



**The Energy Transition
Partnership (ETP)**

**Energy Efficiency Innovation
Funding Window**

Concept Note | 05 July 2021

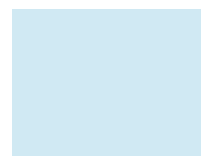
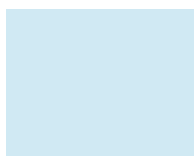
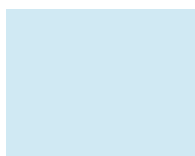


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1 BACKGROUND

| UNOPS and the Energy Transition Partnership (ETP)

1. The Energy Transition Partnership (ETP) is a multi-stakeholder platform that aims to accelerate the energy transition in Southeast Asia and deliver the Paris Agreement targets on climate change by bringing together government donors, philanthropies and partner governments. ETP aims to empower its partner countries to transition towards an energy system that simultaneously ensures environmental sustainability, economic growth and energy security. To achieve this goal, ETP will mobilize and coordinate the necessary technical and financial resources to create an enabling environment for renewable energy, energy efficiency and sustainable infrastructure in the region.
2. ETP aims to deliver joint action, improved coordination and dialogue to accelerate the energy transition in the region by addressing impediments to renewable energy, energy efficiency and sustainable infrastructure. ETP Members have come together to fund ETP to (1) support an improved delivery environment to accelerate the energy transition in Southeast Asia; (2) improve coordination between other relevant initiatives in the region, including capital investments and technical assistance; and (3) where possible and appropriate, to promote communication and knowledge-sharing among stakeholders in the region on the energy transition.
3. With an initial focus on Indonesia, the Philippines and Vietnam, ETP has a mandate to mobilise resources and coordinate the necessary technical assistance to create an enabling environment for the energy transition. This includes high-level technical advisory support, grant-making and capital investment programmes, capacity and skills development programs, and convening of cross-sectoral dialogues with decision-makers and broader sets of stakeholders.

| The need for catalytic funding mechanisms for energy efficiency projects

4. With regard to the energy transition in Southeast Asia (and globally), all credible studies and plans point to the need for energy efficiency to play a prominent role in achieving both cost-effective emissions reductions and improving the utilisation of investments into available energy system resources. The practical challenge that designers of programs and initiatives face, however, is that despite the fact that the financial returns of energy savings investments are routinely identified in studies of

energy efficiency's potential, the status quo remains that there is substantial under-investment in cost-effective energy efficiency initiatives. This "EE investment gap" persists, almost universally, across all countries.¹ The unfortunate reality is that both the number of "implementation-ready" EE projects, and the availability of financing for such projects, remain suboptimal because of the following common barriers:

- (i) Low awareness of energy efficiency. There are deficits in awareness and knowledge related to energy efficiency among many stakeholders, including owners of energy-consuming facilities in the industrial, commercial and governmental sectors. This lack of awareness has been reinforced in many places by historically subsidized low electricity rates, which materially reduce the efficiency payoffs that may be realized by facility owners, and result in unacceptably long paybacks and low internal rates of return (IRR) on any such investments, including for up-front investments of capital. Higher electricity prices will not alone, however, be a key driver for energy efficiency uptake; even where returns from energy efficiency are highly attractive there is systemic under-investment, and behavioural and structural barriers to action remain more important.

- (ii) Lack of technical capacity and project development skills, which leads to a general lack of confidence among local facility owners and investors that the EE savings projected for future projects can be achieved and verified. Local engineers, vendors, consultants and Energy Service Companies (ESCOs) often produce energy audits that identify opportunities that are not viewed as "bankable" by investors, due to insufficient data, or due to incorrect baselines and savings estimates. Most service providers are not qualified to prepare investment grade audits and perform other critical development tasks required to attract finance. There are also clear gaps in the knowledge and experience of local energy auditors in knowing how to help structure low-risk project loans, and to prepare measurement and verification (M&V) plans according to accepted international protocols.²

¹ There is no definitive global study of the energy efficiency investment gap, however, it has been studied at a national and regional level for many years – see for instance:

https://ec.europa.eu/info/news/closing-gap-energy-efficiency-investments-2020-d-ec-22_en,

https://unfccc.int/sites/default/files/resource/367_Investments_Policy_Brief_2018-10-26.pdf, and

² See for example the International Performance Measurement and Verification Protocol (IPMVP®), owned by the Efficiency Valuation Organization (EVO) and available for free download at www.evo-world.org and

<https://www.adb.org/sites/default/files/publication/648701/adb-wp1196.pdf>.

- (iii) The small scale of EE projects, coupled with their complexity, lead to perceptions of high risk. The global average investment for an energy efficiency project is very small (less than USD 1 million), and such a project typically contains multiple energy-savings measures, each of which can require a separate M&V protocol to measure the savings return on its investment. These small transactions and benefits, coupled with the perceived administrative complexities, make it challenging for a facility owner to want to commit to energy-efficiency investments in their facilities. These “transaction costs” also lead to a perception among financial institutions that the potential market for loans to energy-efficiency projects is small, high-risk, and time-consuming to exploit, making them unwilling to invest in the internal capacity needed to understand or assess the risks and benefits of lending to such projects. One way to overcome some of these limitations is to appoint a “Super-ESCO” whereby a larger ESCO with more financial strength can provide greater surety for achieving financial savings on larger projects, a strategy that inspires more confidence among financiers. Super-ESCO can then sub-contract smaller ESCOs to undertake the installations and make smaller payments, thereby reducing transaction costs and unlocking capital for larger EE projects. A related advantage of this scaled-up approach is that larger organizations can look towards aggregation of energy efficiency demand across different organizations, through applying common project development, procurement, and deployment techniques across multiple projects.
- (iv) Lack of consistently enforced regulations that mandate implementation of cost-effective energy efficiency measures; create minimum energy performance standards (MEPS) for appliances or facilities; certify or accredit the capabilities of ESCOs or energy auditors to assess and verify energy savings measures; or remove existing regulatory barriers for governments to engage the private sector to implement and finance projects in state-run facilities.
- (v) No commercially attractive local financing offered by local financial institutions (LFIs) for project-based lending. This financing gap is not caused by a lack of available funds, but rather by a disconnect between the traditional lending practices of LFIs and the project-based financing needed by facility owners, ESCOs and other developers of energy efficiency projects. LFIs often have a low level of familiarity and comfort with the technologies generating the savings, and an unclear legal basis on which to contract and/or take security over their investments. This leads to a reluctance to enter long-term contracts to finance and implement projects based on project revenue streams. The

result is that LFIs typically apply a traditional, “asset-based” corporate lending approach for EE projects, which limits the amount that they lend to a maximum of 70% to 80% of the capital expenditure, and require full collateral on the entire loan amount, generally assigning no value to the future cash flow of the project. This results in LFIs being reluctant to structure EE project loans that are attractive. In addition, most LFIs lack the internal evaluation capacity needed to assess the risks and cash-flow benefits generated from industrial efficiency projects.

