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ENABLING PRIVATE SECTOR CLEAN ENERGY INVESTMENT IN SOUTHEAST AND SOUTH ASIA

CEADIR

DEEP DIVE WORKSHOP REPORT

JUNE 5, 2017
MANILA



December 6, 2017

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and

Abt Associates Inc.

with

Asia Low Emission Development Strategies Partnership

ENABLING PRIVATE SECTOR CLEAN ENERGY INVESTMENT IN SOUTHEAST AND SOUTH ASIA

DEEP DIVE WORKSHOP REPORT
JUNE 5, 2017 IN MANILA, PHILIPPINES

CEADIR

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DISCLAIMER

The authors’ views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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ACRONYMS AND ABBREVIATIONS

BNEF	Bloomberg New Energy Finance
CDP	Carbon Disclosure Project
CE	Clean energy
CEADIR	Climate Economic Analysis for Development, Investment and Resilience
E3	Bureau for Economic Growth, Education, and Environment (USAID)
EP	Office of Economic Policy (USAID/E3)
FiT	Feed-in-tariff
GCC	Office of Global Climate Change (USAID/E3)
GHG	Greenhouse gas
LEDS	Low emission development strategies
Meralco	Manila Energy Company (Philippines)
NDCs	Nationally determined contributions
NREB	National Renewable Energy Board (Philippines)
RDMA	Regional Development Mission for Asia (USAID Asia)
RE	Renewable energy
REAL	Remote Expert Assistance on LEDS
REBA	Renewable Energy Buyers Alliance
USAID	United States Agency for International Development
USG	United States Government

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CEADIR is grateful to the USAID Asia for hosting the workshop and to USAID/Washington GCC for its financial support. CEADIR also thanks the Asia Low Emission Development Strategies (LEDS) Partnership, Bloomberg New Energy Finance (BNEF), Allotrope Partners, and USAID-funded Clean Power Asia Initiative for co-organizing this workshop and providing valuable input for this workshop report.

WORKSHOP OVERVIEW

Greenhouse gas (GHG) emissions in Southeast and South Asia accounted for more than 29 percent of total emissions in Asia and more than 15 percent of worldwide emissions in 2013 (World Resources Institute, 2013).¹ Governments in the region are working to achieve national climate change mitigation targets, reduce air pollution, and meet increasing demands for energy. Leading multinational and Asian corporations have embraced the business case for clean energy (CE). RE100 is a global initiative of the Climate Group and the Carbon Disclosure Project (CDP) that was established in 2014. It unites corporations that have made commitments to transition to 100 percent renewable energy (RE) sources of electricity in their worldwide operations. More than 100 companies have joined (Climate Group/CDP, 2017).

Increasing corporate commitments for CE can be a catalyst for broader changes in the energy sector. Electric utilities in the region are increasing their capacity to generate electricity from renewable sources and make the necessary complementary investments in the electric grid. Private investors and energy developers are seeking to increase investments in RE and energy efficiency, but still face challenges in obtaining sufficient financing on suitable terms. National and subnational governments are also seeking to scale up CE deployment.

Realization of this potential will require actions by governments, utilities, corporations, project developers, investors, and development partners to enable and facilitate a CE transition. Leadership from governments and utilities is vital to implement policies, incentives, and grid management strategies that enable CE investment at scale, including integrating solar, wind, and other RE sources in the distribution network. Continued commitments from corporations are critical to increase CE deployment. Project developers need to link with investors and financial institutions and governments.

The deep dive workshop on **“Enabling Private Sector Clean Energy Investment in Southeast and South Asia: Recommendations from Corporations and Governments”** was held on June 5, 2017 as a pre-event to the Asia Clean Energy Forum 2017 in Manila, Philippines. The workshop engaged 167 participants from 25 countries. It highlighted recommendations and insights from private sector leaders on regional and country-specific actions that governments can take to accelerate investment in CE solutions in the region. It also showcased strategies and approaches of corporations, governments, utilities, investors, and development partners.

The United States Agency for International Development (USAID) Asia hosted the workshop with financial support from the USAID/Washington Office of Global Climate Change (GCC). Co-hosts included the Asia Low Emission Development Strategies (LEDS) Partnership, Bloomberg New Energy Finance (BNEF), Allotrope Partners, and the USAID-funded Clean Power Asia Initiative. The USAID-



USAID looks for key opportunities that have the potential to catalyze change at a large and broad scale. One of these key catalysts is the ambitious commitment being made by leading domestic and multinational corporations in Asia.

Peter du Pont, Senior Climate Change Advisor, USAID Asia

¹The Southeast Asian countries included in this estimate were Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam. The South Asian countries included were Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka.

funded Climate Economic Analysis for Development, Investment and Resilience (CEADIR) Activity organized the workshop.

The workshop leveraged ongoing activities of USAID in Asia and built on the Agency's CE programs with public and private sector stakeholders, including the Clean Power Asia Initiative, Private Finance Advisory Network for Asia, and central and bilateral CE support from USAID and other U.S. Government (USG) agencies.

The workshop outputs should help USAID and other USG agencies support public and private sector leadership for scaling up CE in the region. The Asia LEDS Partnership has also identified recommendations from the workshop that it will promote in 2017-2018 (Annex C). Progress on these actions will help private companies obtain less expensive and more reliable energy sources that have more favorable impacts on human health and the environment, including helping to achieve national climate change targets.

I. PROCEEDINGS

I.1 WELCOME

Peter du Pont (USAID Asia) welcomed participants and highlighted the ways in which corporations in Asia have embraced the business case for CE and climate action. The growing scale of private sector CE commitments can drive policies and catalyze broader changes to help countries achieve their national climate change targets and economic growth goals. Table I provides examples of private sector CE commitments in Southeast and South Asia.

