

Getting to the Finish Line : Lessons on Solar PV Development

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- The Philippine Renewable Energy Act of 2008 provided the policy framework for the development of Solar PV in the country. The law represents the commitment of government towards achieving a balanced generation mix.
- In 2013, the regulators passed the incentive scheme for solar energy and the feed-in tariff (FiT) was granted by the Energy Regulatory Commission (ERC) through a resolution.
- The 1st contracting round was set in motion and USD0.24/kwh feed-in tariff signaled the start of solar development. About six projects – with a combined capacity of 108Mw – were awarded supply contracts during this round.
- All PV solar projects in the 1st contracting round were fully financed by equity capital as the Department of Energy (DOE) introduced a Build-First policy – the Philippines was first and only country implementing this approach to RE development.
- The build-first policy was carried to the 2nd contracting round for the Solar FiT, with a digressed rate of Php0.18/kwh. The race ended in March 2016 with 28 registered projects and a combined capacity of over 500MW.

The PV Solar Market



Installed PV Solar, 2016: Philippines

The Feed-In Tariff Program drove solar PV development in high gear. Installation jumped to 40Mw in 2013, then increased to 62Mw in 2014.

In in the 2nd contracting round, solar installed in 2015 reached a high of 108Mw, and by the end of 2nd contracting round, three months ago, solar in the Philippines is very close to reaching the 1Gw mark.



PV Installation : Looking Back

Moving forward, solar PV growth in the Philippines is expected to reach 3Gw of utility solar in 2022. By the end of 2030, industry predicts a cumulative installation of 8.7Gw with solar rooftop constituting 35 percent of total installation.



Solar Installation Target : 2016-2030

Given the present electricity market, utility-scale solar makes economic sense for the Philippines as the technology of solar, as peaking plant, is well placed to capitalise on increasing fuel prices, whilst also showing a high level of resilience to falling oil prices. <u>Cumulative</u> solar build in Luzon (from 2016)



- Solar costs globally have been on a clear downward trajectory for the last 8 years;
- Installed cost are expected to fall further, albeit at a more gradual rate;
- Solar cost will fall by 1.5% per annum. until 2025;
- It will continue to be competitive, dropping further by 0.75% pa. thereafter



The cost of solar projects can further decline with better governance of the program. The soft cost needs to be addressed in order for solar to provide Philippine electricity market an alternative to high fuel prices.



Challenges to Solar Growth:

Low Project Turnover



Challenges to Solar Growth:

Availability of Industrial Lands

	Type of Permits	Issuing National Agency	
1	Solar Energy Service Contract	Department of Energy	9
2	Environmental Clearance Certificate	Department of Natural Resources	7
3	Non-Overlap Certificate	National Commission on Indigenous People	5
4	Certificate of Registration	Board of Investments	6
5	Mayor's Permit	Local Government	10
6	Business Permit	Local Government	10
7	Locational Clearance	Local Government	5
8	Connection Agreement	National Grid Corporation of the Phils	8
9	Confirmation of Commerciality Certificate	Department of Energy	9
10	Certificate of Endorsement	Energy Regulatory Commission	5
11	Certificate of WESM Membership	Philippine Electricity Market Corporation	5
12	Certificate of Completion	Energy Regulatory Commission	5
13	Renewal Energy Purchase Agreement	TRANSCo	5
14	Renewable Energy Payment Agreement	TRANSCo	5

Challenges to Solar Growth :

134 Signatures for Permits

- The Capacity of Transmission Lines limits power flow from one place to another.
- In Visayas, power are restricted to export excess to a low of 90Mw.
- Where land is available, the infrastructure is limited to 180Mw.



2016 DAY PEAK with Renewable Energy and Base load Power Plants Running at Maximum Output

Challenges to Solar Growth : Grid Conditions

- **Increase In Investments** : The government reported Php366.7billion of investments in 2015, of which 67 percent came from solar.
- More Jobs. At peak of construction, employment created reached about 100,000 people.
- Greater Energy Security. Solar Energy can provide economic alternative to the electricity market as well as deliver quick alternative power during severe climate changes such as El Nino periods.
- Reduced GHG Emissions. An equivalent 674 million young trees were planted due to avoided emissions from power plants using fossil fuel.

Benefits of Solar PV

Thank You.