

Table of Contents

Economic Analysis of “Ocean Current” Potential as Power Plant to Support Community Development (Case Study in Nusa Penida Strait) A. Retnasari, A. Istiqomah and A. Fauzi	1
Comparison of Graph Theory Approach with other Methods on Transmission Loss Allocation Problem in Deregulated Electricity Market K. Shafeeque Ahmed, S. Prabhakar Karthikeyan and S.K. Sahoo	6
Energy and Exergy Analysis of Thermal Energy Storage Prototype by Using Concrete Material in Thailand R. Boonsu and S. Sukchai	14
Performance Analyzing of Stand-Alone PV Hybrid Mini-Grid System with PV at DC and AC Coupling W. Pokakul and N. Ketjoy	23
An Estimation of Thailand's Hourly Solar Radiation Using Markov Transition Matrix Method A. Wibun and P. Chaiwiwatworakul	29
Modelling of a Micro Grid PV Rooftop System by PSCAD N. Thanomsat and B. Plangklang	34
Development of Photocatalytic Conversion of Glucose to Value-Added Chemicals by Supported-TiO₂ Photocatalysts K. Roongraung, N. Laosiripojana and S. Chuangchote	39
Availability Study of Large Scale Grid Connected Photovoltaic Power Plants in Thailand P. Phanukan and N. Ketjoy	44
Special Protection Schemes: A Survey and Vision for the Future K. Shafeeque Ahmed, S. Prabhakar Karthikeyan and S.K. Sahoo	49
Micro Static Var Compensator for Over-Voltage Control in Distribution Networks with High Penetration of Rooftop Photovoltaic Systems P. Pachanapan and P. Inthai	54
Development of Mathematical Equation for Photovoltaic Array Internal Resistance Measurement under Operating Conditions N. Khaosaad, N. Ketjoy, S. Vaivudh and K. Sriprapha	59
Study of an Isolated DC-DC Converter for Fuel Cell Applications S. Somkun, S. Prabhuraj and C. Sirisamphanwong	65
Synthesis of Silica Gel and Development of Coating Method for Applications in a Regenerative Air Dehumidifier W. Aimjaijit, P. Chaiwiwatworakul and S. Chuangchote	70
Key Factors of Community Based Biomass Power Plant Establishment K. Mongkoldhumrongkul and P. Thanarak	75
Determination of Biodiesel Prices in Thailand K. Laung-Iem and P. Thanarak	81
Correlations for Estimating Vertical Daylight Illuminance through South Facing Clerestory Equipped with Anidolic Collector in Bangkok T. Khunsriya Samerpak, P. Chaiwiwatworakul and S. Chirarattananon	88
Evaluation of Solar Fraction on a Solar Driven Dual Parallel Connected Ejector Cooling System T.M. Maroyi, T. Suriwong, A. Pongtornkulpanich, S. Somkun and Y.G. Abdella Mohammed	94
Exergy Analysis of a Solar-Driven Dual Parallel-Connected Ejector Refrigeration System Y.G. Abdella Mohammed, T. Suriwong, S. Somkun and T.M. Maroyi	100
Development of a Novel Software to Identify the Real-Time Energy (kWh) Flows among Multiple Loads and Sources Including Renewables in a Smart Grid Y. Mensin, W. Rakwichian, W. Setthapun and S. Chokmaviroj	107
Insulation Resistance and Leakage Current in PV Modules and Strings with Different Grounding Configurations N. Sithiphol, C. Sirisamphanwong, N. Ketjoy and K. Sriprapha	114

Land Use Assessment of Economic Crops for Photovoltaic Power Plant in Phetchabun Province	
T. Chiramakara and P. Thanarak	119
Analysis of the Impact of Distributed Grid-Connected PV System on Power Quality of the Electrical Distribution Network	
M.M. Yee and C. Sirisamphanwong	124
Techno-Economic Performance Evaluation and Enhancement for a PV – Diesel Hybrid System	
I. Tendo and C. Sirisamphanwong	130
Microwave Irradiation Synthesis of Sb₂S₃ and its Optical Characteristic	
A. Klinbumrung, C. Pilapong and T. Suriwong	136
Technical and Economic Assessment of a 10 MW Wind Farm at Pakphanang District in Nakhon Si Thammarat Province	
J. Waewsak, C. Chancham, S. Chewamongkolkarn, C. Kongruang and Y. Gagnon	142
Demand and Supply of Crude Palm Oil for Biodiesel Production towards Food and Energy Security	
P. Nutongkaew, J. Waewsak, W. Kiratiwibool and Y. Gagnon	151
Effect of Tilt and Azimuth Angle on the Performance of PV Rooftop System	
H. Singh, C. Sirisamphanwong and S.M. Santhi Rekha	159
Degradation Effects on PEM Fuel Cells Supplied with Hydrogen from a LOHC System	
T. Luschtinetz, A. Sklarow and J. Gulden	165
Statistical Load Modeling for School of Renewable Energy Technology (SERT) Smart Grid Naresuan University Phitsanalok Thailand	
W. Khalil and C. Sirisamphanwong	170
Effects of Fresnel Len Application on PV Module Performance	
P. Luangjok, S. Maneewan and A. Thongtha	177