Table I: Private Sector Commitments and Actions to Increase Clean Energy Investment

	<p>AMATA Corporation Public Company Ltd. is a developer of industrial cities in Thailand and Vietnam that works to achieve its business objectives while contributing to sustainable societal development. The company seeks to ensure the sustainability of its energy, water, and other natural resource use.</p>
	<p>Mahindra & Mahindra, the world's largest tractor manufacturer, is based in India. The company has established internal incentives to increase RE and energy efficiency investments. It is applying the metric of GHG emissions divided by the payback period to rank potential projects</p>
	<p>The Vietnam Business Forum is an association of domestic and multinational companies in Vietnam. In October 2016, its "Made in Vietnam Energy Plan" recommended policy and regulatory changes to scale up private CE investment.</p>
	<p>RE 100 is a global initiative of the Climate Group and the CDP that was established in 2014 and now includes more than 100 companies that have committed to transitioning to electricity from 100 percent RE sources in their worldwide operations, whether sourced from the market or self-produced.</p>
	<p>The Renewable Energy Buyers Alliance (REBA) is an initiative of four not-for profit organizations: the Rocky Mountain Institute, World Resources Institute, Business for Social Responsibility, and World Wildlife Fund. REBA identifies and works to resolve barriers to CE use by corporations. It developed principles to inform utilities and other energy suppliers about corporate RE purchasing goals.</p>

I.2 PRIVATE SECTOR RECOMMENDATIONS TO ACCELERATE CLEAN ENERGY INVESTMENT IN ASIA

Mikell O’Mealy (CEADIR) noted that the key to accelerating private sector investment in CE is improving the enabling environment in each country. Regional peer sharing and learning by corporations and government officials is valuable in exchanging perspectives, strengthening coalitions, and reinforcing the urgency of actions to help achieve corporate and national CE targets.

Private sector leaders identified priorities for government action to increase CE investment and development at an earlier regional workshop —“*Enabling Private Sector Clean Energy Investment in Southeast and South Asia*”— in Bangkok on March 27-28, 2017. A total of 87 participants from Asian and transnational corporations; the governments of India, Indonesia, the Philippines, Vietnam, and the United States; and donors and other development partners attended the earlier workshop. The private sector participants provided recommendations on improving the policy and regulatory environment, strengthening CE finance, and increasing governmental capacity and public-private collaborations (Table 2).



Private sector leaders have identified a number of key recommendations to accelerate clean energy investment in Southeast and South Asia. Some recommendations are easier to achieve than others – but all will benefit from greater public-private sector coordination and collaboration.

Mikell O’Mealy, Activity Manager, CEADIR

Table 2: How Governments Can Help Increase Private Sector Clean Energy Investment

Improve the Policy and Regulatory Environment	Strengthen the Financing Environment	Enhance Government Capacity and Public-Private Collaboration
<ul style="list-style-type: none"> • Review and revise existing policies and regulations that conflict with RE development goals or create market uncertainties. • Institute new policies and incentives that provide clear direction and support the business case for RE investment. • Prepare short- and medium-term actionable plans that build toward clear long-term RE targets. • Improve electricity price forecasting and allow cost-reflective tariffs that make RE competitive. 	<ul style="list-style-type: none"> • Develop the capacity of domestic commercial banks to increase CE lending and obtain additional capital. • Help domestic CE project developers access finance. 	<ul style="list-style-type: none"> • Improve public sector capacity at the national and subnational levels to support RE markets. • Increase government engagement with various private sector stakeholders to understand their needs and priorities. • Collaborate with the private sector on strategic pilot or demonstration investments where needed.

The private sector participants also specified country-level measures to reduce policy, market, and financing barriers to scaling up CE investment. Table 3 summarizes country recommendations for India, Indonesia, the Philippines, and Vietnam.

Table 3: Country-Specific Actions to Reduce Barriers to Increasing Private Clean Energy Investment

India
<ul style="list-style-type: none"> • Compile good practices on how to design policy incentives (especially feed-in-tariffs) with sunset clauses to provide certainty and reduce gaming of the system; engage five to six states in implementing these guidelines • Create win-win models to help utilities offer RE, such as instituting green tariffs and rationalizing subsidy surcharges to the utility and customer for RE • Enforce penalties for noncompliance with RE purchase requirements • Make RE a priority lending sector, beyond electric power • Raise the floor price for RE contracts to ensure bankability and help attract finance • Mandate RE procurement for new buildings, in order to receive building operating licenses
Indonesia
<ul style="list-style-type: none"> • Establish a buyers' alliance of domestic and international RE purchasers and developers to provide input on the Ministry of Energy and Mineral Resources' policies and regulations • Relax restrictions on private investment and foreign ownership of RE investments • Support investments in RE demonstration at the state level, especially for solar energy • Work with the private sector to initiate new business models at the national level, especially for solar energy • Bundle small investments to access international funds • Create an agency to provide loan guarantees for RE investments • Provide technical assistance to banks and financial institutions on screening RE loan applications • Work with international companies and international finance institutions to increase the capacity of domestic developers to prepare high-quality technical and finance documents
Philippines
<ul style="list-style-type: none"> • Finalize and implement the draft renewable portfolio standards • Ensure clear policies on ownership and attribution of RE assets in contracts (i.e., who can claim the benefit of 1 MWh of RE generation) and clarify these rules for retail energy suppliers and offtakers • Institute net metering for installations larger than the current 100 kW cap • Launch a national information and education campaign on renewable energy certificates • Increase the ease of doing business via an electronic one-stop-shop for CE permits • Facilitate access to early-stage project preparation finance to address capital gaps for small CE developers • Explore green tariffs for private consumers
Vietnam
<ul style="list-style-type: none"> • Provide detailed information on the Power Sector Reform Roadmap and projected tariffs by year • Review the Electricity Law and move away from a strict single offtaker purchaser model, where Vietnam Electricity is the single offtaker • Provide better estimates of future electricity prices • Develop renewable portfolio standards • Develop and pilot a bankable direct power purchase agreement (i.e., an agreement between a RE generator and an end user in which RE-based power produced is physically delivered to power the buyer's operations) • Encourage corporations to make RE purchase commitments • Increase the capacity of the domestic banking sector to engage in CE lending • Create foreign direct investment opportunities that can attract large companies • Improve public-private sector dialogue and ensure meaningful engagement • Increase the capacity of government authorities in competitive energy procurements • Promote peer learning and state-to-state exchanges on good practices to increase CE investment

1.3 MARKET TRENDS AND INSIGHTS FOR INVESTORS, PROJECT DEVELOPERS, AND GOVERNMENTS

Ali Izadi (BNEF) emphasized that Asia is an important driving force in the global CE transition.

Asia's clean energy market is growing. Nearly 50 percent of global CE investment in 2016 was in Asia (Izadi, 2017). BNEF projected that Asia will continue to comprise half of global CE investment through 2040 because of declining costs (especially for photovoltaic and wind power), and favorable policy and regulatory environments and financing opportunities. Asia was also the world's largest supplier of CE equipment, led by China, but also including South Korea, Japan, and Southeast Asia. Equipment manufacturing and sales and installation has generated new jobs and other employment opportunities.

