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SEQUOIA CLIMATE FUND

ENERGY TRANSITION PARTNERSHIP

Powering Prosperity and Enabling Sustainability in South East Asia

Regional Power Trade Coordination Committee (RPTCC) Meeting

27 August 2021

By Sirpa JARVENPAA
Director
SOUTHEAST ASIAN
ENERGY TRANSITION PARTNERSHIP

The ETP brings together a range of partners focused on supporting the energy transition in South East Asia including:

Environment and Climate Change Canada
Environnement et Changement climatique Canada

Department for Business, Energy & Industrial Strategy

HIGHTIDE FOUNDATION

GROWALD FAMILY FUND

ETP CONVENES DIVERSE STRENGTHS AND REDUCES COST

Southeast Asian Energy Transition Partnership is an **innovative platform** for governments and philanthropies to finance technical assistance projects and aligned capital assistance to **accelerate energy transition in Southeast Asia** to achieve the **SDG goals** and **Paris Agreement objectives.**

History: 2018 One UN Summit NYC 2018
2019 High Level Forum at UNSG Climate Summit

Countries of operations (initial): **Indonesia, Philippines** and **Vietnam**

Duration of the Partnership: **5 years:** 2020 - 2025

Fund Manager: United Nations Office for Project Services - **UNOPS**

Partners:

CHILDREN'S INVESTMENT FUND FOUNDATION

Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit

AFD AGENCE FRANÇAISE DE DÉVELOPPEMENT

Wellspring Philanthropic Fund

Department for Business, Energy & Industrial Strategy

IKEA Foundation

HOW DOES ETP WORK:

MANAGEMENT AND EXPERT ADVISORY

- Steering Committee: Funders - decision-making for the Partnership
- Country Advisory Panels and Regional Panel Advise the Steering Committee:
- ETP Secretariat: develops and implements TA projects, coordinates with the aligned programmes, and conducts dialogue with the energy transition stakeholders

THEORY OF CHANGE TO THE PARIS CLIMATE GOALS

Energy transition in Southeast Asia is critical to limiting global warming of the planet to less than 1.5°C and to achieving the Paris Agreement Goals

CHAMPIONING LEADERSHIP:

✓ Ambitious NDCs

CAPACITY BUILDING:

✓ Breaking through policy barriers

FINANCE:

✓ Investment in RE, EE, smart grids and knowledge

COP21 · CMP11
PARIS 2015
UN CLIMATE CHANGE CONFERENCE

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TRENDS IN ENERGY TRANSITION IN SOUTHEAST ASIA

THEORY OF CHANGE to REACH PARIS CLIMATE GOALS

Maximizing energy efficiency measures
Reducing waste and GHGs, optimizing electricity efficiency, electrifying mobility

Unleashing renewable energy potential
Huge potential in the Region for exploiting untapped renewable energy sources

Innovative technologies for smart grids
Integrating renewables with increasing electricity demand and smarter regulation

Knowledge, skills, and awareness
Developing capacity among policy makers, regulators, business sector and civil society

Unlocking investment to meet needs
An investment opportunity of $350 to 450 billion for the next 5 years (IEA).

ENERGY TRANSITION CHALLENGES IN INDONESIA

Energy Production Capacity
Current fossil energy production assets and liabilities
Current RE penetration at 12% and target 23% by 2030

- Abatement of coal power production and plans
- Power pricing and tariffs
- Decommissioning 13 + 3 GW (or more)
- e-Mobility to increase demand and reduce GHG

Coal dependent economy
World's 2nd coal exporter, socio-economic reliance on coal

- Just transition and economic diversification
- RE technological and pricing developments
- Policy alignment, central coordination of transition

Energy Transition Policies and Leadership
Stronger coordination and championing of energy transition outcomes

Grid technology and capacity
Integrating renewables to consumption thru smart grids, modeling and forecasting for VRE, clean energy access

- Grid audits, needs assessments and upgrades
- Grid governance
- Stability and VRE curtailment
- Business-to-Business solutions

Energy Intensity of Economy
Opportunities for energy efficiency projects, demand side management, policy coherence with efficiency targets

- Energy efficiency - energy service market
- Electric mobility
- Demand management, demand flexibility

Knowledge, skills, and awareness
Developing capacity of policy makers, regulators, business sector and civil society

- Policy makers, regulators
- Finance and private sector
- Utility planners and workforce
- Civil society awareness

Unlocking investment to meet needs

- Identification of investment impediments
- Bankable projects; investors interests

ENERGY TRANSITION CHALLENGES IN THE PHILIPPINES

Energy Transition Road Map
Ambitious NDC target 2030
Coal moratorium

Energy Transition Leadership
Marshalling and championing energy transition objectives, capacity

Investment to Renewable Energy
Development and investment policies

Innovative technologies for smart grids
Integrating renewables with increasing electricity demand and smarter regulation

Maximizing energy efficiency measures
Reducing waste and GHGs, optimizing electricity efficiency, electrifying mobility

Knowledge, skills, and awareness
Developing capacity among policy makers, regulators, business sector and civil society

GHG REDUCTION BY 75%
- Assessments: policies and regulatory gaps
- Public and private financing; internal revenues
- Innovative financing frameworks