5. Overall, rather than being driven by effective enabling policy, the decision-making process regarding investments in energy-efficient technologies is shaped by the internal rules and culture of individual organisations. For a wide range of reasons, and despite at least two decades of programs aimed at spurring energy-efficiency practices and investments across the region, many organizations in Southeast Asia have not even begun to seriously consider implementing energy-efficiency projects in their facilities. This simple fact explains why energy-efficiency opportunities are so abundant in the Southeast Asia market—even for the most fundamental of energy saving technologies. Recent experience with development partners programs to promote energy efficiency in Southeast Asia is depicted in **Annex 1**.

2 THE ENERGY EFFICIENCY INNOVATION WINDOW

| Window Objectives

6. The proposed ETP **Energy Efficiency (EE) Innovation Window** can provide an effective pathway through which ETP can provide early-stage grant financing for innovative approaches to address the systemic problem of under-investment into energy efficiency in Southeast Asia. This will allow for a consistent, rapid, and non-duplicative assessment of the many small solicitations for EE funding that are currently being received by ETP on an ad hoc basis. If well-targeted and efficiently implemented, this EE Innovation Window can have a material impact on some of the barriers to EE investment in the target countries mentioned above, and thereby significantly improve the uptake of energy efficiency in the region.
7. The EE Innovation Window will seek proposals for funding focused on innovations (in either technologies, business models or engagement approaches) that address one or both of the following two categories:

Category 1: Project Development Support

8. EE Innovation Window will provide grants for the development of EE projects, and for tools and approaches that support such project development. Local project developers often have limited capacity and/or experience to conceive of and design bankable projects in key sectors such as buildings and industrial facilities. However, there are many standardized project development approaches and tools that can assist in developing EE projects, including in how to assess and verify data, how to perform audits and design energy conservation measures, how to perform project measurement and verification (M&V), and how to administer projects operationally over time. Wider implementation of such best-practice approaches, and improvements of general “literacy” in relation to development of viable business cases for EE projects, will result in greater uptake of energy efficiency technologies and investments.

Category 2: Access to Energy Efficiency Finance

9. The EE Innovation Window will provide grants to support initiatives and approaches that can increase or expand access to financing for energy efficiency. As noted in Part 1 above, there is an urgent need to create better linkages between the appetite for EE investment and the needs of investors (across local financing institutions, banks and private investors, international financial institutions and development banks, and global and national climate funds). This also applies to the financing requirements of local EE project owners and those who advise them. There are a range of mechanisms by which this linkage can be achieved, many of them nascent in Southeast Asia, such as:
 - *Project aggregation models for similar technologies across different organizations* (e.g., municipal street lighting, building retrofitting for cooling, rooftop solar installations, EV fleet conversions, etc) that allow for a series of smaller projects to be “bundled” to reach a critical scale for investment.
 - *Project intermediaries and Super-ESCO-style approaches*, which can attract stronger financial backing than smaller ESCOs. These approaches create confidence in, and can help to service, larger projects and reduce perceived credit risk.
 - *Better measurement and verification of the energy savings revenue stream at the project level*, to build confidence in energy savings streams and to allow investors to apply a project financing approach, rather than simply use balance sheet financing.
 - *Innovative products such as energy savings insurance or other de-risking products*, to address concerns that financiers may have with EE project risk.
10. Such mechanisms have been studied, developed and to some extent deployed in

other countries³, and ETP could play a significant role in providing knowledge and assisting in creating similar financing mechanisms to support local EE project development in its target countries.

Category 3: Facilitation of Public Policy Implementation for Energy Efficiency

11. The EE Innovation Window will provide grants for the development of EE projects and initiatives specifically targeting the public sector. The public sector is often responsible for policies and regulations that can hinder EE investment—e.g., when government budget and procurement regulations hinder the ability of government units to carry out EE projects with ESCOs using a shared-savings or performance contracting approach. On the other hand, the public sector can create enabling conditions that can facilitate and accelerate EE investment, and government procurement can also be used as a pro-active tool to demonstrate EE technologies and business models. Proposals submitted under this category could include initiatives that address policy and regulatory gaps and opportunities; initiatives focused on public-sector procurement practices and guidelines, with the aim to promote more efficient equipment and services; or pilot public-private partnerships that bring together private capital and resources to finance or support the implementation of public-sector infrastructure.
12. The EE Innovation Window will accept proposals for funding in any of these three categories, either for direct funding, or for referral to its partner organisations for consideration for input and support (see Part 3 below, on Window Mechanics and Main Activities).

| Expected outputs and outcomes

13. ETP's results-based monitoring framework is focused on enabling Southeast Asian countries to attain their Sustainable Development Goals and Paris Climate Agreement commitments. Energy efficiency is fundamental to these objectives: the IEA estimates, in its "Efficient World" scenario, that by 2040 energy efficiency could deliver a reduction in annual energy-related emissions of 3.5 Gt CO₂-eq compared with 2017 levels, delivering over 40% of the abatement required to be in line with the Paris Climate Agreement.³ Moreover, energy efficiency delivers multiple benefits towards the achievement of the Sustainable Development Goals, across outcomes for industrial productivity, air quality, livelihoods and human health. Energy efficiency can be improved through technological innovations in energy-consuming

³ See for instance the work of the Danish Energy Agency in deploying energy savings insurance <https://www.climatefinancelab.org/project/insurance-for-energy-savings/>, and of the World Bank in supporting and structuring super ESCO models <https://openknowledge.worldbank.org/handle/10986/30385>.

products and services, by preventing energy losses in transmission and distribution systems, improving the infrastructure, by integrating nature-based solutions, and by designing and implementing suitable technical efficiency standards.

