IEPRe NEWSLetter
The Energy University
Institute of Energy Policy and Research

Welcome to the fourth edition of the Institute of Energy Policy and Research (IEPRe) Newsletter which covers news and updates for the months October 2021 to December 2021. Please do keep in touch with us at IEPRe@uniten.edu.my.

TOWARDS NET-ZERO 2050: HIGHLIGHTS FROM THE INTERNATIONAL FORUM ON GLOBAL ENERGY LANDSCAPE IFGE 2021

By Dr. Norsyahida Mohammad

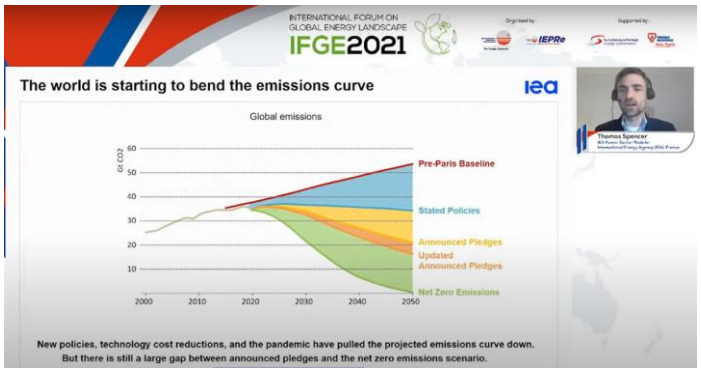
Tuesday, 30th November 2021 – The flagship programme of the Chair of Energy Economics of Energy Commission at UNITEN, the 4th International Forum on Global Energy Landscape (IFGE 2021) was held with the theme "Global Energy Transition Towards Carbon Neutrality: Challenges, Opportunities, and Implications to Malaysia". The forum, which was held in a hybrid mode, attracted more than 300 participants from 21 countries.

The opening ceremony conducted at Dk1, College of Computing and Informatics, UNITEN Putrajaya Campus was live-streamed to IFGE 2021 virtual platform.

The Chair in Energy Economics of Energy Commission at UNITEN, Professor Dr. Ken Koyama, delivered the opening speech entitled "Outlook and Challenges for Our Energy Future" addressing several issues related to the volatility of energy prices and market uncertainty. The prospects for advanced and innovative technologies such as hydrogen were also emphasized. The opening speech was immediately followed by the welcoming speech by the Vice-Chancellor (VC) of UNITEN, YBhg. Professor. Dato' Ir. Dr. Kamal Nasharuddin Mustapha. IFGE 2021 was officiated by the Minister at the Ministry of Energy and Natural Resources (KeTSA), YB Datuk Seri Takiyuddin Hassan. In his speech, YB Datuk Seri highlighted the nation's agenda in combatting climate change and achieving net-zero by 2050 which requires collaborative efforts among all sectors.

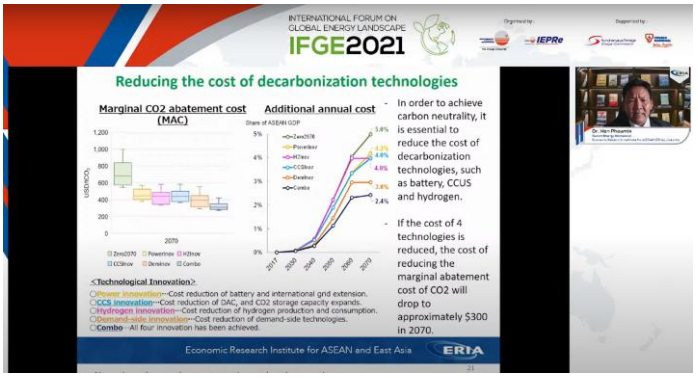
YB Datuk Seri Takiyuddin Hassan, the Minister at the Ministry of Energy and Natural Resources (KeTSA) delivered his speech at IFGE 2021.

IFGE 2021 consisted of two plenary sessions and a panel discussion. The first plenary session on the challenges and opportunities of carbon neutrality from global and regional perspectives was conducted live on the virtual platform and moderated by Professor Dr. Ken Koyama. The first speaker, Mr. Thomas Spencer, an Analyst and Power Sector Modeller at the International Energy Agency (IEA), presented the IEA World Energy Outlook which highlighted the different scenarios developed by the IEA to attain net-zero emissions by 2050. The second speaker, Dr. Han Phoumin, Senior Energy Economist at the Economic Research Institute for ASEAN and East Asia (ERIA) focused on anticipated decarbonization scenarios in ASEAN countries, revealing pertinent energy-related issues in ASEAN which include the high reliance on coal, oil and natural gas.