EXPANDED FINANCE and DE-RISKING
- Leadership and Coherency
- Institutional capacity
- Internal and external resources for investments

EXPANSION of STORAGE AND GRID CAPACITY
- Grid audits, storage capacity, needs assessments
- Investment: grid modernization and battery storage
- Stability and VRE curtailment, regulations

EXPANSION OF ENERGY EFFICIENCY MARKET
- Public and Private sector impediments addressed
- Finance for energy efficiency
- Capacity and skills

KNOWLEDGE and SKILLS FOR ENERGY TRANSITION
- Online and in-country knowledge development
- Certification and Contd. education
- Sharing of experiences: Roundtable

ENERGY TRANSITION CHALLENGES IN VIETNAM

Investment for energy transition
Power Development Plan 8 to 2030 calls for $128 billion, much of it for energy transition

Mobilizing funding from Private Sector
Huge potential in the Region for exploiting untapped benefits from RE and EE projects

Innovative technologies for smart grids
Integrating renewables with increasing electricity demand and smarter regulation

Maximizing energy efficiency measures
Reducing waste and GHGs, optimizing electricity efficiency, electrifying mobility

Knowledge, skills, and awareness
Developing capacity among policy makers, regulators, business sector and civil society

→ **GHG REDUCTION**
- Assessment of policies and regulations
- Finance and private sector incentives (vs. disincentives)
- Innovative financing frameworks

→ **EXPANDED FINANCE**
- Electricity Law: Reform and Coordination
- De-risking measures, instruments (PPA)
- Project viability, bankability, investment incentives

→ **REDUCED CURTAILMENT**
- Grid audits, needs assessments
- Grid governance - Investment
- Stability and VRE curtailment

→ **IMPROVED ENERGY EFFICIENCY OF ECONOMY**
- Energy efficiency - energy service market
- Electric mobility
- Demand flexibility

→ **DEMAND FOR ENERGY TRANSITION**
- Online and in-country knowledge
- Sharing of experiences: Roundtable

Indonesia ETP Work Plan 2021

Outcome area	Program	Outputs and Results
Enabling Policies: ● Alignment of policies with climate commitments	- Energy Transition Vision: Policies Priorities - Options for coal dependent economy: Financial Implications from coal phase-out	Policy alignment with climate commitments Strengthening RE institutional coordination ⇒ policy alignment with NDCs ⇒ reduced GHG emissions, improved air quality, green jobs
De Risking Projects ● Energy Efficiency: Stemming wasteful energy consumption by major users ● Renewable Energy: Reducing carbon intensity of Energy System	- Energy Efficiency Innovation Window - Diagnostic on Energy Efficiency Policies - Wind potential (PPA conditions)	De-risk Energy Efficiency investments De-risk RE in energy mix ⇒ Enhance energy intensity ⇒ Reduce GHG emissions ⇒ Moving toward low carbon energy system, green jobs
Smart Grids Expanded: ● Removing impediments for RE integration to energy mix	Grid Modernization: - Java-Bali Control Center Upgrade Design	Extending smart grids Reduction in VRE curtailment Increasing RE in energy mix ⇒ Reduced GHG Emissions, Improved in air quality, green jobs
Knowledge and Capacity Building: ● Development of leadership in energy transition ● Enhancing skills in energy transition ● Developing civil society knowledge	Leadership Development: Bankers Training (OJK)	Financial institutions capacity building
	Grid Transformation Skills	Workforce capacity development
	Energy Transition Round Table	Building of knowledge and awareness on energy transition ⇒ demand for energy transition

Philippines Work Plan 2021

Outcome area	Program	Outputs and Results
Enabling Policies: - **Alignment of Policies with Climate Commitments and Carbon Neutrality Target**	**Measurement & Monitoring of Clean Energy Scenario (CES) and Capacity Development**	• Policy alignment with Philippines NDC • Expansion of RE energy investments • Strengthening RE institutional coordination ⇒ reduce GHG emissions ⇒ enhance RE integration, green jobs
De-risking Energy Transition: - **Stemming wasteful energy consumption by major user**	**Energy Efficiency Innovation Window** **Diagnostics in Energy Efficiency Policies**	Enhance energy intensity De-risk Energy Efficiency investments ⇒ Moving toward low carbon economy ⇒ Reduce GHG emissions
- **Investments in Renewables:**	**De-risking Renewables Investments: Wind / Solar/ Ocean: Stocktake of Options for New Technologies**	Increase in investments in Renewable Energy ⇒ Moving toward low carbon energy system
Expand Smart Grids: - **Removing impediments for RE**	**Grid Modernization: Clean Energy Access** **Design and Implementation of Ancillary Services Market**	Reduce RE curtailment; De-risk RE investments ⇒ Expand smart grids ⇒ Reduce GHG emission
Knowledge and Capacity Building: • **Leadership in energy transition** • **Enhancing skills in RE integration** • **Civil society knowledge development**	**Leadership Development: Bankers Training**	De-risk finance for energy transition investments
	Grid Transformation Skills	Workforce capacity development
	Energy Transition Round Table	Exchange of information and experience

