



# Technical Assistance Report

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Project Number: 55124-001  
Knowledge and Support Technical Assistance (KSTA)  
July 2021

## Accelerating the Clean Energy Transition in Southeast Asia

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Asian Development Bank

## ABBREVIATIONS

ADB	–	Asian Development Bank
ASEAN	–	Association of Southeast Asian Nations
COVID-19	–	coronavirus disease
GHG	–	greenhouse gas
GMS-RPTCC	–	Greater Mekong Subregion Regional Power Trade Coordination Committee
IEA	–	International Energy Agency
SDG	–	Sustainable Development Goal
SEA	–	Southeast Asia
SEEN	–	Energy Division, Southeast Asia Department
TA	–	technical assistance
VRE	–	variable renewable energy

## NOTE

In this report, “\$” refers to United States dollars.

<b>Vice-President</b>	Ahmed M. Saeed, Operations 2
<b>Director General</b>	Ramesh Subramaniam, Southeast Asia Department (SERD)
<b>Deputy Director General</b>	Winfried Wicklein, SERD
<b>Director</b>	Toru Kubo, Energy Division (SEEN), SERD
<b>Team leader</b>	Pradeep Tharakan, Principal Climate Change Specialist, SEEN, SERD <sup>a</sup>
<b>Team members</b>	Jeffrey Almera, Senior Operations Assistant, SEEN, SERD Duy-Thanh Bui, Principal Energy Economist, SEEN, SERD <sup>b</sup> Diana Connett, Energy Specialist, SEEN, SERD Christian Ellermann, Senior Climate Change Specialist, Climate Change and Disaster Risk Management Division, Sustainable Development and Climate Change Department David Elzinga, Senior Energy Specialist (Climate Change), SEEN, SERD Florian Kitt, Energy Specialist, SEEN, SERD <sup>c</sup> Hyunjung Lee, Senior Energy Economist, SEEN, SERD <sup>d</sup> Minnie Zarah Ramas, Project Analyst, SEEN, SERD Maria Aloha Samoza, Senior Project Officer, SEEN, SERD

<sup>a</sup> Outposted to the Thailand Resident Mission.

<sup>b</sup> Outposted to the Myanmar Resident Mission.

<sup>c</sup> Outposted to the Indonesia Resident Mission.

<sup>d</sup> Outposted to the Viet Nam Resident Mission.

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## KNOWLEDGE AND SUPPORT TECHNICAL ASSISTANCE AT A GLANCE

<b>1. Basic Data</b>		<b>Project Number:</b> 55124-001	
<b>Project Name</b>	Accelerating the Clean Energy Transition in Southeast Asia	<b>Department/Division</b>	SERD/SEEN
<b>Nature of Activity</b>	Capacity Development, Policy Advice	<b>Executing Agency</b>	Asian Development Bank
<b>Modality</b>	Regular		
<b>Country</b>	REG (CAM, INO, LAO, PHI, THA, TIM, VIE)		
<b>2. Sector</b>		<b>ADB Financing (\$ million)</b>	
✓ Energy	Energy sector development and institutional reform		2.25
		<b>Total</b>	<b>2.25</b>
<b>3. Operational Priorities</b>		<b>Climate Change Information</b>	
✓ Addressing remaining poverty and reducing inequalities		GHG Reductions (tons per annum)	0.000
✓ Accelerating progress in gender equality		Climate Change impact on the Project	Medium
✓ Tackling climate change, building climate and disaster resilience, and enhancing environmental sustainability		<b>ADB Financing</b>	
✓ Strengthening governance and institutional capacity		Adaptation (\$ million)	0.00
✓ Fostering regional cooperation and integration		Mitigation (\$ million)	2.00
		<b>Cofinancing</b>	
		Adaptation (\$ million)	0.00
		Mitigation (\$ million)	1.80
<b>Sustainable Development Goals</b>		<b>Gender Equity and Mainstreaming</b>	
SDG 1.5, 1.b		Some gender elements (SGE)	✓
SDG 5.b			
SDG 7.a		<b>Poverty Targeting</b>	
SDG 13.a		General Intervention on Poverty	✓
SDG 16.8			
<b>4. Risk Categorization</b> Complex			
<b>5. Safeguard Categorization</b> Safeguard Policy Statement does not apply			
<b>6. Financing</b>			
<b>Modality and Sources</b>		<b>Amount (\$ million)</b>	
<b>ADB</b>		<b>2.25</b>	
Knowledge and Support technical assistance: Technical Assistance Special Fund		2.25	
<b>Cofinancing</b>		<b>1.80</b>	
Clean Energy Fund under the Clean Energy Financing Partnership Facility (Full ADB Administration)		1.00	
Spanish Cooperation Fund for Technical Assistance (Full ADB Administration)		0.30	
Strategic Climate Fund (Full ADB Administration)		0.50	
<b>Counterpart</b>		<b>0.00</b>	
None		0.00	
<b>Total</b>		<b>4.05</b>	
<b>Currency of ADB Financing:</b> US Dollar			



## I. INTRODUCTION

1. The knowledge and support technical assistance (TA) will support the countries of Southeast Asia (SEA) in transitioning to a cleaner energy future. While this transition is already underway in some countries, the pace of transformation needs to be accelerated across the SEA region to avert a development path inconsistent with the goals of the Paris Agreement. This transition needs to be just and inclusive,<sup>1</sup> ensuring affordable, reliable, and equitable access to energy services. The proposed TA will assist SEA countries with a comprehensive package of solutions including (i) the preparation of sectoral and country-specific assessments; (ii) the development of new business models, feasibility reports, and other technical studies; (iii) the conduct of workshops and policy dialogues; and (iv) the development of project investment pipelines to be financed by the Asian Development Bank (ADB) and other development partners.