Lowering the cost of financing remains important. BNEF found that three-quarters of RE projects in Southeast Asia were financed with commercial loans, often at relatively high interest rates. However, some domestic banks have had limited experience in CE lending and might be more willing to increase this lending after receiving technical assistance.

Green bonds have been used to finance large amounts of RE development in China, India, and other large markets. Institutional investors, such as insurance companies and pension funds, are key buyers of green bonds. Institutional investors are often willing to accept lower yields on a portfolio with relatively low risk. There are substantial opportunities for governments, municipalities, and corporations to use green bonds to reduce finance costs and expand the scale of renewable energy.

Regulatory choices affect clean energy costs for consumers. The costs of wind and photovoltaic power have declined sharply and are expected to continue to decline. In many cases, the production costs are already lower than nonrenewable sources, but poorly designed regulations can make CE more costly. For example, feed-in-tariffs (FiTs) that provide premium prices for electricity from RE sources may increase rates for users and can be costly for governments to administer. Brazil, India, Mexico, Peru, and other countries have adopted reverse auctions as an alternative to FiTs to increase renewable electric power production at a lower cost by stimulating competition in procurement. Reverse auctions can help reduce costs for electricity users as well.

Renewable energy can help achieve climate change mitigation targets. BNEF projected that \$11.4 trillion will be invested in electric power production and distribution between 2016 and 2040. BNEF estimated that about \$9.2 trillion of the \$11.4 trillion will be invested in zero-carbon technologies. However, \$14.6 trillion of investment in zero-carbon technologies may be needed to reach the Paris Agreement target of limiting the global temperature increase this century to less than 2 degrees Celsius above pre-industrial levels, leaving a \$5.4 trillion investment gap (Henbest *et al.*, 2017). Although this investment gap is a large amount, it is not that high compared to the combined portfolio of global institutional investors. Mobilizing this additional RE investment quickly is critical to enable a transition from coal in India, China, and Southeast Asia.



The perception that economic growth must be compromised to reduce greenhouse gas emissions is false. BNEF has data – actual, historical data – that show that economic growth does not need to be sacrificed to reduce greenhouse gas emissions.

Ali Izadi, Head of Japan and Korea, Bloomberg New Energy Finance

I.4 NEEDS AND OPPORTUNITIES FOR GRID-CONNECTED PHOTOVOLTAIC AND WIND IN ASIA

Boonrod Yaowapruerk (USAID-funded Clean Power Asia Initiative) discussed regional opportunities for grid-connected photovoltaic and wind power.

Investments flow to markets with favorable policy and regulatory environments. In Asia, solar and wind markets fall into three classifications:

- Limited markets with a weak regulatory framework for private sector investment;
- Quota-based markets, with limitations affecting grid-connected photovoltaic and wind power, project bankability, and access to finance; and
- Relatively open markets with some challenges in access to CE finance.

Many Southeast and South Asian countries have had limited markets or quota-based markets for renewable electric power. However, the regulatory environment and incentives are favorable for wind power in the Philippines, Thailand, and Vietnam, and for photovoltaic electricity in Thailand. These countries have benefited from substantial increases in private investment over the last decade. As RE investment accelerates, it is important for governments to avoid setting limits on the total amount of RE capacity that can be developed, which may inhibit the deployment of cost-competitive renewable energy.

Governments can take actions to improve the risk-reward profile for private investors in the immediate term. More than 95 percent of investment in RE comes from the private sector, and various sources have different expectations for risk and returns. Three policy options to attract more private investments are (1) price premium policies to increase investment revenues (such as FiTs), (2) structured finance to reduce project costs, and (3) risk mitigation instruments to reduce investment risks. Price premium policies are often the most costly of these options for governments. Measures to reduce actual and perceived investment risks are often the most cost effective for governments.



One of the most cost-effective ways to improve the risk-reward profile for private sector clean energy projects is to reduce the perceived risk of investments. This can effectively lower investors' expected risk-adjusted returns and make clean energy projects more bankable.

Boonrod Yaowapruerk, Investment Mobilization Lead, USAID-funded Clean Power Asia

I.5 PUBLIC-PRIVATE SECTOR COLLABORATION TO ACCELERATE CLEAN ENERGY INVESTMENT IN THE PHILIPPINES

Government, corporations, utilities, and project developers in the Philippines discussed their commitments, strategies, and lessons learned from promoting a CE transition in the country.

Government. Atty. Jose M. Layug Jr. (National Renewable Energy Board [NREB]) highlighted actions that the NREB was taking in 2017. These actions included renewable portfolio standard rules, RE market and green energy option rules for utilities, RE trust fund rules, one-stop-shop rules, and improved net metering rules. NREB planned to be inclusive in drafting and monitoring rules to ensure that implementation helps businesses and investors, rather than creating a heavy burden and increasing costs. NREB is coordinating with other national and local government agencies to remove redundancies, advance crosscutting issues, and make it easier for the private sector to conduct business.



Panelists respond to questions from participants on the experiences and lessons learned in the Philippines.

Corporations. Anna Maria Gonzales (Ayala Land, Inc.) reported that the company has tracked its GHG emissions since 2009. Ayala Land has carried out various energy efficiency measures and achieved substantial energy savings, but the savings plateaued in 2016. Without additional actions, the company projected that the direct and indirect GHG emissions (scope 1 and 2) for its commercial properties would double by 2020.² In early 2017, Ayala Land announced a more aggressive plan aimed at reaching carbon neutrality by 2022 (Ayala Land Inc., 2017). To meet this target, the company has been adopting passive cooling design, energy efficiency, RE sourcing, and carbon offset payments for forest regeneration and protection. Most of its future GHG reductions are expected to come from RE power purchase agreements for commercial properties.

Utilities. Anna Maria A. Reodica (Manila Energy Company [Meralco]) highlighted the company's progress and plans to increase integration of variable RE into the electric grid. Only 11 of the 67 utilities in the Philippines were ready to implement grid interconnection of RE resources. Reodica noted the importance of pilots for new interconnection strategies in advance of full implementation to help ensure a successful roll-out to customers. Meralco was continuing to improve its processes and systems to accommodate projected RE development. Meralco partnered with the Association of Municipal Engineers and local government units to increase its readiness to serve the evolving consumer demand.