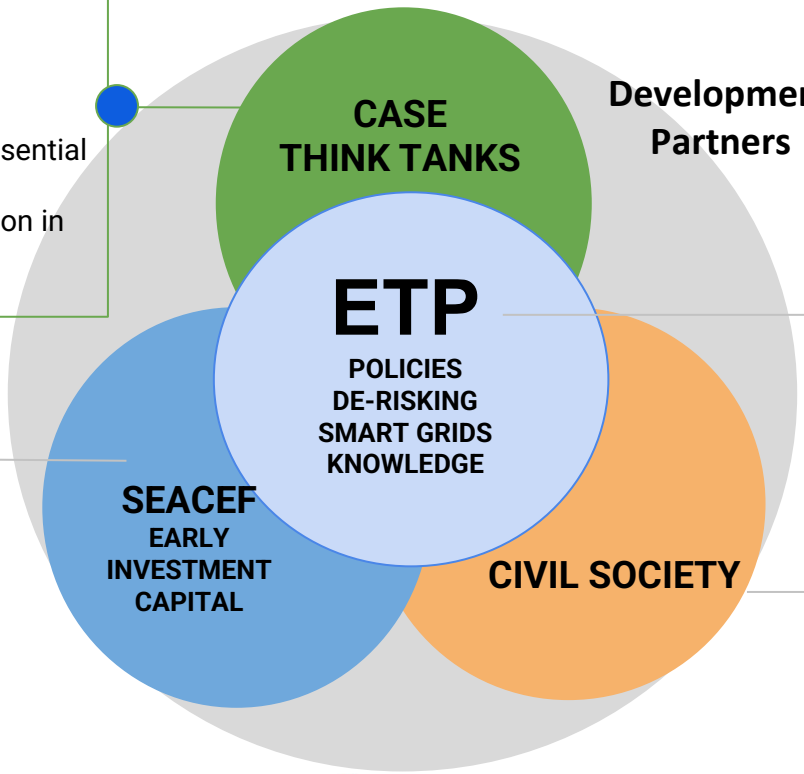
Draft Viet Nam Work Plan 2021

Outcome area	Program	Outputs and Results
Enabling Policies: - **Alignment of Policies with Climate Commitments and Carbon Neutrality**	- **Review and Gap Analysis of Existing Abatement Scenarios** - **Energy Transition Policy Coherence and Coordination** - **Reform of the Electricity Law**	**Expansion of RE energy investments** **Strengthening RE institutional coordination** ⇒ reduce GHG emissions
De-risk Energy Transition Investments - **Energy Efficiency**	- **REG: Energy Efficiency Innovation Window** - **REG: Diagnostics into the Energy Efficiency Policies**	**Enhance energy intensity** ⇒ reduce GHG emissions ⇒ enhance RE integration, green jobs
- **De-risking RE investments**	- **Master study on Wind potential**	**Enhance RE investments** ⇒ reduce GHG emissions ⇒ enhance RE integration, green jobs
Smart Grids Expanded: - **Removing impediments for RE**	- **Grid Modernization; Clean Energy Access** - **A methodology for an inertia estimation for stable RE in the power system**	**Expand smart grids** ⇒ reduce GHG emissions ⇒ enhance RE integration, green jobs
Knowledge and Capacity Building: - **Leadership in energy transition** - **Enhancing skills in RE integration** - **Civil society awareness building**	- **Leadership Development: Bankers Training**	**Financial institutions capacity building** ⇒ De-risking finance for energy transition
	- **Grid Modernization skills/**	**Workforce capacity development** ⇒ green jobs
	- **REG: Energy Transition Round Table** - **REG: Just Transition Global Platform**	**Tools for Energy Transition practitioners** ⇒ policy alignment with NDC ⇒ de-risking energy transition investments ⇒ GHG reductions, green jobs

ETP GETS RESULTS BY WORKING TOGETHER WITH PARTNERS

Think Tanks
Provides evidence-based research, and to cooperate between key stakeholders' activities with respect to essential elements of the energy to facilitate the energy transition in SEA

Private Finance
Provides financing and effective management for the implementation of RE & EE investment pipelines



Government policy reform and regulatory adjustments
Fostering rapid government policy reform, de-risking of RE & EE projects for investment

Civil Society Engagement
Provides demand for a direct transition, enables rapid change and beneficiary engagement in cost recovery enabling improved policy conditions for just transition and employment rich growth

