RENEWABLE ENERGY MARKETS ASIA 2023 PANEL DISCUSSION

POLICY SHIFTS AND EMERGING COALITIONS AFFECTING PROCUREMENT OPTIONS

Nadine Samantha Valderrama
Program Manager, Allotrope Partners

Rachael Terada (moderator)
Director, Technical Projects, CRS

Dr. Arunabha Ghosh
Climate Expert & CEO, Council on Energy, Environment and Water (CEEW)

Madura Watanagase
Manager for Competitive Procurement, USAID Southeast Asia Smart Power Program (SPP)

Thursday, 27 April 1:30-2:30 PM

Renewable Energy Markets™ Asia 2023

Policy Interactions

Best Practices to Accelerate Renewable Energy Markets

Rachael Terada
Director, Technical Projects

27 April 2023
Renewable Energy Markets™ Asia
Singapore

About Center for Resource Solutions

Nongovernmental Organization (NGO) creating policy and market solutions to advance sustainable energy since 1997.

- Policy, market development, and expert assistance, including the Clean Energy Accounting Project
- Education
- Green-e® certification for suppliers and users of renewable electricity, carbon offsets, and renewable fuels

Renewable Energy Markets™ 2023

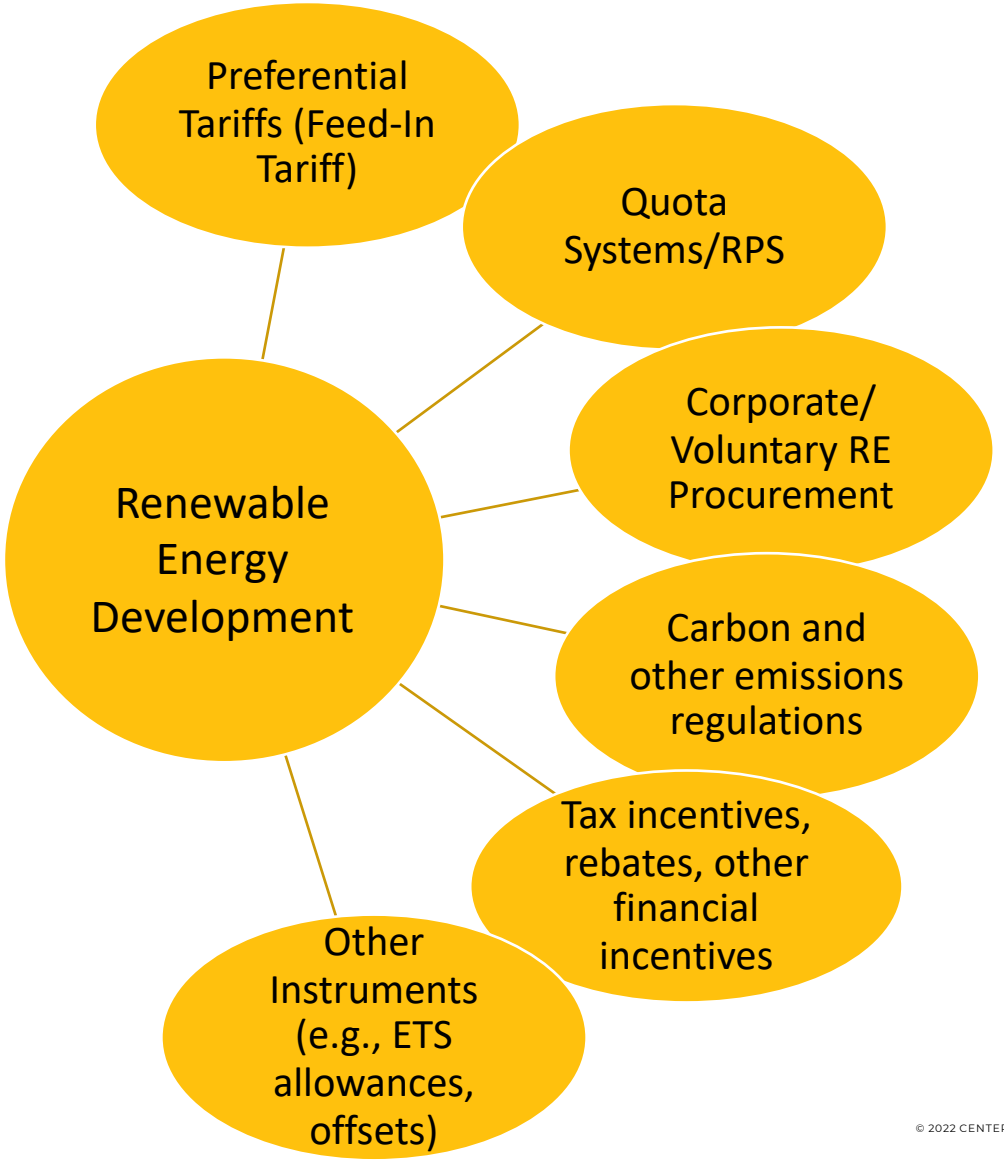
Green-e®

CRS™

Agenda

- **Policies to accelerate renewable energy markets**
- **Examples of policy interactions and credible renewable energy claims**