2. The TA is well aligned with ADB's Strategy 2030 and will support several of its operational priorities.<sup>2</sup> By helping SEA countries develop clean energy solutions in an affordable manner, the TA will help widen access to energy services, thereby reducing inequalities, including gender-based ones. A transition to cleaner forms of energy will also support SEA countries in tackling climate change by reducing their greenhouse gas (GHG) emissions. In addition, activities implemented under the TA will enhance energy sector governance and transparency, foster opportunities for power system integration within the Association of Southeast Asian Nations (ASEAN), and support knowledge transfer among developing countries. Overall, the TA will strongly support Sustainable Development Goal (SDG) 1 (poverty alleviation), SDG5 (gender equality and women's empowerment), SDG7 (affordable and cleaner energy), SDG13 (climate action), and SDG16 (stronger institutions). The TA is included in the 2021 work plan for ADB's Southeast Asia Department.<sup>3</sup>

## II. ISSUES

3. **Clean energy progress in Southeast Asia.** Energy demand in the SEA region has been growing rapidly, driven by robust economic growth, demographic expansion, and increased urbanization. While the ongoing coronavirus disease (COVID-19) pandemic has slowed down energy demand growth, a rebound is expected in 2023–2025.<sup>4</sup> Traditionally, the SEA region has been reliant on fossil fuels, with coal consumption more than doubling since 2010.<sup>5</sup> The rapidly increasing energy demand is also a challenge to the long-term ambition of keeping regional GHG emissions on a trajectory consistent with the goals of the Paris Agreement. To address these challenges, it is necessary to accelerate the transition to cleaner forms of energy, which is a move toward lower carbon, less polluting, and less environmentally impactful models for energy generation, distribution, and utilization. This transition will be well aligned with the green recovery programs implemented by governments in an effort to rebound from the COVID-19 crisis, as the development of clean energy infrastructure has been shown to result in a larger proportion of local jobs and higher local economic benefits. Women would also be among the main beneficiaries of a just and equitable transition to a clean energy future.<sup>6</sup>

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<sup>1</sup> ADB has also made a commitment to just transition in its [High Level MDB Statement](#). ADB. 2020. *A Just Transition to a Low-Carbon and Climate-Resilient Asia and the Pacific*. Manila.

<sup>2</sup> ADB. 2018. [Strategy 2030: Achieving a Prosperous, Inclusive, Resilient, and Sustainable Asia and the Pacific](#). Manila.

<sup>3</sup> The TA first appeared in the business opportunities section of ADB's website on 10 May 2021.

<sup>4</sup> International Energy Agency (IEA). 2020. [World Energy Outlook 2020](#). Paris.

<sup>5</sup> IEA. 2020. [Coal 2020: Analysis and Forecasts to 2025](#). Paris.

<sup>6</sup> A study by the International Renewable Energy Agency found that women represent 32% of the renewable energy workforce, compared to 22% of the oil and gas industry workforce. International Renewable Energy Agency. 2019. [Renewable Energy: A Gender Perspective](#). Abu Dhabi.

4. The SEA region has been undergoing a clean energy transition in recent years. In 2019, for the first time, more renewable energy projects than coal projects reached final investment decision in the SEA region.<sup>7</sup> More recently, the deployment of new renewable capacity has accelerated in some countries at an unprecedented scale. In Viet Nam, utility-scale grid-connected solar photovoltaic capacity increased from only 260 megawatts in April 2019 to 5,053 megawatts in July 2020.<sup>8</sup> Similarly, Cambodia launched its first open reverse auction for new solar photovoltaic capacity in 2019. The SEA region is also quickly embracing new technologies, including offshore wind power (Viet Nam), floating solar (Indonesia), and utility-scale battery storage (Thailand).

5. Some countries in the SEA region have also indicated preliminary measures to scale back their coal generation expansion plans, cancel new coal-fired power projects in the development pipeline, or retire old plants. Viet Nam is revising its power development plan to accommodate more renewable capacity in lieu of coal. In October 2020, the Philippines announced a moratorium on new coal power plants.<sup>9</sup> The deployment of new technologies, with attendant disruptions, has also manifested in new business models, new entrants, and efforts by already established players to re-invent themselves. In the near term, decentralized renewable energy systems in combination with storage may offer cost-effective solutions to serving remote areas and small islands across the SEA region.

6. **Challenges to the cleaner energy transition.** Notwithstanding these encouraging signs, more needs to be done to accelerate the transition to cleaner energy in the SEA region. Several persistent challenges must be addressed and at scale, including policy, regulatory, and institutional capacity constraints. In some countries, development is hampered by below-cost tariffs, while in others further progress is stalled because of the perceived threat of new technologies to the traditional business models of power utilities and the high risks and uncertainties associated with certain emerging technologies. Another challenge is that power systems in the SEA region have been developed based on a traditional centralized model, with limited regional interconnection of power grids, leaving them unable to accommodate variable renewable energy (VRE) at a large scale.

