



CLEAN ENERGY INVESTMENT ACCELERATOR

Financing Barriers for Scaling Up Distributed Photovoltaics (DPV) in the Philippines

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Presentation Outline

1. Overview of Philippines Electric Power Industry
2. Development of On-Site solar in the Philippines
3. Business Models and Case Examples
4. Unlocking Rooftop Solar

Grid Electricity Rate vs Rooftop Solar LCOE



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MANILA  **BULLETIN**

ENERGY (OIL, ELECTRICITY, COAL)

Spike in national average power rate blamed on PHL's coal dependence

Energy group blames PH's coal dependence for spike in power rate

INQUIRER.net / 06:13 PM September 17, 2020

MANILA — The Center for Energy, Ecology, and Development (CEED) said Thursday the country's dependence on coal power has actually driven power prices higher, as seen in the recent spike in electricity prices.

“The six-centavo increase in the country's national average power rate as of December last year, as reported

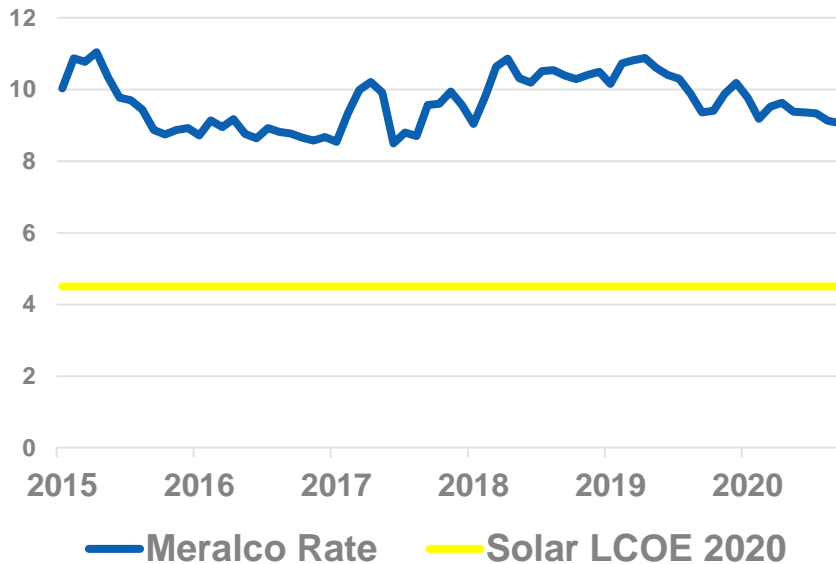
Warning of crippling brownouts raised

Published September 21, 2020, 6:00 AM

Crippling brownouts will dampen the country's bid for economic recovery in the near term if the Department of Energy (DOE) will not act early enough to concretize a viable replacement for the gas output from the Malampaya field.

Rooftop Solar

Solar can provide immediate savings AND a hedge against fluctuating electricity prices.

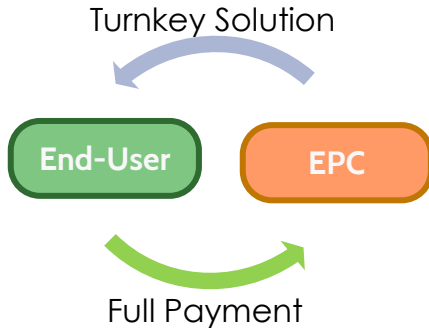


Challenges in Procuring Solar from the Perspective of C&I End Users:

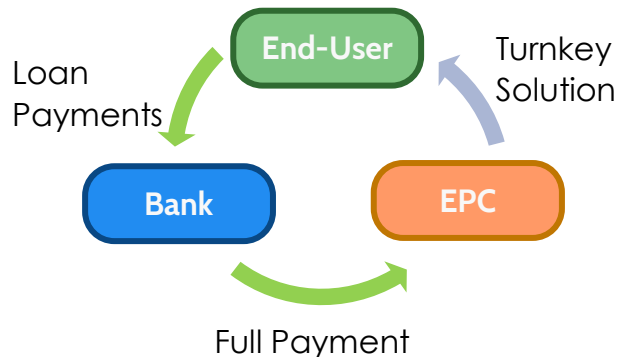
- If upfront CAPEX is required, customers often find it difficult to secure internal approvals for such investments, as there are other investment priorities more aligned with their core business.
- Operations and Maintenance of a solar rooftop system is outside the end-users' existing capacity and is outside their core business
- Lack of access to affordable, no-upfront CAPEX schemes
- Lack of technical capacity to assess the credibility of and terms offered by EPCs and Third Party Financiers (Developers).
- Ongoing policy issues related to the current Net Metering regulation and limitations for third-party financing for “non-contestable” End-Users.