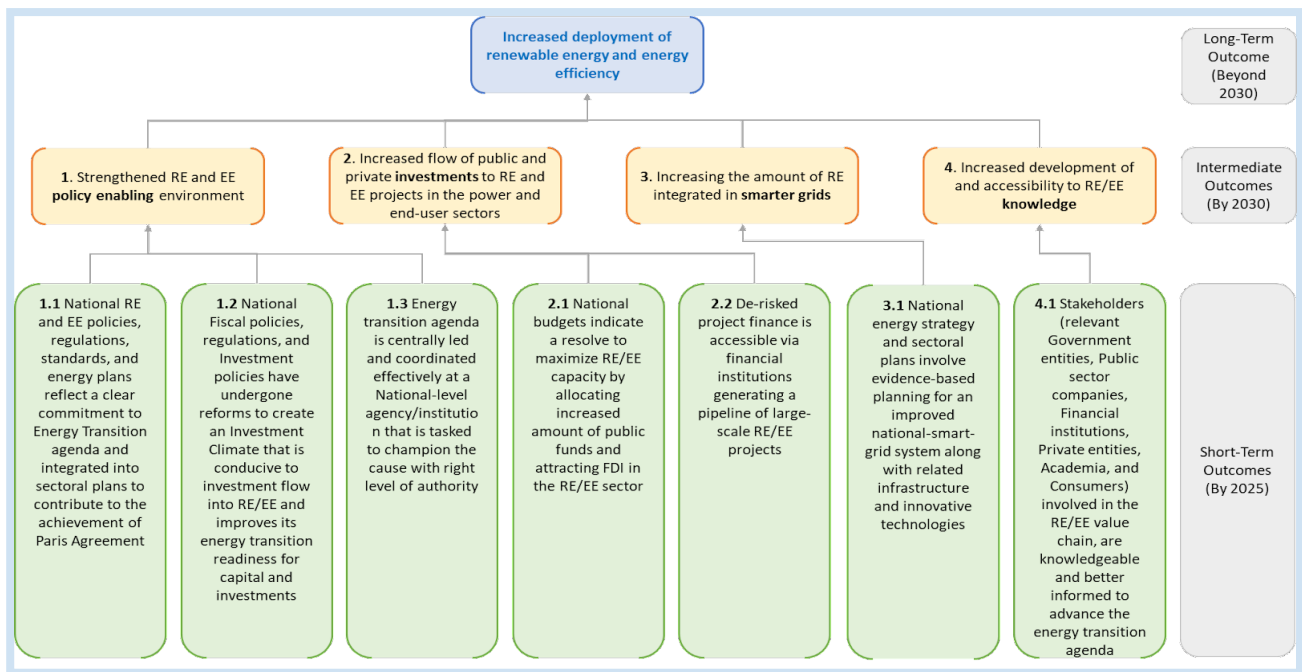
14. ETP seeks to increase the flow of public and private investments to energy efficiency projects in the energy and end-use sectors, and measures its success at this through the following performance metrics:

- *National budgets indicate a resolve to maximize RE/EE capacity by allocating increased amounts of public funds and attracting FDI into the RE/EE sector:* Through advocacy efforts and technical support, ETP would see that more public funding is allocated to the renewables sector as against the non-renewable sector that indicates the nation’s resolve to promote RE and EE. In addition, national governments advocate and seek support from foreign investments into the RE and EE sector.

Indicators

- Amount of public funding allocated to RE/EE projects
- Amount of FDI inflow into RE and EE sector initiatives

Structure of ETP’s Results-based Monitoring Framework 2021 -2025



15. Overall, it is expected that the initial \$2 million of grants through the EE Innovation Window can provide grant support for somewhere in the range of 6-12 EE projects in Southeast Asia. Grant recipients are expected to provide cost share, through

co-funding of the grant at a minimum rate of 1:1 (including direct and in-kind resources), but the catalytic effect is expected to be much larger. The grant investments will act as catalysts for expanded and increased investment in the marketplace. Each \$1.0 of grant funding is expected to unlock and leverage at least \$10 of investment into energy-efficiency projects, products, or initiatives in Southeast Asia. These figures are based on conservative expectations for the ability of catalytic investment in energy efficiency barriers to unlock significant additional investments that can be made at positive and attractive rates of return.

| Beneficiaries & Impact

16. The key target beneficiary group(s) of the EE Innovation Window comprise EE project developers and owners, their technical advisors, and potential investors in energy efficiency projects and businesses. EE project developers and owners may include private companies, civil society organizations, non-profit entities, sub-national governments, or energy sector institutions such as utilities and other market intermediaries. Entities are eligible as long as the grant project does not have the purpose of directly producing a financial profit. Grants to eligible entities can allow for a reasonable recovery of a grantee's overhead or operational costs up to a limit of 10% of the total project amount. The award of a grant to a private sector entity will require an additional pre-award due diligence review according to UNOPS guidelines.
17. ETP's mandate includes efforts to increase the availability of project finance, de-risk financial instruments, and increase the speed and scale of the development of bankable clean energy projects. Impact is expected to be recorded as a measurable increase in investments in energy efficiency from supported projects, which mirrors the ETP goal to increase public and private investments flows into energy efficiency and renewable energy in each of its target countries.

3 ACTIVITIES, TIMELINES AND BUDGET

| Window Mechanics and Main Activities

18. The EE Innovation Window will select projects for grant funding and will guide their implementation phase towards activities that create improved market conditions and "bankability" of energy efficiency projects, and that subsequently catalyse increased public investment and foreign direct investment in energy efficiency in the target countries. In terms of mechanics, it will operate in line with established UNOPS procedures for similar funding windows.
19. Eligible technologies and innovations include any that address any of the categories listed in Part 2 above (Category 1: Project Development Support; Category 2: Access

to EE Finance; Category 3: Facilitation of Policy Implementation for Energy Efficiency), and also that directly address one or more of the barriers to EE investment listed through A-E in Part 1. During the application process, ETP will explicitly screen for these questions. ETP will accept applications on an ongoing basis, with evaluation of applications carried out on a quarterly basis refer 'Project Management' below).

Eligible Technologies and Approaches

20. Successful applications will address the barriers to expanding energy efficiency investments as defined in the three categories under the EE Innovation Window, and in addition eligible technologies and interventions include the following:

- interventions that cover energy efficiency or increased productivity in the commercial, industrial or residential sectors, or efficiency-focused applications in transportation;
- smart metering, monitoring and energy use information and data;
- smart grid⁴ and control technologies;
- residential and commercial building construction and retrofitting – insulation and building envelope measures, lighting, heating and cooling (including space cooling and refrigeration), appliances, control systems, building integrated PV, hot water production;
- industrial energy performance – electric motors, drives, pumps, air compressors, boilers and thermal equipment, economizers;
- training and/or certification programs for practitioners in component parts of project development, such as energy auditing, understanding and delivering M&V for energy savings, EE project finance, and other capacity building required by the project owner.; and
- innovative approaches and support to the development of effective and innovative energy efficiency policies, that have potential to inform and influence public policy towards energy efficiency investment.

