ASEAN INDONESIA 2023

ASEAN Energy Business Forum

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ASEAN ENERGY BUSINESS FORUM

Accelerating Energy Connectivity to Achieve Sustainable Growth of ASEAN

24 - 26 AUGUST 2023

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CEFIA Cluster Energy Financing Initiative for ASEAN+3

METI Ministry of Economy, Trade and Industry

Climateworks CENTRE

CPD CENTRE FOR POLICY DEVELOPMENT

IESR Institute for Essential Services Reform

IISD International Institute for Sustainable Development

iRi Indonesia Research Institute for Decarbonization

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“Indonesia Energy Chairmanship tagline **“Sustainable Energy Security through Interconnectivity”** represents three pillars, namely sustainability, security, and interconnectivity that are essentials for accelerating energy connectivity to achieve sustainable growth of ASEAN”

H.E. Arifin Tasrif

Minister of Energy and Mineral Resources, Republic of Indonesia

The ASEAN Energy Business Forum (AEBF) is an annual energy conference and exhibition held in conjunction with the ASEAN Ministers on Energy Meeting (AMEM). Organised by the ASEAN Centre for Energy (ACE), this year it is hosted by the Ministry of Energy and Mineral Resources (MEMR) Indonesia as the ASEAN Chairman for 2023.

Aligning with the theme of Indonesian ASEAN Chairmanship 2023, 'ASEAN Matters: Epicentrum of Growth,' and MEMR Indonesia's energy theme, 'Sustainable Energy Security through Interconnectivity,' the AEBF 2023 will focus on the main theme: 'Accelerating Energy Connectivity to Achieve Sustainable Growth of ASEAN.'

AFTER MOVIE 2023

AEBF 2023 in Numbers

1.403 DELEGATES

240 SPEAKERS & MODERATORS

5 REGIONS REPRESENTED
- Asia-Pacific
- Europe
- Americas
- Africa
- Middle East

35 COUNTRIES REPRESENTED

18 SESSIONS

65 SPONSORS, EXHIBITORS, & PARTNERS

AEBF 2023 in the News

1.085 NEWS COVERAGE

226.373.201 MEDIA IMPRESSIONS

8 MEDIA COUNTRIES

548 MEDIA MENTION

AEBF 2023 OPENING CEREMONY

Joint Opening Ceremony of the 41st ASEAN Ministers on Energy Meeting (AMEM-41) and its Associated Meetings together with the ASEAN Energy Business Forum (AEBF)

Indonesia, as the Chair of ASEAN for 2023, hosted one of the largest business forums, the ASEAN Energy Business Forum (AEBF) 2023. The Joint Opening Ceremony, attended by participants of the 41st ASEAN Ministers on Energy Meeting (AMEM-41) and AEBF, includes Energy Ministers and government officials from ASEAN and its partnership countries, as well as investors and stakeholders contributing to the energy sector in the region.

The opening ceremony was captivating and provided an unforgettable experience. It featured cultural performances, inspiring speeches, and visual spectacles that reflected the essence and spirit of ASEAN as the center for energy. The event served as an excellent opportunity for participants to connect and expand their networks, fostering triple helix collaboration within the region's energy sector.

INTERNATIONAL ENERGY BUSINESS MAIN CONFERENCE

24 - 25 August 2023

Keynotes Speech Session

Accelerating Energy Connectivity to Achieve Sustainable Growth of ASEAN

by Dr. Dadan Kusdiana, Secretary General of the Ministry of Energy and Mineral Resources of the Republic of Indonesia

To optimise and synergise energy resources, the region requires interconnectivity infrastructure to bridge the gap between resources and demand. Interconnection is also expected to create sustainable and affordable energy for all, as well as lead the renewable, low-carbon energy system to address climate change mitigation commitments in the region. Thus, the interconnectivity among ASEAN Member States (AMS) is the crucial issue that Indonesia addresses this year as the Chair for ASEAN in 2023.

The current ASEAN Power Grid (APG) and Trans-ASEAN Gas Pipeline (TAGP) serve as excellent examples of interconnectivity. The idea for connectivity could be explored further for bioenergy, biomass, biofuel, and mineral resources. ASEAN Member States could synergise based on each respective resource to create industries within the region.

Research and Technology Towards Net Zero in Indonesia

by Dr. Mego Pinandito, Deputy for Development Policy, National Research and Innovation Agency (BRIN)

Collaboration among ASEAN Member States (AMS) is crucial, where everyone can learn from and share their experiences, collectively finding solutions to problems. In research and innovation, particularly in the fields of science and technology, collaboration with various stakeholders is essential. This includes international entities, governments, the private sector, academia, and the community, particularly in the areas of new energy and digital energy sources. A cross-disciplinary approach is necessary to bring diverse perspectives and levels of understanding into play, strengthening competency, networking, and industry capabilities.

The National Research and Innovation Agency is currently focusing on strategies for biogas, including the dissemination of information on international research in green safety. This approach is open to all research and science and technology endeavors. The goal is to align with the Indonesian government's target of integrating technology with environmental considerations. The agency is also conducting research on ideas related to new energy and technology, such as hydrogen, nuclear, and exploring other possibilities. This reflects a commitment to advancing sustainable and innovative solutions in the energy sector.

Keynotes Speech Session

Keynote Speech Session

HUAWEI

Sustainable Energy Harmony: Unveiling the Potential of Smart PV and Battery Energy Storage for a Greener Tomorrow

by Jingkang Gui, Managing Director of Smart PV Solutions, Huawei Digital Power APAC

In the context of utility-scale PV, various challenges in grid stability may arise as the penetration of renewables increases. These challenges include the lack of inertia, deterioration of grid frequency stability, and insufficient peak capacity. Huawei presents a solution through its Smart PV & ESS Generator, which integrates PV, energy storage systems (ESS), and grid-forming algorithms. This innovative approach enables the grid to achieve eight times the maximum reactive power capability and a broad range of frequency oscillation suppression from 0.1 Hertz to 1000 Hertz in three phases.

This technology has the potential to increase renewable penetration to more than 60%, facilitating the acceleration of PV as the primary energy source. The Smart PV & ESS Generator plays a crucial role in enhancing grid stability under a high proportion of renewable energy, contributing to the establishment of future industry standards.

This solution represents just one of Huawei's many innovations aimed at reducing the Levelized Cost of Energy (LCOE) and enhancing system safety, with the ultimate goal of making PV and Battery Energy Storage Systems (BESS) the primary sources of energy. Huawei envisions combining PV and energy storage to establish green PV as the primary energy source for both households and businesses.

High Level-CEO Dialogue on Financing Energy Transition and The Role of Private Sector

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A substantial increase in investments is imperative to expedite the energy transition in ASEAN. Policy support for the energy sector and cooperation among ASEAN countries are crucial to facilitate the reallocation of capital towards sustainable solutions and to ensure active participation from a diverse array of investors. Wide-scale investment is necessary across the entire energy system in ASEAN, spanning from supply to infrastructure to the end-use sectors.

An estimated annual investment ranging from USD 200 billion to USD 245 billion will be required to significantly boost renewables, energy efficiency, and enabling technologies and infrastructure over the next couple of decades. The event aims to underscore essential mechanisms for attracting financing towards energy transition and provide insights into financial instruments currently yielding profits in clean energy projects.

Participants gained practical strategies from successful case studies, explore innovative and profitable financing mechanisms, and cultivate strategic alliances with key industry stakeholders. The knowledge and strategies acquired from this event can be immediately applied for growth and future-oriented planning, delivering tangible benefits for stakeholders within the ASEAN region, including Indonesian private sectors and the broader ASEAN community.

The event highlights the critical importance of robust policy support and regional cooperation, along with encouraging engagement from the private sector, especially those with multinational interests. By aligning corporate strategies with government priorities, the event aims to strike a balance between immediate returns and long-term sustainability. Participants gained valuable insights into energy transition financing, exploring practical strategies and innovative financial mechanisms drawn from successful case studies.

This knowledge is intended to facilitate both immediate growth and future-oriented planning, promising substantial benefits for all stakeholders in the ASEAN region. The overarching goal of the event is to catalyse ASEAN's energy transition, ensuring future sustainability, reducing greenhouse gas emissions, and lessening dependence on fossil fuels. Through this initiative, we aspire to contribute to building a sustainable and resilient ASEAN community.

