Study

MARKET INFO PHILIPPINES – PHOTOVOLTAICS

dena-Market Information System

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Supported by:
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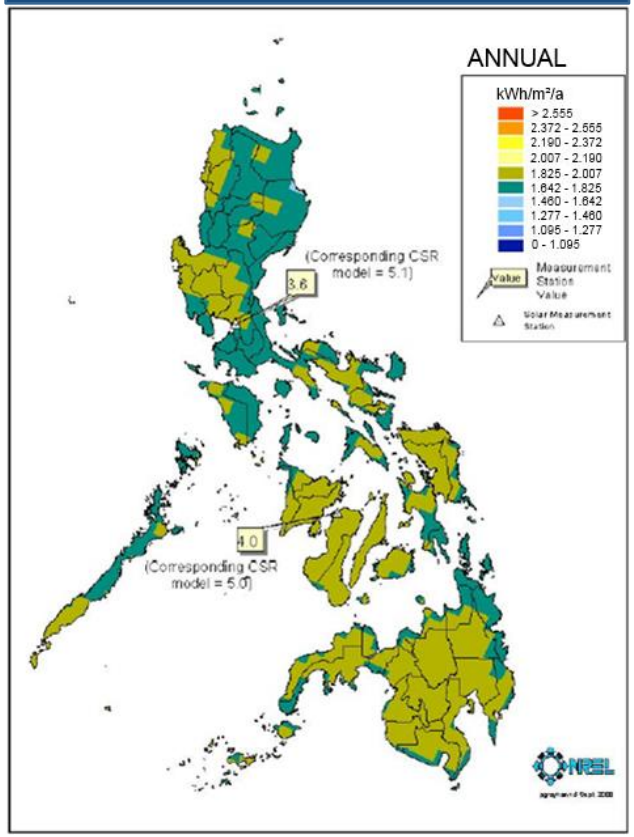
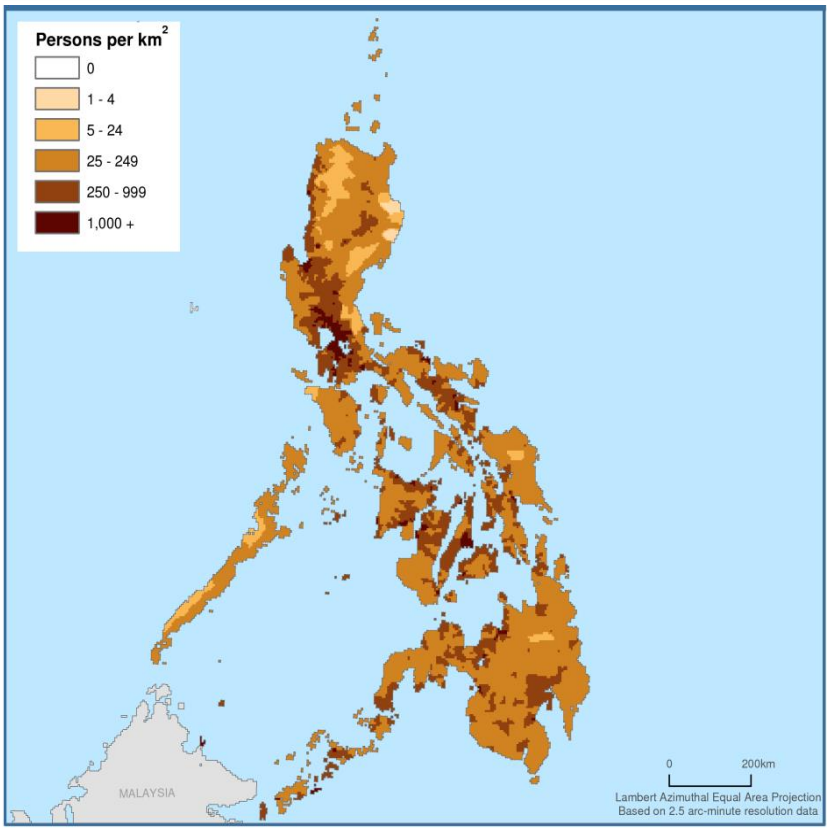
SOLAR IRRADIATION & POPULATION DENSITY