21. The initial geographic scope for interventions funded by the EE Innovation Window will be Indonesia, the Philippines and/or Vietnam. Applications for interventions and innovations that may be relevant across more than one country in this grouping (including across the Southeast Asian countries) are also accepted.

22. Beyond consideration for direct funding, and dependent on the stage of business model development and investment readiness, the EE Innovation Window may also

⁴ Includes 'Internet-of-Things'/digitalization technologies and big data approaches to achieving reductions in both overall energy demand and peak load, as well as innovative approaches to utility demand response and demand-side management programs.

direct applicants to program partners that may assist in further development and refinement of their business models, as well as for potential investment. These partners are:

- **For applications in Category 1: Project Development Support:** The Private Finance Advisory Network (PFAN). PFAN is a global network of climate and clean energy financing experts, which offers free business coaching and investment facilitation to entrepreneurs developing climate and clean energy projects in emerging markets. Initiated by the UNFCCC and the Climate Technology Initiative (CTI) in 2006, PFAN is hosted jointly by the United Nations Industrial Development Organization (UNIDO) and the Renewable Energy and Energy Efficiency Partnership (REEEP). PFAN has dedicated country coordinators in Indonesia, the Philippines and Vietnam, and has committed to offering coaching services to any projects that receive initial grant funding from ETP under this Innovation Window, with the caveat that the projects must have commercially viable business models.
- **For applications in Category 3: Access to Energy Efficiency Finance:** The Southeast Asia Clean Energy Facility (SEACEF). SEACEF is a collaboration between leading international foundations to accelerate the low carbon transition in Southeast Asia. In partnership with clean energy pioneers, governments, global philanthropic organizations, development financial institutions, NGOs and other local stakeholders, SEACEF aims to direct early-stage development capital investment into innovative, high-impact clean energy projects and businesses in critical Southeast Asian markets. Given that SEACEF is a donor-aligned initiative with ETP, and has common overall objectives related to accelerating the energy transition in Southeast Asia, SEACEF is an appropriate entity for taking up promising bankable energy efficiency projects identified by the Energy Efficiency Innovation Window that receive grant funding through this window.

23. To increase leverage of the EE Innovation Window, linkages are being actively explored with public and private institutions that may have an appetite for being an offtaker of energy efficiency infrastructure financing for grantee projects, including the multilateral and bilateral development banks, regional and local financiers. Similarly, UNOPS is fostering internal discussion with its recently launched Sustainable Infrastructure Impact Investments (S3I) Initiative, which provides investors with opportunities to generate financial returns, while ensuring their contributions are making a positive social, environmental and economic impact.

Selection Criteria

24. Eligible proposals will be scored based on the following scoring criteria. The weighting and details of the selection criteria will be developed (see Para 25), and a minimum score for eligibility will be established and included in the Call for Proposals. The

Selection Committee will include ETP Secretariat and experts from partner organisations such as SEACEF, PFAN among others.

- **Level of innovation.** Is the proposed intervention or initiative a new and creative approach? Does it bring in a new type of technology or business model?
- **Size of potential market.** What is the size of the potential market or impact of the proposed intervention or initiative?
- **Level of scalability.** Does the proposed intervention or initiative have a demonstrated pathway for scale-up and expansion—in a market, country, or geographic area?
- **Sustainability of the project.** What measures and facilities underline sustained operations of the proposal beyond the grant funding from the Window?
- **Amount of co-funding.** What is the level of co-funding identified in the proposal, including both in-kind, direct funding and aligned third-party funding?
- **Amount of financing leveraged.** What is the expected financial leverage from the intervention or initiative—i.e. what further investment and resource allocation will be realized as a result of the proposed intervention?
- **Greenhouse gas emission reductions.** What is the level of impact in terms of reduction in GHG reductions and improvement in energy intensity expected as a result of the project and what is the pathway to achieve this.

| Budget

Grants and Grant Administration

25. The proposed budget for the EE Innovation Window is:

- a. Grants:
 - USD 2 million for a 12-month implementation period. In case insufficient eligible proposals are received through the calls, the unused funds will be returned to the blended multi donor trust fund and made available for other programs.
 - Proposals will be evaluated and selected grantees will be notified within 1 month from the closing of the call. Selected grantees may need to undergo capacity and due diligence assessments subsequent to the selection as a condition for the award.
 - A replenishment of this window can be considered, subject to a review of the program and its perceived degree of success.

- b. Grant Administration: Additional limited funding will be made available at a maximum level of 10% of the total grant budget of \$1.5 million to provide for grant administration services. These resources will be used for

(i) preparatory work to launch the grant - including bringing the local financing institutions to a workshop to discuss specific impediments and causes for the underfunding of energy efficiency initiatives and to provide for open dialogue among the stakeholders, eg. project developers, consultancy entities, research institutions, associations, and energy efficiency service companies, among others to present views on how to bring forward energy efficiency in their countries,

(ii) preparation of the scoring method and matrix and engagement of technical resources and experts in energy efficiency to support selection of the most impactful proposals, and

(iii) promotion of the program and local support for administration of the grant, as necessary.

- c. Received proposals will be made available for the ETP members.

Size of Awards

26. Based on international experience, most grant windows can invest within a specified size range -- including a lower limit in some cases, and in others a ceiling size for the grant. There is some evidence to suggest that setting a ceiling size for the grants leads to most of the grant applications being at, or just below the ceiling level. This is not a desirable outcome, and it is preferable that the window support a diverse number and range of grant applications across a range of project sizes.

27. The Program envisages funding for 6-12 projects from the initial USD1.5 million window. This gives an implicit indication of overall project size expected, i.e. ranging from \$100,000 to \$250,000. This, however, does not imply that applications for larger or smaller projects would not be considered. It is also recommended that applicants provide a cost-sharing for project budgets at a ratio of 1:1 (both financial and/or in-kind contributions will be acceptable).

Project Management

28. The EE Innovation Window will be financially and administratively managed by the ETP Secretariat.

29. The EE Innovation Window is envisioned to run for a period of 12 months (through 4 quarterly grant cycles), and then be subject to a review and possible extension and

replenishment. Projects funded by the EE Innovation Window will be required to demonstrate implementation and the achievement of measurable results within 12 months from receipt of funds.

30. The proposal evaluation process will consist of a review against screening criteria highlighted in Para 23. by an Evaluation Panel, with subsequent evaluation by the ETP Steering Committee before the grant award is made, according to the flowchart below. The Evaluation Panel will be composed of ETP Secretariat staff and, as required, external advisors, engaged by the ETP Secretariat with specific subject matter expertise in energy efficiency investment in Vietnam, Indonesia and the Philippines.