7. Energy efficiency remains largely untapped in the SEA region (footnote 7). Progress has been hampered by a lack of energy efficiency policies and regulations, and energy performance standards seldom follow global best practices. Further progress is hindered by a lack of awareness and generally low levels of local expertise in energy efficiency, which are reflected in the slow adoption of “energy as a service” business models. The reluctance of national banks to finance energy efficiency projects is another constraint. SEA countries could also benefit from further cooperation at the regional level, such as the harmonization of minimum energy performance standards.

8. The power generation mix of most SEA countries is dominated by fossil fuels, namely, coal and natural gas. Despite the scaling back of project development pipelines, coal-fired power generation still features prominently in the power development plans of some SEA countries. According to its latest power development plan, Viet Nam is planning 17 gigawatts of new coal capacity by 2030, and in 2019, Cambodia signed agreements to import up to 2.4 gigawatts of coal-generated power from the Lao People’s Democratic Republic.<sup>10</sup> Existing and planned coal-

<sup>7</sup> IEA. 2019. [Southeast Asia Energy Outlook 2019](#). Paris.

<sup>8</sup> Lantau Group. 2020. ADB Assessment, Strategy and Roadmap for Viet Nam (18 October 2020). Unpublished.

<sup>9</sup> IHS Markit. 2020. [Philippines Announces Moratorium on New Coal-Fired Power](#). London.

<sup>10</sup> Phnom Penh Post. 2019. [Cambodian-Lao Coal Power Deal an Environmental Worry](#). Phnom Penh.



fired power projects have an adverse impact on the environment and health of populations, and are major contributors to GHG emissions.<sup>11</sup> At the same time, however, coal-fired generation is generally perceived as a well-proven, reliable, and affordable technology. In addition, coal is widely available, and the industry is a significant contributor to the economy in some SEA countries.<sup>12</sup> Therefore, the phasing out of coal needs to consider broader socioeconomic impacts within the context of a just transition in impacted countries.

9. For more than 2 decades, SEA countries have been exploring opportunities for enhancing regional power interconnections and power trading through various platforms, including the ASEAN Power Grid initiative and the Greater Mekong Subregion Regional Power Trade Coordination Committee (GMS-RPTCC). Notwithstanding these efforts, regional power trade still accounts for a marginal proportion of the total power consumed in SEA. Therefore, the multiple benefits of the regional power trade and cooperation could be further leveraged.<sup>13</sup>

10. The long-term aim of reaching net-zero emissions by mid-century, consistent with the Paris Agreement goals, requires a profound transformation in how energy is produced and used. The power sector has been at the forefront of this transformation,<sup>14</sup> benefiting from the significant drop in renewable energy costs, particularly wind and solar. Transport and heavy industry sectors, where fossil fuels are more difficult to replace as cost-effectively, will take longer to decarbonize. In these sectors, the clean energy transition will first hinge on the increased electrification of transport,<sup>15</sup> and on the use of alternative fuels, such as hydrogen produced from renewable electricity (green hydrogen) in industrial processes, in the medium to long term.<sup>16</sup> Thus, a cleaner power sector will be a key enabler of this transition to clean energy.

11. Finally, crosscutting the issues outlined in paras. 6–10, the development of cost-effective energy infrastructure in several SEA countries has been hindered by inadequate sector governance and transparency. This is reflected in the limited public disclosure of the terms and conditions of power purchase agreements, owing to the region's preference for negotiated bilateral agreements rather than reverse auctions. This has led to information asymmetry, conflicts of interest, high transaction costs, noncompetitive pricing, and often poor-quality services.

12. **ADB's role and value addition.** ADB has been a key development partner supporting SEA countries in the transition to a cleaner energy future through a combination of TA, policy dialogue, transaction advisory services, and financing of first-mover projects and investments. For example, ADB has been financing the private sector across the SEA region to invest in the first set of renewables and renewables-plus-storage projects, electric vehicles, and battery charging infrastructure. In the public sector, ADB provided transaction advisory support for the first utility-scale reverse auction in Cambodia, which led to the lowest power purchase tariff for a solar project in SEA, and has spurred similar efforts across the SEA region. ADB has been also a key proponent of the regional power trade and interconnections through its support of technical studies and policy dialogue, and financing for certain keystone projects under the auspices of the

<sup>11</sup> In 2018, an estimated 450,000 deaths in SEA were attributed to air pollution. National Bureau of Asian Research. 2020. [Powering Southeast Asia: Meeting the Region's Electricity Needs](#). Washington, DC.

<sup>12</sup> For example, Reuters. 2020. [Miners Welcome Indonesia's New Jobs Bill that Could Spur Coal Growth](#). London.

<sup>13</sup> IEA. 2019. [Establishing Multilateral Power Trade in ASEAN](#). Paris.

<sup>14</sup> IEA. 2020. [Power Systems in Transition—Challenges and Opportunities Ahead for Electricity Security](#). Paris.

<sup>15</sup> World Economic Forum. 2018. [The Electrification of Transport Could Transform Our Future—If We Are Prepared for It](#). Geneva.

<sup>16</sup> M. Noussan et al. 2021. [The Role of Green and Blue Hydrogen in the Energy Transition—A Technological and Geopolitical Perspective](#). *Sustainability* (13).