Options for Rooftop Solar

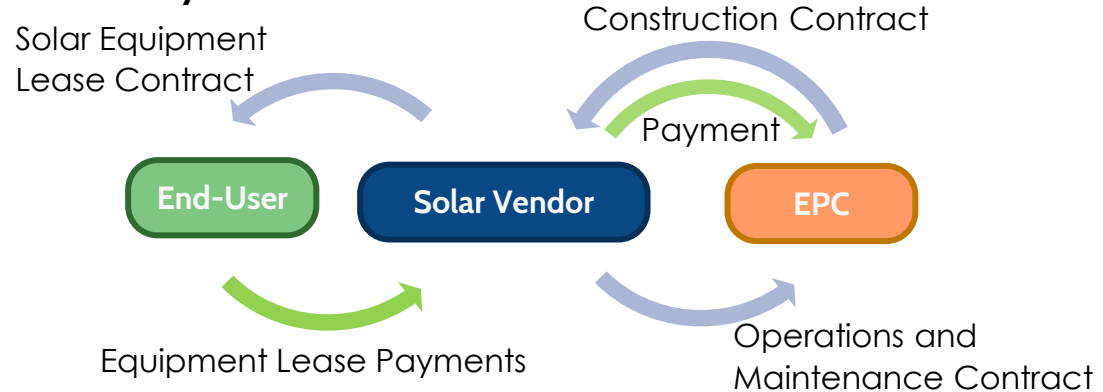
Outright Purchase:



Outright Purchase with Bank Loan:



Third Party Financed:



- Also known as: **“OPEX contract”, “Solar-as-a-Service”, “ESCO” or “Build-Own-Operate”**
- The customer does not own the solar assets. Instead, the solar vendor provides the financing and owns and operates the assets for the lifetime of the contract.
- End-users realize savings immediately, without having to shell out the upfront investment
- Leasing contracts typically 7-25 years

Options for Rooftop Solar

	Option 1	Option 2	Option 3
	Outright Purchase	Outright Purchase w/ Bank Loan	Third Party Financier
Cheaper than Grid?	Yes	Yes	Yes*
Cost/ Down Payment (per MW)	~1 Million USD	~20,000 - 400,000 USD (+ Interest Payments)	0
Payback Period	4-6 years	5-7 years	No Payback Period. Immediate Savings
Performance Risk	User	User	Third Party Financier
Maintenance, Parts Replacement	User	User	Third Party Financier
Cost/Watt Savings from Economies of Scale	Not Likely	Not Likely	Yes

Case Study – 200kW On-Site Solar Lease

System Information:

Total Investment cost: **275,500 USD PHP** (1.2 \$/Wp)

System Size: 221kWp

Lease Rate: 7.50 PHP/kWh (0.15 USD/kWh)

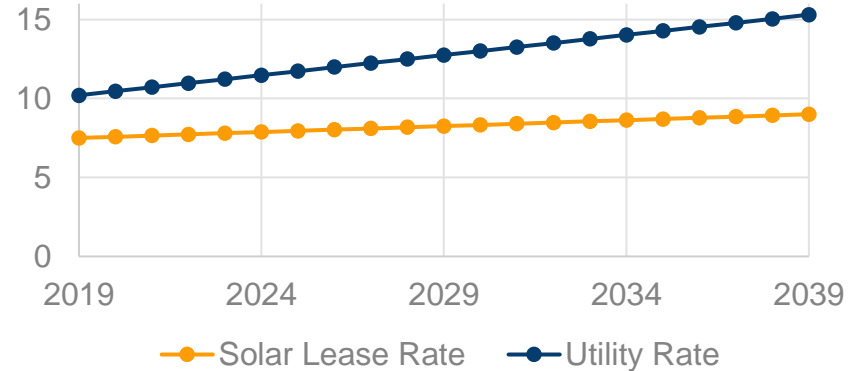
Utility Rate: 10.16 PHP/kWh (0.20 USD/kWh)

