



Corporate Procurement of Renewable Energy; Overview of Direct Power Purchase Agreement (DPPA)

Helping to Understand DPPA Models

Where the V-LEEP Team is Helping

V-LEEP: The Vietnam Low Emissions Energy Program, sponsored by the US Agency for International Development (USAID) is working with public and private sector stakeholders to assist Vietnam in transitioning to a modernized, competitive, low emission power sector. Part of this transition includes the adoption of and capacity building for innovative power arrangements such as direct power purchase agreements (DPPA).

Our Role

Investor Matchmaking:

V-LEEP conducts investor matchmaking by supporting project developers in developing and refining investment pitches, targeting relevant investors, and performing introductions between investors and developers.

Capacity Development & Training:

V-LEEP designs and delivers tailored trainings and capacity development for public and private sector stakeholders in the areas of low emissions energy planning and modeling, renewable energy project finance, clean energy project development, energy management, and energy efficiency.

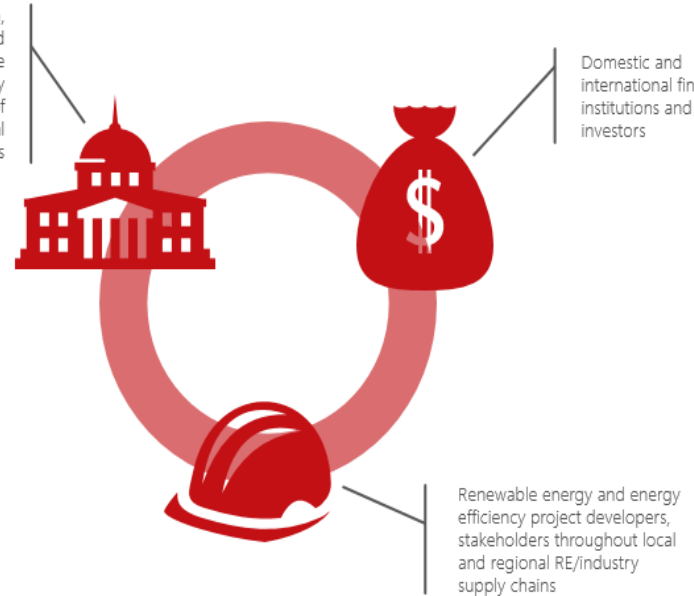
Technical Assistance and Advisory Support:

V-LEEP's technical assistance for clean energy development includes activities such as resource business plan review, assessments, investment readiness assessments, investor matchmaking, and more.

