ASIA CLEAN ENERGY FORUM 2023

Navigating Toward a Carbon-Neutral Future Through Clean Energy Solutions

13-16 June

EVENT HIGHLIGHTS















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Message from the Asian Development Bank

Dear Participants,

Welcome to the first in-person Asia Clean Energy Forum (ACEF) since the outbreak of the coronavirus disease pandemic in early 2020.

Since we last convened ACEF at the Asian Development Bank (ADB) Headquarters in June 2019, ACEF has been conducted virtually over the past 3 years. During this transformative period, we have seen the mainstreaming of carbon neutrality, as many countries have committed to net-zero targets and have set ambitious nationally determined contributions. These actions have fortified the commitments to climate action made by countries through their participation in the Paris Climate Agreement.

As we launched ACEF 2023 during 13–16 June, we aimed to revitalize the ACEF platform for delivering and sharing practical knowledge, highlighting innovative new ideas and initiatives, and enhancing opportunities for collaboration among a diverse range of clean energy stakeholders and practitioners across Asia and the Pacific. This collaborative approach to driving action was captured by the theme of this forum, "Navigating Toward a Carbon-Neutral Future Through Clean Energy Solutions." ACEF 2023 was attended by more than 1,000 participants from 65 countries, who enjoyed a packed and extensive agenda comprising Plenary Sessions, Thematic Tracks, Regional Sessions, Spotlight Sessions, and Deep Dive Workshops.



Countries across Asia and the Pacific region are faced with multipronged challenges and opportunities related to clean energy and climate. The development of energy systems has always been a driver for economic development, and as we strive to accelerate energy transition, the shift to clean energy holds much promise for creating jobs and employment while fulfilling the United Nation's Sustainable Development Goals, advancing climate commitments under the Paris Climate Agreement, and helping ADB's developing member countries to achieve their NDCs and net-zero pledges.

Collaborative efforts are crucial to achieve a clean, affordable, reliable, and sustainable energy future for all.

We are delighted in having had the privilege of hosting a remarkable gathering of distinguished clean energy experts and practitioners across the world at ADB's Headquarters in Manila for the highly successful ACEF 2023. By sharing your knowledge, experiences, and insights, you contributed to a productive and highly impactful forum. Thank you.

Sincerely,



Woochong Um

Managing Director General and Officer-in-Charge and Vice-President for Knowledge Management and Sustainable Development Asian Development Bank



"ADB's vision for the energy sector is to achieve a green, resilient, and sustainable future through decarbonization, decreasing energy intensity, digitalization, and decentralization."

Masatsugu Asakawa

President Asian Development Bank

ACEF 2023 Overview

The 18th Asia Clean Energy Forum (ACEF 2023) was held from 13–16 June 2023, marking the first inperson event since 2019. With the theme "Navigating a Carbon-Neutral Future through Clean Energy Solutions," ACEF 2023 featured 47 main sessions and two side events. The discussions emphasized the pressing need for concrete action, the importance of partnerships, technological innovation, and enabling policies, as well as examples of effective initiatives for community engagement and opportunities for more gender-responsive approaches to energy transition.

ACEF 2023 was co-sponsored by the United States Agency for International Development and the Korea Energy Agency, in collaboration with the Asian Development Bank (ADB). The forum focused on clean energy solutions to achieving climate goals, including the nationally determined contributions (NDCs), and accelerating a just energy transition in Asia and the Pacific.

Key Takeaways:

- Countries across the Asia and Pacific region must expedite their efforts in energy transition to increase the uptake of clean energy solutions and attain their climate and development goals. The shift should ensure a fair energy transition, dismantle sectoral silos, and encourage stakeholder collaboration. ADB and similar multilateral banks can assist in financial de-risking for countries.
- 2. Improving gender equality can help to create a more sustainable and inclusive energy future. To address the existing gender disparities, it is imperative to actively promote women's leadership, enhance access to educational opportunities, challenge prevailing societal norms, integrate gender perspectives into policy and programming, and foster collaboration with nongovernment organizations. Investment in women's empowerment and establishment of a supportive ecosystem are crucial factors in the pursuit of gender equality within the energy sector.
- 3. Government backing and support for effective clean energy policy frameworks is essential to help drive increased investment and meet renewable energy targets. This backing can develop state-supported financial incentives for clean energy, encourage state entities to invest in clean



infrastructure, accelerate the development of policies, such as guidelines for implementing direct power purchase agreements and increase awareness of the market for renewable energy certificates. An Asian equivalent to the European Union's Green Deal, and ADB's Energy Transition Mechanism were noted as promising initiatives for a cleaner energy future.

- 4. Financing for clean energy systems in small and medium-sized enterprises across Asia and the Pacific is a major challenge, which can be addressed by increasing the accessibility of concessional and blended financing. Participants at ACEF discussed a range of promising solutions, including mezzanine financing, blended funding, and integrated project development processes.
- 5. Energy efficiency strategies are vital for creating sustainable, resilient power systems. Governments and utilities should intensify support for demand-side management and demand response programs, and corporates can increase their productivity profit margins by investing in energy-efficient technologies and systems. Government advocacy and industry demonstration projects are crucial for driving these changes.
- 6. Data science and artificial intelligence are key tools for promoting the scale-up of clean energy to achieving a more sustainable energy system. Applying algorithms, machine learning, and artificial intelligence can improve data analysis. Blockchain, digital applications, cloud technology, and internet-of-things devices facilitate real-time monitoring of energy consumption and production, enabling more informed decision-making, and driving cost reductions.
- 7. The formation of agile, effective partnerships is crucial for boosting clean energy demand and accelerating energy transition across Asia and the Pacific. Collaboration among governments, the private sector, philanthropies, and development agencies can enhance clean energy procurement and lower financing costs.
- 8. Energy access continues to be the foremost environmental, social, and governance priority for the ADB. ADB recognizes the role of energy access, distributed energy resources, and clean cooking in achieving sustainable development in the Asia and Pacific region. With an unyielding commitment in these key areas, ADB aligns with its overarching goal of fostering sustainable and inclusive development.

ACEF 2023 in Numbers



47 Sessions

- 2 Plenaries
- 16 Thematic Track Sessions
- 6 Regional Sessions
- 7 Spotlight Sessions
- 14 Deep Dive Workshops
- 2 Side Events



65 Countries

Top 10 Countries in Terms of Participants





Number of Attendees by Type of Organization



International **Development Agency**





Government 238



Academia/Research 52



Private Sector 194



Bank/Financial Institution/Investor 19



cso/ngo* **78**



*Civil society organization/nongovernment organization. **Unspecified.