Welcome and Keynote Remarks:

1. Yudo Dwinanda Priaadi, Director General of New Renewable Energy and Energy Conservation, Ministry of Energy and Mineral Resources Indonesia
2. Dr. Ir. Rachmat Mardiana, MA., Director for Electricity, Telecommunication and Informatics, BAPPENAS
3. Francesco La Camera Director General, IRENA
4. Shameer Khanal, ASEAN Cluster Coordinator, GIZ

Scene Setting Presentation by IRENA and GIZ

1. Gurbuz Gonul, Director, Country Engagement and Partnership, IRENA
2. Gitafajar Saptyani, Team Leader GER-IDN Energy Cooperation Hub GIZ

High Level Panel Discussion: Accelerating Energy Transition Investments and Finance in Southeast Asia

1. Dr. Dadan Kusdiana, Secretary General, Ministry of Energy and Mineral Resources Indonesia
2. Mr. David M. Turk, United States deputy secretary of energy
3. H.E. Mr. NAKATANI Shinichi, State Minister of Economy, Trade and Industry of Japan
4. Keiju Mitsuhashi, Regional Energy Director, ADB
5. Dr. Yoonhee Ha, Vice-chairperson, Energy and industry transition Sub-commission, Presidential Commission on Carbon Neutrality and Green Growth
6. James Lok, Head of Energy & Private Sector Infrastructure Investment - Southeast Asia, AIIB
7. Gurbuz Gonul, Director, Country Engagement and Partnership, IRENA

CEO Dialogue: Mobilising Private Sector Engagement for Stronger Energy Transition Action

1. Antony Harsono, Director Samator Group
2. Farid Belbouab, CEO Meratus Line
3. Adrianto Djokosoetono, CEO Blue Bird Tbk. (BIRD)
4. Tham Chee Aun, Founder and Group CEO, Ditrolic Energy
5. Fadli Rahman, Director of Strategic Planning & Business Development, Pertamina New and Renewable Energy
6. Sulisia Erza, Chief Sustainability Officer Agrindo Group

Securing Regional Energy Security Towards Energy Transition Through CCS/CCUS Innovation

Session Sponsored by bp

Carbon Capture and Storage (CCS) is a technology designed to capture emissions from various sources, including power plants, cement plants, and fuel facilities. These captured emissions are then transported and injected into underground storage, effectively removing them from the atmosphere. This process contributes to decarbonisation efforts.

On the other hand, Carbon Capture, Usage, and Storage (CCUS) is a more comprehensive approach. In CCUS, carbon is stored underground, but it can also be utilised to enhance oil and gas production, representing a form of recycling. Ongoing research is exploring various technologies to find additional uses for captured carbon, including applications in cement manufacturing, fertilizer production, and heating systems.

Given the global need for secure, low-carbon, and affordable energy, natural gas emerges as a promising solution. Natural gas can address the limitations of emerging energy storage options by providing large-scale storage capabilities to manage fluctuations in energy demand. However, efforts are required to enhance the sustainability of gas usage. CCS plays a crucial role in achieving a sustainable energy supply by providing a solution for carbon emissions, mitigating economic and health risks associated with excessive carbon in the atmosphere. While CCS relies on existing technology and capabilities, it is a capital-intensive solution that demands ongoing efforts for improvement and widespread adoption.

To foster investment in Carbon Capture and Storage (CCS), there is a need for industry readiness and a competitive investment climate. Four key points are critical for the development of the CCS and CCUS (Carbon Capture, Usage, and Storage) industry. Firstly, there is a need for access to storage, and the region is fortunate to have significant CO_2 storage capacity. Secondly, emitters seeking a storage solution are essential. Thirdly, the development of technology and infrastructure to construct a comprehensive CCS and CCUS value chain and ecosystem. Lastly, an effective regulatory framework is necessary, encompassing policies, regulations, cross-border agreements, carbon pricing, and a framework for carbon credit and trading.

As a leading oil and gas multinational company with over five decades of operation in Indonesia, bp brings the expertise, technology, and financial capability needed to advance CCS and CCUS initiatives. In collaboration with the Ministry of Energy and Mineral Resources (MEMR) of Indonesia, bp has established Tangguh CCUS, expected to be a pioneer for more CCS and CCUS projects in Indonesia. With a potential maximum storage capacity of up to 1.8 megatons of CO2, it presents a tremendous opportunity to serve as a CCS hub, providing CO_2 retention and storage services to third parties, generating revenue and jobs. Through this project, both parties are working to reduce carbon emissions while increasing production to ensure energy security and affordability for the country. bp is committed to exploring further collaborations with ASEAN Member States (AMS) to build a successful CCS and CCUS industry.

1. Dr. Mirza Mahendra, S.T., M.T., M.M., Director of Oil and Gas Engineering and Environment, Ministry of Energy and Mineral Resources Indonesia
2. Dr. Belladonna Troxylon Maulianda, Ph.D., P.Eng., Executive Director of Indonesia CCS Center
3. Damian Johnston, Vice President Gas Growth - Gas & Low Carbon Energy Asia Pacific
4. Aming Kusumadjaja, Managing Director of Technip Energies Indonesia
5. Kamia Handayani, Executive Vice President Energy Transition and Sustainibility PT PLN (Persero)
6. Joshua Ngu, Head of Upstream and Low Carbon Consulting, APAC Wood Mackenzie

Exploring Advanced Nuclear Technologies for ASEAN

Session Sponsored by WORLD NUCLEAR ASSOCIATION

Nuclear power has the potential to address some of the most pressing current concerns of our time, from energy security and climate change to sustainable development and economic well-being. Several ASEAN countries have initiated plans to deploy nuclear power, but as of now, no nuclear power plants are operational in the region. Countries with significantly advanced plans include Indonesia, the Philippines, Thailand, and Vietnam, while other ASEAN nations have also expressed interest and explored plans to develop nuclear energy.

Nevertheless, negative perceptions about nuclear power persist in several countries and need to be addressed if it is to achieve its full potential in contributing to the global transition to clean and reliable energy. Amongst the challenges is addressing misperceptions and misrepresentations to strengthen the public acceptance and social license for this reliable, safe, low-carbon energy source. The public should be clearly communicated with the scientific facts, which include a solid safety record, despite a handful of severe accidents and a new generation of power reactor technologies that will be even safer.

In addition, leaders must effectively engage with the public and a wide range of stakeholders, including policy decision-makers and civil society, particularly on concerns about nuclear power safety and radioactive waste. Finally, the nuclear industry, along with governments, national regulators, and financial institutions, needs to make good plans to lower the capital costs of the new nuclear build while shortening construction times.

1 King Lee, Director Harmony Programme, World Nuclear Association

2 H.E. Sergey Mochalnikov, Deputy Minister of Energy of the Russian Federation

3 Dr. Ir. As Natio Lasman, Member of the National Energy Council (DEN)

4 Suwanto, Senior Research Analyst, ASEAN Centre for Energy

ASEAN Power Grid (APG) Interconnection: Stepping Up ASEAN Efforts for Advancing Regional Interconnectivity through Realising Investment Potentials

The ASEAN Power Grid (APG) stands as one of ASEAN's paramount priorities in meeting long-term energy security and sustainability in the region. Enhancing ASEAN interconnectivity through the APG is a critical solution to tackle the region's challenges in ensuring that the increasing demand is met sustainably by utilising untapped renewable energy (RE) resources. In recent years, stronger national ambitions have been demonstrated to accelerate the deployment of renewable energy for the energy transition, given the pressing timeline to achieve the aspirational RE target by 2025 and individual country targets outlined in their national power development priorities.

The ASEAN Interconnection Master Plan Study (AIMS) III projected an investment of 47.7 billion USD[1] needed for the APG by 2025 to unlock greater utilisation of variable renewable energy (vRE) and achieve the ASEAN RE target. This urgency propels the advancement of the APG, as the likelihood of achieving the target is slim without greater collaboration among ASEAN Member States (AMS).

In addition to sustaining the current success of existing bilateral and multilateral interconnections, there are low-hanging fruit priorities worth exploring, such as Indonesia-Singapore, Indonesia-Malaysia, and the expansion of the Malaysia-Thailand interconnection. The next question is how and what milestones we are aiming to achieve to transform these new potential interconnections into reality, in the spirit of fostering greater regional interconnectivity under the ASEAN Power Grid (APG).