Engaging Stakeholders

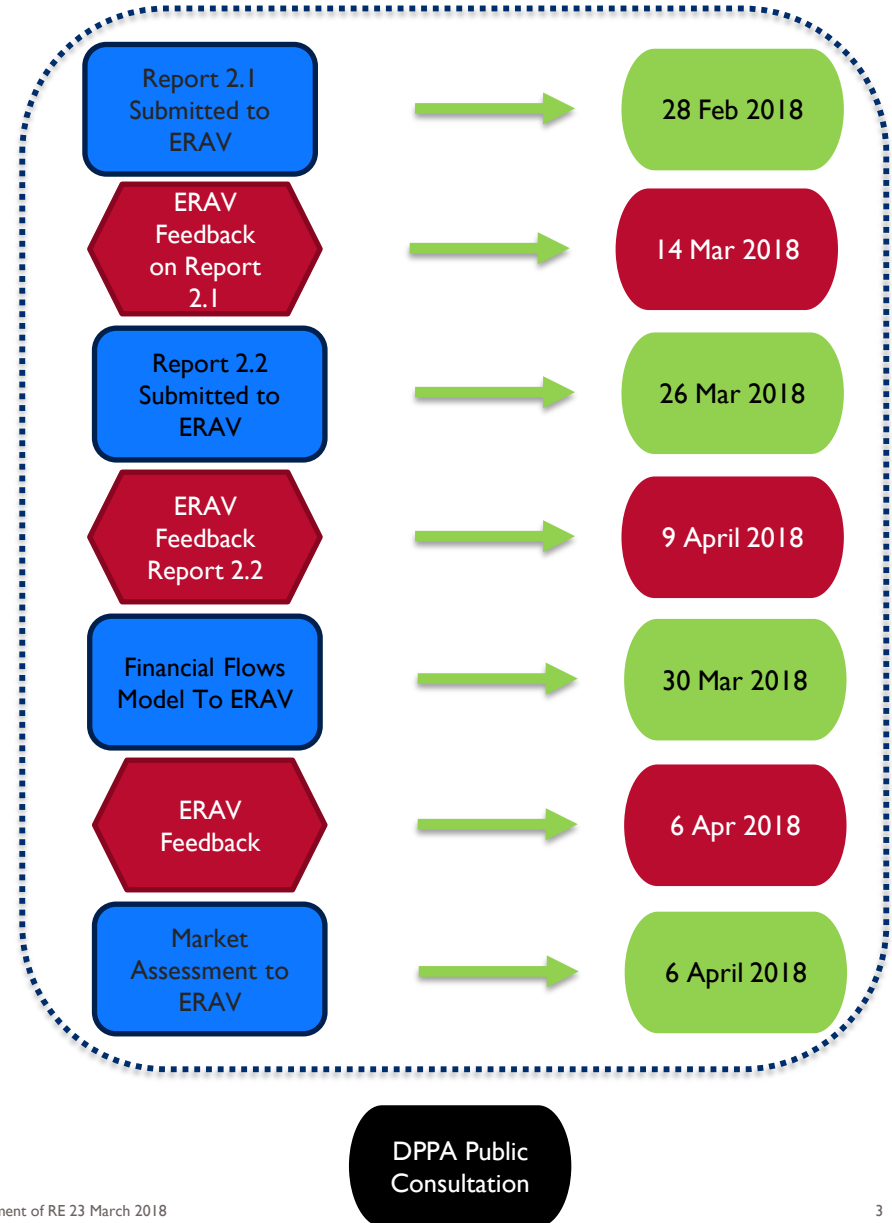
Government of Vietnam, Ministry of Industry and Trade's General Directorate of Energy (GDE), Electricity Regulatory Authority of Vietnam (ERAV), Provincial Departments and Authorities

Domestic and international finance institutions and investors



VLEEP and GVN – Working Together Towards DPPA

- ERAV and V-LEEP are working closely to respond to appeal from corporations, Cham's and Investors to develop a DPPA model.
- V-LEEP's work focuses on
 - Identifying legal and institutional conditions to enable the successful use of DPPA in Vietnam.
 - Conducting an assessment of international DPPA best practices,
 - Recommend a model that best fit GVN's power sector and economic conditions
- Country context and implementation will dictate the pilot and will help inform a future, mature program.
- GVN will need to balance:
 - Whether the selected model can attract investment,
 - Whether GVN and Ministry of Industry and Trade (MOIT) is operationally ready to roll out and manage the program.



DPPA Progress Report

- October 2017 Investor/Buyer Roundtable
- November 2017 APEC Summit Da Nang, Vietnam
- December 2017 REBA VN Working Group Meeting
- March 2018 Investor Roundtable



A promotional graphic with a blue and white background. At the top, it features logos for EUROCHAM, USAID (FROM THE AMERICAN PEOPLE), and another circular logo. The main text reads: "POWERING VIETNAM'S CLEAN, SMART, AND SECURE ECONOMIC GROWTH" in red and black, followed by "NGUỒN ĐIỆN CHO TĂNG TRƯỞNG KINH TẾ SẠCH, AN TOÀN VÀ THÔNG MINH TẠI VIỆT NAM" in white. Below this, a grid of logos includes: VALECO (Renewable energy producer), ABInBev, Apple, LEVI STRAUSS & CO., ABDO, B BRAUN (SHARING EXPERTISE), ABB, DRAGON CAPITAL, IFS, ZUELLIG PHARMA, NIKE, FreedomCampfire, OLUS, U, PUMA, ARMSTRONG ASSET MANAGEMENT, and ReNew.