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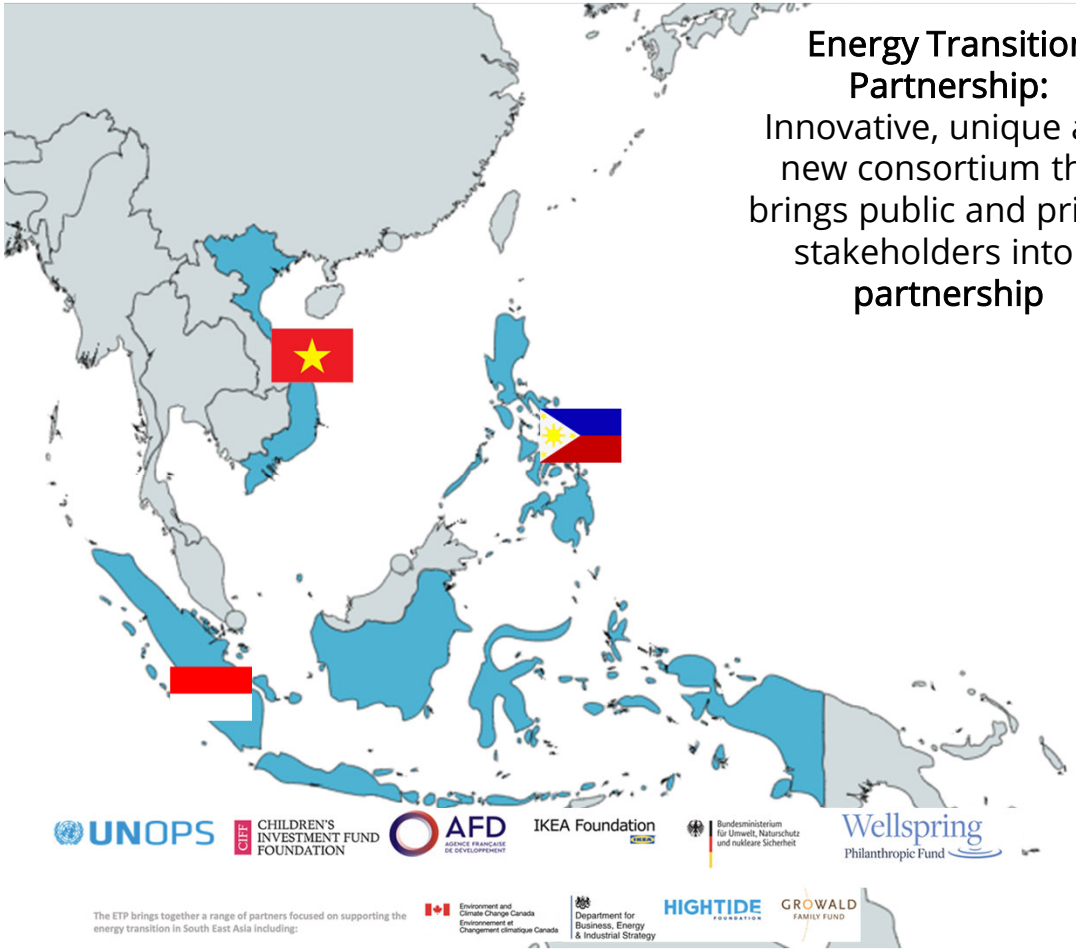
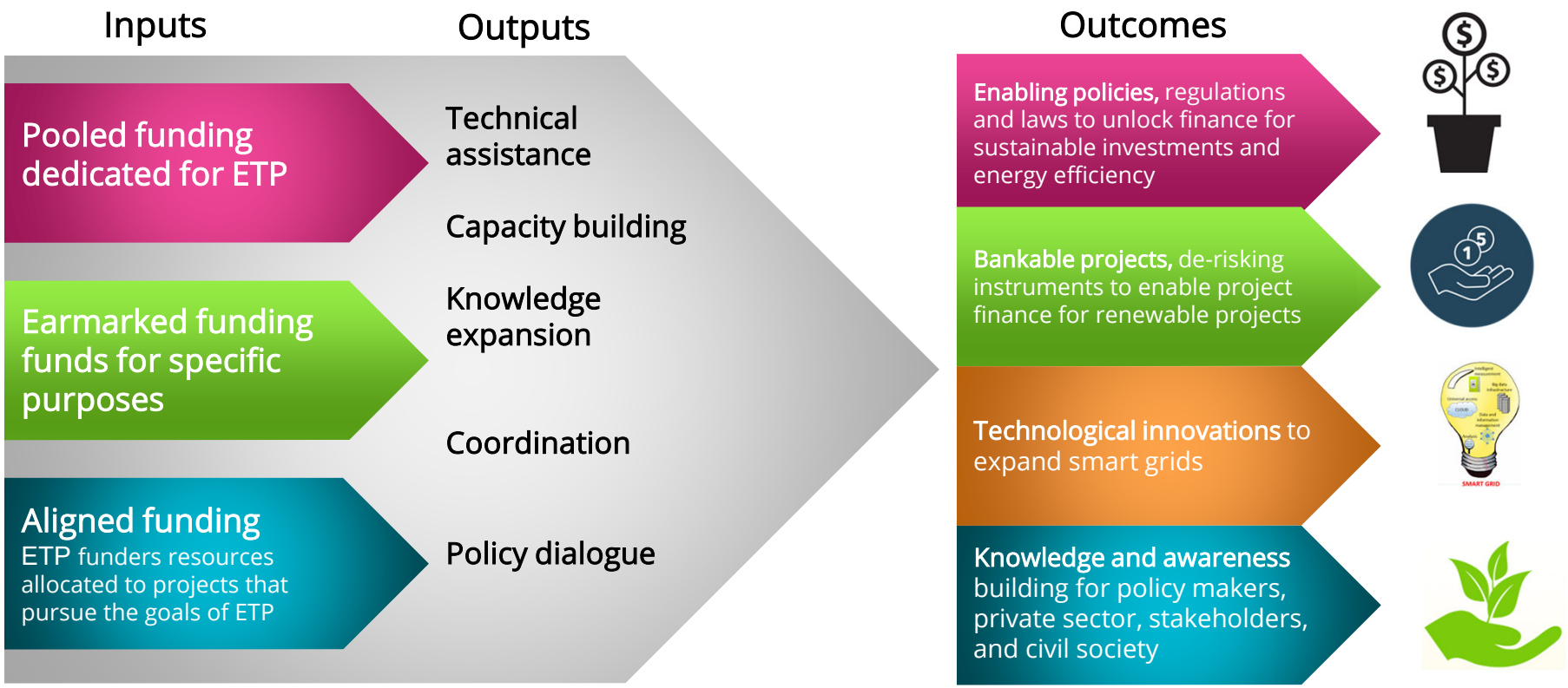
ETP BRINGS STAKEHOLDER ALLIANCES TO ENERGY TRANSITION