1 Mr. Darmawan Prasodjo, President Director of PT PLN (Persero)

2 Dato' Indera Ir. Baharin, President and Chief Executive Officer of Tenaga Nasional Berhad Sdn. Bhd.

3 Mr. Chanthaboun Soukaloune, Managing Director of Electricite du Laos

4 Mr. Prasertsak Cherngchawano, Deputy Governor-Strategy, Electricity Generating Authority of Thailand (EGAT)

5 Beni Suryadi, Manager of Power, Fossil Fuel, Alternative Energy and Storage (PFS), Department-ASEAN Centre for Energy

[1] Capital cost of building vRE and interconnection only.

Southeast Asia Youth Energy Forum (SAYEF) 2023

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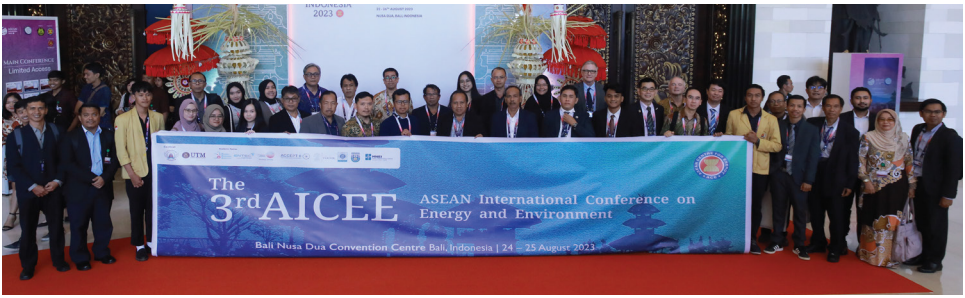
The Southeast Asia Youth Energy Forum (SAYEF) 2023, organised by the Ministry of Energy and Mineral Resources Indonesia (MEMR), is the side event of the 41st ASEAN Ministers on Energy Meeting (AMEM-41) in conjunction with the ASEAN Energy Business Forum (AEBF) 2023, taking place in Bali from 24 to 26 August 2023. This forum is a collaboration with the United States Agency for International Development Sustainable Energy for Indonesia's Advancing Resilience (USAID-SINAR) and the Society of Renewable Energy (SRE).

SAYEF 2023 focuses on the three pillars of Renewable Energy, Energy Efficiency and Conservation, and Interconnectivity and Green Technologies. The output was a report on youth perspectives related to the energy transition, which were presented to ASEAN Energy Leaders, incorporating key points from the discussions on these three pillars.

The Forum delved into ideas explored by the young generations in Southeast Asia regarding energy issues and gained momentum under Indonesia's chairmanship in ASEAN, operating under the theme "ASEAN Matters: Epicentrum of Growth". SAYEF 2023 aims to support ASEAN's commitment to pursuing sustainable energy security through enhancing interconnectivity and accelerating energy transitions. A designated representative(s) is scheduled to present the document at the Minister-CEO and International Organisations (IOs) Dialogue. Youth delegates are required to submit their inputs prior to the Forum.

The 3rd ASEAN International Conference on Energy and Environment (AICEE)

The objectives of the 3rd ASEAN International Conference on Energy and Environment (AICEE) are twofold: firstly, to provide a forum for knowledge sharing among academia, policymakers, and the business sector on issues related to energy and climate change in ASEAN; secondly, to strengthen interdisciplinary and multi-stakeholder collaboration in ASEAN to accelerate resilient energy security and transition.



ASEAN ENERGY BUSINESS FORUM PARALLEL SESSIONS

25 August 2023

2023 ASEAN-Korea Energy Experts Seminar: Spotlighting Korea's Cutting-edge Energy Business

Session Sponsored by

IEEN INTERNATIONAL ENERGY EXPERT NETWORK

Collaboration between ASEAN and Korean enterprises in the energy sector has increased in the global pursuit of carbon neutrality. In response to this, the Korean Ministry of Trade, Industry and Energy (MOTIE) and the Korea Energy Economics Institute, in collaboration with the Graduate School of Energy and Environment (Green School) at Korea University in Seoul, established the International Energy Expert Network (IEEN). The purpose is to foster enduring collaboration between energy experts from emerging economies and Korea.

Since its inception in 2019, IEEN has served as a dynamic platform, facilitating engagement among government officials and professionals representing diverse business sectors and academic institutions. This platform enables the exchange of insights concerning the energy market, business prospects, and the latest research findings. In 2023, IEEN has grown to encompass 231 participants from 19 countries. IEEN annually hosts forums with various countries and conducts research projects.

The seminar highlighted energy businesses in Korea, showcasing the pioneering endeavors of Korean enterprises and exploring the possibilities of nurturing collaborations between Korean companies and their counterparts in ASEAN. Its aim was to foster energy partnerships between countries and shape prospective projects in the future.

Discussions covered a broad spectrum of topics, including energy storage systems, smart energy systems, the solar and wind power markets, electric vehicle charging infrastructure, hydrogen, and more. Goodwiz introduced a data-driven intelligent virtual power plant (VPP). The company aggregates data from all renewable resources, analyzes patterns, and controls the inventory. It has successfully accumulated more than three kilowatts, primarily distributed to the industrial sector, and collected from scattered resources across the country. Goodwiz is eager to introduce its technology to and collaborate with ASEAN Member States (AMS).

Renewable energy and energy efficiency play a vital role in South Korea's strategy. There is a need to explore innovative approaches, such as hydrogen co-firing in power generation, the development of a smart net-zero city based on iSMR technology, LNG recirculation in gas-to-power projects, low-carbon energy technology, including CCS, and the reintegration of water, energy, and urban studies. These are the technologies that IEEN wants to introduce to amplify energy innovation aligned with ASEAN's decarbonisation. In this challenging time, businesses are essential partners in translating needed measures aimed at energy innovation into tangible reality.

Natural Gas for a Secure and Sustainable Energy Future in the ASEAN Region

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The 7th ASEAN Energy Outlook (AEO7) forecasts a significant increase in energy demand in the region, reaching up to three times the 2020 level by 2050. Fossil fuels, including natural gas, are expected to continue supplying the majority of this demand, indicating that oil and gas will still play a crucial role in meeting ASEAN's energy needs.

The United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) aims to facilitate the energy transition to low-carbon societies. Given that its members are at different stages of economic development and progress in building cleaner and low-carbon economies, UNESCAP undertakes analytical and intergovernmental work to support regional cooperation in the development and utilization of natural gas for sustainable and cleaner energy systems in the Asia-Pacific. This recognition aligns with its role in achieving Sustainable Development Goal (SDG) 7, ensuring access to affordable, reliable, sustainable, and modern energy for all by 2030.

Everyone is closely monitoring the development of global renewable energy and the transition in the power sector to determine new vectors for the industry. In the energy transition scenario, oil and gas will continue to contribute to the total primary energy supply, especially in the power sector, even as they increasingly participate in renewable energy. Integrating natural gas in power generation could support a high penetration of renewable energy, such as wind and solar. This is largely possible because gas acts as a flexible and rapidly dispatchable energy resource that can be switched on and off quickly, making gas-fired generation the preferred choice to accommodate sudden changes in the demand and supply of electricity.

In the residential sector, natural gas may become a solution for both heating and clean cooking. The use of gas reduces household air pollution emissions to safe levels compared to traditional types of cooking fuels, such as wood.

Natural gas has technical and economic advantages to support the intermittency of electricity generation from renewable energy, with a lower carbon investment cost and higher-ranking upgrades compared to other fossil fuels. However, the gas market is not as well developed as the oil market. Gas prices over the last three years have been much more substantial than for oil, creating less-than-ideal conditions for both consumers and producers. Therefore, inter-governmental and international cooperation with businesses is crucial to provide a better market design. The government could consider setting regulations without politically motivated decisions that negatively impact the gas market. This requires multi-level cooperation and stakeholder collaboration.

At the regional level, oil and gas production has been declining since the mid-2010s, raising significant concerns about energy security in the absence of significant discoveries and production enhancements in existing fields. This can be addressed through more explorations and production enhancements at the regional level. Given the anticipated reliance on oil and gas, which poses a serious threat to the climate and concerns about energy supply security, the region's energy policies must balance the effects between sustainable economic growth and mitigating climate change.