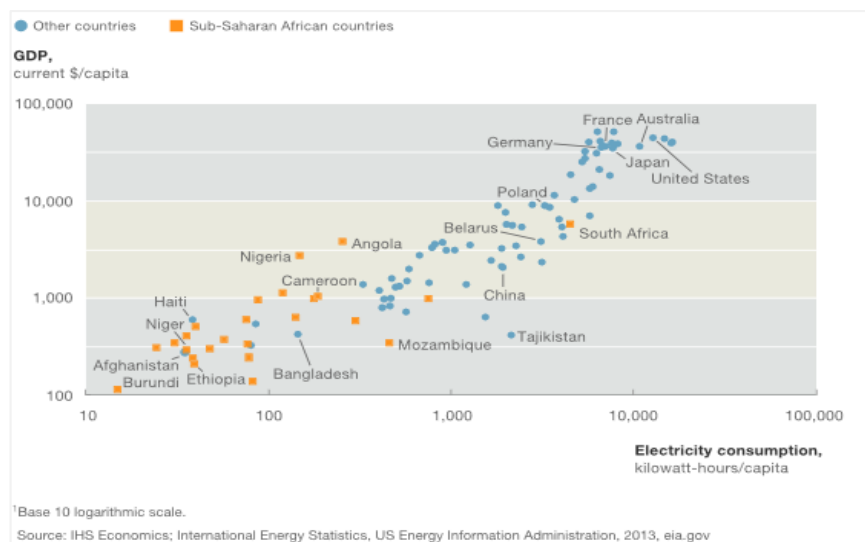
General Rationale How Power Impacts Investments

Power Surge: As Vietnam, one of the world's most dynamic emerging markets, continues to grow over the next several decades, it will experience a dramatic rise in power consumption while attempting to achieve ambitious targets for renewable energy, and keeping its state utility adequately capitalized.

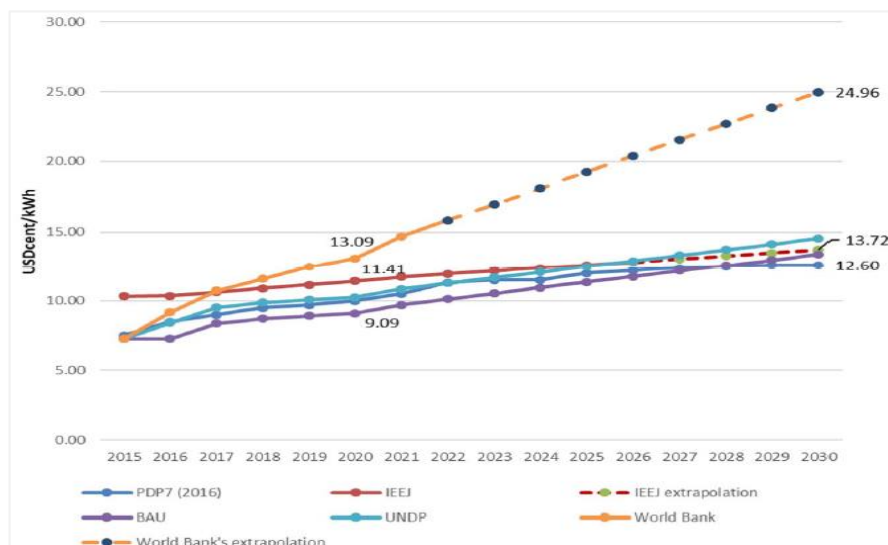
Energy Impacts to Investments

1. Rising cost of power
2. Increased potential for service disruptions
3. Increased costs in the supply chain
4. Active management of utility relationships
5. Administrative costs associated with projecting and reacting to changes to the power market