Energy Transition Partnership: Innovative, unique and new consortium that brings public and private stakeholders into a **partnership**

FUNDING CHANNELS: LEVERAGE SHARED GOALS

ETP IS **OPEN** FOR NEW PARTNERS TO JOIN TO REINFORCE ENERGY TRANSITION GOALS



FUNDING CHANNELS: LEVERAGE SHARED GOALS

PARTNERSHIP IS OPEN FOR NEW PARTNERS TO REINFORCE ITS OBJECTIVES

Inputs

Pooled funding dedicated for ETP

Earmarked funding funds for specific purposes

Aligned funding
ETP funders resources allocated to projects that pursue the goals of ETP

Currently aligned programs

- **Clean, Affordable Secure Energy (CASE)**
- **SEACEF**
- **TARA**

Programs considered for alignment

- **Sustainable Infrastructure Programme** – Capital investment and TA program by UK Government (BEIS)
- **Climate change programme – Canada** - Capital investment

Outcomes

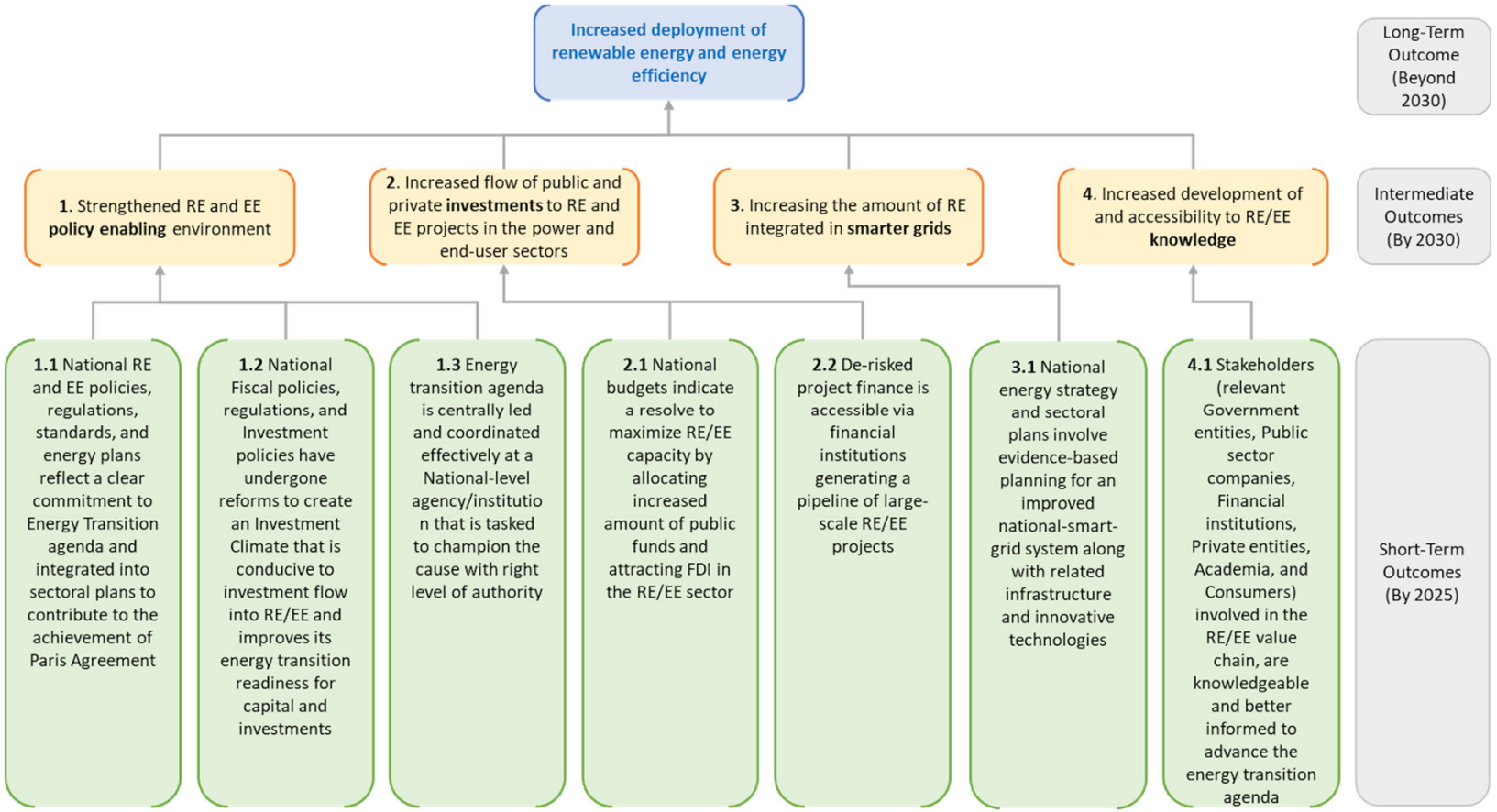
Enabling policies, regulations and laws to unlock finance for sustainable investments and energy efficiency

