JBREV
Journal of Batteries for Renewable Energy and Electric Vehicle

e-ISSN 2987-6931
p-ISSN 2987-6907
Vol. 02 No. 01
May 2024

Exist for publishing the results of research and development in battery technology for renewable energy and electric vehicles

Publisher: NBRI Press (*Penerbit Yayasan Pusat Unggulan Inovasi Baterai dan Energi Terbarukan*)

Mailing Address: National Battery Research Institute, Indonesian Life Science Center, Technology Business Zone BRIN Puspiptek Area, Bogor, 16340, West Java, Indonesia
Phone (+62) 81181251717, E-mail: nbri.jbrev@n-bri.org
Web: https://journal.n-bri.org/

e-ISSN 2987-6931
p-ISSN 2987-6907

JBREV
Vol. 02 No. 01
May 2024

Contents

EDITORIAL

Dear our valuable reader,

It is a great pleasure to provide you with the third issue of Journal of Batteries for Renewable Energy and Electric Vehicles (JBREV), namely Vol. 02 No. 01 (2024). The JBREV is established in 2022 by the National Battery Research Institute (NBRI) in collaboration with the Queen Mary University of London (QMUL), Material Research Society Indonesia (MRS-INA), and International Union of Material Research Societies (IUMRS). The JBREV is devoted to publish new and original research, article review related to battery materials, science & engineering that applicable to renewable energy and electric vehicles. The JBREV is for researchers and technology enthusiasts in all aspects of the science, technology, and applications of battery energy storage for renewable energy and electric vehicles.

The JBREV Vol. 02 No. 01 (2024) contains five articles discussing green politics and the policy cycle in Indonesia in the context of electrification initiative for EV and public transport, renewable energy solutions for net zero building, metamaterial analysis for energy storage application, market study and user behavior analysis for 2W-EV charging adoption in Indonesia, to the role of National Battery Research Institute to support Indonesia's battery revolution through skills development initiative. There are 12 authors and co-authors in total, of those 5 articles, who come from various institutions (National Research and Innovation Agency, National Battery Research Institute, Universitas Padjajaran, Institute Technology of Bandung, Institut Teknologi Sumatera, and Queen Mary University of London).

"Green Politics and the Policy Cycle in Indonesia's Electrification Journey: A Comparative Analysis of Policy Priorities for Electric Cars and Public Transport" was explored by A. J. Perdana, R. R. Tjioediningrat, and S. Rizkiawan from Faculty of Social and Political Science, Universitas Padjajaran, Sumedang, Indonesia. This paper presents a comprehensive descriptive study and document analysis of policy priorities for electric cars and public transport in Indonesia, within the context of the country's electrification journey. The comparative analysis reveals distinct policy priorities for electric cars versus public transport, with implications for Indonesia's environmental, economic, and social goals.

"Renewable Energy Solutions for Achieving Net Zero Building" was written by M. W. S. Mubarok from National Battery Research Institute in collaboration with S. Ramadhani and M. I. Tsaqif from Institute Technology of Bandung, Bandung, Indonesia. This paper presents an in-depth analysis of the Jowata architectural concept, designed as a net zero building through the integration of multiple renewable energy systems. Located in Kota Baru Parahyangan, Bandung, the design incorporates passive, active, and renewable energy strategies, focusing on solar photovoltaic (PV) panels, wind turbines, and pico hydro systems to meet the building's energy needs. This work highlights the effectiveness of combining various renewable energy sources in achieving net zero emissions and offers a blueprint for sustainable building practices in similar climatic regions.

"Perspective on Metamaterial of Energy Device Application" was explored by F. A. N. Habibi and S. E. M. Putra from Department of Engineering Physics, Institut Teknologi Sumatera, South Lampung, Indonesia. This paper presents an insight from metamaterial perspective for energy device application. Metamaterials have shown great potential for energy device applications, including energy harvesting, storage, and transmission. However, implementing metamaterials in energy devices presents several challenges, such as complex design and fabrication, narrowband limitation, and integration with existing technologies. This paper analyzes those issue.

"Market Study and User Behavior Analysis on Battery Charging Adoption for 2W-EV in Indonesia" was explored by M. W. S. Mubarok from National Battery Research Institute, Indonesia and Y. F. Darmawan from Institute Technology of Bandung, Bandung, Indonesia. Meanwhile E. Kartini from Research Center for Advanced Material, Research Organization for Nanotechnology and Materials, National Research and Innovation Agency (BRIN), Indonesia and A. J. Drew from School of Chemical and Physical Sciences, Queen Mary University of London, United Kingdom as co-author. This paper offers recommendations to accelerate 2W-EV adoption, including the expansion of charging infrastructure, cost reduction strategies through subsidies and incentives, and increased consumer education. The research concludes that while 2W-EVs have the potential

to significantly contribute to Indonesia's sustainable transportation goals, achieving widespread adoption will require coordinated efforts across multiple sectors.

"The National Battery Research Institute: Energizing Indonesia's Battery Revolution on Skills Development" was assessed by M. W. S. Mubarok and R. Yogandini from National Battery Research Institute, Indonesia. Meanwhile E. Kartini from National Battery Research Institute, Indonesia and A. J. Drew from School of Chemical and Physical Sciences, Queen Mary University of London, United Kingdom as co-author. This paper explores NBRI's pivotal role in enhancing skills development within the EV battery sector, a critical factor for sustaining Indonesia's competitive advantage. The study employs a mixed-methods approach, integrating quantitative data analysis with qualitative insights from industry stakeholders. The paper concludes that NBRI's efforts are crucial in positioning Indonesia as a leader in the global EV battery market, emphasizing the importance of ongoing investment in education and training to meet the evolving demands of this dynamic industry.

Hopefully, this third edition of JBREV will give a prominent insight on battery technology development & its application, renewable energy solutions to EV ecosystem that provide beneficial knowledge for all related stakeholders. On behalf of JBREV, I would like to thanks for all of your contribution and endless support that have enabled JBREV to publish its second issue. This could not have been reached without great efforts and cooperation from the editors, reviewers, management personnel, authors, and readers.

Chief Editor