** The level of depth of this review, and the information forwarded for approval, will be determined depending on the number of applications received; if there are large numbers of applications, the evaluation panel may undertake an optional pre-screening eligibility check to reduce the number of detailed evaluation reviews it is required to perform.

31. For all applications forwarded for Steering Committee consideration, a risk assessment will be performed that covers technology risks, market risks, counterparty risks in terms of financial control, management and project structuring, and operational and delivery risk. UNOPS additionally conducts Due Diligence processes for new grantees that are to receive an excess of USD 250,000 and also Financial Capacity Assessments of selected entities.
32. Timing of grant payments will be determined by establishing milestones, and paying against grantee progress and financial or evaluation reports as required. In general terms, and unless there are other circumstances that require different treatment that would need specific approval, approved funding will be allocated to selected awardees in tranches of 30% upon submission of an initiation report; 30% based on submission of an interim progress report, and 40% based on a final report.
33. Project monitoring and evaluation requirements will be embedded in each Grant Agreement. Grantees will periodically report against the agreed monitoring and evaluation indicators. These results will be amalgamated in ETP's Results-based Monitoring Framework semiannually.

34. Border project evaluation of the EE Innovation Window will be conducted 11 months into implementation of the project. The evaluation will be led by the ETP Secretariat. Evaluation of the first tranche will be conducted by the ETP Secretariat to enable a decision on the proposed second tranche for the program. Key parameters of the evaluation will include commentary against key objectives, RBMF, specific deliverables and the scaling up of energy efficiency outcomes and investments, including outputs and deliverables, and outcomes in light of overall program objectives related to increases in public and foreign direct EE investment.

| Sustainability & Gender Diversity

35. All Calls for Proposals (CFPs) will include the following clause: “The bidder shall provide a response that demonstrates its commitment to support gender equality and women’s empowerment through its operations.” The evaluation will consider the applicants’ feedback to these criteria as part of the evaluation process.

4 CONCLUSION

36. This Concept Note sets out the market need for a catalytic grant fund to support organizations in Southeast Asia (Indonesia, the Philippines and Vietnam) that can help to overcome barriers to increased investment into energy efficiency projects and initiatives. ETP is well-placed to contribute to the satisfaction of this need, through the well-targeted and strategic allocation of grant funds to smaller market players including project developers, financiers and market intermediaries with innovative approaches to build capacity and unlock access to finance, as outlined in this document. Approval in principle of the outlined concepts, and subsequent design and execution of an **EE Innovation Window** for operation in these three countries, will lead to an increase in energy efficiency investment and make a material and cost-effective contribution to the achievement of ETP objectives towards the energy transition in Southeast Asia.

Annex 1: Recent Development Partner Experience to Promote Energy Efficiency in Southeast Asia

Indonesia

Industry

DANIDA. Danida (the Danish International Development Agency) had a large project, Energy Efficiency in the Industrial, Commercial, and Public Sectors during 2008-2013, and has had a number of programs that support the Indonesian government in designing incentive programs for retrofits, designing the certification program for energy auditors, and subsidizing initial energy audits, though this did not yield substantial implementation.

AFD. AFD has financed investments and reforms in energy efficiency through development policy loans, direct loans to the public electricity company (PLN), and through dedicated credit lines to local banks supporting private or public investors. Most of these efforts have not been highly successful, with the requirement to use local intermediary banks proving restrictive in terms of overall cost of finance to the end user.

GIZ. Over the past five years, GIZ has assisted MEMR in establishing appropriate incentive mechanisms for the implementation of efficient refrigeration and air conditioning technology in selected areas. To demonstrate the advantages of green cooling technology, pilot projects were implemented and technicians trained/certified.

IEA. While not specific to the industry sector, IEA has been working towards improvements in energy data and statistics across demand and supply, leading to more timely submission and publication of Indonesian energy data.

APEC and APERC. APEC has approved a Peer Review on Energy Efficiency (PREE) to be conducted in Indonesia in the second half of 2020. PREE deliverables include a Peer Review Report on Energy Efficiency for the host economy, which will include the identification of barriers to the effective implementation of the action plans and the recommendations for overcoming those barriers. The report covers a variety of issues such as institutional framework, goals and strategy, data collection and monitoring, policy measures and education. The process is conducted by the Asia-Pacific Energy Research Centre (APERC) in consultation with MEMR and includes experts from other APEC economies and international organisations. This PREE will differ from the previous effort in 2011, because it will focus explicitly on industry and commercial buildings.

ADB. Following earlier support for energy efficiency finance capacity building for Indonesia's banking sector, in 2019 ADB approved a \$500m loan for sustainable energy improvements, with a related assistance program to bolster energy efficiency policy and create an energy efficiency investment program, to enable municipalities and government contracting agencies to engage in energy efficiency savings programs with energy efficiency service companies (ESCOs) under Indonesia's revised 2018 legislation on PPPs and its Regulation on Government Procurement of Goods and Services Policy 29/2018,

(Peraturan Lembaga Kebijakan Pengadaan Barang / Jasa Pemerintah), which regulates solicited PPPs. The focus will be on replacing municipal street lighting and retrofitting buildings. In the area of ESCOs, ADB has been assisting MEMR since 2018 in development of a pilot project that applies the ESCO business model, and includes a capacity building program for ESCO professionals that covers certifications such as Certified Investment Grade Energy Audits (CIGAs) and Certified Energy Saving Verifier (CESVs). This work is being done in collaboration with EPS Corp, MASKEEI, TUV Nordt (CIGA) and EVO (CESV).

UNIDO. UNIDO is a long-standing provider of support to many countries including Indonesia on training and capacity building for energy management systems and ISO 50001 accreditation for professions in industry. In more recent times, UNIDO has also worked with Indonesia as one of the leading countries in its Industrial Energy Accelerator program, performing a useful diagnostic of issues and areas that could be addressed (Industrial Energy Accelerator, 2019). The study concluded that design of a national seed-fund to provide concessional debt for industrial energy efficiency projects was needed to allow for large-scale proof of concept demonstrations in key industries such as mining, textiles and cement production, and that the design and introduction of de-risking instruments is needed, to attract more private sector capital to the national energy efficiency market.