Policies To Accelerate Renewable Energy Markets



Key Criteria for Successful Voluntary Markets

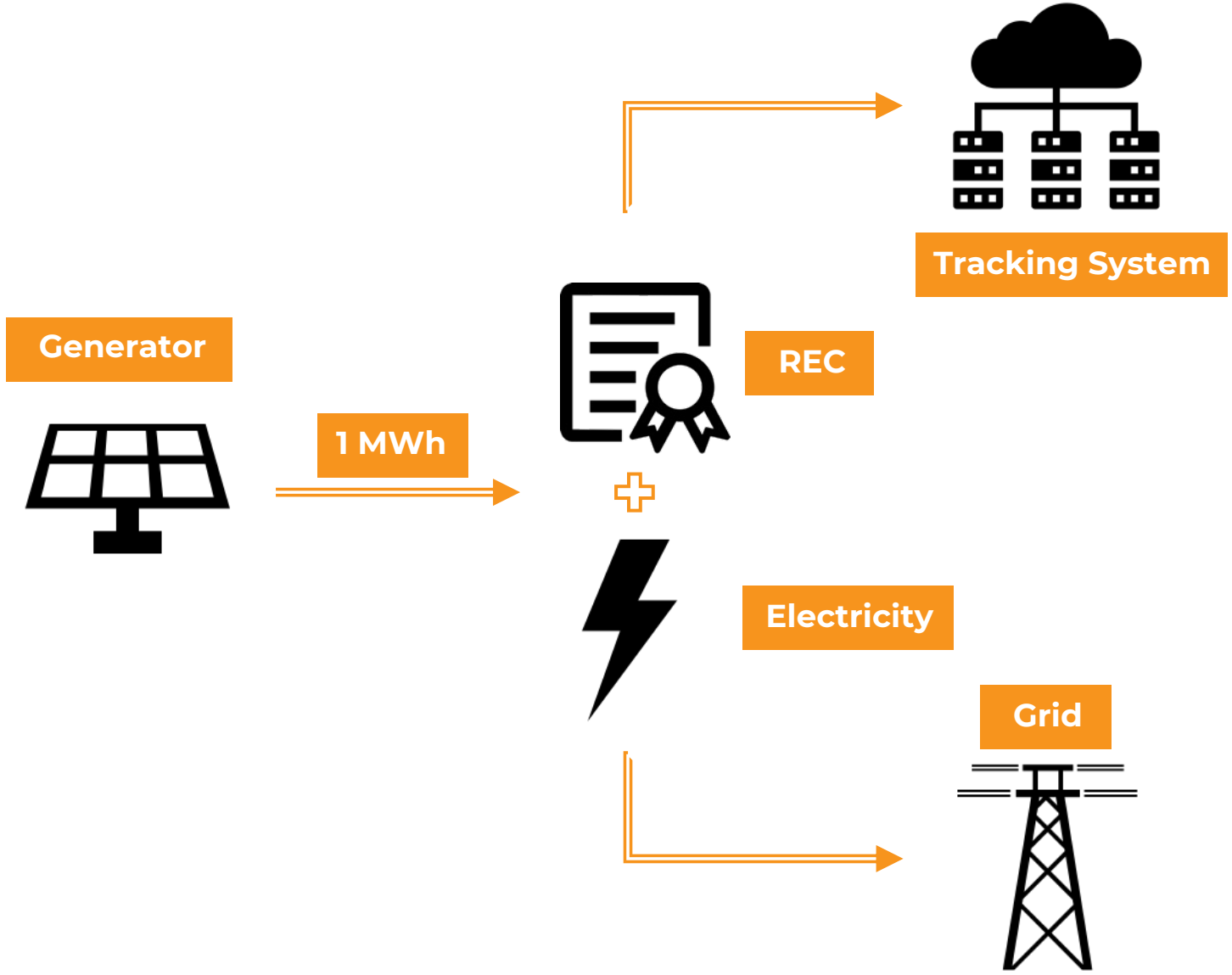
1. Legal Basis for Claims And Attribute Transfer

2. Regulatory Surplus

3. Attractive Product Options (Price and/or Impact)

Renewable Energy Certificates (RECs)

1 REC represents the renewable attributes of 1 MWh of renewable energy generation



RECs: Accounting Tools Supporting Renewable Energy Trading and Procurement

Best Practice: Renewable energy usage and procurement documented with legitimate, high-quality RECs/EACs.

- **RECs are an accounting tool** to demonstrate each unique MWh (or kWh) is accurately measured, recorded and tracked and that usage is documented through cancellation or retirement.