Project developers. Salvador Antonio Castro Jr. (CleanTech Global Renewables, Inc.) described opportunities and challenges for CE developers in the Philippines and new off-grid and on-grid business opportunities. Key challenges to be addressed include

- Making it easier to obtain RE permits;
- Strengthening technical standards and infrastructure for RE grid interconnection, especially on and between small islands;
- Accelerating the pace of policy implementation;

² Direct GHG emissions (scope 1), refer to releases from sources owned or controlled by a reporting entity. Indirect GHG emissions (scope 2) are associated with consumption of purchased electricity, heat, or steam by the reporting entity, but occur at sources owned or controlled by another entity.

- Eliminating payment delays on FITs;
- Improving regulatory certainty for developers and investors; and
- Moving from balance sheet financing to project financing.

There are also opportunities to expand public information campaigns to educate users on their potential cost savings and health and environmental benefits from RE and energy efficiency. User-specific information could be provided in electricity bills.

Table 4: Perspectives on Enabling a Clean Energy Transition in the Philippines

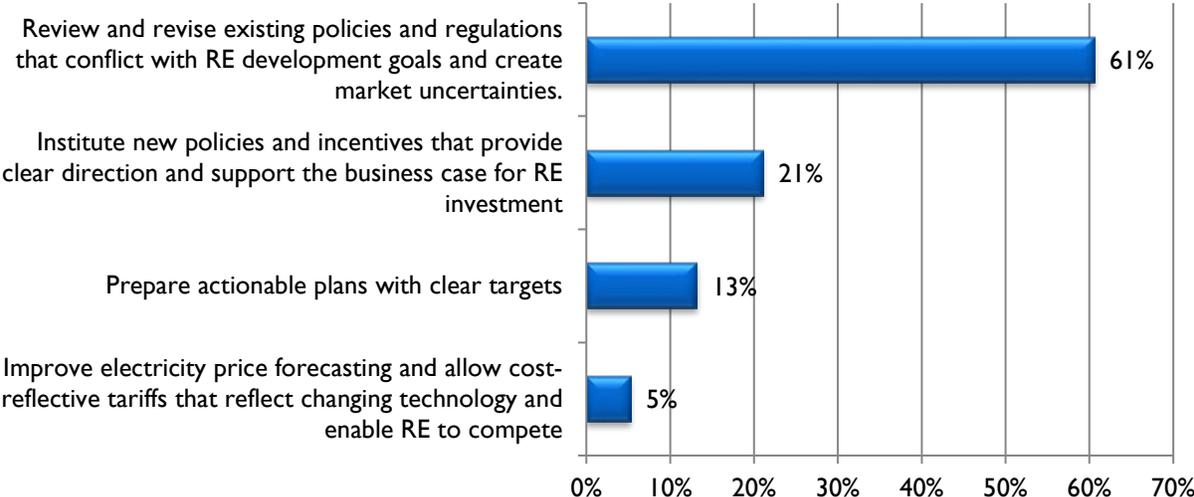
<p style="text-align: center;">Government</p> <p><i>We have strong political will from the President and Secretary of Energy. They are serious and their direction is clear – moving forward, government will make sure that permits are facilitated. Come to us with problems. We will help you develop renewable energy based power plants and projects.</i></p> <p style="text-align: center;">Atty. Jose M. Layug Jr., Chair Person, NREB</p>	<p style="text-align: center;">Corporations</p> <p><i>Not all corporate owned or managed properties can physically accommodate on-site renewable energy generation. Therefore, availability and viability of other mechanisms – such as renewable energy power purchase agreements – are key to helping businesses such as Ayala Land to meet clean energy and sustainability targets.</i></p> <p style="text-align: center;">Anna Maria Gonzales, Sustainability Head, Ayala Land, Inc.</p>
<p style="text-align: center;">Utilities</p> <p><i>Up-skilling of our human resources – from engineers to the guards that greet customers at a facility entrance – is key to enabling utilities to lead in the clean energy transition. We also need a new business model for distribution utilities. Current regulations were designed for single-flow power; utilities now need regulations to accommodate two-way flow, updated infrastructure, and new tools to monitor and control two-way flow efficiently.</i></p> <p style="text-align: center;">Anna Maria A. Reodica, Renewables Program Manager and Specialist, Meralco</p>	<p style="text-align: center;">Project Developers</p> <p><i>A known and stable regulatory framework is essential. We all want to know the rules of the game before joining. If the rules are set for ten to twenty years, that is ideal. Consistent enforcement of these rules (such as Feed-in-Tariff mechanisms) is vital. Also, a gap remains in access to development capital (for pre-development expenses to bring projects to shovel-ready status), and project finance. Improving access to finance within Asia or globally will accelerate the transformation.</i></p> <p style="text-align: center;">Salvador Antonio Castro Jr., President and CEO, CleanTech Global Renewables, Inc.</p>

2. PARTICIPANT VIEWS ON PRIORITY ACTIONS

The participants identified priority actions for the policy and regulatory environment, finance, public-private sector collaboration, and markets in Southeast and South Asia in an interactive voting exercise.

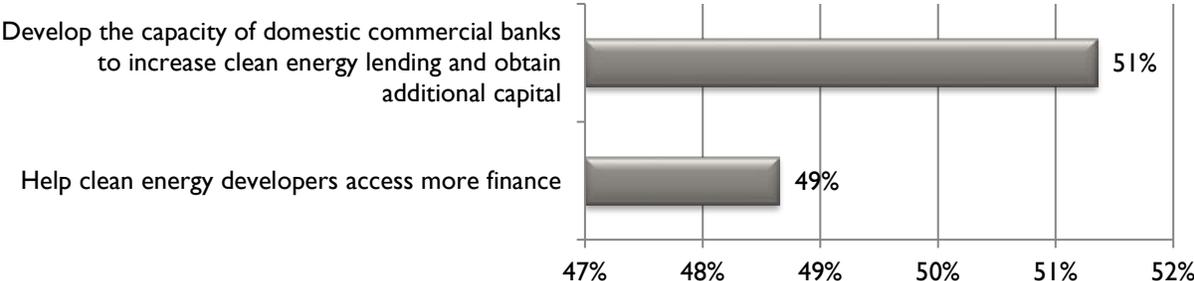
Questions 1: What do you view as the top priority action needed to improve the policy and regulatory environment?