Annual global solar irradiation



Source: NREL (2000)

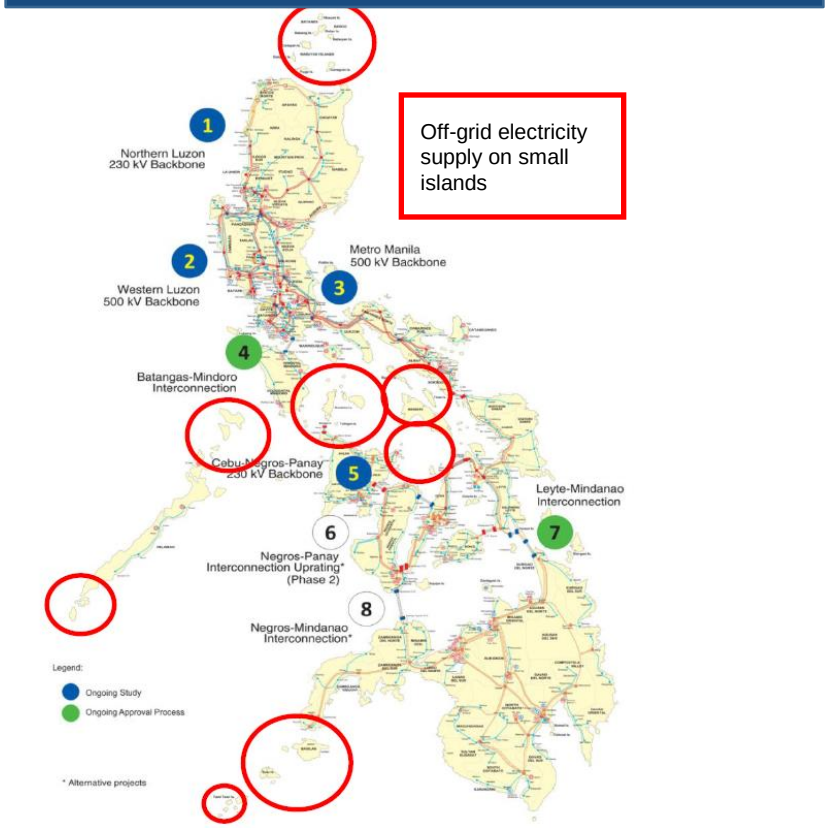
Population density



Source: SEDAC (2000)

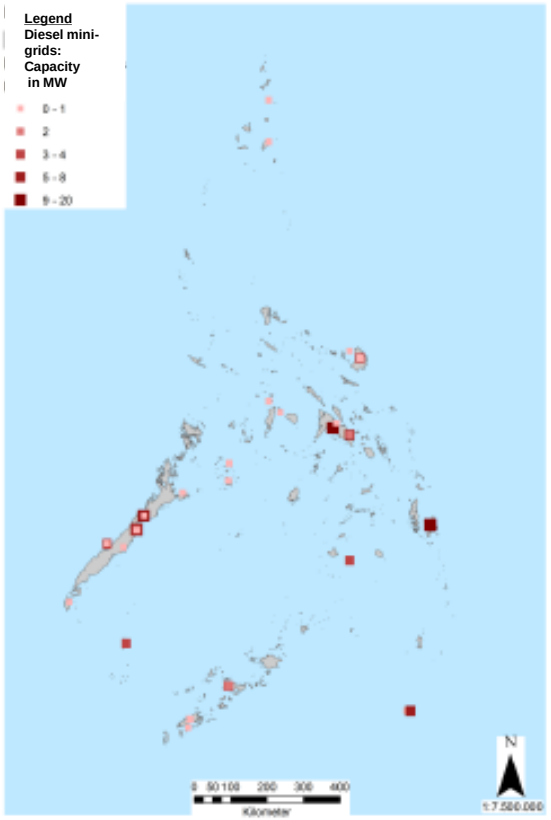
OVERVIEW OF ELECTRICITY GRIDS

Three transmission grids and development zones



Source: REINER LEMOINE STIFTUNG (2013)