Key Criteria for Successful Voluntary Markets

1. Legal Basis for Claims And Attribute Transfer

2. Regulatory Surplus

3. Attractive Product Options (Price and/or Impact)

Examples

Example: Feed-in Tariff (FIT) and Voluntary Renewable Energy Markets

Typically, a project that receives a FIT premium can not also receive a REC or EAC and make a credible claim that they own the sole rights to the renewable electricity that is generated

Example: Feed-in Tariff (FIT) and Voluntary Renewable Energy Markets

1. Ratepayers fund the feed-in tariff for more renewable energy
2. A corporation builds a solar project and receives FIT funding
3. The solar project generates renewable electricity
4. The renewable benefits or environmental attributes belong to all the ratepayers

Example: Renewable Portfolio Standards (RPS) and Voluntary Renewable Energy Markets

1. RECs are typically used as the instrument for RPS compliance
2. Best practice: **use the same REC tracking system** for both RPS markets and the voluntary market to avoid double counting
3. If all renewable energy generation in a region or country counts towards the RPS, the voluntary market will not exist

Examples: Carbon Claims and Voluntary Renewable Energy Markets

- Can't receive a carbon offset and a REC from the same renewable MWh generated
- Greenhouse gas (GHG) cap and trade programs affect carbon claims for voluntary renewable energy purchasers
  - Still using zero-emission power
  - Not avoiding grid emissions → just makes it easier and cheaper for fossil generators to comply with the regulation

    (unless special GHG allowance set aside is in place)

Growing Successful Renewable Energy Markets Requires:

- Real delivery of specified generation (attributes)
- Consumer confidence
- No double counting or double claiming
- Ongoing interaction with regulatory structure
- Regulatory surplus
- Government support and recognition
- **Products that meet customer preferences and needs**

Contact

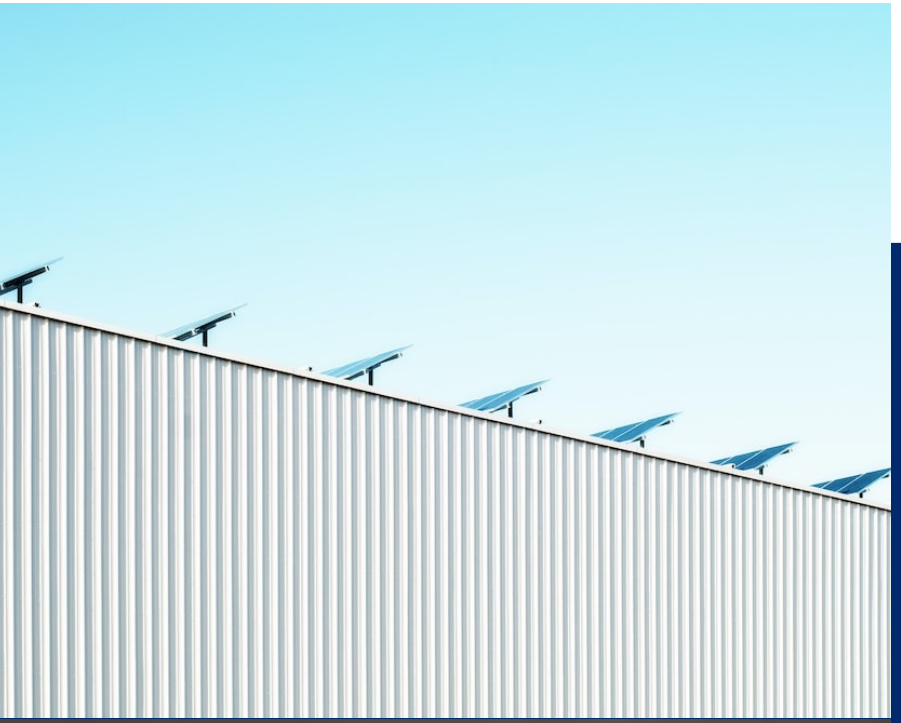
Rachael Terada

Director, Technical Projects

rachael.terada@resource-solutions.org

CRS™

www.resource-solutions.org



USAID
FROM THE AMERICAN PEOPLE

Policy Shifts and Emerging Coalitions Affecting Procurement Options

Latest Developments in Southeast Asia

Madura Watanagase
Manager of Competitive Procurement, USAID Southeast Asia Smart Power Program

About the USAID Southeast Asia Smart Power Program (SPP)

SPP aims to enhance energy security in Southeast Asia by creating open and transparent energy markets, promoting energy trade, and transforming the energy sector to improve access to clean, reliable, affordable energy.

Targets

The life of program targets SPP is driving to achieve include:

- 2,000 MW of advanced energy systems deployed
- $2 Billion finance mobilized
- 5% Increase in regional energy trade

Strategy

SPP will focus on achieving the following technical and policy objectives:

- Objective 1: Utility Modernization & Power Trading
- Objective 2: Increased Deployment of Advanced Energy Systems
- Objective 3: Clean and Sustainable Energy

In May 12-13, 2022, U.S.-ASEAN Special Summit in Washington, D.C. re-affirmed U.S. support across ASEAN's institutions and programs.

Regional Partners

ASEAN Centre for Energy
One Community for Sustainable Energy

HAPUA

USG and International Donor Partners

ASIA EDGE
Enhancing Development and Growth through Energy
The U.S. Government's Indo-Pacific Energy Initiative

UNITED NATIONS ESCAP
Economic and Social Commission for Asia and the Pacific

ADB

Growing Appetite for Private Power Procurement in Southeast Asia

- Corporate commitments to decarbonize are driving the demand for clean power.
- Buyers' associations like RE100 and CEBA expand the clean energy customer base and unites/magnifies industry voices.
- Leading manufacturing brands with significant supply chain presence in Southeast Asia have the market power to exert pressure on regulators.
- USAID's Corporate Clean Energy Alliance (CCEA) is a network of companies operating in seven Southeast Asian countries. CCEA aims to serve as a regional platform to share information, experiences, and increase climate action and ambition across Southeast Asia.