The Role of Coal & Other Fossil Fuels in the Energy Transition Era

AEBF 2023 comprises several events, including parallel panel discussions, with one of them titled: “The Role of Coal & Other Fossil Fuels in the Energy Transition Era.” The primary objective of this event is to explore the role of coal and other fossil fuels during the energy transition period. While the transition from fossil fuels to renewable energy is urgently important, it is anticipated that coal and other fossil fuels will continue to play a role in ASEAN power generation for years to come.

Coal is expected to remain a key energy source in ASEAN. Despite the region's commitment to addressing climate change, there are additional challenges in balancing the need for energy security while meeting the climate targets set for the region. Moreover, without immediate action, the region is projected to become a net importer of coal from 2039 onwards (ACE, 2022). To strike a balance between energy security and climate targets, the transition to a low-carbon economy will require the adoption of Carbon Capture, Utilisation, and Storage (CCUS) technologies and other measures capable of reducing emissions from coal.

Various initiatives have been announced to support the coal transition program in the region, such as the Energy Transition Mechanism (ETM) and CIF Accelerating Coal Transition, offering opportunities for ASEAN Member States (AMS) to gradually engage and implement policies and programs for coal transition within the low-carbon economy of the region. Therefore, careful considerations regarding the pilot transactions and social impacts of the coal transition program should be collaboratively designed among AMS, the private sector, and financial institutions.

8th ASEAN Energy Outlook (AEO8) Seminar: Current and Future Key

ASEAN is home to approximately 667 million people, constituting about 8.7% of the total global population. In 2022, the real combined GDP of the ASEAN Member States (AMS) is estimated to reach USD 8.5 trillion (2017 constant, PPP), with expectations of expanding up to 3.6 times by 2050. Fueling this growth will necessitate significant amounts of energy.

The population and economic growth trends, coupled with a shift from agriculture towards greater industrialisation and service-based economies, have delineated the region's development trajectory. However, these trends pose numerous challenges, particularly in meeting the rapidly growing energy demand. Ensuring prosperity and resilience across the region will require careful consideration of energy equality and environmental sustainability concerns. To achieve this, AMS are focusing on four priorities: energy security, accessibility, affordability, and sustainability, as outlined in the ASEAN Plan of Action for Energy Cooperation (APAEC) Phase II: 2016–2025. This plan serves as the regional blueprint for the energy sector within the framework of the ASEAN Economic Community (AEC). The APAEC plays a vital role in shaping a sustainable future for the ASEAN energy landscape.

To facilitate the translation of national policies and plans, a regional energy outlook becomes crucial in achieving aspirational targets. It serves as a comprehensive projection for harmonising energy policies, fostering regional cooperation, and advancing the adoption of clean energy and low-carbon technologies. The regional energy outlook aims to be the voice of ASEAN for the energy sector, involving active participation from all 10 ASEAN Member States (AMS) in every process, guided by principles of collaboration, harmonisation, and validation.

Within the ASEAN structure, the ASEAN Centre for Energy (ACE), an intergovernmental organisation representing the interests of the 10 AMS in the energy sector, regularly publishes the ASEAN Energy Outlook (AEO) as its flagship publication. Operating in a think tank role, ACE has released seven series of AEO, continually enhancing its capacity to produce outlooks internally.

The seminar convened experts on modeling from various outlooks worldwide, sharing best practices and methodologies adopted in their scenarios. This information is valuable for the development of AEO8, expected to be published during the 42nd ASEAN Ministers on Energy Meeting (AMEM) in Lao PDR.

The most recent publication, AEO7, showcased examples of how the ACE team produced its projections, incorporating data on energy demand by sectors and fuels while monitoring regional targets. It explored four scenarios: Baseline Scenario, AMS Targets Scenario (ATS), APAEC Targets Scenario (APS), and Least-Cost Optimisation (LCO) Scenario. To build on this success, ACE plans to develop AEO8 to provide deeper analysis and recommendations, particularly as the region approaches the 2025 targets and prepares for the next cycle of APAEC.

1st Inter-Regional Energy Forum (IREF)
Strengthening the Efforts towards the Energy Transition

Recent geopolitical conflicts have underscored the importance of energy security for the global energy community. This highlights the necessity of collaboration between countries worldwide, whether through bilateral, regional, or global initiatives, to pursue energy security. Comprising mostly developing countries, Southeast Asia, Latin America, South Asia, and Africa boast some of the most dynamic and fastest-growing economies globally. These regions maintain cautious optimism that addressing challenges in greater integration and innovation at the regional and national levels, in trade, investment, human capital, and regulatory coherence, can fuel economic growth. They aim to capitalise on global megatrends and emerging trade-related issues.

The 1st Inter-Regional Energy Forum (IREF), themed "Strengthening the Efforts towards the Energy Transition," aimed to facilitate dialogue, knowledge sharing, and capacity enhancement on the energy landscape within ASEAN and other regions. The forum brought together representatives from energy intergovernmental organisations: ASEAN Centre for Energy (ACE) from Southeast Asia, Organización Latinoamericana de Energía (OLADE) from Latin America and the Caribbean, African Energy Commission (AFREC) from Africa, and South Asian Association for Regional Cooperation Energy Centre (SEC) from South Asia. It was sponsored by the USAID Southeast Asia Smart Power Program (SPP).

Given the wide disparity in dealing with energy security challenges across developing regions, strengthening both intra and inter-regional relationships for regional energy trade and cooperation is imperative. Increased inter-regional cooperation in knowledge and resource sharing can establish an interdependent network to ensure the exchange of best practices, especially among regions with similar economic situations, resources, and geographical landscapes. Knowledge sharing through cooperation with various inter-regional institutions can significantly enhance each region's energy policy, planning, and accelerate energy transition and resilience.

The forum emphasised that fossil fuels will remain the primary energy source and continue to play a crucial role in these regions. However, some countries within these regions recognise the potential for renewable energy and are developing energy policies and plans. Energy transition is inevitable, and energy interconnection serves as a catalyst. The problems faced by these regions are common, with differences in the scale of the challenges. These issues include energy accessibility, financial support for renewable energy development, and regulatory and institutional capacity.

Through knowledge sharing, the forum proposed collective efforts to address these obstacles. Capacity building, joint research, and information sharing on organisational and institutional development were identified as ways to collaborate in advancing the energy transition. Specifically, it was recommended that regional organisations establish a working group to collectively propel efforts towards the energy transition.

Critical Minerals: Opportunities and Challenges for ASEAN

Session Sponsored by

International Energy Agency

More countries and businesses aim to reduce their greenhouse gas emissions that leads to massive deployment of a wide range of clean energy technologies. This will not only bring major economic and employment opportunities in new industries, but also into sharp perspective the importance of reliable and sustainable supplies of critical minerals to support an accelerated transition towards a clean energy system. Critical minerals are also vital to the national and economic security as many of them are used extensively in a variety of economically crucial areas, such as military equipment, high-tech applications and advanced manufacturing.

In July this year, IEA released the first edition of Critical Minerals Market Review. It aims to look at what is happening in the marketplace in terms of pricing, investment, and production trends as well as where we are heading in terms of production and demand. It highlights that the combined market size of energy transition minerals almost doubled over the past 5 years, reaching $320 billion in 2022. The reason behind it is the huge growing demand of clean energy deployment, thus growing demand for lithium, copper, nickel, and cobalt. It is projected that the demand for this range of critical minerals is set to quadruple by 2030. Electric vehicles and batteries are clearly behind this impressive growth.

Ensuring reliable and sustainable critical mineral supply chain is essential to ASEAN. As the region accelerates clean energy transitions, demand for critical mineral is set to soar. Furthermore, ASEAN countries hold great promise in critical minerals mining and processing and could make an important contribution to ensuring reliable supplies of the minerals required for global energy transitions. The region is already a key participant in the supply of some materials such as nickel, bauxite, tin and rare earth elements and its importance in global markets is set to grow. To better capitalise on the potential, the ASEAN region needs to improve its environmental performance and governance systems to position itself as a reliable supplier, while nurturing skilled workforce.