Mr. Thomas Spencer, the IEA Power Sector Modeller, presented the IEA World Energy Outlook via the IFGE 2021 virtual platform during Plenary Session.

The second plenary session was preceded by a keynote speech by YBhg. Dato' Seri Ir. Dr. ZainiUjang, the Secretary-General of the Ministry of Environment and Water (KASA). In his speech, Dato, Seri Ir. Dr. Zaini highlighted the stand and commitment of the Malaysian government at the recent COP26 held in Glasgow, Scotland. He highlighted the efforts of the government in energy and environmental sustainability featured in the Twelfth Malaysian Plan, as Malaysia intends to reduce its economic-wide carbon intensity (against GDP) by 45% in 2030 compared to the 2005 level. Subsequently, a panel discussion was generated by the speech of the first panellist, Encik. Ts. Shamsul Bahar Mohd Nor, the CEO of Malaysian Green Technology and Climate Change Corporation (MGTC). He highlighted the various programmes that have been embarked upon by MGTC in supporting the aspiration of carbon neutrality in Malaysia. The second panellist, Encik Rosman Hamzah, the Secretary-General of Malaysia Gas Association (MGA) deliberated on the commitment of MGA in ensuring the availability of natural gas, while the third panellist, Professor Ir. Dr. Abd Halim Shamsuddin, the AAIBE Chair for Renewable Energy at UNITEN focused on the role of biomass in attaining net-zero emission.



Dr. Han Phoumin, ERIA Senior Energy Economist deliberated on decarbonization scenarios for ASEAN countries.

A moderated discussion was initiated between five panellists, Mr, Thomas Spencer, Dr. Han Phoumin, Encik. Ts. Shamsul Bahar Mohd Nor, En Rosman Hamzah, and Professor Ir. Dr. Abd Halim Shamsuddin, moderated by Encik Abdul Razib Bin Dawood, the CEO of Energy Commission. Issues discussed included the financing options available for clean energy, the differences between net-zero emissions and carbon neutrality, and the impact of carbon pricing on the overall cost of electricity. The CEO of the Energy Commission, Encik Abdul Razib Bin Dawood delivered the closing remarks, highlighting the various issues that were discussed from the beginning of IFGE 2021. As the organizer, IEPRe appreciates the efforts of the Energy Commission, Tenaga Nasional Berhad and the organising committee in ensuring the success of the IFGE 2021.

Encik Abdul Razib Bin Dawood, the CEO of the Energy Commission moderating the hybrid mode panel discussion.

Scan here for more info

International Economics & Business Management Conference (IEBMC 2021)

By Dr. Amar Hisham Jaaffar

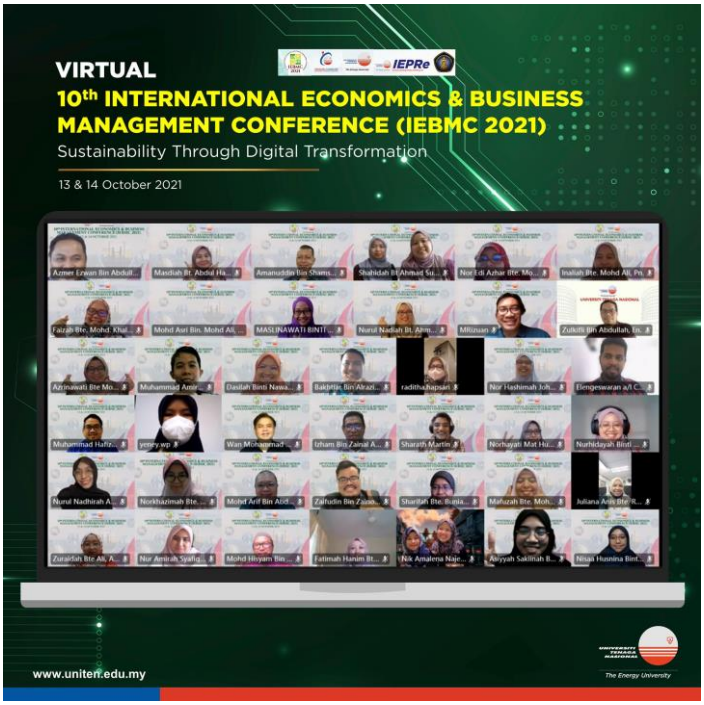
The College of Business Management & Accounting (COBA), Universiti Tenaga Nasional (UNITEN) in collaboration with the Institute of Energy Policy and Research (IEPRe) UNITEN, Yayasan Canselor UNITEN, and Universitas Brawijaya, Indonesia, successfully organised the virtual 10th International Economics & Business Management Conference (IEBMC 2021) on the 13th and 14th October with the theme "Sustainability through Digital Transformation".