GDP and Electricity Consumption



Projections of Power Costs in Vietnam to 2030



General Rationale: Buyers, Sellers and GVN

Power Consumers

- Meet Sustainability Commitments
- Hedge against Energy Price & Delivery Variability
- Low upfront Capital
- Long Term Price Certainty

Power Sellers

- Off-taker Creditworthiness
- Off-taker Reliability (Take-or-Pay)
- Project Bankability
- Reduced Operational Risk

GVN

- Attracting FDI
- Increase RE Generation Capacity
- Reduce Fiscal strain
- Decouple Generation and Consumption

— DPPA Overview



Direct Private Wire PPAs

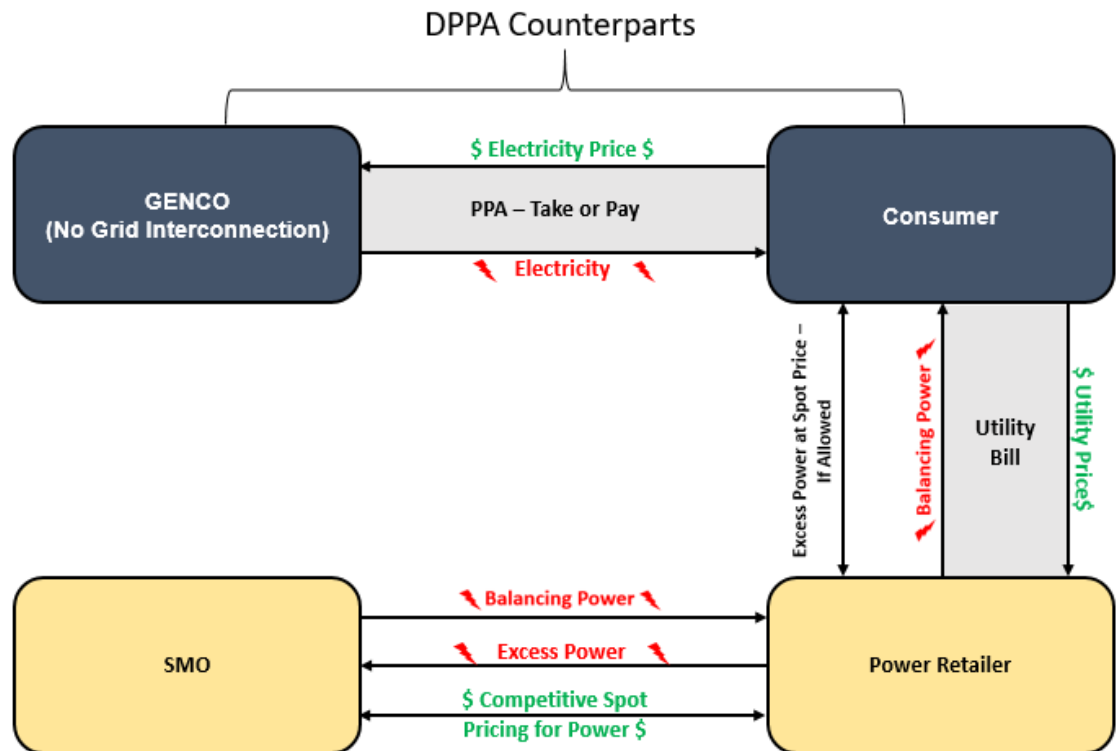
Direct Private Wire PPAs: straightforward DPPA structure in which the corporate purchaser directly connects to the generation asset, completely bypassing the utility or grid operator – a private wire is typically used to supply the consumer's site.