Bankable projects, de-risking instruments to enable project finance for renewable projects

Technological innovations to expand smart grids

Knowledge and awareness building for policy makers, private sector, stakeholders, and civil society

ETP'S STRATEGY: TO RAPIDLY INCREASE RE AND EE IN SOUTHEAST ASIA



Energy Transition Round Table Southeast Asian Countries

Knowledge Outcome:
Energy Transition Round Table

- An interactive program of seminars that exposes **Energy-Transition Stakeholders** to **pertinent issues and current challenges** and opportunities in the pursuit of energy transition objectives in Indonesia, the Philippines and Vietnam
- **A network among practitioners** and and champions of energy transition and build knowledge, cross-fertilizing the regional experience
- **Develop a go-to platform to create a high-caliber and interactive policy advisory** in a network of practitioner stakeholders on the latest Energy Transition topics pertinent to the Region's energy transition stage.

Examples of issues covered in the sessions, but not limited to, emerging technologies and financing concepts available globally across the energy transition pursuits in;

- Carbon pricing
- Investment needs for extending smart grids;
- Technologies for energy efficiency
- Lessons learned from road to moratorium; rooftop solar expansion; regulations at the heart of investment; ;investment policies and the role of financial supervisors

EXPECTED OUTCOMES

The Energy Transition Round Table is expected to generate the following outcomes, in each country, Indonesia, the Philippines, and Viet Nam:

- **Develop knowledge** among the energy transition champions among leadership of energy transition stakeholders equipping these with tools and concepts to deploy to resolve problems in the policy and program areas under the energy transition processes, and **contribute to their resolve and confidence** in guiding the economies in the energy transition in SEA countries:
- **Develop a network** among the energy transition champions and stakeholders for easy access of knowledge and sharing of experiences; and among the SEA countries energy transition leadership and global leaders in the topical areas; and
- **Develop an online library and recorded and a live forum** for continuing access to new concepts and technologies under testing and piloting, as well as best practices, enabling the SEA countries' energy transition leadership to continue their continuous learning.

SCOPE

The implementation partner is will to **start activities in Nov 2021** and complete at least 24 sessions in 24 months of current and relevant discussions with a focus on critical subjects that can address the key challenges and impediments to energy transition to in the SEA region by Dec 2022.

De-risking Outcome:

Energy Efficiency Innovation Window

Need for Catalytic Funding Mechanisms for EE Projects!

*"... there is substantial **under-investment** in cost-effective **energy efficiency (EE) initiatives** ..."*

Window Objectives

AN EFFECTIVE PATHWAY TO PROVIDE EARLY GRANT FINANCING FOR INNOVATIVE APPROACHES

The EE innovation window will seek proposals for funding focused on innovations addressing

(i) Project Development Support
(ii) Access to Energy Efficiency Finance
(iii) Facilitate Policy Implementation for Energy Efficiency

Category 1: Project Development Support

- Limited capacity and/or experience, and to design bankable projects in key sectors such as buildings and industrial facilities.

- Wider implementation of best practice approaches and improvement in EE “literacy” to develop viable business models for EE projects to result in greater uptake of energy efficiency technologies and investments.

Category 2: Access to Energy Efficiency Finance

… to provide grants for initiatives/ approaches that can expand access to financing for **EE**.
There is an **urgent need** to create **better linkages** between the **appetite for EE investment** and the **needs of investors** which can be achieved through;

Category 2: Access to Energy Efficiency Finance

… to provide grants for initiatives/ approaches that can expand access to financing for **EE.** There is an **urgent need** to create **better linkages** between the **appetite for EE investment** and the **needs of investors** which can be achieved through;

Project aggregation models

(e.g. municipal street lighting, building retrofitting for cooling, rooftop solar installations, EV fleet conversions, etc)

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Project intermediaries and Super-ESCO-style approaches

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Project intermediaries and Super-ESCO-style approaches

Better measurement and verification of the energy savings revenue stream at the project level

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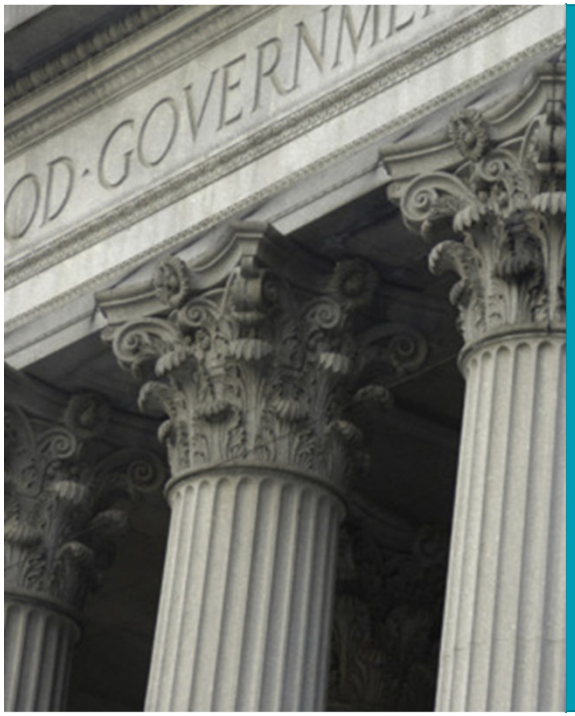
Project aggregation models