GMS-RPTCC. While ADB has supported improved governance in the sector as well as energy efficiency investments, these are two areas where more needs to be done.<sup>17</sup>

13. ADB is well-positioned to continue driving the clean energy transition in the SEA region, and this dovetails effectively with its ongoing effort to support its developing member countries in designing and delivering green recovery programs in response to the COVID-19 pandemic. The TA will build on the outcomes of ADB's TA for Integrated Resource Planning with Strategic Environmental Assessment for Sustainable Power Sector Development in the Greater Mekong Subregion,<sup>18</sup> and other country-specific activities that have been piloting clean energy technologies and business models. Further, it will complement efforts organized under ADB's ASEAN Scaling UP Renewables + Storage (ASSURE) initiative.<sup>19</sup> Opportunities for synergies under a single ADB umbrella will be proactively explored, especially with the ASEAN Catalytic Green Finance Facility, ADB's Office of Public–Private Partnership, a regional knowledge and support TA on developing next generation renewable energy opportunities by the private sector in SEA,<sup>20</sup> as well as energy sector interventions proposed by ADB's Private Sector Operations Department. The TA will also draw on lessons from other regional departments of ADB and sector thematic groups. In addition, collaboration and coordination on the clean energy transition will be sought with other development partners. In particular, the TA will engage closely with other multilateral development institutions and commercial banks with a view to leverage additional resources and harmonizing co-financing. Lastly, given the importance of improving access to knowledge and information to increase the capacities of developing member countries on clean energy, a plan will be prepared to disseminate all knowledge products completed under the TA to a wider audience.

### III. THE TECHNICAL ASSISTANCE

#### A. Impact and Outcome

14. The TA is aligned with the following impact: transition to cleaner forms of energy in SEA achieved.<sup>21</sup> The TA will have the following outcome: enabling conditions for clean energy transition created and enhanced.<sup>22</sup> Activities under the TA will support catalyzing public and private sector capital for clean energy investments in the region, which could increase by 100% by 2024 relative to 2019. The TA will also facilitate a just transition and contribute to women's empowerment and gender equality by fostering opportunities to create jobs for women and by supporting gender-sensitive and socially inclusive energy sector policies.

#### B. Outputs, Methods, and Activities

15. **Output 1: Coal and other fossil fuel-based generation assets phased-out.** The TA will support (i) the design of a funding mechanism to support the early retirement of coal and other

<sup>17</sup> ADB. 2020. [Sector-Wide Evaluation \(August 2020\): ADB Energy Policy and Program, 2009–2019](#). Manila.

<sup>18</sup> ADB. 2015. [Technical Assistance for Integrated Resource Planning with Strategic Environmental Assessment for Sustainable Power Sector Development in the Greater Mekong Subregion](#). Manila (TA 9003-REG).

<sup>19</sup> ASSURE is an ADB initiative that aims to deploy renewables and storage on a large scale through the catalyzation of green finance from public and private sources.

<sup>20</sup> This regional knowledge and support TA, titled "Developing Private Sector Next-Generation Renewable Energy Opportunities in Southeast Asia" (project number 54455-001), is expected to be approved in Q3 2021.

<sup>21</sup> ADB. 2018. [Strategy 2030: Achieving a Prosperous, Inclusive, Resilient, and Sustainable Asia and the Pacific](#). Manila; and United Nations. 2015. [The Paris Agreement](#). New York.

<sup>22</sup> The design and monitoring framework is in Appendix 1.

fossil fuel-based generation assets,<sup>23</sup> and (ii) the establishment of a fund or facility to develop clean energy infrastructure. This work will build on the results and recommendations of an ADB-funded prefeasibility study on the viability of setting up a carbon-reduction facility.<sup>24</sup> Activities will include the development of country-specific plans for coal asset retirement with comprehensive analysis of the associated economic and social benefits, establishment of the funding mechanism, and preparation of the implementation rules and procedures of the fund or facility.<sup>25</sup>

**16. Output 2: Renewable energy solutions scaled-up.** The TA will enhance opportunities for public- and private-sector investments in new renewable energy capacity. The TA will support SEA countries to overcome barriers to the uptake of renewable energies, including (i) VRE (solar and wind); (ii) waste-to-energy; (iii) flexible generation dispatch technologies (e.g., battery storage and hydropower); (iv) emerging technologies and services (e.g., offshore wind power, floating solar, and electrical mobility); and (v) markets for innovative ancillary services.<sup>26</sup> The TA will assess opportunities to integrate these technologies and services across multiple sectors, especially in urban settings, and to raise capital through green financing options. To this end, the TA will support the preparation of technical and sectoral studies,<sup>27</sup> the design and conduct of large-scale reverse auctions, and de-risking and mobilization of private sector capital for these investments, including through the use of green and climate finance.

**17. Output 3: Energy efficiency solutions expanded.** The TA resources will help improve energy efficiency in buildings, appliances, and the industrial sector. It will draw on ADB's experiences from Cambodia, Indonesia, Thailand, and Viet Nam. In Cambodia, ADB is currently supporting the development of key enabling policies and the scoping of a public investment program, while in Indonesia ADB is assessing the market for energy service companies. In Thailand and Viet Nam, ADB is working with national power utilities in the development of “energy as a service” business models.<sup>28</sup> The TA will support the drafting and enactment of policies, regulations, and standards on energy efficiency; the design and organization of public procurement programs for more efficient appliances; and the development of new projects and business opportunities centered on “energy as a service” for the digital economy.