Arrangement Basics

- **Buyer/Off-Taker:** buy agreed-upon volume; grid provides surplus energy
- **Generator:** Develops asset, provides power, sells excess to grid
- **Utility:** Set standards; balance/dispatch rules

Advantages and Constraints

- Straightforward structure
- Limits state utility involvement
- On-site limitation
- Scale/Risk guarantees
- Balance and dispatch rules



Sleeved PPAs

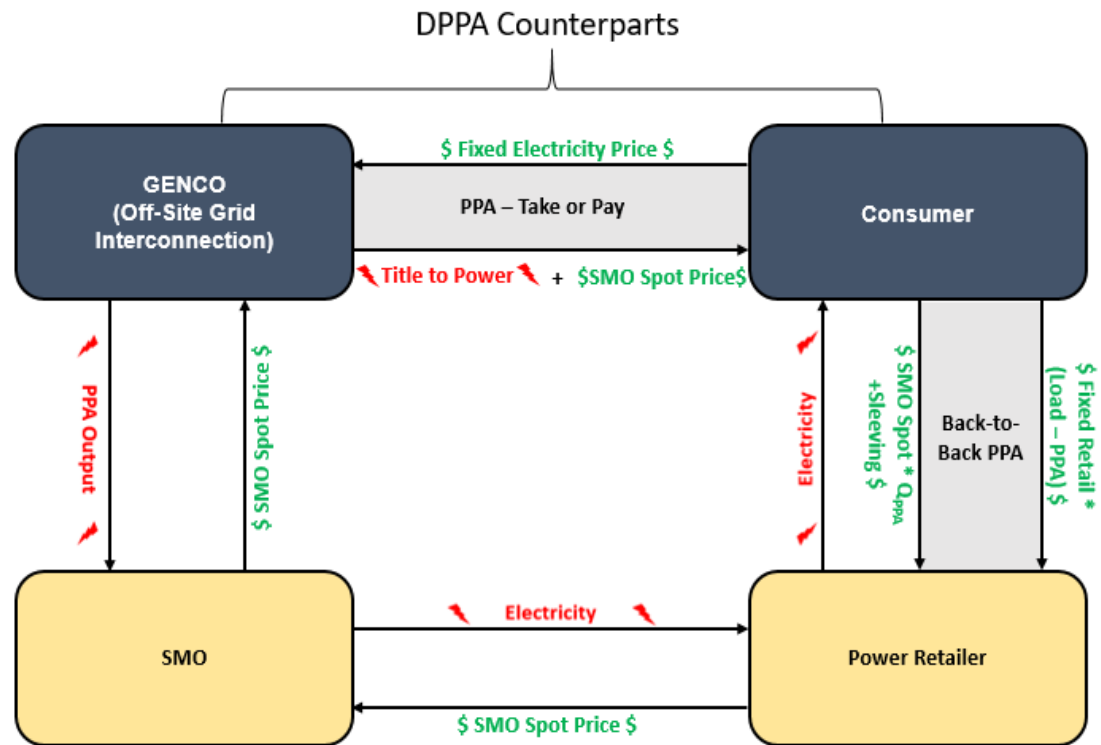
Sleeved PPAs: Generation is located on the same grid but is too far removed from the site for a direct connection. As such, the off-taker will sign a DPPA with the generator for power, but will need a separate agreement between the off-taker and the system operator for the use of the transmission grid known as a “wheeling agreement.”

Arrangement Basics

- **Buyer/Off-Taker:** Takes electricity from the generator; obtains ancillary services from the utility
- **Generator:** Delivers power through the grid, obtains payment from the buyer
- **Utility:** Enters wheeling agreement

Advantages and Constraints

- Wheeling agreement explicitly states rules
- No proximity limit
- Increased bankability
- Increased complexity
- Reliance on grid operation