(38 responses)

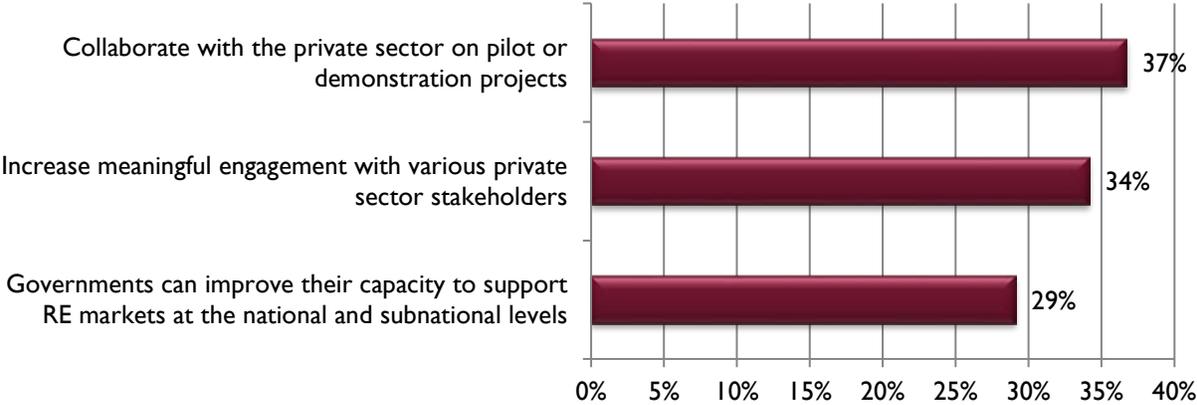


Question 2: What do you view as the top priority action needed to strengthen the finance environment?

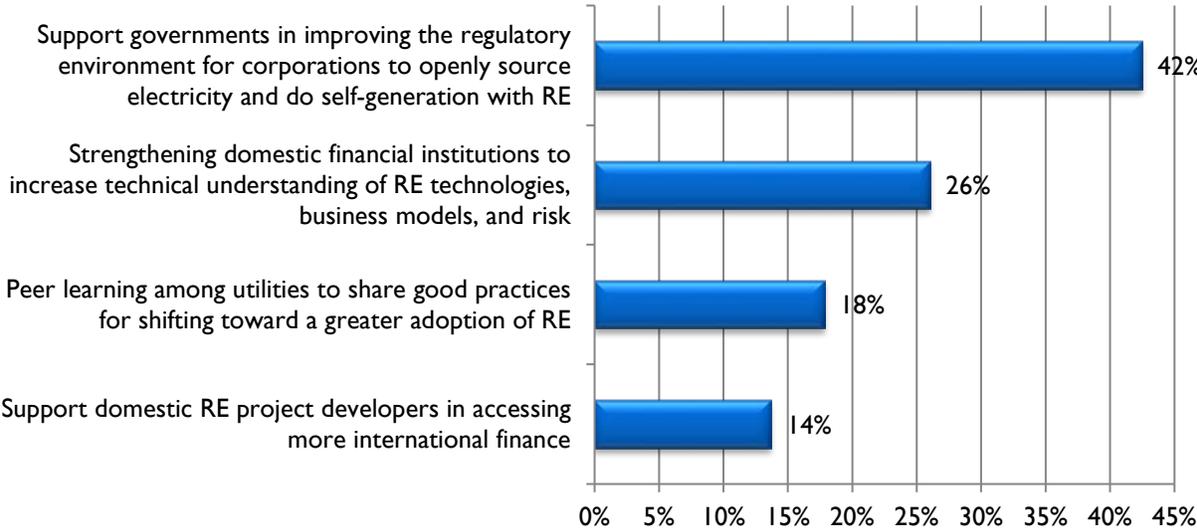
(74 responses)



Question 3: What do you view as the top priority action needed to increase government capacity and public-private sector collaboration?
(79 responses)

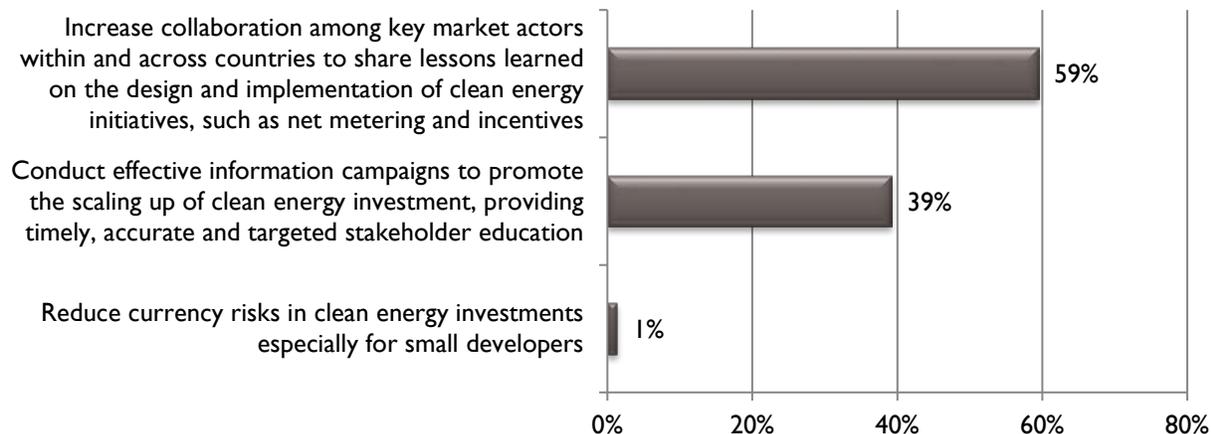


Question 4: What do you view as the top priority action needed in more regulated markets (including Cambodia, Indonesia, Myanmar, Vietnam)?
(73 responses)



Question 5: What do you view as the top priority action needed in more open markets (including India, Philippines, Thailand)?

(74 responses)



Note: For question 5, an error in voting software prevented the option “Reduce currency risks in clean energy investments” from displaying properly, resulting in no votes being allocated to this option. Therefore the lack of votes shown does not necessarily indicate that this action is unimportant.

3. CONCLUSIONS

Increased public-private sector engagement is essential in order to achieve country targets and corporate goals for clean energy investment and development. Private sector leaders in the region have embraced the business case for CE and are seeking opportunities to increase their investment. The nationally determined contributions (NDCs) of many Asian countries prioritize actions to expand RE and energy efficiency and create new investment opportunities for CE development. To enable private sector investment at scale and to help countries achieve their climate change commitments related to CE, public and private sector stakeholders must align priorities and actions.