Opening Plenary: Vision for the Role of Clean Energy in Driving a Carbon-Neutral Asia and the Pacific

The intensifying effects of climate change have led to a trend in which countries committing to netzero targets or carbon neutrality have become mainstream. The Asia and the Pacific region, which is responsible for about half of the global emissions and the majority of global energy consumption, must intensify its efforts to achieve its climate and development goals. Doing so will entail increased deployment and adoption of clean energy solutions and ensure a just energy transition grounded on practical applications and past experiences. This will require breaking sectoral silos, providing integrated multidisciplinary solutions, and fostering cooperation and partnerships among stakeholders.

In his welcome remarks, ADB President Masatsugu Asakawa emphasized the urgent need for clean energy solutions. He reiterated ADB's commitment to continue working on the region's important clean energy agenda through its \$100 billion cumulative climate financing between 2019 and 2030; the Clean Energy Financing Partnership Facility; and the Just Transition Facility, which ADB aims to launch next year.

Asakawa highlighted the significance of energy security for developing economies in the region, particularly considering the effects of inflation and the Russian invasion of Ukraine.

ADB Managing Director General Woochong Um followed by welcoming participants to ACEF 2023, encapsulating the essence of ACEF as a vibrant platform that unites individuals, knowledge, and financial resources from across the world. He warmly welcomed students from Manila International School, his own alma mater, expressing his confidence in the younger generation's ability to carry forward the aspirations of this clean energy forum in the years to come.

Sang-Hoon Lee, president of the Korea Energy Agency (KEA), pledged his organization's utmost efforts in fostering the achievement of carbon neutrality across Asia and beyond. He emphasized KEA's commitment to intensify collaboration with ADB and countries in the Asia and the Pacific region, leveraging comparative climate technologies and industry expertise as a foundation for this partnership.



Meanwhile, Heather Variava, deputy chief of mission, United States (US) Embassy in the Philippines, emphasized the holistic approach taken by the Government of the US in its development assistance toward climate programming. She highlighted that climate considerations are seamlessly integrated into every facet of the US development and humanitarian aid, demonstrating a comprehensive approach to addressing climate challenges.

Steven G. Olive, mission director of the United States Agency for International Development's Regional Development Mission for Asia (USAID RDMA), provided a comprehensive overview of USAID's investment approach aimed at diminishing, preventing, and sequestering nearly 6 billion metric tons of carbon dioxide by 2030. He emphasized that achieving such milestone would be equivalent to eliminating over a billion gasoline-powered cars from roadways for an entire year. Olive underscored that meeting these ambitious mitigation targets will necessitate a heightened deployment of clean energy systems.

In her keynote address, Sadie Cox, senior international partnerships manager at National Renewable Energy Laboratory, emphasized the importance of the convergence of human factors and innovation. She highlighted how her organization prioritizes research and implementation that tackles both existing and potential societal and systemic challenges arising from the transformation of industries. Cox underscored the necessity of addressing these challenges in navigating the path toward a sustainable future.









Panel Discussion

The opening plenary featured a panel discussion that centered on the pivotal obstacles necessitating the acceleration of energy transition in Asia and the Pacific countries. Panelists emphasized that the energy transition is a multifaceted process comprising various concurrent shifts. These include the transition from conventional fuels to broader accessibility of modern energy, the transformation of energy demand patterns for urban centers, and the integration into global energy markets. Simultaneously, there is a pressing need to augment energy supply while significantly reducing the carbon intensity of energy sources. The panel shed light on these complex dynamics inherent in the energy transition journey.

The panelists also engaged in thoughtful discourse on the deep significance of energy as the fundamental pillar of civilization. They recognized that energy transition entails much more than a simple adjustment or progression from one energy source to another; it demands a profound societal and civilizational overhaul. This transformation necessitates the establishment of a fresh social order, a redefined political landscape, an updated legal framework, and the emergence of a restructured reality, encompassing technological advancements and reformed systems to align with sustainable energy practices.

In light of this, the panelists appealed to esteemed institutions such as ADB and other multilateral banks to bolster their understanding and provide member countries with improved understanding and support in navigating the diverse financial de-risking strategies tailored to the unique requirements of each nation.





"Sometimes the concept of just transition sort of floats there and tends to be rather abstract and lacking practicality. We need to find ways of grounding this in realworld applications. One way to achieve this is by drawing lessons from concrete experiences and examples."

Reihana Mohideen

Principal Advisor, Social Implications of Technology (Infrastructure and Resilience) Nossal Institute for Global Health



"When considering a traffic light system analogy, we can envision the green light representing accessible and readily available options, such as green and clean energy solutions. The private sector readily engages in these areas. However, as we move toward the amber and red lights, the challenges become more formidable. It is precisely in this space that we must focus our efforts. It is crucial to ensure that no opportunity is overlooked when it comes to energy and climate transition, navigating the complexities and barriers that arise in the process."

Ramesh Subramaniam

Director General and Group Chief, Sectors Group Asian Development Bank

Highlights of the Thematic Track Sessions

Thematic Track 1: Gender Equality in Clean Energy Development

The sessions in this track focused on the representation and leadership of women in the energy sector, underscoring the significant global gaps and advantages of diverse teams. Discussions revolved around strategies to advance women's leadership, implement gender-responsive clean energy initiatives, and promote inclusive financing. Concrete examples from various countries highlighted the importance of women's economic empowerment, renewable energy, and climate change adaptation. The goal was to propel sustainable and inclusive development in the energy sector by prioritizing women's participation and capitalizing on the opportunities presented by the energy transition.