Synthetic PPAs

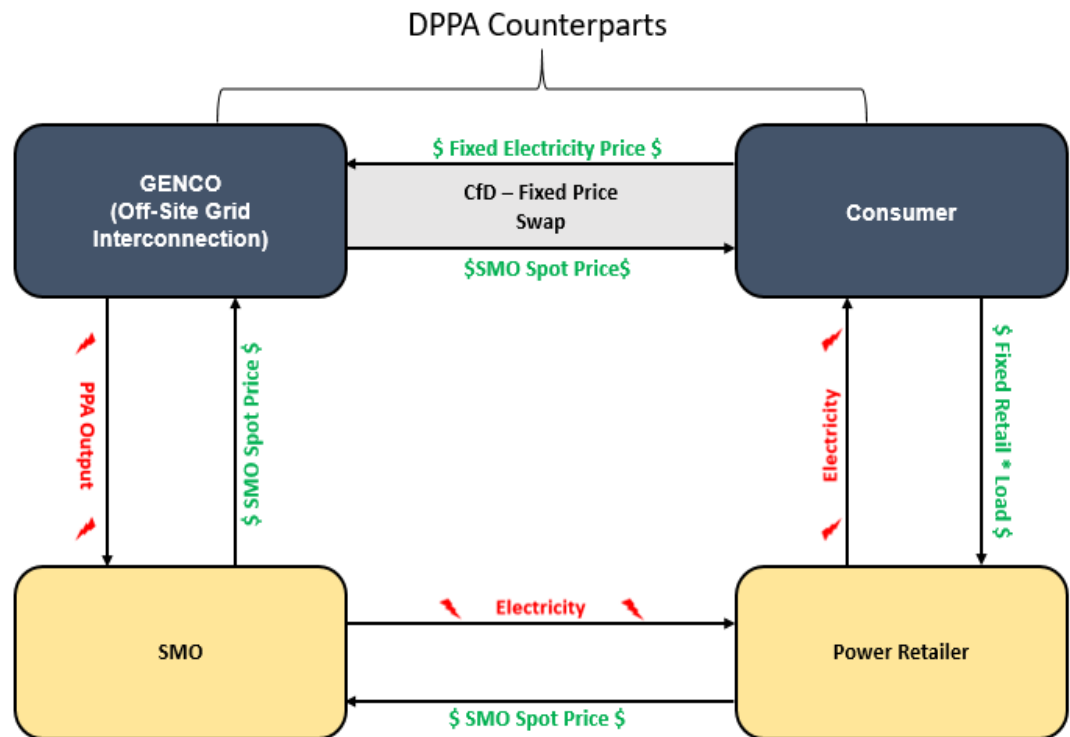
Synthetic PPAs: The generator does not physically deliver power to the corporate off-taker, but rather executes a hedging instrument with the off-taker, called a “contract for differences” (CfD) that sets a ceiling or floor – for the off-taker and generator respectively – on the price of power over the course of the DPPA, or a “strike price.”

Arrangement Basics

- **Buyer/Off-Taker:** purchase power from the utility; compensate the generator when price < “strike price”
- **Generator:** Sell power to the utility, compensate when price > “strike price”
- **Utility:** Purchase and provide power

Advantages and Constraints

- Low complexity
- No proximity limit
- Reliance on government ultimately establishing market and rules
- Reliance on grid operation



Specific GVN Objectives



Vietnam Government Objectives:

The DPPA Pilot Program will serve several GVN objectives:

- Demonstrate the viability of bilateral contracting as an option for increased investment in renewable energy
- Provide a renewable power procurement mechanism that satisfies the renewable energy buyer's principles as expressed by REI00 World Resources Institute, and World Business Council for Sustainable Development
- Test whether the levelized average cost of renewable power projects can be reduced below FIT levels, through competitive procurement mechanisms (e.g., reverse auctions)
- De-risk renewable energy project development in Vietnam by diversifying the number of credit-worthy off-takers beyond provincial power corporations and EVN
- Preserve the financial viability of Provincial Power Corporations, the transmission owner-operator (EVN) and the single-buyer EPTC
- Attract more FDI into Vietnam, including new investments and expansions of existing facilities
- Meet Vietnam's targets for renewable energy development

Model Selection in Vietnam Context



Key Constraints

- Absence of a Mature Wholesale Market
- Limited Existing Renewable Energy Capabilities
- Country Risk Profile

Operational Readiness

- Energy Market Pricing
- Clarity of Balancing and Dispatch
- Operational Capacity

Investment Attractiveness

- Scale of RE Adoption
- Project Bankability



Thank you!

Gary Zieff

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