(e.g. municipal street lighting, building retrofitting for cooling, rooftop solar installations, EV fleet conversions, etc)

Innovative products such as energy savings insurance or other de-risking products

Project intermediaries and Super-ESCO-style approaches

Better measurement and verification of the energy savings revenue stream at the project level



Category 3: Facilitation of Policy Implementation for Energy Efficiency

To support for focused implementation of energy efficiency policies and regulation, in areas where implementation gaps exist and can be addressed with assistance.

"**Facilitation of Policy Implementation for Energy Efficiency**" allows for submission of proposals related to public sector procurement, budget, and that encourage a design and implementation of measures to activate current policy provisions.

The EE Innovation Window is accepting proposals;

First quarterly call for proposals is open now!

https://www.energytransitionpartnership.org/

Extending Smart Grids Outcome:
In the Philippines

1. Regulatory Improvement (ERC) and

1. Design and Implementation of Energy Battery Market Mechanism (PEMC)

1. Design and Implement Ancillary Services Market Mechanism (DOE)

TA to Energy Regulatory Commission (ERC)

ETP TA for the ERC supports:

- Development of a **new system loss caps** based on the Electric Power Industry Reform Act (EPIRA) criteria
- Revisit the existing technical, operational and performance **standards for RE generators**
- Develop rules and **regulations for Ancillary Services responsive with variable RE technology**
- Develop **rules and regulations for smart grid facilities and revisions to small grid guidelines**
- Develop **sustainable energy initiatives for smarter and greener cities**
- **Review of energy sector regulatory framework** to identify potential impediments for energy transition

Provision of technical support to a **broad scanning of its regulatory framework toward a low carbon economy and NDC achievement.**

Technical advice and expertise for ERC in three thematic areas of **supply** of RE; **Grids** and energy battery storage systems, and **demand** management

Objectives

TA to Philippines Electricity Market Mechanism (PEMC)

ETP TA for PEMC is out to tender:

- Capacity building to **develop competitive conditions for the battery storage services** market, de-risking investments of the existing and new developers to finance RE investments.
- Develop **conformance standards** applicable to BESS and other ESS;
- Introduce **protocols for BESS** and other ESS for their scheduling and dispatch in the energy-only and eventually in the co-optimized market for energy and reserves.
- Achieve **compliance rating by the market participants** who operate BESS and other ESS, determined by PEMC's Enforcement and Compliance Office; and
- **Increased competitiveness** in the spot market in terms of BESS and Other ESS ownership.

The technical support will broaden and strengthen **PEMC's governance functions to emerging technologies participating in the electricity market** which include **battery and ESS** as part of the country's energy transition program.

Objectives

RRF: Support to Design and Implementation of Ancillary Services

ETP is designing assistance to DOE on designing and implementing Ancillary Services Market Mechanism

The project responds to the Government's request under Rapid Response Facility support a reliable and secure power supply through "***Adopting a General Framework Governing the Provision and Utilization of Ancillary Services in the Grid***" under **the Philippine policy (DC2019-12-0018)**.

Objectives:

- **Develop CSP guidelines for the procurement of AS**, to enhance DOE's working draft that needs to consider AS auction to be conducted in the WESM;
- **Provide A Framework for the operation of the Reserve Market** (Reserve Market Readiness Criteria, Mitigating Measures, etc.);
- **Identify technical specifications and testing guidelines for AS,** which include the selection and accreditation of a third-party AS testing entity; and
- **Develop guidelines for the cost-recovery of AS utilization** / regulatory framework for AS utilization (ERC)

Extending Smart Grids Outcome:
In Indonesia:

Detailed Engineering and Supervision of the Upgrade of Java Bali Control Center

Java Bali Grid and Control Center

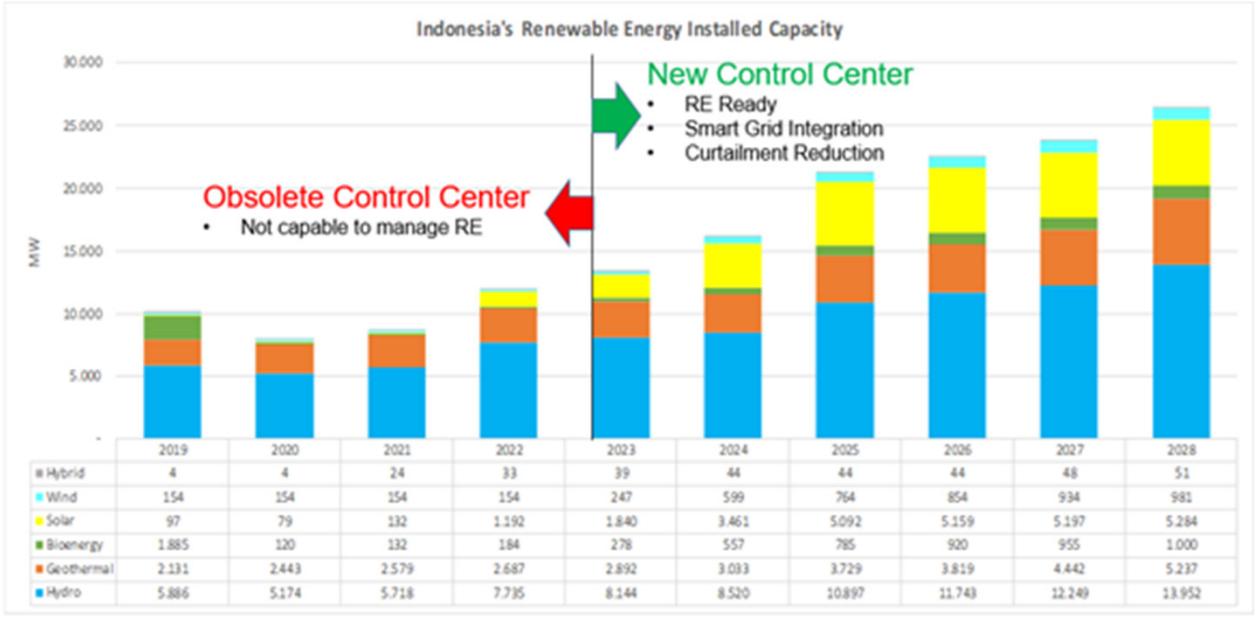
- PLN generates the majority (>80%) of the electrical power, 70% concentrated on the Java-Bali grid of the total electricity production capacity of 53,920 megawatt (MW) and electricity production of 245.52 terawatt hours (TWh, 2019) servicing 69.6 million consumer.

- Modernizing the Java-Bali grid control system - which serves nearly 100 million people - is a key in supporting extensive renewable electricity expansion

- Operating the power system with increasing and flexible participation of variable renewables requires features and functionalities that currently are not available in the existing SCADA system and cannot be incorporated.

- The current grid control system for the Java-Bali has reached its end of life status, and will no longer be supported by the vendor beyond 2021 – delay in its replacement will compromise system availability and network security.

Java Bali Control Center Upgrade to enable RE in the grid



	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Hybrid	4	4	24	33	39	44	44	44	48	51
Wind	154	154	154	154	247	599	764	854	934	981
Solar	97	79	132	1.192	1.840	3.461	5.092	5.159	5.197	5.284
Bioenergy	1.885	120	132	184	278	557	785	920	955	1.000
Geothermal	2.131	2.443	2.579	2.687	2.892	3.033	3.729	3.819	4.442	5.237
Hydro	5.886	5.174	5.718	7.735	8.144	8.520	10.897	11.743	12.249	13.952

Renewables target: 16.2 GW by 2024
26.5 GW by 2028

Source: RUPTL

WHAT'S NEXT: LONG-TERM OUTLOOK

TOWARD COP26 and BEYOND:

Engages private and public partners with Southeast Asian counterparts - policy makers and stakeholders
=> coordination outcomes

Drives change at policy, fiscal, and technology capacity through knowledge building
=> energy transition outcomes

Expands financing for investment in renewable energy and energy efficiency
=> RE share increased in energy mix

Pursues energy transition at the regional, national and local levels in Southeast Asia
=> Low carbon economy targets

Achieve visible increases in renewable energy and energy efficiency
=> NDC outcomes

JOIN ETP
BE PART OF SHAPING A CLEAN TOMORROW

SUMALI SA ETP
MAGING BAHAGI NG PAGHUBOG SA ISANG MALINIS NG KINABUKASAN

BERGABUNGLAH DENGAN ETP
MENJADI BAGIAN UNTUK MEMBANGUN MASA DEPAN YANG LEBIH BERSIH

THAM GIA ETP
CÙNG KIẾN TẠO MỘT NGÀY MAI TRONG LÀNH

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Thank You!

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ENERGY TRANSITION PARTNERSHIP

Powering Prosperity and Enabling Sustainability in South East Asia

WHY ENERGY TRANSITION PARTNESHIP?

- Southeast Asia's economic growth
  generated important outcomes,
  BUT at a high cost to the environment

- Southeast Asia is one of the most vulnerable regions to the effects of global warming

Facts:

- **World's most rapid rate of increase in CO2 emission between 1990-2010**
- **On a trajectory to become a much larger emitter in the future**
- **Indonesia, Malaysia, the Philippines, Thailand, and Viet Nam accounted for 90% of GHG in 2010 in Southeast Asia.**
- **Climate change is evident in the Region: rising temperatures from 0.14 and 0.20 per decade since 1960; rising climate and disaster risks of flooding, intense cyclones and storms, coastal inundation, and sea level rise**
- **If unmitigated ⇒ reduced agricultural and labor productivity, human health, coastal ecosystems, and terrestrial forest cover and biodiversity ⇒ with economy-wide consequences.**

Source: ADB

RAPID GROWTH CALLS A DIRECT TRANSITION:

- **Electricity demand** grows by some **5% per annum, in some countries by more**
- **Demand is slated to double by 2035 - in some countries by 2030!**
- **Demand for low carbon economies** is growing in Southeast Asia

→ The next few years present **a tremendous opportunity for transition to clean energy**