Takeaways:

- To address the gender gaps prevalent in the energy sector, such as women's limited representation in leadership, it is vital to confront structural barriers like wage disparities to promote a more inclusive industry.
- A range of initiatives, including training opportunities, challenging societal norms, networking programs, gender-sensitive policies, financial access, and stakeholder partnerships, can bolster gender equality in the sector.
- Gender inclusivity positively impacts the energy sector and requires active engagement from both women and men. Strong partnerships with nongovernment organizations, incentives like scholarships, and gender-sensitive workplace policies are vital in achieving sector-wide gender equality.
- Organizations that promote inclusivity by supporting projects focusing on the urban sector and gender equality and social inclusion (GESI) must be supported. Countries like India, Ethiopia, and Nepal have successfully integrated GESI principles into their energy transitions, showcasing the power of inclusivity.
- The Climate Investment Funds' gender-focused financing strategies, reduced loan interest rates for gender-aligned companies, and the International

Thematic Tracks:

- 1.1: Women in the Energy Work Force and Leadership Roles
- 1.2: Gender-Responsive Energy Policies and Programs
- 1.3: Financing Inclusive Energy Transition
- 1.4: Accelerating Energy Transition through Women Empowerment and Entrepreneurship

Track Chairs:

Zonibel Woods

USAID RDMA

Senior Social Development Specialist Asian Development Bank

Rashane Sala-ngarm Project Management Specialist

Finance Corporation's collaboration with private sector renewable energy companies are examples of effective initiatives promoting women's leadership and participation in the sector's transition from coal to clean energy. These efforts lead to greater gender equality and empowerment within the industry.



"As the world accelerates the shift to cleaner, more sustainable sources, and decarbonization, women and girls must be fully engaged in the sector as decisionmakers and agents of change for the transition to be just, equitable, and sustainable."

Ellen Bomasang

Principal, Global Equity, Diversity & Inclusion, Abt Associates



"We need an energy sector that is not only clean, sustainable, and powered by renewable sources, but also one that is equitable, diverse, and inclusive. Only then can we truly achieve a future that benefits us all."

Mary Grace V. Gabis

Executive Assistant III, Office of the Assistant Secretary Department of Energy, Philippines



"The critical thing about the just transition is the timing of when the finance flows. For example, investment in education and upskilling needs to come ahead of decarbonization."

Kate Hughes

Senior Climate Change Specialist Asian Development Bank



"There is a lot of handholding we need to do—not only on awareness—but also effectively assist bankers in understanding the tools available for lending to women."

Nidhi Sarin

Project Manager GIZ

Thematic Track 2: Private Sector for Clean Energy and Efficient Energy Innovations

The sessions in this track covered a range of strategies aimed at unlocking clean energy investments by the private sector such as accelerating government support measures in scaling up renewables in different regions. The speakers presented case studies and initiatives from various countries across Asia, Latin America, and the Pacific. They highlighted successful renewable energy procurement programs and government support in attracting private sector investment. Throughout the sessions, speakers highlighted the importance of collaboration, innovative approaches, international support, and effective coordination between governments and the private sector as crucial factors in achieving global emission reduction targets and accelerating the transition to renewable energy.

Takeaways

- The renewable energy sector in Asia faces a shortage of private finance, posing challenges in achieving the goals outlined in the Paris Agreement and Sustainable Development Goals. To overcome obstacles like limited capital market access and high interest rates, strategies like mezzanine financing, blended funding, project preparation facilities, and integrated development processes are promising.
- While equity funding spurs innovation and growth, a balance between debt and equity funding is crucial for long-term sustainability in climate-related technologies. Stakeholder collaboration and strategic investments play a vital role in advancing technology development and deployment.
- Replicating successes like Argentina's RenovAr program, which unlocked \$7 billion in renewable energy investments, created jobs, and led to cost savings, can help meet emission reduction targets globally. Innovative approaches and international funding mechanisms such as

Thematic Tracks:

- 2.1: Public-Private Partnerships (PPP) in Clean Energy
- 2.2: New Business Models and Approaches
- 2.3: Accelerating Private Sector Clean Energy Investment
- 2.4: Incubators for Clean Energy Innovation

Track Chairs:

Won Myong Hong

Senior Investment Specialist Asian Development Bank

M.K. Balaji

Director – Advanced Energy Systems USAID Southeast Asia Smart Power Program

the International Guaranteed Trust Fund (iTrust) are essential for accelerating renewable energy deployment.

 Tools like USAID's Smart Buyer Toolkit, developed under the Energy Secure Philippines project, assist utilities in complying with the enhanced Renewable Portfolio Standards. This highlights the significance of technology in aiding utilities' transition to renewable energy and meeting regulatory requirements.

- Direct power purchase agreements (DPPAs) offer benefits such as low upfront costs and longterm price certainty, enabling consumers to directly procure electricity from renewable sources. Through DPPAs, stakeholders can actively contribute to advancing renewable energy and shaping a more sustainable, low-carbon future.
- Renewable energy certificates (RECs) promote renewable energy adoption and assist businesses in achieving sustainability goals. Utilizing RECs provides economic incentives, policy alignment, price hedging, and credible reporting. Platforms like the Carbon Disclosure Project enable companies to disclose clean electricity consumption and provide evidence via RECs.



"We have very limited time to achieve 1.5 degrees; the market will not get there in time."

Siddharth Goel

Senior Policy Advisor International Institute for Sustainable Development



"Integrating environmental, social, and governance in solar PV and energy storage auction designs and business models is possible and can benefit business and sustainable development."

Natsuko Toba

Economist International Finance Corporation of the World Bank Group



"Private finance in the renewable energy sector has been growing in the Asian region, but it is not enough to meet the goals of the Paris Agreement and Sustainable Development Goals."

Peter Storey

Global Coordinator PFAN



"Ordinary women can trigger extraordinary changes. My vision is to create an ecosystem that empowers women at the grassroot enabling them to move from margin to mainstream, transforming not only their lives but their community, their villages, and society for the better."

Farah Ahmed

Cross Cutting Lead - SAREP RTI International

Thematic Track 3: Energy Efficiency for the Energy Transition

The sessions in this track delved into the implementation of energy efficiency measures in agriculture, buildings, and factories, as well as the demand-side management (DSM) of energy consumption. Key presentations centered around energy efficient solutions addressing cooling needs as well as modernizing on-grid and energy transmission to achieve efficiency and reliability. Strategies highlighted during the session included the use of innovative clean cooling technologies, leveraging energy-efficient technologies on the grid to achieve energy efficiency and defer infrastructure investments in new capacities, and implementing policies to transform cooling from a source of demand into to a flexible resource for the grid.