CEBA
Clean Energy Buyers Association

RE100
CLIMATE GROUP | CDP

GWEC
GLOBAL WIND ENERGY COUNCIL

NET ZERO

Strategic Business Partners Across Southeast Asia

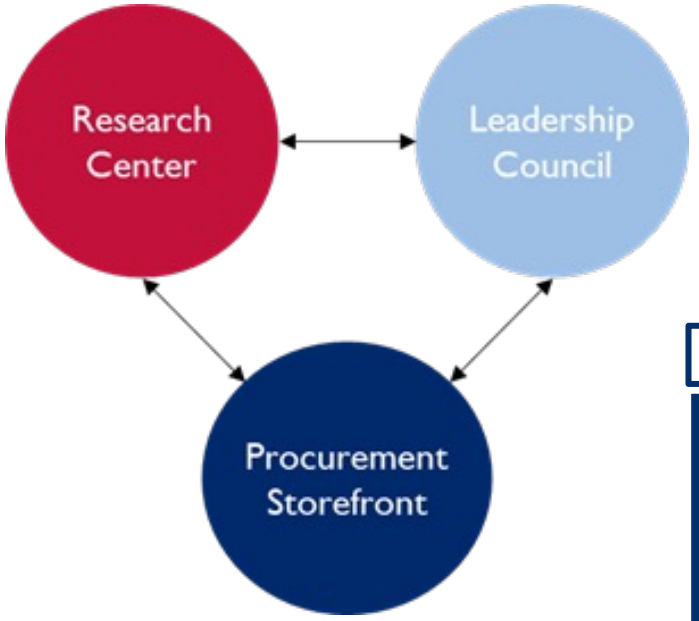
Note: As of October 2022

Center for Competitive Procurement

- SPP will establish a Center for Competitive Procurement which will be a **one-stop-shop for research, best practices, and advisory services geared towards the region**, to promote adoption of effective competitive procurement processes.
- The Center will be hosted within a leading SEA operator to ensure sustainability beyond the SPP program.

Research Center

- Conducts primary research on procurements in the region and globally to identify leading practices
- Maintains the database of active procurements in the region
- Receives research project suggestions at the direction of leadership councils, as well as internally generated concepts



Leadership Council

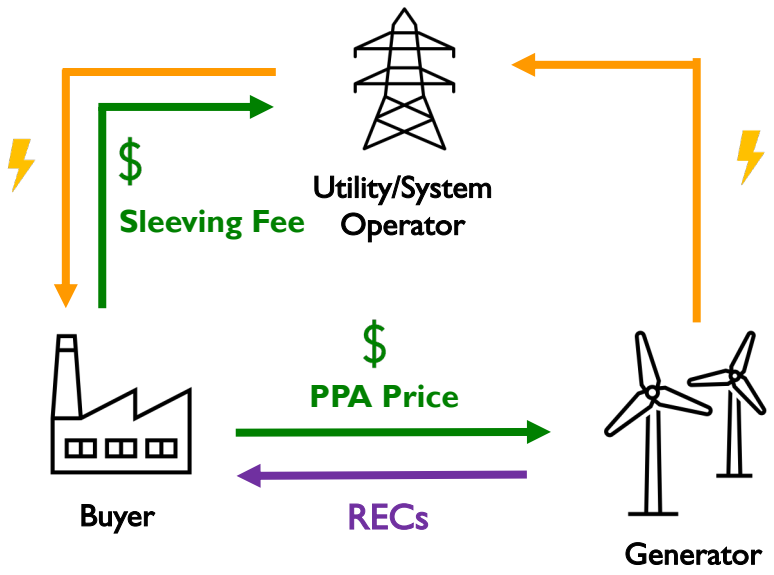
- Collection of relevant power sector stakeholders with equities in competitive procurement
- Initially envisioned to focus on private sector participants, should evolve to include ministries/regulators in some capacity