Other than to support the global energy transition, it is important for ASEAN to build its own ecosystem for critical minerals. There is a huge potential to integrate the value chain within the region. Namely the growing market for solar PV that is expected to generate around 120 to 150 gigawatts electricity by 2030 and electrical two-wheelers, which can be leveraged based on the existing industry to increase the production from 1.6 million units of e-bike to about 4 million by 2030. These scenarios will be a big push for pushing both the clean energy transition and economic prosperity.

Investment opportunities in the region may differ based on each ASEAN Member States' (AMS) key characteristics and then accentuate in as a whole critical minerals ecosystem. However, it is attractive for the investor when there is a harmonisation of certain standard within ASEAN, whether it is for workforce skill or products such as batteries. It's easier for investors to come and arrange the sources. It could mitigate separate different approach and different risk exposure.

To boost investment, the government policy and regulatory framework are important to incentivize and to de-risk the investors. Such as the roadmap that Indonesia currently has. Moreover, the government also needs to change the course of focus on human resources training and adapt to the futuristic needs in the industry.

Frameworks and Platforms to Enable CCUS Deployment in ASEAN: Presentation of Key Findings from Joint IEA-MEMR Workshop

Session Sponsored by

International Energy Agency

Carbon capture, utilisation and storage (CCUS) has great potential to support clean energy transitions in ASEAN. It can tackle emissions from the region's young power and industrial assets, while simultaneously contributing to economic development and energy security objectives. Particularly for oil and gas industry that has tremendous advantage to explore this technology, because it builds on the existing technology base.

ASEAN is predicted to still rely heavily on fossil fuel in many projections and scenarios with a commitment on the climate net zero. The effort for transition to renewables environment is currently developing. However, how long it may take, is up for debate. Thus, within the time frame, CCUS and CCS have become a very critical tool and solution for CO_2 in region.

Regional interest in CCUS has been growing in line with international trends, a lot driven by net zero commitments from different countries, in part by technology cost declines, as well as favourable policies as seen in some ASEAN Member States (AMS) who continue to make progress in establishing the legal and regulatory frameworks for CCUS. With the current development, there will be around 13.5 million tons of CO_2 capture capacity by 2030. Around 80% are located at natural gas processing plants, which includes LNG facilities.

Last July, ASEAN Centre for Energy has collaborated with IEA and Ministry of Energy and Mineral Resources (MEMR), Indonesia to have a workshop about CCUS in the region under the chairmanship of Indonesia, which also reflects the priority of ASEAN. It highlighted that one of the most critical challenges in promoting CCUS is how to make it become attractive due to market failure. Thus, the government is expected to take part in disseminating the importance of the CCUS by giving investment signals to the CCUS investment by a lot of the policy support, such as capital assistance, providing low-cost financing, low-interest loans, and allowing selective depreciation, including durable incentives that can be provided through various mechanisms, including tax breaks or carbon credits or incentives.

It is not a secret anymore that CCUS and CCS projects are rarely could show the benefit economically. The cost of oil and gas upstream project is increased around 15%, thus it raises the question on whether there is benefit of it. From business perspective, the government may consider increasing the price of blue oil and gas, which should be higher than the green gas and start to utilise carbon trading system that will connect projects in the business of carbon trading.

On the regulatory point of view, there is a need to pursue a development of a legal framework that primarily aims to minimise uncertainty. Particularly in the context of the CCUS deployment, not only to promote the investor confidence of the private sector, but also to protect the environment and public safety. Another challenge is that everyone needs to have a clear difference between CCUS and CCS. Most policy makers within the region are still confused. Thus, the capacity building for them is needed to learn from the lesson, experience, and international community which needs to be adjusted and reflected in the situation of AMS.

Indonesia to be a pioneer in the low-carbon emission industry recently assess the development of CCUS hub to drive significant change in emissions. The concept of a hub is a collection point with multiple sources of CO_2 that are aggregated, injected, and managed in one location. The reason for doing it on a hub scale, approaching in a large scale, is because it has potential to reduce risk as well as cost, and allows for large-scale decarbonisation.

Energy Transitions in ASEAN by Utilizing 'All Fuels and All Technologies'

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Japan External Trade Organization

Mitigation of climate change at the country level shall be implemented with a balanced effort between ensuring energy security, maintaining and strengthening industrial competitiveness, and realizing economic growth in accordance with the stages of development and industrial structure in each country.

Crucial to achieving a realistic "multi-path energy transition" by balancing economic growth and a stable energy supply is pursuing multiple technologies across multiple fronts. This idea, "multi-path energy transition", is endorsed by various occasions around ASEAN energy fora. Concretely, efforts are needed in broad fields, such as the use of renewable energy, increasing energy efficiency, utilizing zero-emission fuels such as ammonia, decarbonizing fossil fuels, electrifying vehicles, and using effective use of resources.

Japan has been trying to balance decarbonization and energy security, including a stable supply of electricity with its Net-zero target in 2050. Japan and Indonesia have many similarities, such as in terms of geographical conditions and energy composition so that many of Japan's efforts towards decarbonization have been effective in Indonesia as well.

JETRO, in cooperation with Jakarta Japan Club (JJC), Japanese chamber of commerce in Indonesia, is working toward stronger cooperation between Indonesian and Japanese Industry in various sectors. From 2022, JJC and JETRO have conducted the comprehensive survey on Japanese companies' activity on decarbonization in Indonesia. According to the latest result, there are 217 companies are implementing 554 projects all around Indonesia, starting from solar power projects, hydro power, geothermal, Ammonia, CCUS, automobile electrification, battery power storage, decarbonization of fossil fuels, and energy conservation. In addition to existing projects, Japanese companies are ready to conduct further cooperation with Indonesian Industry in all technologies.

JETRO and JJC also published policy recommendations to government of Indonesia such as (1) setting up a system for decarbonization (tariffs, regulatory systems, etc.), (2) providing incentives to companies making decarbonization efforts, and (3) preparation of related infrastructure for decarbonization. The recommendations are based on the basic idea of "multi-path energy transition" utilizing all fuels and all technologies.

The 5th Government-Private Forum on the Cleaner Energy Future Initiative for ASEAN (CEFIA)

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CEFIA Cleaner Energy Future Initiative for ASEAN ASEAN+3

METI Ministry of Economy, Trade and Industry

For decades, a wide variety of co-operative activities have been carried out in the energy field amongst ASEAN+3 (China, Japan and Korea) countries. Such activities have resulted in making significant contributions to enhancing energy efficiency and facilitating energy transitions. To further promote such efforts broadly in the ASEAN region, it is becoming increasingly important to deepen the knowledge, facilitate information exchange, and develop projects and programmes with policy design amongst ASEAN+3 countries through various activities, such as capacity-building programmes, international conferences and workshops, and joint feasibility studies and demonstration projects.

Cleaner Energy Future Initiative for ASEAN (CEFIA) was proposed by Japan and welcomed by the ASEAN+3 Ministers on Energy at the 16th ASEAN+3 Meeting of Energy Ministers in Bangkok, Thailand on 5th September 2019. CEFIA serves as a platform to facilitate collaboration between public and private sectors in deployment of cleaner energy and decarbonisation technologies in the ASEAN region.

CEFIA provides capacity building support through flagship projects, which are decarbonising projects implemented by private companies and organisations whose purpose is to showcase best practises of co-operation in technology deployment, in parallel with developing appropriate policy and institutional frameworks and mobilising public and private funding (governments, private sector and academia). Current EE&C related CEFIA flagship projects include: (i) Zero Energy Building, to promote and develop Net-ZEB, (ii) RENKEI, to disseminate control optimisation (RENKEI) to reduce energy consumption throughout utility plants and manufacturing plants through IoT, (iii) SteelEcosol, to diagnose and introduce best available energy-saving technologies (BAT) to the steel industries, (iv) Finance, to mobilise finance to facilitate energy transition and decarbonization in ASEAN, (v) Healthy and Energy Efficient AC System for ASEAN Market, and (vi) CO_2 Neutral Energy and Carbon Sink Using Local Biomass.

The 5th CEFIA Forum was hosted by the Ministry of Energy and Mineral Resources (MEMR), Indonesia, in co-operation with the Ministry of Economy, Trade and Industry (METI), Japan with the support from the ASEAN Centre for Energy (ACE). The Forum discussed candidates for new CEFIA flagship projects that include: (i) Energy Efficiency in Data Center, (ii) Smart Transport, (iii) Next Generation Solar Cell Development: Perovskite-type Solar Cell, and (iv) Hydrogen Production through Water Electrolysis Using Power from Renewables.