Established diesel mini-grids on the archipelago



Source: REINER LEMOINE STIFTUNG (2013)

BASIC DATA

General basic data (2014)			
Area	299,764 km²	GDP (est.)	12,636 bn PhP (~202.3 bn €**)
Population (2013 est.)	97.5 m	GDP (per capita) (est.)	127,080 PhP (~2,035 €**)
Language	Filipino, English	GDP growth (est.)	6%
Government type	Unitary republic	Inflation (est.)	4.4%
Administrative division	80 provinces and 39 charta - cities	Unemployment rate	6.9% (est.)

Basic energy market data (2012)	
Electricity consumption 2011 (total/per capita)	69.17 TWh/ 734 kWh
Electricity price (industrial), Region Davao del Sur	0.29 PhP/ kWh (0.005 €/ kWh*)
Electricity price (residential), Region Davao del Sur	1.9 PhP/ kWh (0.035 €/ kWh*)
Electricity price / mini-grid (diesel), Balabac Island	30.3 PhP/kWh (0.56 €/kWh*)
Share of renewable energy (electricity consumption 2010)	26.1 %
Increase of electricity consumption (2002 - 2011)	+4.3 %
Electrification rate (households in 2011)	70.2 %
Annual average global solar irradiation	1,825 kWh/ m² a

*Annual average exchange rate 2012 of the European Central Bank (ECB): 1Euro = 54.24 PhP, **exchange rate March 2014: 1Euro = 62.449 PhP

Sources: CIA (2013), DOE (2013), EIA (2011), ERC (2012), IMF (2014), NGCP (2012), GTAI (2014)

PV MARKET INDICATORS

Indicators				
Market size (annual installed capacity) on-grid	2011: 0.256 MW	2012: 1.2 MW (off-grid: 3 MW)	2013: 14.6 MW	2014e: ~ 90 MW
National PV target 2011 - 2020	On-grid: 50 MWp by 2015 and 100 MWp by 2020 (national targets for renewable energies were defined in 2009 and updated in 2011)			
Main market drivers in 2014	▪ The Renewable Energy Act of 2008 defines the development of renewable energies and the ensuing support schemes. Within 20 years renewable electricity capacity shall triple from 5.438 GW in 2010 up to 15.304 GW in 2030. The Department of Energy announced an increase in the market cap for feed-in tariff systems from 50 MW to 500 MW in May 2014. ▪ Substantial market potential for stand-alone PV and PV hybrid-systems (electrification of remote off-grid areas) due to high diesel prices and the structure of the archipelago. ▪ Due to high electricity prices operating PV systems can be profitable even without a FIT. ▪ More and more big PV projects refinance via bilateral power purchase agreements (PPAs).			
PV support scheme since 2012	▪ In July 2012 a FIT has been introduced for PV and other renewable technologies. ▪ With a minimum of 100 kWp capacity on-grid PV installations can earn 9.68 PhP per kWh (~0.17 € / kWh). For details see next slide. ▪ In 2012 other support measures were offered by the Asian Development Bank (ADB) like fiscal supports (see slide 7) and soft loans. ▪ The off-grid market is supported by a generation-based incentive.			
Recent changes to the PV support in 2014 (on-grid)	▪ A net-metering regulation has been implemented in July 2013. ▪ In 2014 a Renewable Portfolio Standard / Renewable Energy Market came into force. ▪ Initially a tender process as an option for negotiation of FIT rates was rejected by the national Energy Regulatory Commission (ERC) because the authority first wants to monitor and develop the PV market with fixed prices for PV electricity.			