Procurement Assistance Storefront

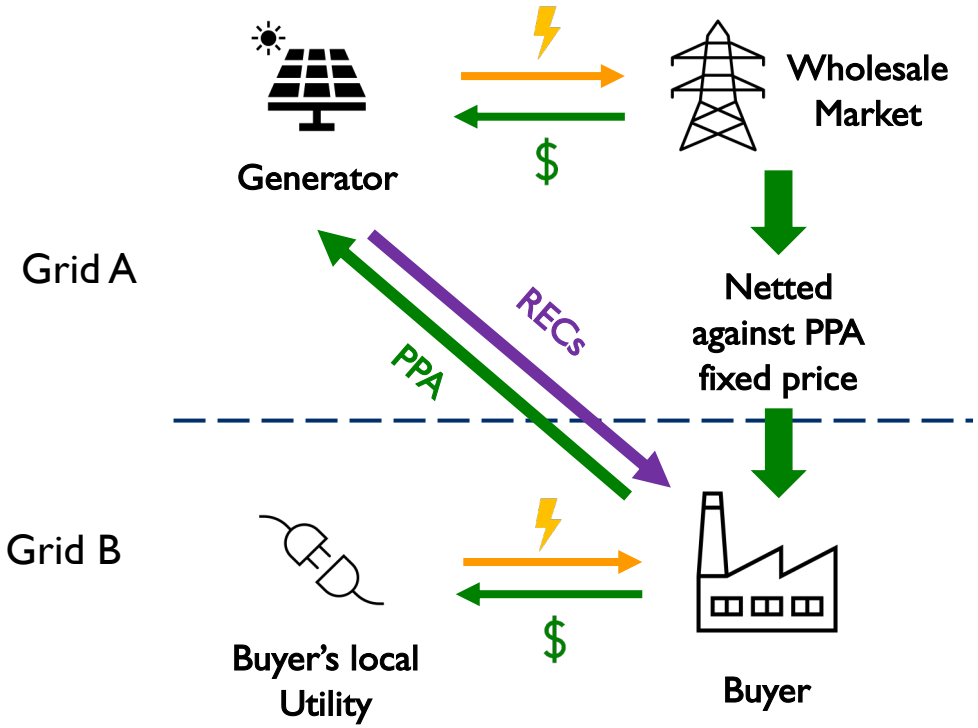
- Houses templates, leading practices, and a database of procurements in the region developed in other pillars
- Facilitates connections between SPP technical 1-on-1 support and power sector stakeholders seeking assistance
- Receives additional content from Leadership Councils as relevant

Private Procurement Options for Offsite Generation

- Sleeved Physical PPA example
  - Physical connection via grid



- Synthetic/Virtual PPA example
  - No connection required; needs a functioning spot market



Power — Payment — REC

Summary of Market Requirements for Various Procurement Models

Each model has distinct market, regulatory, and geographic requirements.

Model	Physical: Direct Private Wire	Physical: Sleeved	Synthetic	On-Site
On or Near-Site Location	X			X
Take-or-Pay Agreement	X	X		X
Liberalized Market-Based Pricing			X	
Modern and Automated Scheduling and Dispatch		X		
Ability to Provide Balancing Power	X	X		

Source: (1) Savage, S. "Bangladesh starts to reopen clothing industry after lockdown." (2) Business & Human Rights Resource Center. Map: Garment Factories in Bangladesh (3) Power Division, MPEMR. Power System Master Plan 2016.

Current regulation limits direct procurement options

Country	Market Type	Market Policy	Direct Enabling Policy	Corporate Power Purchase Agreements (CPPAs) Currently Exist
Thailand	Vertically Integrated	• IPPS allowed • Some customer classes can purchase directly from IPPs. Industrial estates with separate grid supplied onsite are allowed. • No wheeling through the state utility's transmission or distribution infrastructure.	• Energy Regulatory Commission (ERC) Sandbox • Utility Green Tariff	Yes, onsite/dedicated line only
Indonesia	Vertically Integrated	• IPPS allowed, but no policy for direct purchase from IPPs	None	Yes; outside of National Electric Company (Indonesia) (PLN) territory
Philippines	Restructured Market	• Retail Competition and Open Access (RCOA) and Green Energy Option Program (GEOP) allows customers with certain minimum demand to select their Energy Supplier	RCOA and GEOP	Yes
Vietnam	Transitioning from Vertically Integrated to Restructured Market	• IPPS allowed, but no policy for direct purchase from IPPs • Specific regulations are in progress to allow CPPAs.	Direct Power Purchase Agreement (DPPA) Pilot Program pending	No
Cambodia	Vertically Integrated	• IPPS allowed, but no policy for direct purchase from IPPs	None	Yes, but unclear how existing CPPAs were initiated, given market conditions do not openly allow CPPAs
Lao	Vertically Integrated	Market regulations allow IPPs, but do not speak to customer ability to purchase from IPPs.	None	No