UNESCAP and UN Environment. Indonesia has commenced the process of developing a National Cooling Action Plan, with support from UNESCAP and UN Environment. The Plan will help to quantify overall cooling needs in the country and galvanize efforts towards meeting cooling needs more efficiently across a range of sectors, including space cooling in buildings as well as commercial/industrial cold chains and refrigeration. UNEP has also been active in recent years in assisting Indonesia to develop minimum energy performance standards (MEPS) in key appliance classes, through its United for Efficiency initiative.

Buildings

DANIDA. Danida (the Danish International Development Agency) had a large project, Energy Efficiency in the Industrial, Commercial, and Public Sectors during 2008-2013, which provided tools for building energy codes and established an information clearinghouse for energy efficiency. Since then, DANIDA has continued to support the design of voluntary Jakarta municipal building standards and mandatory building codes. DANIDA has also had a number of programs that support the Indonesian government in designing incentive programs for retrofits, designing the certification program for energy auditors and subsidizing initial energy audits, though this did not yield substantial implementation.

AFD. AFD has financed investments and reforms in energy efficiency through development policy loans, direct loans to the public electricity company (PLN), and through dedicated credit lines to local banks supporting private or public investors. Most of these efforts have not been highly successful, with the requirement to use local intermediary banks proving restrictive in terms of overall cost of finance to the end user.

GIZ. over the past five years, GIZ has assisted MEMR in establishing appropriate incentive mechanisms for the implementation of efficient refrigeration and air conditioning technology in selected areas. To demonstrate the advantages of green cooling technology, pilot projects were implemented and technicians trained/certified.

IEA. While not specific to the buildings sector, IEA has been working towards capacity building in energy efficiency implementation and improvements in energy data and statistics across demand and supply, leading to more timely submission and publication of Indonesian energy data.

APEC and APERC. APEC has approved a Peer Review on Energy Efficiency (PREE) to be conducted in Indonesia in the second half of 2020. PREE deliverables include a Peer Review Report on Energy Efficiency for the host economy, which will include the identification of barriers to the effective implementation of the action plans and the recommendations for overcoming those barriers. The report covers a variety of issues such as institutional framework, goals and strategy, data collection and monitoring, policy measures and education. The process is conducted by the Asia-Pacific Energy Research Centre (APERC) in consultation with MEMR and includes experts from other APEC economies and international organisations. This PREE will differ from the previous effort in 2011, because it will focus explicitly on industry and commercial buildings.

IFC. IFC assisted the City of Jakarta to develop a Green Building Code in 2011, with reference to the Green Building Council Indonesia. This regulation was enacted in 2012. The Jakarta building energy code apparently inspired the central government to establish a national building code in 2017, and also inspired other major cities on Java, like Bandung, Semarang, and Surabaya to replicate it. While these efforts are in progress, we were not able to get information on the implementation status. Since 2017, IFC has been partnering with the Green Building Council Indonesia—providing resources for adoption of its EDGE online platform, green building standard and certification system. In 2019, IFC and the Swiss Government provided targeted assistance to Semarang in Central Java through its Green Buildings Market Transformation Program, to support the city's adoption of greener building codes. IFC has further developed a "National Green Building Toolkit" with the Ministry of Public Works and Social Housing, to assist local-level adoption of national policy, and worked to initiate green bonds for green buildings projects through the bank OCBC NSP.

ADB. Following earlier support for energy efficiency finance capacity building for Indonesia's banking sector, in 2019, ADB approved a \$500m loan for sustainable energy improvements, with a related assistance program to bolster energy efficiency policy and create an energy efficiency investment program, to enable municipalities and government contracting agencies to engage in energy efficiency savings programs with energy efficiency service companies (ESCOs) under Indonesia's revised 2018 legislation on PPPs and its Regulation on Government Procurement of Goods and Services Policy 29/2018, (Peraturan Lembaga Kebijakan Pengadaan Barang / Jasa Pemerintah), which regulates solicited PPPs. The focus will be on replacing municipal street lighting and retrofitting buildings. Status of this work is currently unclear. In the area of ESCOs, ADB has been

assisting the Ministry of Energy and Mineral Resources since 2018 in development of a pilot project in Commercial Buildings. The project applies the ESCO business model, and includes a capacity building program for ESCO professionals that covers certifications such as Certified Investment Grade Energy Audits (CIGAs) and Certified Energy Saving Verifier (CESVs). This work is being done in collaboration with EPS Corp, MASKEEI, TUV Nordt (CIGA) and EVO (CESV).

USAID. In 2013-14, USAID explored a regional solution to reduce energy use and carbon emissions in the large and continuously expanding stock of commercial buildings in Asia, through the development and demonstration of a regional building energy performance benchmarking system and engagement of key regional partners. In partnership with ICF, a Benchmarking Tool was first developed for the Indonesian hotel sector, where existing energy consumption data created an opportunity to develop and showcase the potential impact for benchmarking across the region and where steady growth in visitors of 9-13% was being recorded annually. The Tool developed for Indonesia was designed to be simple to use while providing an accurate comparison of building energy performance. Benchmarking and EE improvements at 1,000 hotels in Indonesia were estimated to yield annual savings of 533 million kilowatt hours (kWh), 388 billion Indonesian Rupiah (US\$ 38 million) and 381,000 MtCO_{2e} avoided. MEMR became interested in using the tool to set minimum energy performance standards for the hospitality sector, however did not commit further resources into expanding and maintaining the existing benchmarking tool or housing it online. More recently, USAID worked with key Indonesian stakeholders, including MEMR/ESDM, the National Planning Agency (BAPPENAS) and the Financial Services Authority (OJK) to promote and accelerate renewable energy and energy efficiency as part of the Indonesia Clean Energy Development – Phase 2 (ICED II), soon to be renewed for a further five years, with a focus on sustainable finance.

Other noteworthy initiatives include:

- The Global Buildings Performance Network (GBPN) together with its local partners is establishing a policy advisory working group called HIDUP (meaning 'Live' in Bahasa Indonesia), which is a multi-lateral working group composed of building experts from both public and private entities. Its aims are the assessment, review and challenge of current regulatory frames (building codes), and their improvement and enforcement at national and regional level, along with their potential and limits in driving the building market shift toward net zero buildings.
- Indonesia has commenced the process of developing a National Cooling Action Plan, with support from UNESCAP and UN Environment. The Plan will help to quantify overall cooling needs in the country and galvanize efforts towards meeting cooling needs more efficiently across a range of sectors, including space cooling in building and residential and commercial refrigeration.
- The American Society of Heating Refrigeration and Air-conditioning Engineers (ASHRAE) has an active local chapter in Indonesia. ASHRAE administers educational seminars, training courses and exchange of best practices from the region for building practitioners.