**18. Output 4: Energy sector governance and transparency enhanced.** Increasing shares of VRE, decentralized power generation, and technological innovation present new challenges to the energy sector public institutions in the SEA region. Enhancing energy sector governance and transparency will allow them to manage these challenges more efficiently. A priority area is the need to increase disclosure of electricity contracts, especially of fossil fuel-based power generation assets. The TA will build on the outcomes of an ongoing ADB-funded study assessing the benefits of power purchase agreement disclosure by working with selected SEA countries in adopting best practices. The TA will also support additional sector reforms in coordination with other ongoing TA activities in the SEA region.<sup>29</sup>

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<sup>23</sup> The mechanism proposed under this TA will focus on one component of phasing-out coal and other fossil-fuel based generation assets: legacy coal-fired power plants. Plants that have been recently announced or that are in the development pipeline shall be addressed through other approaches, which could include moratoriums on future expansion.

<sup>24</sup> This prefeasibility study is expected to be completed in August 2021.

<sup>25</sup> SEA countries with high shares of electricity generated from coal are the most likely candidates for these activities. Output 1 will also explore opportunities for the retirement of carbon-intensive fuels from the power generation mix, namely, diesel and heavy fuel oil, with just transition considerations.

<sup>26</sup> These include grid stability services, such as voltage control, frequency reserve, and inertial response.

<sup>27</sup> Study topics will include a gender perspective and may focus on women's participation in renewables.

<sup>28</sup> Business models whereby a service provider offers various energy-related services rather than only supplying electricity. These could include energy advisory, asset installation, and financing and energy management solutions.

<sup>29</sup> Engagement with civil society organizations will be considered when implementing activities under this output.

19. **Output 5: Regional power grid integration enhanced.** The TA will support two major activities under this output. First, it will enable ADB to continue serving as the secretariat of the GMS-RPTCC and build a stronger link with similar activities undertaken at the ASEAN level under the ASEAN Power Grid initiative. In this role, ADB will continue supporting discussions on power trade, facilitate the establishment of multilateral agreements, and support the preparation of technical studies and pilot projects.<sup>30</sup> Second, the TA will leverage these platforms to fully realize opportunities for regional cooperation related to outputs 1–4. In particular, the TA will explore opportunities for the harmonization of minimum energy performance standards among countries and the accreditation of technicians and facilities for equipment testing. Activities under this output will build on the recommendations of a review conducted by ADB during the second quarter of 2021 on lessons over its 20-year experience in support of the regional power trade in countries in the Greater Mekong Subregion.

### C. Cost and Financing

20. The TA is estimated to cost \$4.05 million, of which (i) \$2.25 million will be financed on a grant basis by ADB's Technical Assistance Fund (TASF 7: \$0.25 million, TASF-other sources: \$2.00 million); (ii) \$1.0 million will be financed on a grant basis by the Clean Energy Fund<sup>31</sup> under the Clean Energy Financing Partnership Facility and administered by ADB, (iii) \$0.5 million will be financed on a grant basis by the Strategic Climate Fund and administered by ADB, and (iv) \$0.3 million will be financed on a grant basis by the Spanish Cooperation Fund for Technical Assistance and administered by ADB.<sup>32</sup> The key expenditure items are listed in Appendix 2.

### D. Implementation Arrangements

21. ADB will administer the TA. ADB's Southeast Asia Department through its Energy Division (SEEN) will implement the TA in collaboration with the GMS-RPTCC and energy ministries of SEA countries to identify specific needs and priority issues aligned with the scope of the TA. SEEN will also coordinate closely with ADB resident missions in SEA countries and other development partners. The TA will be implemented over a period of 36 months, from June 2021 to June 2024.

22. Implementation arrangements are summarized in the table.

Implementation Arrangements			
Aspects	Arrangements		
Indicative implementation period	June 2021–June 2024		
Executing agency	ADB		
Implementing agencies	Energy Division, Southeast Asia Department in collaboration with the GMS-RPTCC and energy ministries of Southeast Asian countries		
Consultants	To be selected and engaged by ADB		
	Firm: QCBS (90:10)	Set up of energy transition mechanism (output 1)	\$1,500,000

<sup>30</sup> Technical studies and pilots will be conducted from a gender perspective. In addition, the development of country-specific plans will be based on a thorough analysis of the context of relevant national climate policy, including the countries' Nationally Determined Contributions, long-term strategies, and relevant announcements related to accelerated decarbonization (e.g., zero-emissions strategies).

<sup>31</sup> Financing partners: the governments of Australia, Norway, Spain, Sweden, and the United Kingdom.

<sup>32</sup> The grants from the Strategic Climate Fund and the Spanish Cooperation Fund for Technical Assistance will be allocated to activities on energy efficiency in Thailand.

Aspects	Arrangements		
	Firm: QCBS (90:10)	Energy efficiency package (output 3)	\$250,000
	Individual selection (multiple positions)	International expertise (61 person-months)	\$1,073,600
	Individual selection (multiple positions)	National expertise (152 person-months)	\$836,000
Disbursement	Disbursement of technical assistance resources will follow ADB's <i>Technical Assistance Disbursement Handbook</i> (2020, as amended from time to time).		

ADB = Asian Development Bank, GMS-RPTCC = Greater Mekong Subregion Regional Power Trade Coordination Committee, QCBS = quality- and cost-based selection.

Source: ADB.