Takeaways:

- Decarbonizing the energy system and prioritizing energy efficiency is urgent. This can be achieved through innovative solutions like high-performance conductors and upgrading old lines, alongside enhanced energy efficiency policies such as standards and labeling.
- Addressing the growing demand for cooling in public health, food security, and economic productivity through energyefficient, clean cooling technologies is crucial.
- DSM is vital for energy efficiency, decarbonization, and grid reliability. Speeding up DSM requires strategic policy and regulatory initiatives such as smart metering, peak and off-peak tariffs, and public education and outreach. Focusing on demand reduction, integration of distributed renewable energy, deferring investments in new generation capacities and improving reliability and resilience will propel DSM progress.

Thematic Tracks:

- 3.1: Energy Efficiency Solutions for Power, Heating, and Cooling
- 3.2: Status and Opportunities for DSM in Asia and the Pacific
- 3.4: Innovations in Energy Efficiency for Deep Decarbonization
- 3.5: Enabling Conditions and Drivers for Energy Efficiency

Track Chairs:

David Morgado

Senior Energy Specialist Asian Development Bank

Mark Lister

Co-Chief Executive Officer Asia Clean Energy Partners

Christine Egan

Chief Executive Officer CLASP



"The importance of cooling cannot be understated. With the escalating global temperatures, developing countries have already experienced severe consequences in terms of livelihoods and lives lost due to extreme heat events. Moreover, a significant portion of the population in these regions lacks access to adequate cooling solutions. It is crucial to address this pressing issue, particularly in Southeast Asia, as the demand for cooling is projected to rise significantly in the coming years."

Hadrian Vivek

Manager -Asia Carbon Trust Singapore Pte. Ltd



"Policy driven demand side management, fueled by the synergy of technology and finance, ignites the pathway to a sustainable energy revolution."

Udana Ratnayake

Residential/Appliance Energy Efficiency Specialist USAID Sri Lanka Energy Program, Chemonics International Inc.



"Although energy efficiency solutions are not novel or groundbreaking, their implementation has remained challenging primarily due to a lack of awareness."

Maria Fritzie Vergel

Country Program Coordinator Energy Transition Partnership



"Asia's journey toward building regional compliance frameworks for appliance energy efficiency policies is critical for building a sustainable future. Investing in regional compliance frameworks will enable countries to safeguard climate and cost savings from energy efficiency policies."

Neha Dhingra

Senior Manager CLASP

Thematic Track 4: Innovative and Resilient Renewable Energy

The sessions in this track focused on future trends and emerging technologies for integrating renewable energy into power grids in Asia and the Pacific. Topics included the implementation of floating solar and offshore wind power, strategies for maintaining power system resilience amid increasing renewable energy integration, and the role of data science and artificial intelligence (AI) in optimizing renewable energy systems. The need for off-grid solutions, innovative financing models, and policy tools was also emphasized.

Takeaways

 Integration of renewable energy generation into power grids in Asia and the Pacific necessitates harnessing emerging technologies such as floating solar photovoltaic (PV) systems and offshore wind power. Floating PV systems have significant potential in Pacific island countries, with countries like Kiribati, Tonga, and Tuvalu actively exploring and developing floating solar projects. Wind power, including offshore wind, is projected to contribute to 30% of additional power capacities in the region. Southeast Asia specifically exhibits significant potential for offshore wind, with an estimated

4.8 terawatts (TW) for floating wind and 2 TW for fixed wind.

 It is crucial to increase support and funding for renewable energy projects through various means, including innovative policy tools, concessional loans, and grants. Countries like the People's Republic of China, India, and member states of the Association of Southeast Asian Nations are setting the

Thematic Tracks:

- 4.1: Current Status and Future Trends in Renewable Energy in Asia and the Pacific
- 4.2: Innovative Business Models and Financing Mechanism for Renewable Energy
- 4.3: Digitalization of Renewable Energy Systems
- 4.4: Evolution of the Mini grid

Track Chairs:

Cindy Cisneros-Tiangco

Principal Energy Specialist Asian Development Bank

Takuya Kasai

Managing Partner, Head of APAC Enel X Advisory Services

pace with ambitious targets and policies. Viet Nam, for example, has seen impressive renewable energy growth, largely due to incentives such as feed-in tariffs and auctions.

- Community-based renewable energy models offer multiple benefits, including enhancing food production and security, job creation, and improved resilience. Decentralized renewable energy systems are particularly advantageous for remote rural areas, maximizing socioeconomic benefits for users.
- Community involvement in the design, discussion of business models, and establishment of legal and governance structures for renewable energy projects is vital. It ensures that projects cater to local needs and generate meaningful socioeconomic impacts.

 Data science and AI, including blockchain-enabled peer-to-peer trading and cloud platforms, play a key role in the renewable energy sector. By converting information into clean data, these technologies help monitor energy consumption, manage renewable energy procurement, and make informed decisions based on real-time data, enhancing the efficiency and cost-effectiveness of renewable energy systems.



"Although floating PV technology has achieved maturity in Southeast Asia, there are still lingering concerns regarding regulatory policies and technical viability."

Sika Gadzanku

Energy Technology and Policy Researcher National Renewable Energy Laboratory



"We are witnessing an extraordinary influx of capital into clean energy development, which is truly commendable. However, it is of utmost importance that we establish an optimal regulatory environment to facilitate private sector investments in clean energy."

Eva Kelly Oberender

Chief Executive Officer Renewable Energy and Energy Efficiency Partnership



"Looking ahead, the effective management of renewable energy systems through technology-driven approaches will form the bedrock of the energy transition."

Erin Pan

Senior Sustainability Consultant Enel X Advisory Services APAC



"Empowering remote islands with secure and reliable power, the fusion of floating PV and battery energy storage systems herald a groundbreaking era of energy resilience."

Tarun Soni

Project Manager Dornier Suntrace







Regional Sessions

ADB is dedicated to assisting its developing member countries in achieving their climate and development goals, including their nationally determined contributions. Through a range of projects, programs, initiatives, and facilities, ADB prioritizes clean development and sustainable economic growth. During the Regional Sessions at ACEF 2023, ADB's regional operations departments highlighted these efforts, engaging in discussions and knowledge sharing with countries and the broader clean energy community in Asia and the Pacific, thus fostering collaboration and learning from shared experiences and lessons.



Pacific Department (Part 1): Pacific Energy Transition - Hard Choices

ADB's Pacific member countries have made progress in cleaning their energy mix, with some achieving 50% or more clean energy, primarily hydropower. However, attaining a meaningful share of energy from intermittent sources remains challenging. While the energy mixes are becoming greener, the costs for customers and government budgets have largely remained unchanged. The session discussed various efforts, including diversification of electricity supply, the importance of climate-resilient energy systems and infrastructure, challenges faced by utilities in planning and coordinating with stakeholders, private sector investments in renewable energy, the synergy of the blue economy with the energy system, and the role of technologies and infrastructure in private sector' involvement.