Private sector leaders are increasing their investments in clean energy and are committed to investing at scale. Across the region, multinational corporations, domestic companies, global and regional banks, investment firms, small and medium-sized enterprises, project developers, and service providers are increasing their investments and financing for CE solutions. These investments will significantly reduce the GHG emissions of companies in the region, within their operations and in their supply chains. They also provide models for replication by other companies that are looking to achieve business objectives while contributing to sustainable development.

Government action is necessary to help enable private sector investment at scale. In each country, governments must take specific actions to enable private sector investment in ways that align with NDC targets and other social and economic development goals. Top policy actions cited by companies to enable private sector CE investment include reforms in highly regulated electricity markets to provide flexibility to corporate off-takers interested in purchasing CE; establishing cost-reflective tariff rates to ensure that RE investments are commercially viable; and consideration of co-benefits from improvements in health, climate, environmental quality, employment, and energy security in energy policy and regulatory decision making.

Private capital will move into markets with strong enabling environments for clean energy investment. Greater private investment will result in greater CE development and use, more CE project developers and energy off-takers; diversification of energy sources; and economic, social, and environmental gains.

USAID has played an effective role in convening the private and public sectors to help facilitate a clean energy transformation. USAID support for sharing experiences and good practices with public and private sector leaders has reinforced the urgency of collaborative action to achieve corporate and national goals.

The recommendations from this workshop can support USAID and other development partners design further support to help scale up CE investments. The Asia LEDS Partnership has identified selected recommendations that it plans to advance in India, Indonesia, the Philippines, and Vietnam in 2017-2018 (Annex C). Progress in implementing these recommendations will help countries in Southeast and South Asia achieve the economic, health, and environmental benefits of scaling up renewable energy development and energy efficiency.

ANNEX A: WORKSHOP PROGRAM

MONDAY, JUNE 5, 2017

Time	Session
09:00 – 09:30	<p>Private Sector Recommendations to Accelerate Clean Energy Investment in Asia Opening Remarks: Peter du Pont, Senior Climate Change Advisor, USAID Asia Workshop Moderator: Mikell O’Mealy, Activity Manager, USAID-funded CEADIR</p> <p>Presentation of regional and country-specific recommendations from private sector leaders in Southeast and South Asia on priority actions that governments can take to accelerate investment in clean energy solutions at scale. <i>15 minute presentation followed by 10 minutes of questions from the audience and discussion</i></p>
09:30 – 10:00	<p>Market Trends and Insights for Investors, Project Developers, and Governments Presenter: Ali Izadi, Head of Japan and Korea, Bloomberg New Energy Finance</p> <p>Overview of the current investment environment for clean energy in Asia, including trends in key markets and renewable energy technologies, particularly solar and wind, and insights on opportunities for investors, project developers, and governments. <i>20 minute presentation followed by 10 minutes of questions from the audience and discussion</i></p>
10:00 – 10:30	<p>Enabling Renewables at Scale – Key Needs and Opportunities for Grid-Connected Solar and Wind in Asia Presenter: Boonrod Yaowaprupek, Investment Mobilization Lead, USAID-funded Clean Power Asia Initiative</p> <p>Solar and wind electric power have become competitive with fossil fuels in terms of levelized cost of energy, but barriers and risks still limit wider adoption in the region. This session will highlight the role of public finance in risk mitigation and structured finance to mobilize additional private capital for renewable electric power production at a larger scale. <i>20 minute presentation followed by 10 minutes of questions from the audience and discussion</i></p>
10:30 – 11:00	<p>Coffee Break</p>
11:00 – 12:00	<p>Leadership in the Philippines: Public-Private Sector Collaborations to Accelerate Clean Energy Investment Moderator: Marlon Apanada, Managing Director, Allotrope Philippines Panelists:</p> <ul style="list-style-type: none"> • Atty. Jose M. Layug, Jr., Chair Person, Philippines National Renewable Energy Board – on public sector leadership to enable private sector investment at scale • Anna Maria Gonzales, Sustainability Head, Ayala Land Inc. – on corporate leadership and commitments to promote a clean energy transition • Annie Maria Reodica, Renewables Program Manager, Manila Energy Company – on integrating renewables in the distribution network • Salvador Antonio Castro, Jr., President and CEO, CleanTech Global Renewables, Inc. – on successes and challenges in large-scale clean energy investment and development

	<p>This panel will showcase private and public sector commitments and actions to scale up clean energy investments in the Philippines. It will highlight the perspectives of leading policy makers, corporations, utilities, and investors and the important role of public-private sector collaboration.</p> <p><i>Moderator will facilitate questions and discussion following the panel presentation</i></p>
12:00 – 12:30	<p>Sharing Lessons Learned and Identifying Priority Needs and Opportunities Presenter: Mikell O’Mealy, Activity Manager, USAID-funded CEADIR</p> <p>An interactive group discussion to share lessons learned from efforts to scale up private sector clean energy investment in Asia and identify country-specific and priority regional opportunities, including improving enabling environments. Questions will focus on how private sector investment can help countries achieve their NDC targets for clean energy, and linking public sector actions to grid-scale investment in renewable sources, particularly solar and wind. The workshop will conclude with an overview of tools, resources, and technical and other assistance available to support private and public sector leaders in expanding clean energy investments in Asia.</p>

ANNEX B: PARTICIPANT LIST

First Name	Last Name	Organization	Country
Sorrell	Grogan	Aemo	Australia
Marc	Tutaan	Energy Policy Consulting	Australia
Marina	Lou	Greenpeace International	Australia
Moniruzzaman	Md	Ministry of Power, Energy and Mineral Resources	Bangladesh
Lungten	Tshewang	Department of Macroeconomic Affairs, Ministry of Finance	Bhutan
Karma	Namgyel	Ministry of Works and Human Settlement	Bhutan
Sovannarith	Leng	Électricité Du Cambodge	Cambodia
Chih-Ting	Lo	Eelo Solutions Inc.	Canada
Keith	Klus	Manitoba Hydro International	Canada
Zhengliang	Lv	Tsingyun Solar	China
Blandine	Battaglia	Sabella	France
Natalia	Jamburia	Ministry of Energy	Georgia
Zurab	Roinishvili	Ministry of Finance	Georgia
Alexander	Ablaza	Asian Development Bank	Hong Kong
Sandeep	Kumar	Agnisumukh	India
Sri Hari Rao	Sanghi	Agnisumukh	India
Jaideep	Bansal	Ghe	India
Anil	Sharma	GIZ	India
Arvind	Kumar Asthana	GIZ	India
Nitin	Jain	GIZ	India
Karl	May	GIZ India	India
Kandasamy	Ravikumar	Mahatma Gandhi Institute for Rural Industrialisation	India
Jayakumar	Reddy Alle	Pinakine Power Project (P) Ltd	India
K P	Ashwin Krishna	Promethean Energy	India
Samit	Aich	Small Scale Sustainable Infrastructure Development Fund	India
Michael	Satin	USAID	India
Apurva	Chaturvedi	USAID/India	India
Deepak Sriram	Krishnan	World Resources Institute India	India
Gina	Lisdiani	Allotrope	Indonesia
Tri	Mumpuni	Ibeka	Indonesia
Joseph	Gilmore	Ministry for Economic Affairs	Indonesia
Paul	Butarbutar	South Pole Group	Indonesia
Ali	Izadi	Bloomberg New Energy Finance	Japan
Masako	Numata	The University of Tokyo	Japan
Kiil	Yang		Korea (South)
Sungkyu	Kim	Daelim	Korea (South)
Kim	Eunhye	Kea	Korea (South)
Park	Kyung-Soon	Korea Energy Agency	Korea (South)