The 10th IEBMC 2021 is an effective platform to connect delegates from diverse research areas to productively communicate and engage in exchanging innovative ideas and the latest findings. IEBMC 2021 was organised with the purpose of bringing together academics, researchers, experienced professionals and industries, not only to promote research on issues relating to business, management and accounting, but also encourage them to actively produce academic writings or research and share and exchange ideas for new input in relevant research areas.

During the virtual opening ceremony, Dr. Hezri Adnan, Executive Director of the Malaysian Institute of Economic Research (MIER) & UNITEN Adjunct Professor, delivered a keynote address titled "The Twin Revolutions? Mainstreaming Sustainability in the Digital Age". IEBMC 2021 was officially opened by TNB Chief Information Officer, YBhg. Datuk Fazil Ibrahim.

More than 95 papers were presented virtually during the conference and published in Global Business and Management Research: An International Journal (GBMR).

Scan here for IEBMC 2021 Paper



Virtual participants during the IEBMC2021 opening session.

Dr. Hezri Adnan, Executive Director of the Malaysian Institute of Economic Research (MIER) & UNITEN Adjunct Professor, delivered a keynote address titled "The Twin Revolutions? Mainstreaming Sustainability in the Digital Age" at IEBMC 2021.

Perspective:

Developing and Synthesizing the EESG Factors of Electricity Producing Company in Malaysia for Their Sustainable Future: A Stakeholder Perspectives

By Dr.Muhummad Khairul Islam

This paper authored by Dr Muhummad Khairul Islam was presented at the 10th International Economics and Business Management Conference (IEBMC 2021) on 14 October 2021. The paper explored the factors of each sustainability pillar (EESG) of an electricity producing company in Malaysia through a stakeholders' analysis.

Stakeholder analysis is becoming an integral part of effective business change management. However, the execution of stakeholder analysis will not be successful without a sound framework that governs the stakeholder management and engagement exercise. In this study, a set of sustainable requirements for a company's operations, known as the sustainability pillars; Economic, Environmental, Social, and Governance (ESG) criteria is used by socially aware investors to assess possible investments. Each of the four pillars holds its own sustainable factors and criteria on a stakeholder perspectives and strategies for their sustainable future.

Throughout the entire project, the researchers developed a synthesized list of EESG factors sourced from an extensive literature review. Altogether, 66 factors were developed and synthesized. 12 economic factors included contribution to the growth of the economy, the role of eliminating poverty, ensuring income and employment, internal business perspectives, affordable tariffs, innovation in technology and managing energy costs.

14 factors were developed after synthesizing from the environmental point of view. These included conservation of the natural world by minimizing environmental impact and security and protection of natural resources, climate change and carbon emissions, waste management and promoting recycling, emphasizing an environmentally friendly energy mix, cleaner energy, green supply change management and renewable energy.

A further 20 factors within the social pillar were synthesized and included consideration of people & relationships, customer satisfaction, production responsibility, social impact of products and services, risk management, empowering employees and their wellbeing, training and development for people in society to develop an indigenous society, human rights, labour standards, employee relations and diversity, pleasant working conditions, practicing CSR and conflict management within society.

At the end of the study, 20 governance factors were synthesised including the following: standard operating procedures (SOPs), employee compensations, transparency of accounting and audit procedures, enforcement of ethical business practices, top management's commitment (both internal and external), a forward-looking culture, support for a long-term strategic approach, obligations of various stakeholders in corporate governance, and compliance with other government agencies.

The research revealed the EESG factors that are important for investment strategies that would better mitigate risks and help shape a more sustainable energy business. These factors must be considered to enhance and preserve the well-being of stakeholders and communities in the process.