Takeaways

- The smaller Pacific island countries and territories have made commendable strides toward clean energy integration, with the proportion of renewable energy in total generation rising from 14% to 21%. This diversification of energy sources enhances energy security and resilience in the region.
- Power utilities in the Pacific region face several challenges, including the need for efficient planning and stakeholder coordination, limited financial resources, regulatory and policy complexities, and the emigration of highly qualified workers, which impacts human capital and capacity development.
- The private sector's role is critical in driving investment in the energy transition. Encouraging private sector participation requires a favorable policy and regulatory environment, ensuring project bankability, and offering risk guarantees. Achieving sustainable energy goals necessitates collaboration among utilities, governments, regulators, development partners, and the private sector.



"A critical priority should involve fostering communication and collaboration between economic development agencies and power and energy stakeholders within those countries. It is imperative to engage in meaningful discussions and jointly define the purpose of energy security. Merely aiming for universal access to electricity is insufficient. Instead, it is essential to consider the broader economic development perspective and seek socioeconomic benefits as part of the larger picture. By aligning these goals, we can ensure that energy security initiatives contribute to the overall growth and well-being of the society and economy."

Michael Abundo

Chief Executive Officer Ocean Pixel









Pacific Department (Part 2): Sustainable Regulation in the Pacific - Key Risks and Challenges

With its abundant natural resources and potential for transformational solutions, the Pacific region is recognized as a hub for innovative solutions related to oxygen, water, and food. The session emphasized the importance of fostering new ideas, enabling environments, and partnerships to overcome barriers and unlock the vast marine resources of the Pacific region. It highlighted opportunities for implementing low carbon initiatives in Pacific countries to spearhead global change. These included offshore regenerative systems, carbon sequestration through sea plant farming, digital reef technology for coastal protection, and floating solar technology with aquaculture to address climate mitigation and food insecurity. These, however, would require appropriate financing and sustainable regulatory mechanisms to prosper. The Government of Tonga shared insights on marine spatial plans, while ADB provided updates on its financing mechanisms for the blue economy.

Takeaways

 The Pacific Ocean, which produces half of the earth's atmospheric oxygen, could be a source of transformative and practical solutions to global challenges, including climate change. These include offshore regenerative systems, carbon sequestration





through sea plant farming, and innovative digital reef technology. These solutions are not just theoretical concepts but are ready for deployment and scaling up in the Pacific region.

• The success of low-carbon initiatives in the Pacific region requires partnerships, appropriate financing mechanisms, and an enabling environment. More importantly, there must be frameworks that facilitate ease of doing business, especially for small island developing states that face consistent challenges. Private equity and blended finance are instrumental in supporting the development and implementation of "blue projects." By tapping into available financing options and building partnerships with like-minded partners and financiers, the Pacific community can adopt innovative technologies and solutions, effectively tackling global challenges while ensuring sustainable growth and resilience.



"Creating sustainable regulation is very important in developing our Pacific transition to clean renewable energy away from dependency on imported fossil fuel."

Chris Vehe

Permanent Secretary, Ministry of Mines Energy and Rural Electrification, Solomon Islands







South Asia Department: Power Trade for Carbon Neutral South Asia

The session discussed power trade and carbon neutrality in South Asia, emphasizing the significance of collective commitment and collaboration among nations. The renewable energy sources of Bhutan, India, and Nepal present opportunities for regional cooperation and power trade with Bangladesh and Sri Lanka, leading to reduced fossil fuel consumption and the realization of a carbon-neutral South Asia. While bilateral and trilateral power trade initiatives have commenced, there are challenges that must be addressed, including policy formulation, technical considerations, infrastructure construction, and financing. Achieving regional power trade necessitates continuous effort and strong commitment from high-level government authorities.

Takeaways

The shift toward renewable energy is a priority for several South Asian countries, with countries like Bangladesh and Sri Lanka setting ambitious targets. Sri Lanka aims to increase the share of renewables in its power generation from 30% to 70%, while Bangladesh plans to import 9 gigawatts of power from renewables by 2040. Both countries are capitalizing on their solar and hydropower resources and have implemented policies to promote renewable energy adoption. These actions illustrate



their commitment to clean energy and the importance of regional collaboration for sustainable power generation.

• The success of cross-border power trade in South Asia depends on strong connectivity, adequate financing, and committed government leadership. Significant investments will be needed in infrastructure development and the renewable transition. Multilateral organizations like ADB can facilitate interconnections and fostering cooperation between countries.

Also, top-level government commitment and coordination are vital to expedite power trade in the region and collectively achieve carbon neutrality. Leveraging the region's complementary energy resources and balancing supply and demand, cross-border power trade can substantially contribute to climate goals and energy security in South Asia.



"Each country in South Asia possesses its own unique potential in terms of resources. The primary objective of South Asian power trade is to effectively harness the diverse resources available in different countries. By doing so, several key benefits can be achieved, including enhanced reliability and stability in the power sector, reduced generation costs, and strengthened energy security."

Dinesh Ghimire

Secretary, Ministry of Energy Water Resources and Irrigation, Nepal









East Asia Department: Decarbonizing East Asia -Showcasing Innovative Technical Solutions and Business Models

The session showcased innovative decarbonization solutions in East Asia, featuring projects and case studies related to integrated grids, battery storage, green hydrogen, and air quality improvement. It specifically emphasized the commitment of the People's Republic of China to reduce carbon in the cooling sector, and the importance of providing affordable and sustainable heating solutions for rural areas. The session provided valuable insights into cuttingedge approaches to address climate change and promote sustainable development in East Asia.

Takeaways

- Decarbonization is a complex task that requires a comprehensive approach, encompassing facets such as research, policymaking, technological innovation, financing, and capacity building. This multifaceted strategy ensures the effective deployment of appropriate technologies and the attainment of energy efficiency across various sectors and industries.
- Innovative financing models are pivotal in reaching decarbonization goals. Diverse financing channels, dedicated financing platforms for clean energy subprojects, and customized financing products for small and medium-sized enterprises have demonstrated effectiveness in facilitating the implementation of clean energy projects.