Thailand's upcoming policies and initiatives

ERC Sandbox II

- Pilot program that offers regulatory exemptions for projects that qualify

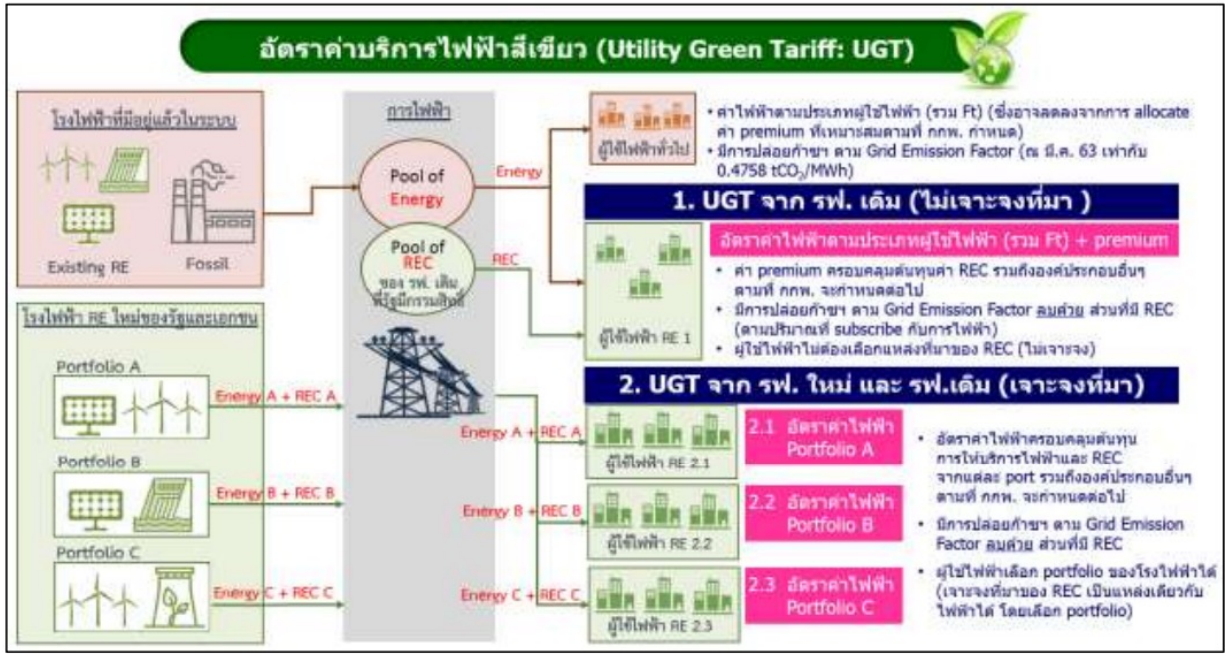
- **2021: Phase 1** focused on new technologies and business models (P2P, Net metering/billing, EV & storage, microgrids, and supply/load aggregators)
- **2022: Phase II** focuses on green innovation and regulation, including sleeved PPAs and virtual PPAs
  - 34 projects have been shortlisted
  - Currently awaiting approval from the National Energy Policy Committee

One of the winning projects under ERC Sandbox Phase 1
Source: BCPG

Thailand's upcoming policies and initiatives

Utility Green Tariff

- Concluded public consultation in March 2023, pending revision
- **Option 1: Non source-specific**
  - Existing RE generation
  - Uniform tariff: retail electricity price + cost of RECs



Utility Green Tariff Structure. Source: ERC

- **Option 2: Source-specific**
  - New generation: 5 GW planned capacity that will be procured through the new FIT program
  - Customers select a generation portfolio
  - Tariff is non-uniform, depends on portfolio
  - 10-25 year contract

Thailand's return to FITs

- Regulator awarded projects through competitive selection process
- Targeted 5.2 GW FIT program for wind, solar, and solar + BESS. Results announced on April 5, 2023:
  - 4.9 GW awarded to 175 projects (out of 386 qualifying applicants)
  - Over half went to two of the biggest players, GULF and Gunkul
- ERC recently announced a new round of selection for an additional 3.7 GW to come from solar, wind, and some biogas and W2E

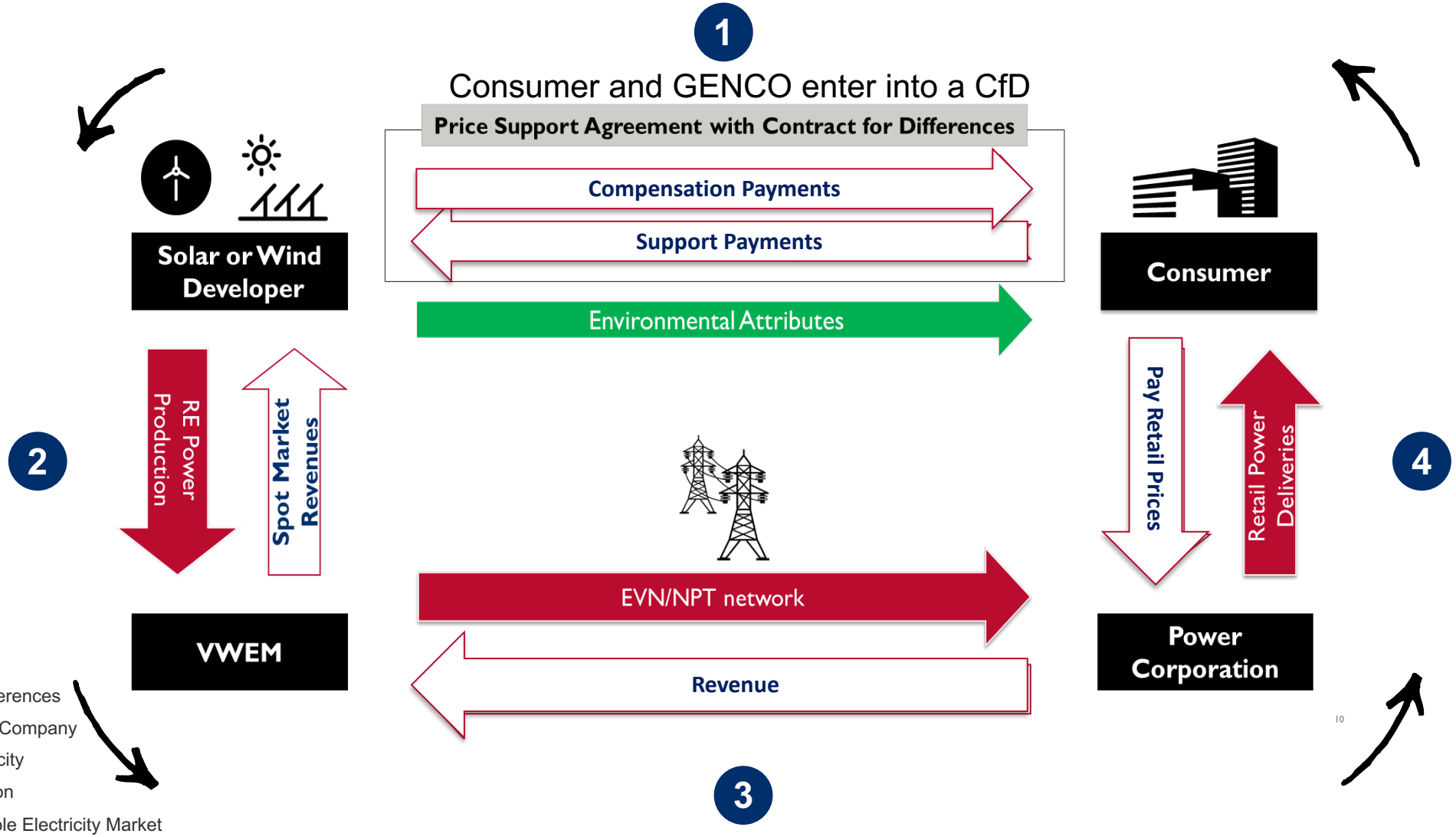
Technology	Planned capacity to be procured through Feed-in-Tariff (MW) by SCOD							
	2024	2025	2026	2027	2028	2029	2030	Total
Biogas (wastewater/waste)			75	75	75	70	40	335
Wind		250	250	250	250	250	250	1,500
Ground-mounted solar	190	290	258	440	490	310	390	2,368
Ground-mounted solar + BESS	100	100	100	100	200	200	200	1,000