Deal Highlights:

- Zero Down payment
- Term of 20 years
- All costs borne by Developer/Investor
- Investor return is 10+%



Solar Lease Rate vs. Utility Rate



Jun-Dec 2019 Utility Payment without Solar:	PHP 13,564,639.25
Jun-Dec 2019 Savings from Solar Lease:	PHP 509,516.93

14.5% of total energy consumed produced from Solar

3.76% Savings from BAU

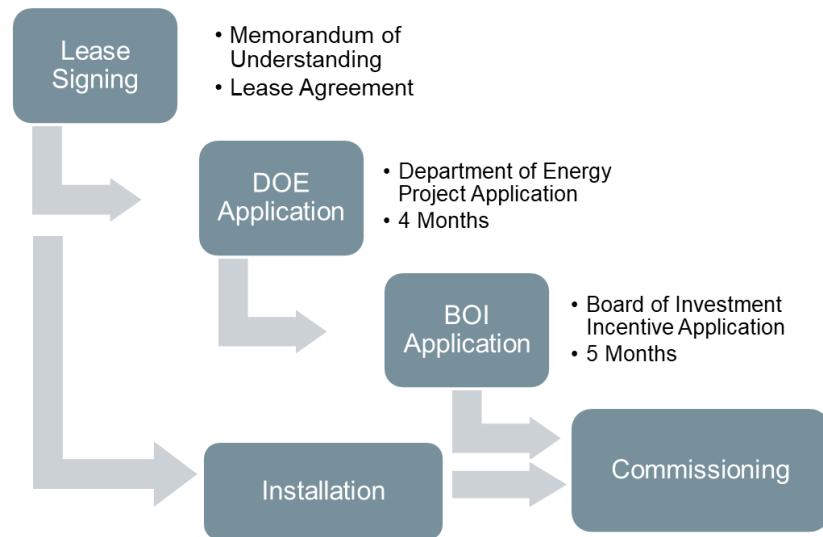
Equivalent to planting 3,400 trees per year

Challenges Observed for Developers in C&I RTS

1. Not “homerun” returns to the Financier
2. Long term exposure to liabilities and risks to cashflows
3. Long development process given the scale and capacities involved (9 – 12 months)
4. Mismatch of consumption and generation

Sensitivities at Different Price Points (Solar Lease)			
	%Savings for End-User	IRR* for Financier (15 year contract)	Payback Period for the Financier
@ 6.50 PhP/kWh	5.2%	7%	10
@ 7.50 PhP/kWh	3.8%	10%	8
@ 8.50 PhP/kWh	2.3%	13%	7

Unlevered Project IRR



Role of Commercial Banks: Addressing Barriers for Scaling Up DPVs

Current General Observations:

1. **Biggest appetite is for providing refinancing** after project is commissioned/operational
2. **Seldom involved in pure project financing**, especially for greenfield projects
3. **Attracted to scale and size**, making bite-size rooftop solar not a big priority
4. In assessing projects under a developer's "portfolio", **due diligence is done on a project rather than portfolio level.**
5. **Very open to provide corporate loans** to conglomerate subsidiaries, parent-backed newcomers, and existing clients with existing credit history.

What can be done to unlock the Rooftop Solar Market:

1. Expand offerings for **dedicated loan facilities** (corporate loans for C&I customers and consumer loans for households) **to accelerate self-owned turnkey projects.**
2. Create **working capital facilities for developers** to absorb early stage project risks; Could be donor or philanthropic funded.
3. Contribute to collective voice that **demand for policy changes that unlock massive project pipeline building**
4. **Continued engagement and capacity building to frontline account managers and relationship managers** on revenue model and risk assessment for rooftop solar investments.



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