Perspective:

Understanding the Differences between Carbon Neutrality and Net-Zero Emissions

By Dr. Bamidele Victor Ayodele

Source: https://www.greenmatch.co.uk

Carbon Neutrality and Net-Zero emissions are two essential terminologies commonly used for climate change. These two terminologies are different and it is important to fully understand these technical terms to appreciate their usage in climate change.

Generally, carbon-neutral (or carbon neutrality) refers to a policy of not increasing carbon emissions and achieving carbon reduction through offsets. By comparison, net-zero emissions means making changes to reduce greenhouse gas (GHG) emissions to the lowest amount and offsetting as a last resort. The offsetting is merely used to counteract the actual emissions that remain after all available reduction initiatives have been implemented. For instance, carbon-neutral refers to when carbon dioxide (CO_2) emissions released into the atmosphere are balanced by an equivalent amount of CO_2 absorbed by carbon sinks. The term "carbon sink" refers to any system that takes in more carbon than it produces, such as forests, soils and oceans. According to the European Union Commission, between 9.5 and 11 Gt of CO_2 are removed by natural sinks each year. There are currently no carbon sinks that are large enough to combat global warming worldwide.

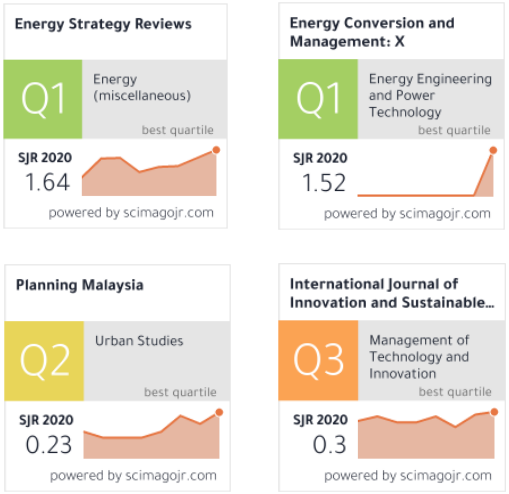
A company or country may either achieve carbon neutrality by decreasing its carbon emissions to net-zero or by offsetting and purchasing carbon credits to make up for those reductions. Investing in clean, low-carbon technology like renewable energy and energy efficiency may accomplish this. An example of a carbon offsetting mechanism is the EU's emissions trading system (ETS). In addition, there is the carbon border adjustment system which would impose carbon taxes on imported commodities from nations that are less committed to reducing greenhouse gas emissions. This should prevent corporations from shifting manufacturing out of the EU to countries with less rigorous greenhouse gas emission regulations. With the growing demand for carbon offsets, Malaysia is likewise prepared to enter the carbon markets to reduce its carbon emissions from different sectors. As part of Malaysia's amended National Determined Contributions (NDCs) and the country's recent Budget 2022, the government has declared a voluntary carbon market (VCM) and domestic emissions trading scheme (DETS). In the past, carbon markets allowed for the price of carbon and the trading of emission rights within a quota set by the regulatory body. By acquiring and selling carbon credits (certificates that grant permission to emit a tonne of emissions), the programme seeks to restrict overall emissions produced by the state government or the private sector.

On the other hand, Net-zero emissions is a similar concept to Carbon Neutral; however it goes beyond just carbon and is typically on a larger scale. Net-zero emissions commitments always involve emission reductions which require an initial carbon footprint measurement followed by strategic GHG emission reduction initiatives. It is possible to achieve "net-zero emissions" by making existing operations more efficient and developing and implementing low and zero-carbon fuels and carbon capture technologies that balance the amount of GHG emitted with the amount of GHG absorbed into the atmosphere. It has been stated by Malaysia's new Prime Minister that the nation would become carbon neutral "as early as 2050" and that new coal-fired power facilities will no longer be built, as reiterated in the 12th Malaysia Plan. One of the Malaysian government's efforts to attain net-zero emission is the introduction of the Green Technology Financing Scheme (GTFS) to finance employment in renewable energy, building construction and transportation. The government was able to assist more green initiatives and enterprises due to this scheme. Attaining Net-Zero emissions in Malaysia could be realized through the imposition of a carbon tax and increasing the amount of renewable energy in the country's energy mix. Besides, attaining Net-Zero emissions also requires substantial structural and legal reforms as well as the political will.