Sources: DOE (2012), ERC (2012b), GIZ (2013), PV-Magazine (2013)

OVERVIEW OF PV SUPPORT SCHEMES (1/2)

Support scheme	Details
FIT	▪ The first version of the FIT was released by the Energy Regulatory Commission (ERC) in July 2012 . ▪ PV systems with a minimum capacity of 100 kWp are eligible for the FIT. ▪ Systems with a smaller capacity are eligible for net metering. ▪ The PV tariff is 9.68 PhP per kWh (0.17 € / kWh). After the first year of plant operation the tariff is reduced by 6 %. ▪ The duration of the PV feed in tariff is 20 years. ▪ A limited cumulated PV capacity of 50 MWp will be supported by the FIT - raising the limit to 500 MWp is under discussion.
Tax rebates (on-grid and hybrid-systems)	**Income tax exemption for electricity generators** ▪ Income Tax Holiday (ITH): In the first seven years of running a PV system, the operator of a PV system is exempt from income tax. There are no taxes to pay for revenues of electricity sales, which are earned with PV electricity. Afterwards the income tax is limited to 10 %. The application for ITH has to be handed in before start of operation. **(Alternative) accelerated special depreciation** ▪ A PV system operator who does use the ITH has the possibility of accelerated special depreciation for plant components and equipment. The depreciation rate may not be more than twofold of the usual rate. **Exemption of VAT for sale of electricity** ▪ Electricity generated by a PV system is not subject to VAT. **Other fiscal support** ▪ The sum of property taxes, costs for equipment, material and other project related costs must not be more than 1.5 % of the asset cost. ▪ A PV system operator is exempt from taxes on tradable carbon credits.
Soft loans	▪ The Asian Development Bank (ADB) provides 2.25 bn US $ within the Asia Solar Energy Initiative for the development of solar based generation capacity in Asia and in the Pacific region. ▪ Within this initiative another 6.75 bn US $ of investments in solar technology is planned. The target is to add new solar capacity of 3,000 MWp by the end of 2013.

Sources: DOE (2008), ERC (2012b), ADB (2011)

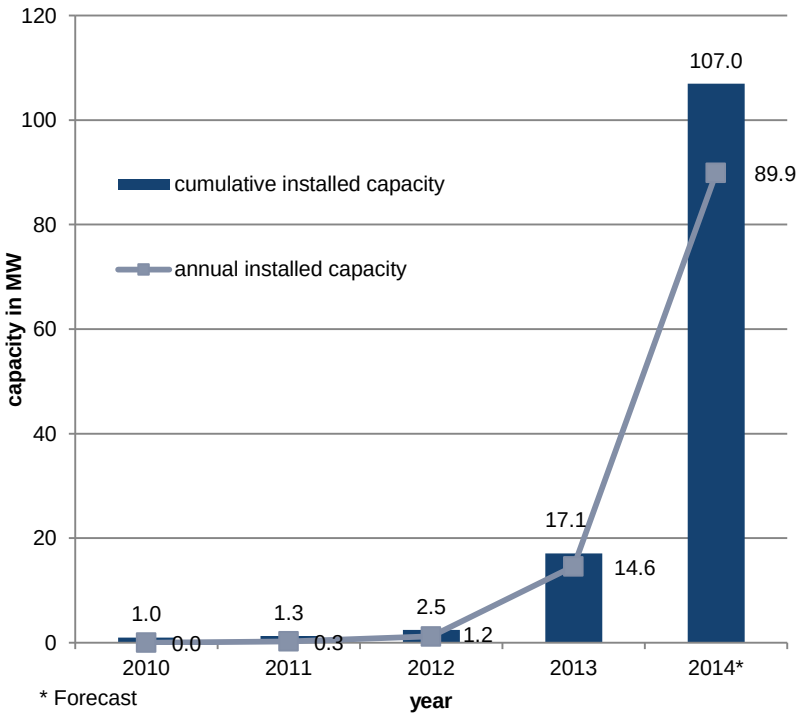
OVERVIEW OF PV SUPPORT SCHEMES (2/2)