• Governments play an essential role as enablers and facilitators in the decarbonization process. They are instrumental in formulating policies, providing incentives, and mobilizing financing to back decarbonization efforts. Establishing specific, targeted objectives for decarbonization in highemitting sectors and industries helps drive progress toward a sustainable, low-carbon future.



"Wherever we implement the Cooking Heating and Insulation Package (CHIP), we see very positive changes, especially in the energy sector. For example, because of the sudden surge in electric usage by the households living in Ger, Gobi Alta province had to increase its investment in the energy sector by three times last year so that it could help support more people adapting to CHIP, therefore also reducing their air pollution."

Batbaatar Mungunkhishig

Country Director People in Need Mongolia







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Central and West Asia Department: Green Transformation of District Heating

The session highlighted the urgent need to address energy consumption in cooling and heating systems, considering that buildings contribute 40% of global carbon dioxide emissions. The Central and West Asia Department's session showcased the potential for replication and scaling up of medium-depth ground source heat pumps, emphasizing their versatility for district heating. The integration of renewable technologies, coupled with district cooling systems and geothermal energy, offers a promising pathway toward a sustainable future. This approach not only reduces carbon emissions but also promotes energy efficiency, resilience, and long-term environmental sustainability.

Takeaways

- Medium-depth ground source heat pumps demonstrate promise for replication and scaling up in district heating projects. This technology offers scalability and versatility, making it a viable solution for district heating systems.
- Achieving a green transformation in the heating sector requires widespread electrification and the adoption of renewable technologies. This strategy includes electrifying homes, buildings, and industries, which can help reduce carbon emissions and meet sustainability goals. Further diversification of the heating sector with



renewable technologies such as heat pumps, solar, bioenergy, and waste-to-heat can increase resilience and make the sector more appealing to policymakers.

- District energy offers numerous benefits, such as increased energy efficiency, reduced environmental impact, cost savings, and improved reliability. District energy systems can achieve economies of scale and reduce greenhouse gas emissions by centralizing energy production and using more sustainable energy sources. They also offer flexibility in integrating renewable energy technologies, waste heat recovery, and energy storage.
- Addressing energy security, health concerns, energy access, and equity issues requires collaboration between the public and private sectors. Joint efforts can demonstrate effective approaches and solutions that tackle these critical challenges and promote a cleaner, more equitable energy future.



"Collaboration and the combined intellectual strength of our efforts serve as a fundamental pillar in our endeavor to transform the energy sector, specifically the heating subsector, into a sustainable and energy-efficient solution. At this crucial juncture, we are witnessing the escalating consequences of climate change, underscoring the urgency and importance of our actions."

Joonho Hwang

Director, Energy Energy Sector Office, Asian Development Bank









Private Sector Operations Department (Part 1): Private Sector with Purpose: Stories of Development Unlocking Asia's Rich Clean Energy Potential

The session underscored ADB's unwavering commitment to promoting decarbonization, sustainable development, and inclusive solutions in the region through tailored financing structures and approaches.

Takeaways

- ADB is actively supporting and financing Asia's renewable energy and climate initiatives and committed to promoting decarbonization and sustainable development in the region through projects such as wind and solar farms, clean public transport, and biomass power. They provide unique financing options and work collaboratively with various countries to achieve renewable energy goals.
- Uzbekistan has untapped wind and solar resources despite its heavy reliance on natural gas for energy generation. ADB supports Uzbekistan's efforts in renewable energy development, including adding new capacity, reducing emissions, and implementing gender-inclusive targets.

The country is actively transitioning to a green economy and has shown commitment by signing the Paris Agreement and updating its greenhouse gas reduction goal.

 Biomass power has significant potential to unlock decarbonization opportunities and reduce air pollution in India. ADB aims to bridge the financing gap for the country's





biomass power and electric vehicle projects. By converting agricultural residues into renewable energy, biomass power can contribute to India's target of reducing carbon intensity. Additionally, biomass power projects provide additional income opportunities for farmers and help address air pollution caused by stubble burning.



"When examining the operation itself, it becomes evident that the transport sector, as a whole, faces exposure to ridership fluctuations and technological risks. It is crucial to acknowledge and address these risks comprehensively during our processing and due diligence procedures. Our tailored structure must be designed with careful consideration to effectively mitigate these issues and ensure their appropriate management."

Sarocha Kessakorn

Consultant Private Sector Operations Department, ADB









Private Sector Operations Department (Part 2): Decarbonization of Electric Power Generation and Transportation

The session emphasized the urgent need to decarbonize the electric power generation and transportation sectors—major contributors to greenhouse gas emissions. Presentations during the session highlighted the adoption of business models and technologies by prominent companies in these sectors across different regions. The session highlighted the importance of collaboration, knowledge sharing, and innovation in propelling the transformation toward a sustainable and low-carbon future.

Takeaways

- Companies in Asia are showing leadership in embracing sustainable energy practices. The Philippines' ACEN Corporation is at the forefront of the renewable energy transition, divesting from coal plants and setting ambitious goals of achieving 100% renewables by 2025 and reaching a renewable energy capacity of 20 gigawatts by 2030. Likewise, Summit Power International in Bangladesh is shifting toward renewable energy sources and exploring carbon-neutral technologies. The company aims to reach 40% clean energy by 2041 through the development of renewable projects and partnerships with investors.
- Successful decarbonization requires both collaboration and technological advancements. While industrialized







nations are prioritizing energy efficiency, emerging Asian countries need to transition to clean energy sources.

• Regulatory environments and market frameworks play crucial roles in facilitating decarbonization efforts. Overcoming transmission constraints requires the strategic deployment of energy storage and renewable energy plants. In Southeast Asia's developing countries, timing considerations in their decarbonization journey and challenges like affordability for electric vehicle adoption and variability in electricity bills across countries remain significant issues to address.



"The transition to a low-carbon economy will create new opportunities, we believe, for businesses and workers in the clean energy and transportation sectors."

Cathy Marsh

Deputy Director General Private Sector Operations Department, ADB









Southeast Asia Department: Creating Enabling Conditions for Increased Private and Public Sector Investment into Energy Transition in Southeast Asia

The session highlighted key points regarding energy transition, policy development, government facilitation of private sector investment, and stakeholder engagement in member states of the Association of Southeast Asian Nations' clean energy sector. It emphasized the importance of energy efficiency, the urgency of retiring coal-fired power plants early, and the need for diverse approaches and models in project selection and financing, and the potential of sustainability-linked bonds and appliance standard and labeling programs.