23. **Consulting services.** ADB will engage the consultants following the ADB Procurement Policy (2017, as amended from time to time) and its associated staff instructions.<sup>33</sup> The consultants will primarily consist of energy sector specialists; financial, economic, legal, gender, social, environmental, and other specialists will be recruited as necessary. Consulting firms will be recruited using quality- and cost-based selection (90:10) with a full technical proposal to carry out work under output 1 and with a simplified technical proposal to carry out work under output 3. For the remaining expertise required, individual consultants will be engaged through an individual consultant selection process for single positions (footnote 33).

24. **Cofinancier requirements.** SEEN staff will inform the Partner Funds Division of ADB's Sustainable Development and Climate Change Department on the major milestones of the TA processing and implementation, including ADB's approval, major and minor changes in scope, and completion. Additionally, and as applicable, the support of partner donors will be highlighted in all knowledge-related activities (e.g., technical workshops, reports, and presentations).

#### IV. THE PRESIDENT'S DECISION

25. The President, acting under the authority delegated by the Board, has approved (i) the Asian Development Bank (ADB) administering a portion of technical assistance not exceeding the equivalent of \$1,000,000 to be financed on a grant basis by the Clean Energy Fund under the Clean Energy Financing Partnership Facility, (ii) ADB administering a portion of technical assistance not exceeding the equivalent of \$500,000 to be financed on a grant basis by the Strategic Climate Fund, (iii) ADB administering a portion of technical assistance not exceeding the equivalent of \$300,000 to be financed on a grant basis by the Spanish Cooperation Fund for Technical Assistance, and (iv) ADB providing the balance not exceeding the equivalent of \$2,250,000 (\$250,000 from TASF 7 and \$2,000,000 from TASF-other sources) on a grant basis for Accelerating the Clean Energy Transition in Southeast Asia, and hereby reports this action to the Board.

<sup>33</sup> Terms of Reference for Consultants (accessible from the list of linked documents in Appendix 3).

## DESIGN AND MONITORING FRAMEWORK

Impact the TA is Aligned with			
Transition to cleaner forms of energy in Southeast Asia achieved <sup>a</sup>			
Results Chain	Performance Indicators	Data Sources and Reporting Mechanisms	Risks and Critical Assumptions
<b>Outcome</b> Enabling conditions for clean energy transition created and enhanced	<b>By 2024:</b> a. ADB-enabled <sup>b</sup> public and private investments in clean energy increased to at least \$600 million per year (2021 baseline: \$300 million) (OP 1.2, OP 1.3, OP 3.1, OP 6.1, OP 7.1)  b. Total clean energy investments in SEA countries increased by at least 100% (2019 baseline: \$15 billion) <sup>c</sup> (OP 1.2, OP 1.3, OP 3.1, OP 6.1, OP 7.1)  c. At least two new gender-sensitive and socially inclusive energy sector policies and strategies supported (2021 baseline: 0) (OP 2.1)	a. Progress reports; country operations business plans  b. IEA report, IRENA report, Bloomberg New Energy Finance, or other similar energy sector publication  c. Progress reports	R: Political and macroeconomic instability, including due to debt and protracted recovery from the coronavirus disease pandemic  R: Shift of SEA countries' priorities away from clean energy
<b>Outputs</b> 1. Coal and other fossil fuel-based generation assets phased-out  2. Renewable energy solutions scaled-up	<b>By 2024:</b> 1a. A gender-responsive and inclusive plan for coal asset retirement prepared for at least one SEA country (2021 baseline: 0)  1b. Rules and procedures for fund(s) / facility(ies) to support the retirement of coal assets and the transition to clean energy infrastructure prepared (2021 baseline: 0)  1c. At least \$250 million in seed funding mobilized to establish the fund(s) / facility(ies) (2021 baseline: 0) (OP 3.1)  2a. At least two resource assessments on wind and solar conducted (2021 baseline: 0)  2b. At least three prefeasibility studies on wind or solar projects conducted, with gender assessments included in all studies (2021 baseline: 0)  2c. At least one utility-scale reverse auction conducted (2021 baseline: 0) (OP 3.1)	1a.–1c. Progress reports          2a.–2f. Progress reports	R: Incumbent players' resistance to change may delay the adoption of new business models  R: Insufficient political support for significant shift away from coal    R: SEA countries' commitment to clean energy transition weakened  R: Overcapacity in power generation mix  R: Inability to introduce major changes to power

Results Chain	Performance Indicators	Data Sources and Reporting Mechanisms	Risks and Critical Assumptions
3. Energy efficiency solutions expanded	2d. At least three gender-responsive and inclusive studies on regional best practices, guidelines, and lessons prepared (2021 baseline: 0) (OP 2.1)	3a.–3c. Progress reports	development plans already developed  R: Long lead times in issuing policies, regulations, and standards because of extensive consultation processes and/or related ministries' lack of capacity to evaluate technical documents
	2e. At least 50% of the participants in the training program on renewable energy technologies, systems integration, and/or innovative business models conducted in a SEA country report improved understanding and/or knowledge of the topics (2021 baseline: 0) (OP 3.1)		
	2f. At least 30% of participants in the training program on renewable energy technologies, systems integration, and/or innovative business models consist of women (2021 baseline: 0) (OP 2.1)		
4. Energy sector governance and transparency enhanced	3a. Development of at least three policy documents, regulations, and standards on energy efficiency in SEA countries (2021 baseline: 0) (OP 3.1)	4a.–4b. Progress reports	R: Reluctance to disclose PPA terms because of legal and confidentiality issues  R: Lack of political will to enhance energy sector governance
	3b. At least one public procurement process for energy-efficient appliances designed and organized in one SEA country (2021 baseline: 0) (OP 3.1)		
5. Regional power grid integration enhanced	3c. Development of an investment pipeline for energy efficiency projects and business models centered on energy as a service in SEA countries (2021 baseline: 0) (OP 3.1)	5a.–5f. Progress reports	R: Lack of political will and leadership to enhance regional cooperation on power trade
	4a. Guidelines on PPA terms disclosure prepared based on regional and global best practices and presented in a high-level regional forum (2021 baseline: 0) (OP 6.1)		
	4b. Best practice guidelines on PPA terms disclosure adopted in at least one SEA country (2021 baseline: 0) (OP 6.1)		
	5a. At least two GMS-RPTCC meetings held per year, with at least 30% of the invitees consisting of women (2021 baseline: 0) (OP 7.1)		