The Forum discussed that CEFIA could become a catalyst to disseminate new decarbonisation technologies and products, including smart cities project and serve as a platform to facilitate multi-stakeholder (public-private-partnership) and inter-ministerial communication and/or negotiation and highlighted that public-private partnership may focus on risk sharing and blended financing.

The Forum further discussed about finance, framework, and mechanism to support decarbonisation technologies. It is important to customise different technologies to each ASEAN Member States (AMS) since each have different interest. However, a certain standard is needed to assist financial institutions in evaluating projects and efforts to calculate reduction contributions and enhance ASEAN companies' competitiveness through policy changes and consumer behaviour shifts.

Accelerating Power Grid Interconnectivity in Southeast Asia: Enhancing Cooperation with Partners in ASEAN

Session Sponsored by

Asia Clean Energy Coalition

ENERGY TRANSITION PARTNERSHIP

An integrated ASEAN power system can facilitate economic growth while enabling businesses to cost-effectively procure reliable, clean electricity. Many of the benefits of an enhanced ASEAN Power Grid (APG) have been widely recognized by ASEAN and other multilateral institutions. These include energy security, efficient power procurement, renewable energy (RE) integration, and cost-effective emissions reductions.

1

Economic growth. A regional grid that enables large-scale clean energy development creates infrastructure investment opportunities and lays groundwork for cross-border electricity exchange. The resulting enhancements to power system efficiency and integration can attract businesses that require cost-effective and reliable clean energy.

2

Energy security. Regionally integrated networks connect diversified supply and demand profiles, improve resource sharing and access, reduce dependency on imported fuels, and diversify connections between different trading partners.

3

Efficient power procurement. The costs of building longer-term generation capacity are reduced, since total reserves needed for reliability are lower when resources are shared compared to when each sub-region maintains its own reserves. Additionally, weather patterns underlying RE variability evens out over broader regions, which reduces the need for ramping resources.

4

Cost-effective emissions reductions. A broader pool of shared resources means buyers have greater ability to select fuel-free and low-emitting resources with lower production costs, as well as resources that help balance variable renewable generation.

ASEAN Member States have long recognized the benefits of regional cooperation and have an opportunity to strengthen the Memorandum of Understanding on the ASEAN Power Grid as it is renewed. To this end, the Southeast Asia Energy Transition Partnership (ETP) and the Asia Clean Energy Coalition (ACEC) are co-organizing a half-day parallel session at the ASEAN Energy Business Forum (AEBF) 2023 that will comprise two panel sessions and a workshop.

Investing in Energy Transition in Indonesia: Bridging the Gap Between Policy and Practice

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Southeast Asia, a developing region, made up 3.5% of the world economy in 2019, coming in fifth place after the US, China, Japan, and Germany. This diverse collective of emerging economies has demonstrated an impressive track record of growth, consistently outpacing the global average with an average annual growth rate of 5.3% since 2006, surging to 5.5% in 2022. The region's economic expansion is accompanied by escalating energy consumption, predominantly of oil, which accounts for over 80% of its energy supply, and coal. Against this backdrop, Indonesia's ASEAN Chairmanship in 2023 has rightly prioritized sustainable energy security, acknowledging the pivotal role of clean energy in propelling economic advancement.

ASEAN has set an ambitious target of achieving 23% renewable energy in its primary energy supply by 2025, mirroring Indonesia's own aspirations. The International Renewable Energy Agency (IRENA) estimates that aligning ASEAN's energy trajectory with the Paris Agreement would require an annual investment of approximately USD 27 billion to develop renewable energy. Indonesia alone is estimated to require annual investment ranging from USD 20 billion to USD 25 billion to achieve the full deployment of renewable energy by 2050.

To expedite the transition away from fossil fuels and galvanize the adoption of renewables, Indonesia has created two financial mechanisms—the Energy Transition Mechanism (ETM) and the Just Energy Transition Partnership (JETP). While public funding remains dominant in the realm of green infrastructure, a judicious balance must be struck by involving the private sector in financing large-scale projects.

Despite the declining costs associated with wind and solar power, the capital-intensive nature of renewable energy investments continues to present challenges for businesses. The gaps in policy, or lack of consistent policy implementation compounds these obstacles, and creates uncertainty for some investors and private entities who are keen on entering the renewable energy market in Indonesia. Hence, expediting the deployment of renewable energy and facilitating a rapid transition to a low-carbon economy necessitates a concerted effort among relevant stakeholders, including policymakers, international financial institutions, and business entities.

Global clean energy investment witnessed a staggering 19% surge in 2022 compared to the previous year, reaching a substantial sum of USD 1.3 trillion (IRENA, 2023a). However, this figure falls short of the total investment required to effectively support the global energy transition. As the fastest-growing region, ASEAN requires a total investment of approximately USD 119.3 billion for the development of renewable energy power plants from 2021 to 2025 (ACE, 2022).

Upscaling green finance will require heightened support from the private sector, to channel their financial resources into clean energy initiatives within the region. Futhermore, diversification of green finance sources and the implementation of robust schemes are vital for success. Equally crucial is the implementation of risk mitigation measures associated with clean energy projects. Only through clear and harmonized coordination and collaboration among stakeholders in ASEAN Member States, including the public and private sectors, financial institutions and technology providers, can the upscaling of green finance be effectively achieved.

Indonesia serves as a valuable case study, offering insights into the challenges, opportunities, and practical barriers involved in financing the energy transition. Despite possessing substantial energy resources, Indonesia grapples with challenges surrounding energy accessibility, affordability, and security. Barriers such as complex investment procedures, power purchase agreements (PPAs), land acquisition, and the prevalence of heavily subsidised inexpensive fossil-based fuels for electricity generation impede the scale up of renewables.

The upcoming ASEAN Energy Business Forum (AEBF) stands as an ideal platform to unite all relevant stakeholders to address critical gaps in policy and practices pertaining to renewable energy financing. The Energy Transition Policy Forum (www.etpforum.com), spearheaded by the Centre for Policy Development (CPD), Climateworks Centre (CWC), Institute for Essential Services Reform (IESR), Indonesia Research Institute for Decarbonization (IRID), Purnomo Yusgiantoro Center (PYC), and International Institute for Sustainable Development (IISD) are organizing a side event during the AEBF in August 2023. The event will discuss how to minimize the gap between policy-level decisions and actual investment practices, thus ensuring the effectiveness of energy transition investments in Indonesia.

ASEAN-China Low Carbon Investment Cooperation Workshop

Session Sponsored by

ENERGY FOUNDATION 能源基金会

国家发展和改革委员会 一带一路建设促进中心 The Belt and Road Center of NDRC

The Association of Southeast Asian Nations (ASEAN) includes ten Member States – Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam – that are home to about 667 million people, accounting for about 8.7% of the total global population. In 2022, the real combined GDP of the ASEAN Member States (AMS) was estimated to reach USD 8.5

1 trillion (2017 constant, PPP) and is expected to continue expanding as much as 3.6 times by 2050.

Fuelling that growth will require a balance in energy trilemma: security, affordability, and environmental sustainability. Thus, sustainable development should be done in all aspects of energy sectors, including electricity, fossil fuels, energy efficiency, renewable, and alternative energy.

These population and economic growth trends, combined with a shift from agriculture towards greater industrialisation and service-based economies, have defined the ASEAN region's development trajectory. They also impose numerous challenges, including how to meet the fast-growing energy demand. Ensuring prosperity and resilience across region will require careful consideration of energy equality and environmental sustainability concerns. To achieve this, AMS are focusing on four priorities: energy security, accessibility, affordability, and sustainability, as outlined in the ASEAN Plan of Action for Energy Cooperation (APAEC) 2016–20252, the regional blueprint for the energy sector in the framework of the ASEAN Economic Community (AEC). The APAEC plays a vital role in setting a sustainable future for the ASEAN energy landscape.