Manuel	Palomo Iv	LG CNS	Korea (South)
Hyek Seong	Kweon	LG Electronics	Korea (South)
Chyngyz	Dokbaev	OJSC Electric Power Plants	Kyrgyzstan
Eldiir	Mukanov	State Committee of Industry, Energy and Subsoil Use	Kyrgyzstan
Matthew	Sebonia	Global Climate Capital	Myanmar
Adriana	Karpinska	Pact Myanmar	Myanmar
Bhushan Chandra	Adhikari	GIZ/Endev-Nepal	Nepal
Govind	Ghimire	NMB Bank Ltd.	Nepal
Binod	Shrestha	Winrock International	Nepal
Nadeem Aslan	Chaudhary	Government of Pakistan	Pakistan
Susanita	Tesiorna	Allwie/S	Philippines
Christian	Sanchez	Assist	Philippines
Tata	Corpuz	Australian Embassy	Philippines
Aldrin	Calderon	Ayala Property Management Corporation	Philippines
Jo Ann	Eala	Bank of the Philippine Islands	Philippines
Julius	Respicio	Bank of the Philippine Islands	Philippines
Jonathan	Lacayanga	Bataan Peninsula State University	Philippines
Diane	Figueroa	Bank of the Philippine Islands	Philippines
Roslyn	Arayata	British Embassy Manila	Philippines
James Kevin	Rodgers	BW Energy Services	Philippines
Meliza	Agabin	Chemonics International	Philippines
Laurie	Navarro	Cleanenergy Solutions International	Philippines
Salvador Antonio	Castro	Cleantech Global Renewables, Inc.	Philippines
Princess Stephanie	Llanos	Commission on Higher Education – Philippine-California Advanced Research Institutes	Philippines
Chrissa	Borja	Control Union	Philippines
Lourdes Maria	Capricho	Department of Energy	Philippines
Lance	Viado	DFI	Philippines
Dave Andrew	Opiso	Directpower Services Inc (Ayala Land Company)	Philippines
Emmanuel	Marquez	Directpower Services Inc (Ayala Land Company)	Philippines
Anniver Ryan	Lapuz	Department of Science and Technology (DOST)-Forest Products Research and Development Institute (FPRDI)	Philippines
Rogelio Jr	Rantael	DOST-FPRDI	Philippines
Kien	Go	Elescom Group of Companies	Philippines
Christian	Denter	Embassy of Canada	Philippines
Sharo	Montaner	Energy Regulatory Commission	Philippines
Archimedes	Diaz	European Chamber of Commerce	Philippines
Raymund	Rasco	Evergreen Environmental Resources	Philippines
Chinee	Mercado	Exri Consulting Philippines, Inc.	Philippines
Krishia Anne	Sta. Ana	Far Eastern University	Philippines
Maria Hazel	Velasco	First Philippine Holdings Corporation	Philippines
Mylene	Ana	GHD Pty Ltd	Philippines
Ferdinand	Larona	GIZ	Philippines
Bulganmurun	Tsevegjav	Global Green Growth Institute	Philippines