Results Chain	Performance Indicators	Data Sources and Reporting Mechanisms	Risks and Critical Assumptions
	<p>5b. At least two technical studies on matters related to the power trade in the GMS conducted (2021 baseline: 0) (OP 7.2)</p> <p>5c. At least one annual high-level meeting on regional power trade issues organized, involving ASEAN governance bodies, with at least 30% of the invitees consisting of women (2021 baseline: 0) (OP 7.1)</p> <p>5d. At least one technical study on the regional harmonization of standards or procedures (e.g., on energy efficiency) conducted (2021 baseline: 0) (OP 7.2)</p> <p>5e. Regional project pipeline developed (2021 baseline: 0)</p> <p>5f. At least 30% of the participants in the training program on regional power grid integration conducted (with at least 30% of the invitees consisting of women) report improved understanding and/or knowledge of the topics (2021 baseline: 0) (OP 7.1)</p>		
<b>Key Activities with Milestones</b> <ol style="list-style-type: none"> <li><b>1. Coal and other fossil fuel-based generation assets phased-out</b> <ol style="list-style-type: none"> <li>1.1 Perform analysis of the coal power generation fleet in relation to power sector development plans in several SEA countries to determine the potential for a significant share of retirement (Q2 2022).</li> <li>1.2 Estimate the cost and value to retire a share of the coal fleet and shift to clean power generation (Q2 2022).</li> <li>1.3 Seek endorsement of country-specific plans for coal asset retirement by several SEA governments (Q2 2023).</li> <li>1.4 Consult with financial experts and develop rules and procedures for fund(s) / facility(ies) to support the retirement of coal assets and transition to clean energy infrastructure t, including considerations for the just transition of impacted populations (Q3 2022).</li> <li>1.5 Market to potential funders, both public and private, to seek \$250 million in seed funding to operationalize the fund / facility (Q3 2023).</li> <li>1.6 Develop scale-up plans to extend the fund / facility beyond SEA countries with potential private and public sector partners (Q1 2024).</li> </ol> </li> <li><b>2. Renewable energy solutions scaled-up</b> <ol style="list-style-type: none"> <li>2.1 Finalize the first renewable energy resource assessment in an SEA country (to be selected) (Q3 2022).</li> <li>2.2 Finalize the second renewable energy resource assessment in an SEA country (to be selected) (Q3 2023).</li> <li>2.3 Finalize the first country-specific prefeasibility study in renewable energy (wind or solar) (Q4 2022).</li> <li>2.4 Finalize the second country-specific prefeasibility study in renewable energy (wind or solar) (Q2 2023).</li> <li>2.5 Finalize the third country-specific prefeasibility study in renewable energy (wind or solar) (Q2 2024).</li> </ol> </li> </ol>			



**Key Activities with Milestones**

- 2.6 Conduct utility-scale reverse auction for renewable energy capacity in an SEA country (to be selected) (Q3 2023).
- 2.7 Finalize the first study on regional best practices, guidelines, and/or lessons (Q1 2022).
- 2.8 Finalize the second study on regional best practices, guidelines, and/or lessons (Q1 2023).
- 2.9 Finalize the third study on regional best practices, guidelines, and/or lessons (Q1 2024).
- 2.10 Conduct a training program on renewable energy technologies, systems integration, and/or innovative business models (Q4 2023).

**3. Energy efficiency solutions expanded**

- 3.1 Design and organize a public procurement process for energy-efficient appliances in selected SEA countries (Q3 2023).
- 3.2 Put in place policies, regulations, and standards on energy efficiency in selected SEA countries (Q1 2024).
- 3.3 Prepare an investment pipeline for energy efficiency projects and business models centered on energy as a service in selected SEA countries (Q1 2024).

**4. Energy sector governance and transparency enhanced**

- 4.1 Develop guidelines on PPA terms disclosure based on best practices in other regions (Q2 2022).
- 4.2 Present guidelines on PPA terms disclosure in a high-level regional forum (Q3 2022).
- 4.3 Conduct senior management- and expert-level discussions and capacity building for the adoption by governments of guidelines on PPA terms disclosure (Q1 2024).