As reported by the 7th ASEAN Energy Outlook (AEO7), in the power sector alone, substantial investments of as much as USD 109 billion are required to reach the 35% share of renewable energy (RE) in ASEAN installed power capacity by 2025, as targeted in the APAEC 2016-2025 Phase II: 2021- 2025, and USD 726 billion until 2050. The significant investment needs are driven by the higher implementation cost of cleaner technologies. Energy investment and financing will be key strategies to scale the energy transformation towards a low-carbon future. Therefore, there is a need for ASEAN decision-makers to nurture enabling regulatory environments to attract adequate investments in the energy sector, especially from foreign investors.

The need for involvement from the private sector, international partnerships, and financial institutions to support the attempts to achieve the regional targets would be crucial. In some practices, they could offer cutting-edge technologies, systems, and best practices that have ever been implemented in other regions or countries, such as China, and give the best consideration when the roadmap, policy, and regulation are planned to be enforced.

Therefore, it is necessary to provide and facilitate a platform for AMS and private sectors, international partners, and financial institutions to continuously ensure their participation could support the AMS' targets which would benefit the regional ones. Through intensive dialogue, some bottlenecks in technology, investment, and regulation could be eased.

Against this background, ACE plans to conduct an international forum between ASEAN and Chinese energy stakeholders, in collaboration with Energy Foundation China (EFC), as well as to develop a comprehensive report on ASEAN energy investment to support low-carbon energy infrastructure in Southeast Asia.

Optimising ASEAN Indigenous Renewable Energy: Best Practices and Opportunities

AEBF 2023 consists of several events and includes parallel panel discussions. One of them is: “Optimising ASEAN Indigenous Renewable Energy: Best Practices & Opportunities”. The main objective of this event is to explore the successful best practices from ASEAN countries that utilise indigenous renewable energy sources that are locally produced and implemented.

Clean dispatchable power has been, and will continue to be, a crucial element in the generation mix of ASEAN. Geothermal, hydropower and bioenergy are the most notable clean dispatchable power sources, which deliver power on-demand to balance supply-demand variability and provide a whole host of non-energy services to help secure and stabilise system operation. Geothermal and hydropower are generally considered mature technologies in that their deployment and operational integration are well known.

Geothermal power is not weather-dependent and can operate at very high-capacity factors. Beyond electricity and ancillary services related to grid operation, geothermal can also provide heat to industrial sites and buildings. All of these characteristics make it particularly dependable throughout the year due to its lack of seasonality. This makes a crucial component of the power system as it can mitigate periods of low supply from other renewables and price volatility from fossil fuels.

Hydropower is also capable to operate as baseload power. In addition, it can be equipped with reservoirs as storage buffers (pumped hydro storage), offering flexibility to various renewables by allowing upstream reservoirs to save unused energy for later use. Although biogas has considerable potential to decarbonise electricity generation, its utilisation for power generation is still in early development in ASEAN, contributing to only a 0.2% share of the total primary energy supply as of 2020. This is due to barriers such as limited feedstock availability, insufficient technological knowledge, lack of incentives and subsidies, expensive upfront cost, and unclear policy directives.

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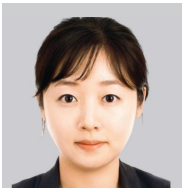

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Director of Studies, Projects and Information
OLADE

Dr. Mego Pinandito

Deputy Chairman,
Development Policy
National Research and Innovation Agency (BRIN)

Michael Waldron

Senior Advisor and Programme Manager.
International Energy Agency (IEA)

ASEAN ENERGY BUSINESS FORUM 2023 CONFERENCE SPEAKERS

M-P

Michihisa Suzuki

Manager
Azbil Corporation

Min Kang

Vice President
KOMIPO

Minoru Hayasaki

Manager
Hitachi Zosen Corporation

Dr. Mirza Mahendra

Director of Oil and Gas Engineering and Environment
Ministry Energy and Mineral Resources

Moekti Handajani Soejachmoen (Kuki)

Executive Director
Indonesia Research Institute for Decarbonization (IRID)

Monika Merdekawati

Research Analyst, Sustainable Energy, Renewable Energy (SRE) Department
ASEAN Centre for Energy (ACE)

Prof. Dr. Ir. Muhammad Idrus Alhamid

Lecturer, Department of Mechanical Engineering
Faculty of Engineering University of Indonesia

Munseok Baek

Vice President
Korea Gas Corporation

Mustafid Gunawan

Director of Oil and Gas Program Development
Ministry of Energy and Mineral Resources Republic of Indonesia

Nadhilah Shani

Senior Research Analyst on Power
ASEAN Centre for Energy

Nick Wright

Senior Vice President
Sarawak Energy Berhad

Norihiro Kimura

Senior Negotiator for Climate Change
Ministry of Economy, Trade and Industry, Japan

Dr. Nuwong Chollacoop

Director, Low Carbon Energy Research Group
National Science and Technology Development Agency (NSTDA)

Osamu Tsukamoto

President
Japan Carbon Frontier Organization

Paulus Tjakrawan

Chairperson
Indonesia Biofuel Producer Association (APROBI)

ASEAN ENERGY BUSINESS FORUM 2023 CONFERENCE SPEAKERS

P-R

Peng Wang

General Representative
State Power Investment Corporation Limited ASEAN Office

Peoy Ying Lee

Control and Energy Management Sub-Committee, Working Group 1: RENKEI Control
Japan Electronics and Information Technology Industries Association (JEITA)

Prasertsak Cherngchawano

Deputy Governor-Strategy
Electricity Generating Authority of Thailand (EGAT)

Dr. Qiang Liu

Director, Climate and Deputy Chief Representative China
Children's Investment Fund Foundation (CIFF)

Qatro Romandhi

Deputy Director of Energy Conservation Directorate
Ministry of Energy and Mineral Resources of the Republic of Indonesia

Rachmat Kaimuddin

Deputy for Infrastructure and Transportation Coordination
Coordinating Ministry for Maritime and Investment Affairs

Rachmat Mardiana

Director for Electricity, Telecommunication and Informatics
Ministry of National Development Planning of the Republic of Indonesia

Rashid Ali Abdallah Hamid

Executive Director
African Energy Commission (AFREC)

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Senior Analyst, Energy Modelling and Policy Planning (MPP) Department
ASEAN Centre for Energy (ACE)

Rina Chikazawa

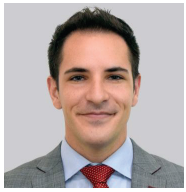
Officer
Ministry of Economy, Trade and Industry Japan

Rio Jon Piter Silitonga

Research Analyst, Energy Efficiency and Conservation (CEE) Department
ASEAN Centre for Energy (ACE)

Rizqi Priatna

Senior Manager
PT. PLN Indonesia Power PLTU Pelabuhan Ratu



Roble Velasco-Rosenheim

Director, Global Partnerships and APAC
I-REC Standard Foundation

Rumi Hoshino

Marketing Manager Business Development Department
PT. Santomo Resources Indonesia

Ryo Ogawa

Head, Overseas Business Department
Shizen Energy Inc., Shizen Energy Group

ASEAN ENERGY BUSINESS FORUM 2023 CONFERENCE SPEAKERS

S

Sascha Oppowa

Project Director
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

Seiji Itagaki

President Director
PT. Sojitz Indonesia

Septia Buntara Supendi

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Deputy Minister
Ministry of Energy of Russia

Sergey Turkin

Head of division
PJSC GAZPROM

Setiaji Hadiprayitno

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Environmental Resources Management (ERM)

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Shigeru Kimura

Special Advisor on Energy Affairs
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Shingo Numa

Chief Executive Officer
Forest Energy Inc.

Shinichi Kihara

Director-General for Energy and Environmental Policy
Ministry of Economy, Trade and Industry (METI), Japan

Shinichi Nakatani

State Minister of Economy, Trade and Industry
Ministry of Economy, Trade and Industry Japan

ASEAN ENERGY BUSINESS FORUM 2023 CONFERENCE SPEAKERS

S-T

Shintaro Suzuki

Director & Head of APAC Regional Business
Zeroboard (Thailand) Co., Ltd.

Shunta Sakamoto

Regional General Manager, Business Development Department
Mitsubishi Heavy Industries Asia Pacific Pte. Ltd.