Technology	FIT Rate	
	THB	US cents
Biogas	2.0724	≈ 6
Wind	3.1014	≈ 9
Ground-mounted solar	2.1679	≈ 6.3
Ground-mounted solar + BESS	2.8331	≈ 8

Source: ERC

Vietnam's Draft DPPA Pilot Project

- Total capacity of the pilot project is 1 GW. The structure will be a contract for differences:



Definitions:

CfD = Contract for Differences

GENCO = Generation Company

EVN = Vietnam Electricity

PC = Power Corporation

VWEM = Vietnam Whole Electricity Market

Source: USAID Vietnam Low Emission Energy Program II (V-LEEP II)

DPPA Pilot Program Eligibility Criteria (per 2nd draft Decision)

Tariffed Customer	Existing industrial customers taking service at **22 kV** or higher voltage
Project Size	Per Circular 45, individual projects size shall be greater than **30 MW**
Technology Type	**Wind** or **Solar PV**
RE GENCO	Owns Power Plants (i) **ready to COD** but are not eligible for FIT mechanism or (ii) under construction, included in PDP and identified investor and will achieve **COD within 270 working days**
Commercial Arrangements	Project Parties **directly negotiate and sign a contract for differences (CfD)** which dictates a strike price, an amount of power, and duration of the agreement

Latest Updates

The Draft Decision of May 2022 made the following changes from the previous Draft Circular of May 2021:

- *Removed* the requirements:
  - Buyer must purchase at least 80% of its electricity consumption from the RE GENCO
  - Term of the contract must be 10-20 years
- *Added* the requirements:
  - GENCOs must demonstrate that their output will not be adversely impacted by grid constraints at the time of COD
  - No existing PPA with EVN that is still valid at the time of registering for participation

The Draft Decision is currently under consideration and is awaiting approval from the Prime Minister

Final Thoughts

- There are may options for procurement models. Different models serve different objectives and are suitable for different market structures; e.g. UGT vs. DPPA
  - Subscriber-based UGT model makes clean energy accessible to smaller and retail consumers
  - Large corporate customers may prefer a DPPA: lower price and potentially more transparent REC delivery process
- FITs are one method of procuring renewable energy but tend to be higher than what could be achieved through auctions
- The market is ready! Regulators need to catch up
- Coalitions and buyers' associations can play a key role in driving this catch up by leveraging their market power

Thank you!

Madura Watangase
mwatanagase@deloitte.com

USAID
FROM THE AMERICAN PEOPLE

allotrope PARTNERS

REM Asia Presentation

Sam Valderrama

27 April 2023

allotrope
PARTNERS

Energy Market Status

- Liberalized, privatized power sector with 152 distribution utilities
- One of the highest electricity rates in Asia
- Not enough RE supply to meet existing demand
- Recent policy changes have created new opportunities for companies and utilities to procure RE
- But challenges remain

allotrope PARTNERS

Policies Supporting Renewable Energy (RE) Procurement

- **National target** - 35% RE in the energy mix by 2030
- **Renewable Portfolio Standard** - Utilities are mandated to increase their RE use each year (from 1% increase per year in 2020-2022 to 2.52% starting this year)
- Power Purchase Agreements via **Retail Electricity and Competitive Access (RCOA)**
- Power Purchase Agreements via **Green Energy Option Program (GEOP)**
- Green Energy Auction Program **(GEAP)**