Doreen	Erfe	Global Green Growth Institute	Philippines
Maricor	Muzones	Global Green Growth Institute	Philippines
Jessen	Brown	Globe Telecom., Inc.	Philippines
Renz Louie	Formoso	Globe Telecom., Inc.	Philippines
Angela Ruth	Alonzo	House of Representatives, Philippines	Philippines
Marvin	Lagonera	ICLEI Southeast Asia	Philippines
Roger	Chua	Institute of Integrated Electrical Engineers (IIEE) Foundation Inc.	Philippines
Arthur	Lopez	IIEE Foundation Inc.	Philippines
John	Herrman	Island Light & Water Foundation (ILAW) Energy	Philippines
Mila	Jude	Independent	Philippines
Mariel April Anne	Jose	Integrating Science in the Philippines	Philippines
Angelica Marie	Justo	ISS-Ethix	Philippines
Gino	Cruz	ISS-Ethix	Philippines
Noelle	Manahan	ISS-Ethix	Philippines
Arlene	Lafrades	Jacobs Philippines	Philippines
Shari Ann	Botin	Manila Water	Philippines
Annie	Reodica	Meralco	Philippines
Bienvenido	Oplas, Jr.	Minimal Government Thinkers	Philippines
Gilbert	Ofina	National Economic and Development Authority	Philippines
Ernesto Jr.	Silvano	National Electrification Administration	Philippines
Julius	Lotilla	National Electrification Administration	Philippines
Vicar Loureen	Lofranco	National Electrification Administration	Philippines
Roderick	Padua	National Electrification Administration	Philippines
Hanzel	Cubangbang	National Grid Corporation of the Philippines	Philippines
Jose	Callado	New Era University	Philippines
Jonathan Carl	Aguilar	Philippine Board of Investments	Philippines
Rey Runtgen Martin	Del Rosario	Philippine Innovation Entrepreneurship Mission, Inc.	Philippines
Jose M.	Layug, Jr.	Philippines Department of Energy	Philippines
Luigi	Eusebio	Philippine Energy Efficiency Alliance	Philippines
Elaine	Rodriguez	Polytechnic University of the Philippines	Philippines
Kathleen	Macapagal	Polytechnic University of the Philippines - Manila	Philippines
Edward	Antonio	Propmech Corporation	Philippines
Hio Tiao	Lim	San Jose Renewable Powerload Inc.	Philippines
Peter Anthony	Turingan	Senate of the Philippines	Philippines
Vikram	Mulye	Siemens Gamesa Renewable Energy	Philippines
Ruziel	Gimpaya	Solrev Energy Inc.	Philippines
Dann	Diez	Sustainable Energy and Enterprise Development For Communities	Philippines
Felipe Ronald	Argamosa	Technological University of the Philippines	Philippines
Jacob	Rasmussen	Thin Elephants	Philippines
Gonzalo	Salvador, Jr.	Technical University of the Philippines, Manila	Philippines
John John	Ong	University of Santo Tomas	Philippines
Jes Francis	Tanchuling	University of the Philippines Diliman	Philippines
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Joel Ian	Hilario	University of Santo Tomas College of Tourism and Hospitality Management Society	Philippines
Susana	Chua	World Bank	Philippines
Kenneth	Loh	BCA Academy	Singapore
Ruth	Mirasol	Bloomberg LP	Singapore
Mark	Wehling	Bloomberg New Energy Finance	Singapore
Stella	Liu	Nanyang Technological University	Singapore
Milton	Neo	National Environment Agency	Singapore
Jonas	Giuliani	Safe Gas (Singapore) Pte. Ltd.	Singapore
Emely	Bonife	SSB Cryogenic Equipment Pte Ltd	Singapore
Simone Maria	Rolfe	Strategic Adviser	Singapore
Hwee Song	Suan	Vestas Wind Systems	Singapore
Sarah	Alexander	Selco Foundation	Sri Lanka
Harsha	Wickramasinghe	Sri Lanka Sustainable Energy Authority	Sri Lanka
Nimashi	Fernando	Sri Lanka Sustainable Energy Authority	Sri Lanka
Sandra	Khananusit	CEADIR	Thailand
Nichapat	Na Thalang	Engie	Thailand
Thachatat	Kuvarakul	GIZ Thailand	Thailand
Peter	Du Pont	USAID Asia	Thailand
Boonrod	Yaowapruerk	Clean Power Asia Initiative	Thailand
Virgilio Fatima	Guterres	Electricity of Timor Leste (EDTL)	Timor-Leste
Geraldo Francisco	Magno	Ministry of Finance	Timor-Leste
Sosefina	Maileseni	Tonga Power Limited	Tonga
Divyam	Nagpal	International Renewable Energy Agency (IRENA)	United Arab Emirates
Charles	Michaelis	Strategy Development Solutions	United Kingdom
Pablo	Otin	8minutenergy Renewables	United States
Lindsay	Foley	CEADIR	United States
Mikell	O'mealy	CEADIR	United States
Roble	Velasco-Rosenheim	Asian Development Bank	United States
Derek	Sarchet	Chemonics International	United States
Michiel	Roodenburg	Global Himalayan Expedition	United States
Hoai	Huynh	Green Powered Technology	United States
Matthew	Mendis	Nexant	United States
Jason	Veysey	Stockholm Environment Institute	United States
Kristen	Madler	USAID/W Energy and Infrastructure Office	United States
Tuy Anh	Nguyen	Solarbk Esco	Vietnam
John Bruce	Wells	USAID Vietnam Low Emission Energy Program (V-LEEP)	Vietnam

Nichole	Yang	Energo Labs	China
Christoph	Menke	Trier University of Applied Sciences	Germany

ANNEX C: ASIA LEDS PARTNERSHIP SUPPORT

The Asia Low Emission Development Strategies (LEDS) Partnership is a voluntary regional network comprised of individuals and organizations from the public, private, and non-governmental sectors active in designing, promoting, and implementing sustainable strategies in Asia. Its activities respond to the demand from its members.

As a co-sponsor of this workshop, the Asia LEDS Partnership is committed to support the following priority actions identified by workshop participants. The Asia LEDS Partnership will pursue further discussions with interested members to collaborate on the design and implementation of these activities.³

India

Request: The Government of India should require renewable energy procurement for new buildings as a condition for issuing operating licenses.

Response: To support the national government in assessing the feasibility of this policy option, the Asia LEDS Partnership could provide support to selected state governments through its Remote Expert Assistance on LEDS (REAL) service for developing RE policies for different types of new construction.

Indonesia

Request: The Government of Indonesia should support demonstrations of new business models for solar energy and work with international companies and international financial institutions to increase the capacity of domestic developers to prepare high-quality technical and financial documents.

Response: The Asia LEDS Partnership could prepare a paper on business models for different scales of solar energy development and seek resources to support a deep-dive technical assistance project to develop a process for implementing high-potential business models. Through its REAL technical assistance service, the Asia LEDS Partnership can help domestic developers understand the requirements and processes for accessing finance from these international financial institutions and funds.

Philippines

Request: The Government of the Philippines should allow net metering for renewable electric power systems larger than the current 100 kW cap. The National Renewable Energy Board (NREB) should continue establishing rules and standards (e.g., Renewable Portfolio Standards, Renewable Energy Market

Asia LEDS Partnership Perspective

The private sector has demonstrated increasing commitment to meeting the demand for clean energy in South and Southeast Asia. Many governments in the region have also taken actions to improve the policy and regulatory environment, but further changes are needed, including simplifying project approval processes, increasing clean energy financing, and improving the regularity and quality of communications with the private sector.

³ The Asia LEDS Partnership's activities are planned and delivered by multiple partners, including donors, national and local government staff, and regional and international experts. The activities proposed here are subject to reconfirmation of interest, the willingness of stakeholders to collaborate, and resource allocations by partners.

Rules, and Green Energy Option Rules) to enable private sector investments. NREB should also coordinate closely with national and local government agencies to ensure effective implementation of the new rules and reduce overlaps and inefficiencies.

Response: The Asia LEDS Partnership could develop a case study on how to roll out net metering, based on the experiences of the Manila Energy Company. It could also develop a case study on effective coordination of RE development at the national and local levels of government, based on the lessons learned from NREB.

Vietnam

Request: The Government of Vietnam should provide detailed information on the Power Sector Roadmap and projected tariffs by year, increase the capacity of subnational governments on clean energy, and promote peer learning and exchanges.

Response: The Asia LEDS Partnership could support the government's efforts to prepare easy-to-understand briefers to inform private and public sector stakeholders on clean energy issues. Topics could include the role of the private sector in Vietnam's Power Sector Roadmap, the experiences of municipalities and provinces with policy and fiscal instruments, and the potential of green bonds to expand clean energy investments of companies and municipalities and to reduce financing costs.

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