PUBLICATION HIGHLIGHTS

By Dr. Amar Hisham Jaaffar

In the fourth quarter of 2021, the published articles from our researchers focused on various themes related to waste, CO_2 conversion, the transition towards sustainable energy systems, economics and management in the following journals:



THE BEHAVIOUR OF HOUSEHOLDS TOWARDS ELECTRICITY CONSUMPTION: A CASE STUDY AT SEREMBAN.

Ali, S. S. S., & Siron, R. (2021). *Planning Malaysia*, 19.
https://doi.org/10.21837/pm.v19i18.1047

This article examines households' knowledge, awareness, commitment, attitude, and behaviour towards electricity consumption. The sample of the study consists of 360 urban households in an intermediate city, Seremban.

Challenges in implementation of MyGAP among paddy farmers.

Ali, N. I. M., Ibrahim, N. I., Aiyub, K., Kasavan, S., Choy, L. K., &Siron, R. (2021).*Geografia - Malaysian Journal of Society and Space,* 17(4), 164–177.
http://dx.doi.org/10.17576/geo-2021-1704-12

This study aimed to investigate the challenges of implementing MyGAP by the paddy farmers and proposing relevant actions, using the Sekinchan paddy field as a case study.

Long-term energy demand in Malaysia as a function of energy supply: A comparative analysis of Non-Linear Autoregressive Exogenous Neural Networks and Multiple Non-Linear Regression Models.

Ayodele, B. V., Mustapa, S. I., Mohammad, N., &Shakeri, M. (2021). *Energy Strategy Reviews*, 38, 100750.
https://doi.org/10.1016/j.esr.2021.100750

This paper employed the Non-Linear Autoregressive Exogenous Neural Networks (NARX) and Multiple Non-Linear Regression (MNLR) models for modeling the final energy demand per capita in Malaysia.

Implications of COVID-19 pandemic for energy-use and energy saving household electrical appliances consumption behaviour in Malaysia.

Mustapa, S. I., Rasiah, R., Jaaffar, A. H., Bakar, A. A., & Kaman, Z. K. (2021). *Energy Strategy Reviews*, 38, 100765.
https://doi.org/10.1016/j.esr.2021.100765

This study examined the impact of the movement control order (MCO) due to the COVID-19 pandemic on Household Electrical Appliance Consumption Levels [HEACL] across Malaysia before, during, and after the MCO, and the likelihood of the pandemic hastening household conduct towards the use of energy saving appliances based on a self-reported household survey.

Effect of activation function in modeling the nexus between carbon tax, CO2 emissions, and gas-fired power plant parameters.

Ayodele, O. F., Ayodele, B. V., Mustapa, S. I., & Fernando, Y. (2021). *Energy Conversion and Management: X,* 12, 100111.
https://doi.org/10.1016/j.ecmx.2021.100111

This paper modelled the nexus between carbon tax, equivalent CO_2 emissions from the gas-fired power plant, natural gas flow rate and air-to-fuel ratio using a perceptron neural network.

Integrating innovation and sustainability into tour operator business.

Isa, S. M., Hamid, M. A., Kiumarsi, S., &Jaaffar, A. H. (2021). *International Journal of Innovation and Sustainable Development,* 15(4), 458-474.
DOI: 10.1504/IJISD.2021.118373

Given that the empirical study of destination management for sustainable tourism is in an undeveloped state, this research describes efforts to prove its mediator role between perceived innovation characteristics and business sustainable orientation towards tour operator roles.

Highlighting the Contributing Factors of Smart Meter Adoption in Klang Valley.

Abdullah, A., Wan Mohamad Norafi, W. H., Abdul Latif, N. W., Zahari, A. R., Kaman, Z. K., Ismail, Z., &Yusoff, N. S. (2021). In International Visual Informatics Conference (pp. 665-675). *Springer*, Cham.
https://doi.org/10.1007/978-3-030-90235-3_57

This study aimed to examine the contributing factors of smart meter adoption amongst household. A survey was conducted amongst 529 potential smart meter users in Klang Valley.

Investigating the Contributing Factors of Continuance Use of Smart Meter in Melaka.

Abdullah, A., Yusoff, N. S., Abdul Latif, N. W., Zahari, A. R., Kaman, Z. K., Ismail, Z., & Wan Mohamad Norafi, W. H. (2021). In International Visual Informatics Conference (pp. 655-664). *Springer*, Cham.
https://doi.org/10.1007/978-3-030-90235-3_56

This study analyses the contributing factors that influence the continuing use of the smart meter (SM) among SM users in Melaka.