Support scheme	Details
Net metering vs. FIT in 2013	▪ In July 2013 the accounting procedure for net-metering as a support for PV plants with maximum capacity of 100 kWp has been published. ▪ The framework for net metering for PV systems with a capacity up to 100 kWp was drawn up by the ERC. Systems with a higher capacity will be eligible for the feed in tariff. ▪ Net metering for off-grid systems should be possible by 2014.
Planned Renewable Energy Market and Renewable Portfolio Standard/ RECs by 2014	▪ Both the RPS and REM schemes are still in planning and are expected to come into effect in 2014. **Renewable Portfolio Standard (RPS)** ▪ The renewable electricity quota, which still has to be defined, will be mandatory for all stakeholders in the electricity industry . This means that every utility has to prove its share of renewables in the electricity sold through renewable energy certificates (RECs). ▪ For on-grid systems this standard should have been introduced in 2013, for off-grid systems in 2014. **Renewable Energy Market (REM)** ▪ The Renewable Energy Market shall be introduced in parallel with net metering and will be the market platform for tradable RECs. ▪ The Renewable Energy Act of 2008 declares that all RECs created through excess electricity via net metering pass into the ownership of the distribution grid operator. ▪ Moreover, a register for proof of origins and for electricity identification shall be introduced.
Generation based incentive for off-grid and hybrid systems	▪ Off-grid systems are supported by a generation based incentive (GBI). ▪ Off-grid system owners are supported by an incentive per generated kWh, which amounts to 50 % of the universal charge. The universal charge is paid by every customer as part of the electricity price and is used to finance electrification projects in the so called Missionary Areas of the state-owned utility NPC.
Exemption of import duties	▪ Machines, plant components and material for renewable technologies are exempt from duties for the first ten years of plant operation.

Sources: DOE (2008), ERC (2012b), GIZ (2013)

MARKET DEVELOPMENT AND BARRIERS

Development of installed PV capacity (on-grid only)



Sources: PV-Magazine (2013), DOE (2011), IHS Solar (2013) in PV-Magazine (2014a)

The main barriers in the Philippine PV market

Extensive approval process

- The operation of a PV system requires a range of certificates and approvals.

FIT (FIT):

- The FIT introduced in July 2012 is not lucrative some industry members said.

PV cap

- The ERC determines that only a cumulated capacity of 50 MWp can be installed within the FIT rules, so the market declines in 2015.
- More than 1GWp are still in the project pipeline (legal uncertainty).
- The Department of Energy favours alternative renewable technologies for electricity generation like hydro and geothermal power plants, based on the enormous potential in the country.
- The current focus is largely on new coal and diesel power plants.

Lack of large scale reliable consumers / customers

- Project developers who try to use PPAs to refinance investments, have the problem of selling electricity due to a lack of reliable electricity customers.

Grid-infrastructure

- A lack of transport and distribution grids slow down or hinder the development of grid-connected renewable energy projects.

Corruption

- Even though corruption has been declining in the Philippines over the past years, it is still a problem. At local or regional level this leads to delays in project development.

Sources: ERC (2012b), PSPA (2013), PV - Magazine (2013), PV-Magazine (2013b)

OPPORTUNITIES: OFF-GRID

Criteria	Details
Early market status	▪ At the beginning of 2013 more than 70,000 off-grid solar home systems were installed. ▪ Most of these systems were installed by national utilities or through international development programs.
National Electrification Programme of NPC Operation costs of mini-grids	▪ The goal of the DOE is to increase the electrification rate of households to 90 % by 2017 . ▪ The state owned utility NPC - SPUG was obligated per mandate to be in charge of reaching this goal.  ▪ Electrification is mostly achieved though the installation of mini-grids with diesel fired generators in so called Missionary Areas. ▪ Based on high electricity generation costs, the implementation of such mini-grids has to be supported through high subsidies– this often leads to high electricity prices for consumers. ▪ So far there has been hardly any participation of the private sector . ▪ These conditions offer good market chances for PV systems for diesel-grid hybridisation.
PV hybridization of islands grids	 ▪ Stand-alone PV systems can be uneconomic based on needed (cost intensive) back-up/storage technology. ▪ PV integration in existing mini-grids can achieve a drastic reduction of electricity generation costs. ▪ Effects of diesel price fluctuations are lower due the fact that the diesel generator will only be used as back–up power.
Changes of PV support 2013/2014	▪ Since 2011 off-grid systems are supported by financial subsidies.  ▪ In 2014 net metering and tradable RECs shall be allowed for off-grid systems – detailed procedures still have to be defined. ▪ Off-grid systems are supported by a generation based incentive (GBI). ▪ Tax rebates (see slide 7) are also valid for hybrid systems.