**5. Regional power grid integration enhanced**

- 5.1 Conduct GMS-RPTCC meetings biannually (first by Q2 2021, last by Q2 2024).
- 5.2 Finalize the first technical study on topics related to power trade in the GMS (Q4 2022).
- 5.3 Finalize the second technical study on topics related to power trade in the GMS (Q2 2024).
- 5.4 Organize the first annual high-level meeting on regional power trade issues involving ASEAN governance bodies (Q4 2022).
- 5.5 Organize the second annual high-level meeting on regional power trade issues involving ASEAN governance bodies (Q4 2023).
- 5.6 Conduct technical study on regional harmonization of standards and procedures (e.g., on energy efficiency) (Q4 2022).
- 5.7 Finalize regional project pipeline (Q1 2024).
- 5.8 Organize one ministerial meeting on regional power grid integration at either the GMS or ASEAN level (Q4 2023).
- 5.9 Conduct training program on regional power grid integration (Q4 2023).

**Inputs**

ADB: \$2,250,000 Technical Assistance Special Fund (TASF 7: \$250,000 and TASF-other sources: \$2,000,000)  
 Clean Energy Fund under the Clean Energy Financing Partnership Facility: \$1,000,000  
 Strategic Climate Fund: \$500,000  
 Spanish Cooperation Fund for Technical Assistance: \$300,000

ADB = Asian Development Bank, ASEAN = Association of Southeast Asian Nations, GMS = Greater Mekong Subregion, GMS-RPTCC = GMS Regional Power Trade Coordination Committee, IEA = International Energy Agency, IRENA = International Renewable Energy Agency, OP = operational priority, PPA = power purchase agreement, Q = quarter, R = risk, SEA = Southeast Asia, TA = technical assistance. TASF = Technical Assistance Special Fund.

<sup>a</sup> ADB. 2018. [Strategy 2030: Achieving a Prosperous, Inclusive, Resilient, and Sustainable Asia and the Pacific](#). Manila; and United Nations. 2015. [The Paris Agreement](#). New York.

<sup>b</sup> ADB-enabled investments are those resulting from assistance work developed under this TA, such as the issuance of an enabling policy, a renewable energy resource assessment, and/or prefeasibility study.

<sup>c</sup> IEA. 2020. [World Energy Investment 2020](#). Paris. 2019 is the earliest year for which data are available. The baseline is an approximate figure for renewable energy investments.

**Contribution to Strategy 2030 Operational Priorities:**

The expected values and methodological details for all OP indicators to which this TA will contribute results are detailed in the Contribution to Strategy 2030 Operational Priorities (accessible from the list of linked documents in Appendix 3). Source: ADB.

**COST ESTIMATES AND FINANCING PLAN**  
(\$'000)

Item	Amount				Total
	ADB <sup>a</sup>	Clean Energy Fund <sup>b</sup> under the Clean Energy Financing Partnership Facility	Strategic Climate Fund <sup>c</sup>	Spanish Cooperation Fund for Technical Assistance <sup>d</sup>	
<b>A. Consultants</b>					
1. Remuneration and per diem					
a. International consultants	1,278.6	568.3	270.6	170.5	2,288.0
b. National consultants	400.0	273.2	130.1	82.0	885.3
2. Out-of-pocket expenditures					
a. International and local travel	270.6	24.8	11.8	7.5	314.7
b. Reports and communications	14.0	6.2	3.0	1.8	25.0
c. Miscellaneous administration and support costs	14.0	6.2	2.9	1.8	24.9
<b>Subtotal (A)</b>	<b>1,977.2</b>	<b>878.7</b>	<b>418.4</b>	<b>263.6</b>	<b>3,537.9</b>
<b>B. Training, Seminars, and Conferences<sup>e</sup></b>					
1. Venue rental and related facilities	39.1	17.4	8.3	5.2	70.0
2. Participants	44.7	19.9	9.5	6.0	80.1
<b>Subtotal (B)</b>	<b>83.8</b>	<b>37.3</b>	<b>17.8</b>	<b>11.2</b>	<b>150.1</b>
<b>C. Contingencies</b>	<b>189.0</b>	<b>84.0</b>	<b>40.0</b>	<b>25.2</b>	<b>338.2</b>
<b>D. Miscellaneous Administrative Expenses<sup>f</sup></b>			<b>23.8</b>		<b>23.8</b>
<b>Total</b>	<b>2,250.0</b>	<b>1,000.0</b>	<b>500.0</b>	<b>300.0</b>	<b>4,050.0</b>

ADB = Asian Development Bank.

Note: The technical assistance is estimated to cost \$4.05 million, of which contributions from ADB, the Clean Energy Fund under the Clean Energy Financing Partnership Facility, the Strategic Climate Fund, and the Spanish Cooperation Fund for Technical Assistance are presented in the table.

<sup>a</sup> Financed by ADB's Technical Assistance Special Fund (TASF -other sources and TASF 7).

<sup>b</sup> Financing partners: the governments of Australia, Norway, Spain, Sweden, and the United Kingdom. Administered by ADB.

<sup>c</sup> Under the Scaling Up Renewable Energy Program in Low-Income Countries. Administered by ADB.

<sup>d</sup> Administered by ADB.

<sup>e</sup> Training, seminars, and conferences will be conducted to support design and monitoring framework activities 2.10, 4.3, 5.1, 5.4, 5.5, and 5.8.

<sup>f</sup> Fees amounting to \$23,810 for ADB to administer the grant component from the Strategic Climate Fund.

Source: ADB estimates.

**LIST OF LINKED DOCUMENTS**

<http://www.adb.org/Documents/LinkedDocs/?id=55124-001-TARreport>

1. Terms of Reference for Consultants
2. Contribution to Strategy 2030 Operational Priorities

**Supplementary Document**

3. Approved Technical Assistance Concept Paper