Fourth Industrial Leadership Index (4IRLI) for Manufacturing Companies in Malaysia.

Daud, S., Hanafi, W. N. W., Rajadurai, J., & Othman, N. M. (2021). *International Journal of Organizational Leadership,* 10(4), 421.
DOI: 10.33844/ijol.2021.60607

This study aims to capture the indicators that will assist in designing the Fourth Industrial Leadership Index (4IRLI) in the manufacturing sector.

BOOK CHAPTER PUBLICATION

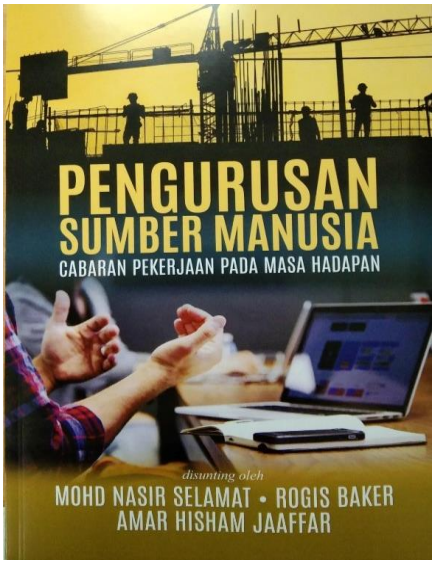
Book Chapter:

Pengurusan Sumber Manusia Cabaran Pekerjaan Pada Masa Hadapan

Authors: Mohd Nasir Selamat, Rogis Bajer, & Amar HishamJaaffar

Published: 2021

ISBN: 978967251550



Abstract:
This book focuses on future employment challenges. It is important to prepare human resource management in an organization to provide the best service for employees as well as the employers themselves.

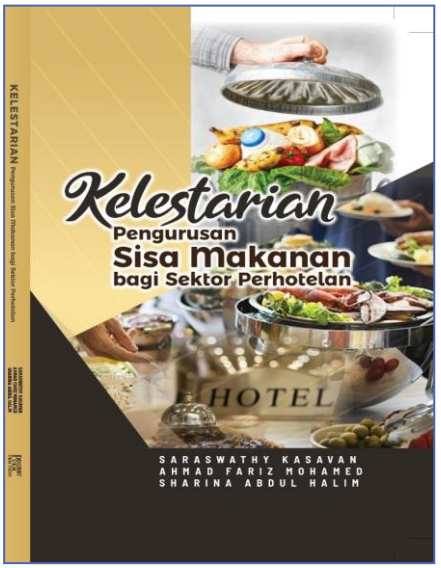
Book Chapter:

Pengurusan Sisa Makanan bagi Sektor Perhotelan

Authors: Saraswathy Kasavan, Ahmad Fariz Mohamed, & Sharina Abdul Halim

Published: 2021

ISBN: 9789672513155



Abstract:
This book discusses five key strategies and several steps for achieving sustainable food waste management within the hotel sector in Langkawi. Those strategies are: (1) education and awareness, (2) separating waste and composting, (3) economic and marketing motivation, (4) networking and (5) legislative support. This book also provides information and ideas for hoteliers to reduce food waste while saving hotel operation costs and maintaining the hotel's aspiration towards environmentally friendly practices.

Farewell to Mardhiah and Widad

Miss Waznatol Widadbinti Mohamad Ishak has served IEPRe as research assistant since 2019 and ended her contract in December 2021.

Miss Syarifah Mardhiah binti Syed Salim joined IEPRe a year later in 2020 and ended her contract in November 2021.

IEPRe would like to express our huge gratitude and thank you for their dedication, motivation and contribution throughout our years together. Bon voyage and we wish you all the best in your super exciting new jobs. It was indeed a great blessing to work with both of you. We will certainly miss your presence at the office.

Welcome to IEPRe

We were delighted to welcome Nurul Syuhadah binti Yakath Ali as our new research officer to IEPRe on 15th December 2021. We look forward to working with you!

Upcoming Event

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IEPRe has been organizing a series of webinars on contemporary topics by prominent experts in the field of energy economics and policies. All webinars are offered at no cost. Sign-up to join our mailing list for upcoming events.

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