Sources: DOE (2008), PSPA (2013), RLI (2013)

MARKET NEWS (1/2)

Date	Topic	Source
08/09/2014	Rooftop solar cheaper than coal, says Philippines' energy minister. The Philippines' secretary of energy, Carlos Jericho Petilla said 5th September that rooftop solar is cheaper than coal in the island state. The country relies on importing most of its energy from expensive fossil fuels, subject to price fluctuations. Electricity from a coal plant cost up to PHP5.50 per kWh (US$0.13) plus PHP6.50 (US$0.15) for distribution and transmission, totalling PHP12.00 (US$0.28). Whereas, rooftop solar costs PHP9.00 per kWh (US$0.21) for generation. There are no costs for distribution or transmission, said Petilla.	PV-Tech
02/09/2014	juwi enters Philippine market with utility-scale plant. The German company will provide complete EPC services for the 6.25 MW solar farm, which is replacing old diesel generators. The project is one of a number of projects in the company's pipeline. The solar farm is scheduled to be completed by early next year and will have an installed capacity of 6.25 MW. The plant's 20,500 PV modules will produce more than 9 million kilowatt hours of electricity a year. Amiram Roth-Deblon, juwi's regional director for Asia-Pacific, added that while the Mindanao plant was the company's first project in the Philippines, "there is already a well filled project pipeline and in the next weeks we are expecting to close several additional projects."	PV-Magazine

MARKET NEWS (2/2)

Date	Topic	Source
20/05/2014	Philippines Department of Energy plans to increase FiT cap by factor of ten The Philippine Department of Energy (DOE) has announced plans to raise its feed-in tariff (FiT) cap to 10 times more than the current rate. Mario C. Marasigan, the DoE's director for renewable energy, told local media: "We are working on it. Very soon, NREB (National Renewable Energy Board) will endorse the new installation target for solar." When asked if the new cap will be set at 500 MW – ten times the current 50 MW – Marasigan stated that the DOE and NREB were "working on that figure".	PV-Tech
15/05/2014	Conergy puts online the largest solar PV plant in the Philippines at 13 MW Conergy AG (Hamburg) has commissioned a 13 MW solar photovoltaic (PV) plant in the Philippines as the first phase of a 22 MW PV project, the San Carlos Solar (SaCaSol). This is the largest PV project in the nation to date, and Conergy expects to complete the second 9 MW phase by mid-2014. Through the Philippines' feed-in tariff, electricity from the plant will be sold at PHP 9.68 (USD 0.22) per kWh.	SolarServer
24/09/2013	Philippines to reach 5 MW solar capacity by year's end The Philippines are on course to more than double its solar capacity from 2 to 5 MW before the end of 2013, according to the Philippine Solar Power Alliance (PSPA).	PV-Magazine
19/07/2013	Approval for 30 MW project in the Philippines The 55 m US Dollar PV project in Ilocos Norte is the third to win a certificate of commerciality in the country. South Korean developers expect to be fully operational in late 2014.	PV-Magazine

CONTACT INFORMATION

Category	Name	Website
Ministry of Energy	Department of Energy (DOE)	www.doe.gov.ph
National Energy Market Authority	Energy Regulatory Commission (ERC)	www.erc.gov.ph
State-owned Electric Utility	National Power Corporation (NPC)	www.napocor.gov.ph
National Transmission Grid Operator	National Grid Corporation of the Philippines (NGCP)	www.ngcp.ph
National Electrification Authority	National Electrification Administration (NEA)	www.nea.gov.ph
Renewable Energy Industry Association	National Renewable Energy Board (NREB)	www.comste.gov.ph/nreb
Solar Industry Association	Philippine Solar Power Alliance (PSPA)	www.phsolar.org
"Going-private" Authority in the Power Sector	Power Sector Assets & Liabilities Management Corporation (PSALM)	www.psalm.gov.ph

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