Takeaways

- The Energy Transition Mechanism (ETM) is a strategic initiative led by ADB to expedite the retirement of coal-fired power plants and promote clean energy investments in Southeast Asia. This transition is critical for decarbonizing the energy system and scaling up the deployment of clean energy sources. ETM encourages policy formulation, strategic partnerships, and financial support to facilitate a just transition to low-carbon solutions and renewable energy sources.
- Cambodia, with ADB's support, has made significant progress in increasing its solar capacity and transitioning toward



renewable energy. The country's efforts include the implementation of a solar master plan and the establishment of a national solar park. Cambodia's commitment to energy efficiency and its decision to halt the development of new coal-fired power plants and large hydropower projects further highlight its commitment to the energy transition. These steps serve as a positive example of how nations can adopt sustainable practices, promote clean energy development, and achieve environmental and socioeconomic benefits.

Targets, policy instruments, and harmonized approaches are key to boosting investment in energy
efficiency. Clear policies, financing assistance, and regional cooperation are essential to stimulate
private sector participation and mitigate challenges and costs. Countries like the Philippines
and Viet Nam have set renewable energy targets and successfully attracted investment from
international agencies like ADB.



"ADB invests, on average, around \$5 billion a year in the energy sector across Asia. But when we look at the actual need for energy investment in just the Asian region, it's many times larger than that. We must partner with governments, international finance institutions, philanthropies, private sector actors, nongovernment organizations and civil society organizations, and a whole range of actors, to ensure that we're all working together on this energy transition."

David Elzinga

Principal Energy Specialist (Climate Change) Asian Development Bank

Deep Dive Workshops

ACEF 2023 featured a total of 14 Deep Dive Workshops. These workshops delved into specific topics, providing comprehensive discussions on technologies and solutions tailored to address specific issues and concerns within the energy sector of Asia and the Pacific.









Spark the Future: Unlocking Clean Energy Innovation through Blended Finance

(ADB OPPP)

USAID/USG Partnership for Southeast Asia's Clean and Inclusive Energy Future

(USAID)

Empowering and Enabling Market Development on Clean Cooking in the Asia-Pacific

(ADB, SEforALL, UNESCAP, and MECS)

Energy Grid and Storage Solutions to Addressing the Climate Challenges of Tomorrow

(Embassy of Canada in the Philippines)



An Ocean	Energy-Food-Water-	Solarizing
of Energy	Climate Nexus:	Sustainability:
	Renewable Energy	Catalyzing Clean
	Solutions for Low	Energy Collaborativ
	Carbon and Resilient	Action in Asia
	Agri-Food Systems	and the Pacific
(ADB)	(ADB)	(ADB and ISA)

Towards a Just Energy Transition in South Asia: Opportunities and Challenges for Gender Equality and Social Inclusion

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(ADB and the University of Melbourne)

ADB = Asian Development Bank; ACE Partners= Asia Clean Energy Partners; GIZ = Deutsche Gesellschaft für Internationale Zusammenarbeit; ISA = International Solar Alliance; KEA = Korea Energy Agency; MECS = Modern Energy Cooking Services;









Energy Storage in Asia: Current Status, Future Trends, and Business Opportunities

(ADB and ACE Partners)

On the Path to Carbon Neutrality by Mid Century: Sharing Korea's Experience

(ADB, KEA, and MOTIE)

No Transmission – No Transition! 21st Century T&D Systems <u>for Net-zero</u>

(ADB)

Regional Leadership on Sustainable Cooling and the COP28 Global Cooling Pledge

(ADB, SEforALL, Cool Coalition, and the Government of the United Kingdom)





Digital Innovations in Energy Sector Supporting Clean Energy Transition: Real Stories from the Ground

(GIZ)

Innovation, Technology, and Nudges for Combatting Climate Change

(ADB Innovation Hub and D-Sharing)

MOTIE = Republic of Korea Ministry of Trade, Industry and Energy; OPPP = Office of Public-Private Partnership, ADB; UNESCAP = United Nations Economic and Social Commission for Asia and the Pacific; USAID = United States Agency for International Development.

Spotlight Sessions

ACEF 2023 showcased seven spotlight sessions that actively highlighted special emerging topics relevant to the clean energy transition in Asia. These sessions were organized by ADB and ACEF's partner organizations.





Asia and the Polycrisis: How the Region is Responding with Renewables

as a Driver of Decarbonization



(ADB, Government of the United Kingdom)

Digital Technology



Regional Power Trading: Current Status and Future Opportunities for South and Southeast Asia (ADB SARD and SERD)



Green Hydrogen: Development, Status, and Prospects

(ADB, IRENA, UNIDO, GH2.ORG, and the Government of the United Kingdom)

ADB = Asian Development Bank; ACE Partners = Asia Clean Energy Partners; CLASP-GIZ = Collaborative Labeling and Annotation System Platform, Gesellschaft für Internationale Zusammenarbeit; ETP = Southeast Asia Energy Transition Partnership;





Enhancing Energy Efficiency Standards and Labelling for Appliances in Asia-Pacific

(CLASP-GIZ)

Delivering Energy Efficiency through Local Governments

(ADB and ACE Partners)



Impact of the EU's Carbon Border Adjustment Mechanism on the Energy Transition in Southeast Asia and its Regional Implications (ETP)

IRENA = International Renewable Energy Agency; SARD = South Asia Regional Department, ADB; SERD = Southeast Asia Regional Department, ADB; UNIDO = United Nations Industrial Development Organization.







Closing Plenary: Solidarity and Commitment Toward a Carbon-Neutral Asia

The week-long ACEF concluded with a closing plenary session that emphasized the importance of solidarity and commitment to achieving a carbon-neutral Asia and the Pacific. The panel discussion centered on clean energy solutions as a viable pathway toward climate neutrality. The panelists highlighted key challenges such as financial constraints, government support for clean energy development, infrastructure deficiencies, and a lack of diversity within the supply chain. They also presented valuable insights from past experiences and proposed potential solutions. These included the implementation of carbon pricing, the early retirement of coal-fired power plants in Southeast Asia through ADB's Energy Transition Mechanism, and the imperative for lifestyle changes and behavior-informed policy reforms.