ESCOs most active in the market include:

- Johnson Controls
- PT Signify Commercial Indonesia
- PT Sucofindo (Persero)
- PT Atmi Kreasi Energi
- PT Miura Indonesia
- EPS Capital Corporation
- Synergy Energy Solutions
- Smardt Indonesia

Commercial buildings, apartments and malls are mainly owned by big Indonesian property groups (e.g. Djarum; Summarecon, Lippo, Ciputra Group, Sinarmas Group, Murdaya (CCM), etc.). Some office buildings are also owned by state-owned enterprises such as Pertamina and Telkom. Typically, there is an unwillingness to use own credit lines on energy efficiency projects, being perceived as not related to their core business and without a large enough economic impact on operational costs. Electricity costs make up only 15% of operational costs in a commercial building and, even though 10-35% of electricity reduction might be possible, it remains a small percentage of overall operational costs.

There is also a pervasive lack of trust in and experience with external service providers and ESCOs in the provision of third-party finance. Recent increases in electricity prices, along with pressure to achieve clean energy development targets under national and international obligations, might change the economic dynamics of building energy efficiency projects in the future.

Philippines

Buildings

ADB (Asian Development Bank). ADB has had a series of investments in efficiency-related areas in the past 10 years, notably the multi-faceted Philippine Energy Efficiency Project, in which large-scale procurement and promotion of CFL lamps and government building retrofits were the most successful components. ADB also published a comprehensive assessment and strategy for the Philippines energy sector in 2018 (ADB 2018).

EU-SWITCH. Through its regional programme on sustainable consumption and production, the EU focused on energy efficiency in the Philippines, culminating in its support for the Energy Efficiency and Conservation Roadmap 2017-40.

World Bank. The World Bank implemented the \$48m Chiller Energy Efficiency Project for the Philippines from 2010 to 2017 and aimed to reduce greenhouse gas (GHG) emissions by replacing inefficient chillers including Chlorofluorocarbon (CFC)-based chillers and non-CFC-based chillers.

IFC (International Finance Corporation). IFC partnered with the Philippines Green Building Initiative (PGBI) in 2016 to launch the EDGE certification program. The EDGE program has been very active in the Philippines, carrying out building certification, as well

as numerous building energy surveys, which fed into an assessment of the market for new residential and commercial building construction and the potential for green building construction (IFC 2019, and see above). IFC has tracked data on the performance of more than 90 green building projects across the country through EDGE and other certification initiatives (IFC 2019). It has also been instrumental in working with large local banks BDO and BPI to establish sustainable energy finance programs, by providing risk-sharing facilities, advisory services, and also assisting them to issue green bonds for green building investments.

ENPAP 4.0. ENPAP 4.0 is a non-government, non-profit association of energy management practitioners, professionals and consultants in the Philippines. It is the successor of the Energy Efficiency Practitioners Association of the Philippines (ENPAP, 2000) and its immediate predecessor the Energy Management Association of the Philippines (ENMAP, 2010s). Since 2019, ENPAP 4.0 has served as a catalyst and provided an avenue for knowledge transfer and information exchanges through the conduct of training courses and seminar-workshops, conferences, and developing strategic advocacy positions and policy initiatives with key government agencies on energy efficiency and conservation legislation, technologies and practices. ENPAP 4.0 continued to assume the role of ENPAP as an ASEAN Centre for Energy (ACE) Action Partner and conducted training courses for the Certification for Energy Managers under the ASEAN Energy Manager Accreditation Scheme.

Philippines Energy Efficiency Alliance (PE2). PE2 is an association of Philippines ESCOs that operates with guidance and oversight from the Philippines Department of Energy.⁵ PE2 acts as a convener of ESCOs and also facilitator of multi-stakeholder dialogues on energy efficiency policy, regulation, and finance, with the aim of giving the private sector and civil society a platform to provide input into energy efficiency policy and regulation, and to stimulate increased financing and implementation of energy efficiency projects.

World Bank. The World Bank's ESMAP unit has supported the improvement of EE in public buildings in the Philippines by providing technical support over the entire project cycle in the form of energy diagnostics and audits, training and capacity building, design and implementation mechanisms, and advisory services. The program also works in collaboration with the Asia EDGE building certification.

GIZ. Through involvement with the Access to Sustainable Energy Programme (ASEP), C4 (Kigali), and its flagship CASE Energy Transition Programme, GIZ is assisting the Philippines Energy Department in implementing building-related EE programmes for lighting systems, household appliances, and passenger and commercial vehicles. They estimate building EE measures could generate potential annual savings of 3.6 billion pesos (74.5 million USD).

Large property groups. The Philippines real estate market is characterized by several large property groups, including Ayala, SM, Robinson, Filinvest and Megaworld. These

⁵ The Energy Service Company Association of the Philippines was founded in May 2005, and PE2 was established in 2016 as its successor, in the form of a non-profit civil society organization. See www.p2e.org.

property groups develop large scale office buildings, malls, and residential housing (condominiums), and several of them have also developed internal capacity for energy services, performance contracting and financing of efficiency projects in new construction, as well as in retrofits of their existing building stock.

As the new middle class in the Philippines continues to grow a shift is evident towards a preference for living in more integrated living spaces. Mixed use developments offer access to facilities for living, working, and playing. As this continues, property ownership of these developments tends to be with the larger real-estate companies.

Vietnam

Industry

Stakeholder	Description and role
Private consultancy entities (ESCOs/Research institutions)	There are a number of private consultancy entities providing energy efficiency advisory services. At the moment, The ESCO market in Vietnam is still not well developed; MOIT is continuing to pilot ESCO models and has an ESCO establishment and registration process. Other barriers facing ESCOs include cheap energy costs and low awareness of energy efficiency; high transaction costs for relatively small projects; high perceived risks; and a legal framework and enforcement that does not strongly support the EPC approach.
Associations	Active associations of large energy-using industrial sectors include the Vietnam Steel Association (VSA), Vietnam Cement Association (VNCA), Vietnam Fertilizer Association (VNFAV), Vietnam Pulp and Paper Association, and Vietnam Association of seafood exporters and producers (VASEP). These associations play a key role to promote energy efficiency in member’s enterprises and broadcast the results.
Japan International Cooperation Agency (JICA)	JICA is a long-standing supporter of energy efficiency in Vietnam and has assisted with studies on national energy master planning to (a) develop the National Energy Master Plan to 2050 including energy security, power sources, emission, energy efficiency, renewable energy, etc.; (b) develop a national database for socio-economic and energy data; (c) build capacity of bodies under MoIT.

