned in several cities such as Denpasar, Balikpapan, and Makassar. The program also provides education to the community that by reducing 10% of energy consumption from daily



Application of Web 3D GIS to Display Urban Model and Solar Energy Analysis using The Unmanned Aerial Vehicle (UAV) Data (Case Study: National Cheng Kung University Buildings)

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Abstract. Nowadays, the era encompasses everything smart, whether they are smartphones, smart people, or smart cities. The term 'Smart Cities' refers to an advanced urban town that has well-connected infrastructure and communication through data centers and automated networks, unless for the energy system. Solar energy is one kind of renewable energy. It is a clean, sustainable, and free energy source both for the public and governments. With the rapidly growing technology, the yield of solar energy increases, while its cost reduces. Thus, it gains importance and becomes widespread. Presently, the increasing importance of solar power makes a hot topic. We are currently facing a global warming issue where one of the leading causes is the use of fossil energies. Non-fossil energy, or better known as renewable energy, is an option to reduce the use of fossil energy as an effort to minimize the impacts of global warming. In this study, we collected the data from The Unmanned Aerial Vehicle (UAV) that is combined with GPS and IMU technology to get the 3D campus model in National Cheng Kung University (NCKU), Taiwan. The output of the data is true ortho-image, digital surface model (DSM), and building footprint. The building footprint was processed using the Autodesk Insight 360 and Autodesk Revit to get better 3d campus model. All three data were processed using ArcGIS Pro using Calculate Solar Radiation plugin. The result of this step is reaching the solar energy potential of NCKU. The final step is to show it into the Web 3D GIS to display the result. From the Web 3D GIS, everyone can access the information of NCKU solar energy potential using computer and also smartphones.

1. Introduction

Since 1990 the energy provided from renewable sources worldwide has risen at an average rate of nearly 2% a year, but in recent years this rate has increased to about 5% annually. As a result, the global contribution of renewables has increased from about 74 EJ in 2005 to about 89 EJ in 2009 and now represents 17% of global primary energy supply (528 EJ). Most of this renewable energy comes from the traditional use of biomass (about 39 EJ) and larger-scale hydropower (about 30 EJ), while other renewable technologies provided about 20 EJ [1].