With the active participation of more than 1,000 attendees from 65 countries, ACEF showcased the resolute commitment of Asia and the Pacific to pursuing carbon neutrality and setting more ambitious clean energy goals.



Michael Schiffer, assistant administrator of the Bureau for Asia, United States Agency for International Development (USAID), emphasized the urgency of combating climate change through leveraging clean energy solutions and fostering strategic partnerships. He highlighted USAID's newly established policy framework that promotes collaborative efforts, both locally and globally, to address the formidable challenge of climate change. Schiffer acknowledged the complex nature of global development challenges, which are influenced by local dynamics. Accordingly, USAID aims to respond by prioritizing the perspectives and knowledge of the individuals directly impacted. In striving for inclusivity and equity, USAID seeks to empower local champions as catalysts for transformative change. USAID has implemented various programs to advance their objectives, including the Smart Power Program, the Corporate Clean Energy Alliance, and the Philippines electricity market platform.

Furthermore, they have developed a renewable energy auctions toolkit in India and have targeted mobilizing \$150 million in public and private funds. USAID recognizes the significance of addressing gender barriers and acknowledges that empowering women is pivotal for a successful transition toward clean energy.

Francesco La Camera, director general of the International Renewable Energy Agency (IRENA), highlighted that while progress has been made in renewable energy deployment within the power sector, there remains a need to expedite efforts to align with the 1.5-degree pathway. The energy transition must be scaled up across the transportation, industry, and heating sectors. La Camera underscored the importance of addressing the demand for clean energy and facilitating enabling factors that will support the establishment of a renewable energy-dominant system. To accelerate the momentum of the energy transition in Asia and the Pacific, La Camera advocated for international cooperation and equitable investment. He called for more robust public sector intervention, partnerships with the private and philanthropic sectors, and the provision of accessible, low-cost finance to both emerging and advanced economies. La Camera introduced IRENA's Energy Transition Accelerator Financing Platform, which emphasizes the role of the public sector in creating a conducive financing environment and implementing risk mitigation measures to attract private investment.

Panel Discussion

Peter Storey, global coordinator at the Private Financing Advisory Network, underscored the pressing need for expedited and streamlined climate financing, with a particular focus on supporting small and medium-sized enterprises (SMEs) in Asia and the Pacific. Storey emphasized the significance of taking calculated risks in blended and concessional financing to effectively address the financing needs of SMEs. He also stressed the importance of enhancing data collection and analysis capabilities to enable accurate pricing of SMEs and facilitate informed investment decisions. Furthermore, Storey advocated for the implementation of a uniform price on carbon as a means to drive climate action and incentivize low-carbon investments.

Prapharat Tangkawattana, chief executive officer and founder of Sitron Power Public Company Limited, expressed apprehension regarding the lack of progress in Thailand's solar industry and stressed the crucial role for government support measures. Tangkawattana highlighted the importance of fostering collaboration among stakeholders. She also proposed incorporating education about carbon reduction into school curricula to enhance awareness and encourage citizens to actively participate in reducing carbon emissions.

Ramesh Subramaniam, director general and group chief of sectors group, ADB, highlighted the advantages of early retirement of coal-fired power plants and introduced the Energy Transition Mechanism (ETM). ETM seeks to expedite the retirement or repurposing of coal plants while encouraging investments in clean energy and energy storage through both public and private finance. Subramaniam underlined the importance of ensuring a just and affordable transition process for all stakeholders involved.

Joshua Wycliffe, chief of operations at the International Solar Alliance, emphasized the significance of regional collaboration in achieving carbon neutrality. He proposed the development of financing mechanisms that adopt a regional approach to facilitate clean energy initiatives. Additionally, Wycliffe advocated for policy harmonization and the establishment of learning platforms among the member states of the International Solar Alliance to enhance knowledge sharing and collaboration.

Dinesh Kumar Ghimire, secretary at the Ministry of Energy, Water Resources and Irrigation of Nepal, highlighted the achievable goal of carbon neutrality in Nepal. He underlined the importance of addressing seasonal supply and demand imbalances and improving the transmission infrastructure. Ghimire stressed the significance of practical safeguard guidelines from development partners to ensure the successful implementation of clean energy projects. Additionally, Ghimire emphasized the need to enhance connectivity for efficient and reliable transmission of clean energy resources.

Ashok Lavasa, vice-president of Private Sector Operations and Public-Private Partnerships of ADB, emphasized the pivotal role played by ACEF in translating climate goals into tangible actions. Lavasa discussed ADB's initiatives in climate-friendly investments and stressed the importance of low-carbon development in addressing crucial issues such as energy access, poverty eradication, and overall well-being. Lavasa recommended investing in human behavior alongside government actions, suggesting that behavior change should be a central theme for future ACEFs.

















"We must bear in mind that climate change transcends individual concerns and encompasses the collective well-being. The path toward a low-carbon, climateresilient future in the Asia and the Pacific region holds immense significance, as it will shape both local and global outcomes. This journey entails fostering a harmonious coexistence of ecologies and economies, where both prosper in unison."

Ashok Lavasa, Vice-President

Private Sector Operations and Public-Private Partnerships Asian Development Bank



"We posed a question to ourselves, is it feasible to envision an initiative similar to the European Union Green Deal in Asia? Could such an endeavor be practically considered? While the prevailing opinion tended to dismiss this notion as a mere dream, we chose to embrace it as a challenge and commence the process of contemplation."

Ramesh Subramaniam

Director General and Group Chief, Sectors Group Asia and the Pacific, Asian Development Bank



"The message is clear. We need to collaborate across the entire spectrum right from the small and medium-sized enterprises to cross-country collaboration and regional collaboration to yield a global public benefit and good"

Sujata Gupta, Director

Sustainable Infrastructure Division, East Asia Department, Asian Development Bank



"Fighting climate change with clean energy solutions is one of the most important and urgent collective imperatives of our time. No one can achieve net-zero alone"

Michael Schiffer

Assistant Administrator of the Bureau for Asia United States Agency for International Development

Side Events

ACEF 2023 featured two side events, further enriching the forum's diversity of topics and fostering in-depth of discussion. These evening side events were organized and hosted by ADB's partner organizations.



Securing Future Critical Minerals for Energy Transition Goals: An Asian Perspective on Challenges and Issues

(World Resources Institute)

Innovative Solutions for the Energy Transition in Asia

(World Resources Institute and Clean Energy Investment Accelerator)

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