Sinjea Lee

General Manager
Korea Water Resources Corporation

Suminto Sastrosuwito

Director General of Budget Financing and Risk Management
Ministry of Finance, Indonesia

Suji Kang

Asia Program Director
Asia Clean Energy Coalition

Sulisia Erza

Sustainable Finance Director
Agrindo Group

Sumio Tanaka

President & Chief Executive Officer
Zenmov Inc.

Prof. Sung Jin Kang

Professor
Korea University

Suwanto

Senior Research Analyst
ASEAN Centre for Energy

Tae-Yoon Kim

Senior Energy Analyst - Critical Minerals Lead
International Energy Agency (IEA)

Takashi Nogami

Vice President of Global Data Center Operation Strategy
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Dr. Takeru Bessho

Chief Researcher
Sekisui Chemical Company

Taro Wada

Program Executive General Manager, Solution Business Development, Global Marketing Department Growth Strategy Office
Mitsubishi Heavy Industries, Ltd.

Tetsuya Nomoto

Secondment from Mitsubishi Research Institute, Inc
ASEAN Centre for Energy (ACE)

Tham Chee Aun

CEO
Ditrolic Energy

ASEAN ENERGY BUSINESS FORUM 2023 CONFERENCE SPEAKERS

T-Y

Thomas Kouroughli

Lead Energy Systems Modeller
TransitionZero

Tim Anderson

President Director
PT Sun Cable Indonesia

Triharyo Soesilo

Special Advisor for Acceleration of Infrastructure Development and Investment
Ministry of Energy and Mineral Resources (MEMR), Indonesia

Tri Winarno

Director of Mineral and Coal Program Development
Directorate General of Mineral and Coal- Ministry of Energy and Mineral Resources

Valérie Ducrot

Executive Director
Global Gas Centre (GGC)

Wei Zhou

Senior Director
GCL

Wei Han

Director of Projects, EFC President Office
EFC

Wenbo Chen

President
Nanjing Golden Cooperate DC Power Distribution Technology Co., Ltd.

Widi Pancono

Chief Executive
Indonesian Renewable Energy Cooperative

Dr. Xiansheng Sun

Specially Invited Deputy Chairman
Renewable Energy Professional Committee of China Energy Research Society

Xiaoshi Liu

Executive Deputy Secretary-General
China EV100

Yan Pu Guo

Sales Director
LONGi

Dr. Yaowateera Achawangkul

Mechanical Engineer, Senior Professional Level of the Energy Research Division
Department of Alternative Energy Development and Efficiency (DEDE), Ministry of Energy, Thailand

Yingli Yuan

Vice President
China Energy International Group Co., Ltd.

Dr. Yoonhee Ha

Vice Chairperson, Energy and Industry Transition Sub-Commission
Presidential Commission on Carbon Neutrality and Green Growth South Korea

ASEAN ENERGY BUSINESS FORUM 2023 CONFERENCE SPEAKERS

Y-Z

Yosomiya Masato

Chief Engineer
Mitsubishi Electric Corporation

Yudistian Yunis

President Director
PT Geo Dipa Energi (Persero)

Yudo Dwinanda Priaadi

Director General for New and Renewable Energy and Energy Conservation
Ministry of Energy and Mineral Resources (MEMR), Indonesia

Zhiwei Xie

General Manager of International Business
China Western Power Industrial Co., Ltd.

Ziyin Yang

Deputy Head of CICC Southeast Asia and South Asia Region
China International Capital Corporation

Dr. Zulfikar Yurnaidi

Manager, Energy Modeling and Policy Planning (MPP) Department
ASEAN Centre for Energy (ACE)

Ir. Ts. Zulkiflee Umar

Deputy Director, Energy Efficiency & Conservation
Energy Commission Malaysia

Awarding Ceremony of ASEAN Energy Awards & Gala Dinner

ASEAN Energy Awards aim to promote awareness and greater private sector participation. First held in 2000, the ASEAN Energy Awards is Southeast Asia's highest recognition for excellence, creativity, practicality and dedication to a cause in the field of energy. It is an annual event organised by ACE in collaboration with the ASEAN Specialised Energy Bodies (SEBs).

The awards were presented by the energy ministers and senior officials of the ASEAN Member States. The categories were ASEAN Energy Efficiency and Conservation Best Practices Awards, ASEAN Coal Awards, ASEAN Renewable Energy Project Awards, ASEAN Excellence in Energy Management by Individuals, and the 4th ASEAN Energy Youth Awards (AEYA). The total number of awardees across all categories are 113.

ASEAN Energy Leaders Golf Tournament

A golf tournament for ASEAN Energy high-level government officials and private sectors was held. This occasion is expected to enhance the engagement between high-level delegates (Ministers, CEOs, Director Generals, Senior Managers, etc.). This leaders golf tournament will be held annually during AEBF.

SOCIAL MEDIA & WEBSITE

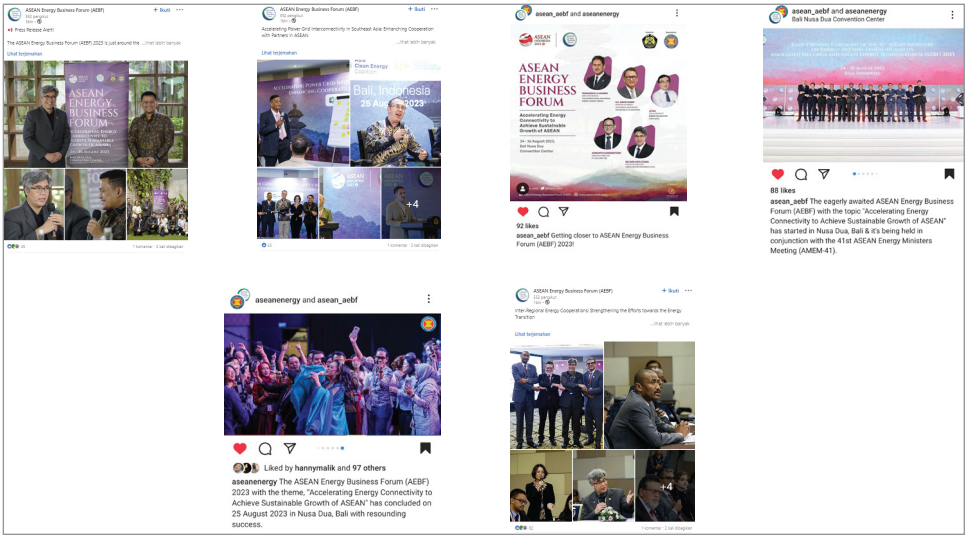
SOCIAL MEDIA ACTIVITY

858,000+

SOCIAL MEDIA ACTIVITY

954,528+

REACH



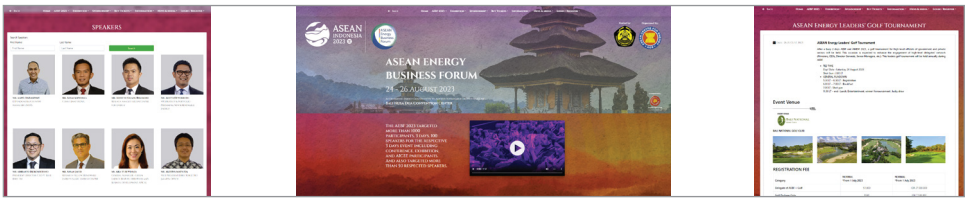
WEBSITE

9,545,280+

PAGE VIEWS

4,772,640+

UNIQUE VISITORS



PUBLIC RELATIONS AND MEDIA

NEWS SENTIMENT & MEDIA COVERAGE

Electronic Media	Printed Media		Online Media	
10	84	2	970	19
ARTICLE POSITIVE	ARTICLE POSITIVE	ARTICLE NEUTRAL	ARTICLE POSITIVE	ARTICLE NEUTRAL

LOOKING FOR MAXIMUM
EXPOSURE THROUGH
ASEAN REGIONS POTENTIAL

LET'S BE A PART OF
THE PRESTIGIOUS EVENT
OF ANNUAL ENERGY
CONFERENCE & EXHIBITION

24TH ASEAN ENERGY BUSINESS FORUM (AEBF-24)

LAO PDR, VIENTIANE
25 - 27 SEPTEMBER 2024

SCAN HERE
FOR MORE INFO:

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SPEAKER & SPONSORSHIP OPPORTUNITIES

info.aebf@aseanenergy.org