<p>United Nations development program (UNDP)</p>	<p>UNDP has been supporting Vietnam since 1977 and energy and environment is one of the focal areas for the UNDP's work in the country, composed of six integrated components: (i) policy and institutional support development; (ii) communications and awareness; (iii) technical capacity development; (iv) energy-efficiency services provision support; (v) financing support; and (vi) demonstrations. UNDP also supported industrial activities under advanced preparation: national clean production program for Vietnam; capacity building for implementation of the energy conservation law, and promotion of Energy Management Standards via the proposed ISO50001 Energy Management Standard.</p>
<p>The World Bank Group (WB)</p>	<p>The World Bank and IFC have actively supported industrial efficiency, through for example the IFC Vietnam Cleaner Production and Energy-Efficiency Program (CPEE), and the VEEIEs program. The WB is still providing technical support through VEEIEs, and the Vietnam Scaling Up Energy Efficiency Project. The Bank also indirectly supports EE efforts through GHG emission reduction activities for MOIT.</p>
<p>Asian Development Bank (ADB)</p>	<p>ADB has launched various technical assistance programs to promote energy conservation in industrial sectors in Vietnam, including (i) industrial surveys of energy consumption; (ii) energy management training; (iii) energy audits in selected intensive industrial sectors, e.g. steel; (iv) training ESCOs and energy conservation service providers; (v) studies into feasible financing mechanisms to promote energy efficiency in Vietnam.</p>
<p>Danish International Development Agency (DANIDA)</p>	<p>DANIDA's programs in Vietnam are long-standing and focus on three thematic areas that include (a) urban and industrial environmental management, (b) sustainable energy, and (c) management of natural resources. Danish programs generally aim to build capacity and knowledge in Vietnamese institutions and to target key sectors identified by the Vietnamese government. DANIDA has approved a multiyear technical assistance program to directly support MOIT's energy efficiency program, focused primarily on technical training for energy managers and auditors or consultants, industrial energy audits, and economic incentives for the implementation of audit recommendations.</p>

United Nations of Industrial Development Organization (UNIDO)	UNIDO is mainly supporting Vietnam to apply and transfer low carbon and climate-friendly technologies toward green growth, including conducting advanced studies for several sectors, ISO50001 and EMS training, industry benchmarking, energy audits, etc.
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Buildings

IFC EDGE Program.⁶ The EDGE building certification has an active Vietnam program. As of October 2019, they have certified 1,581,890 square meters of floor space (Duong, 2020). They work closely with the Vietnam Green Building Promotion Program which advertises the benefits of green buildings to consumers and lobbies the government to offer incentives. Financial backers of the promotion program include Capital House, Phuc Khang Corporation, CEO Group, FLC Group and the Vietnam Real Estate Association.

ADB. The Vietnam Smart and Energy Efficient City Project (SEECP) began in late July 2020 and aims to help provinces and cities achieve their goals from VNEEP 3 and the Green /Smart Cities initiatives. SEECP supports building roadmaps for minimizing climate change impacts, implementing smart street lighting systems, and improving EE in public buildings. The six cities and provinces that have been chosen to participate are Can Tho, Da Nang, Ha Noi, Hai Phong, Quang Nam, and Quang Ninh.

UNDP.⁷ The UNDP program, Energy Efficiency Improvement in Commercial and High-Rise Residential Buildings in Vietnam (2016-2019), aims to reduce the intensity of GHG emissions in the building sector. The project objective is to improve energy performance in commercial and high-rise residential buildings in Ho Chi Minh and Hanoi through (1) improvement and enforcement of VEEBC; (2) building market development support initiatives; and (3) building energy efficiency technology applications and replications.

GIZ, AFD, and French Environment and Energy Management Agency (ADEME).⁸ These donors manage the Programme for Energy Efficiency in Buildings (PEEB) in which Vietnam is one of the receiving countries. The lead executing agency in Vietnam is the Ministry of Natural Resources and Environment. The programme provides technical expertise and financial resources to support large-scale projects for increasing EE in buildings. The programme was initiated in 2017 and is expected to wind down at the end of 2020.

DANIDA.⁹ DANIDA ran an EE project in Vietnam from 2013-2016 called “Low carbon transition in the energy efficiency sector”. One of the two main components was focused on building EE and aimed to improve capacity for implementing EE in large buildings in line

⁶ See <https://edgebuildings.com>.

⁷ See https://www.vn.undp.org/content/vietnam/en/home/operations/projects/environment_climatechange/energy-efficiency-improvement-in-buildings.html.

⁸ See <https://www.peeb.build>.

⁹ See <https://vietnam.um.dk/en/green-growth/low-carbon-transition>.

with the VNEEP energy savings targets of 5-8%. The implementing Vietnamese body was the Ministry of Construction.

APEC. APEC regularly runs workshops and seminars evaluating the Energy Efficiency programs in Vietnam. Their publications involve peer reviews of EE and low carbon energy policies in Vietnam. Other work includes training projects in-country on energy efficiency.

USAID Vietnam Clean Energy Program. The five-year USAID Vietnam Clean Energy Program (VCEP) ran between 2012-17, and had an overarching objective to accelerate Vietnam's transition to climate resilient, low emission sustainable development. The Program focused on energy efficiency in the building sector, and supported the Ministry of Construction to implement and monitor the Vietnam Energy Efficiency Building Code. VCEP trained over 3,000 government officials, practitioners and university lecturers on energy efficient, high performance building design; green building design and certification; commissioning of buildings to ensure that planned savings actually happen; and energy simulation software. The program also helped improve the operation of over 21 local organizations and institutions.

Other noteworthy initiatives include:

Vietnam Federation of Civil Engineering Associations (VFCEA). This organization developed the current Vietnam Energy Efficiency Building Code, while the Vietnam Green Building Council (VGBC) has developed and now administers the LOTUS rating tool, for more advanced green buildings.

ASHRAE. In February 2020, a Vietnam Chapter of the American Society of Heating Refrigeration and Air-Conditioning Engineers (ASHRAE) was established. ASHRAE Thailand is the host chapter of the new Vietnam section. ASHRAE administers educational seminars, training courses and exchange of best practices from the region for building practitioners.

ESCOs. The ESCO market in Vietnam is undeveloped. The Ministry of Industry and Trade (MOIT) is currently piloting ESCO models and has an ESCO establishment and registration process. MOIT and the Ministry of Finance are currently working together. Other barriers facing ESCOs include cheap energy costs, low awareness of energy efficiency, high transaction costs for relatively small projects, high perceived risks, and a legal framework and enforcement that does not support the energy performance contracting (EPC) approach.