allotrope PARTNERS

Energy Market Status

- Perusahaan Listrik Negara (PLN) controls energy transmission and distribution
- Carbon-intensive energy mix; More than 60% of electricity output is coal-powered
- RE is a small portion of the energy mix
- RE capacity additions are limited due to the oversupply of thermal energy
- Lack of grid interconnection among islands makes it difficult to distribute and manage the oversupply of thermal power and new RE integration

allotrope PARTNERS

Policies Supporting RE Procurement

- **National target**: 23% RE in the energy mix by 2025; and 31% RE by 2050
- **Energy Transition** is one of the seven strategic sectors for economic transformation under **Green Indonesia**.
- **Local content obligation of 40% renewables** including solar, biomass energy, and geothermal power
- **Rooftop solar**: Government revised rooftop solar regulations to reduce capacity charges. Further revisions emerging. A formal PPA structure is not allowed, but a lease workaround is feasible.
- **Green energy products**: PLN launched a REC product in 2020 and is exploring a set of new green electricity products

allotrope PARTNERS

CLEAN ENERGY INVESTMENT ACCELERATOR

The CEIA is an innovative public-private partnership that addresses barriers to clean energy deployment in the commercial and industrial sectors in emerging markets.

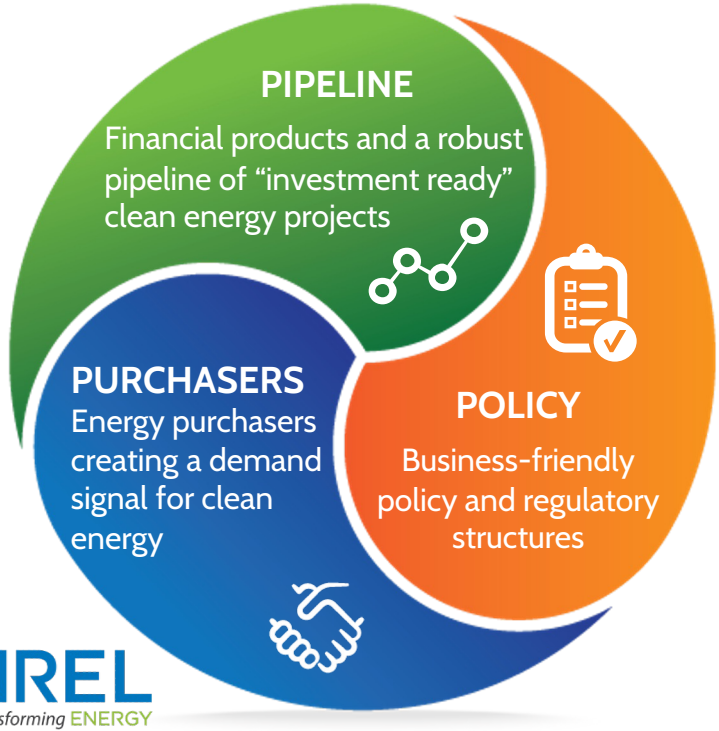
allotrope PARTNERS

WORLD RESOURCES INSTITUTE

NREL
NATIONAL RENEWABLE ENERGY LABORATORY

The Clean Energy Investment Accelerator

- The CEIA has been jointly implemented by **WRI, NREL, and Allotrope Partners** since 2016, through the leadership of global and in-country teams.
- CEIA conducts deep-dive efforts in **Vietnam, Indonesia,** the **Philippines, Mexico,** and **Colombia.**
- CEIA also supports **regional and global replication** through a network of partners.



Work centers on three essential pillars for overcoming barriers by supporting: an enabling policy environment, increased private sector clean energy investment, and transformational business models for scaled deployment.

CEIA is supported by a range of public, private, and philanthropic partners, including:

CEIA's Core Focus Areas

The core areas of CEIA's focus include:

PURCHASERS: Work with commercial and industrial energy users to send a strong *demand signal* to policymakers for improved clean energy procurement options. CEIA engages in-country coalitions of corporate energy users to gather market insights, build technical capacity, and share knowledge to advance clean solutions.

PIPELINE: Provide direct technical support to help corporate energy users advance a robust pipeline of "investment-ready" pilot projects. Focus on innovative procurement approaches to drive down costs like CEIA's aggregated procurement processes.

POLICY: Amplify insights from private sector to inform new and improved clean energy policy and regulatory frameworks, in collaboration with government and utility partners.

Opportunities to Engage Through the CEIA

- **Participate in CEIA Working Groups** in Vietnam, Indonesia, and the Philippines
- Access capacity building, tools, and lessons to explore implementation of clean energy solutions in key markets - www.cleanenergyinvest.org/resources
- **Inform supportive policy frameworks** through amplification of private sector market insights to policymakers and utility partners
- Stay in touch with the CEIA team on emerging solutions across technologies and sectors, including **clean heat, battery energy storage**, and aligned **industrial decarbonization** efforts
- Reach out to info@cleanenergyinvest.org to get involved!

Other Emerging Coalitions to Engage and Leverage

- Corporate Clean Energy Alliance (CCEA)
- Asia Clean Energy Coalition (ACEC)
- Clean Energy Demand Initiative (CEDI)
- Greening the Banks (GTB)
- Local Utility Project Aggregator (LUPA)

allotrope PARTNERS

Sam Valderrama
nsv@allotropepartners.com

www.allotropepartners.com
www.cleanenergyinvest.org