Up to100 kWp

Renewable Energy Guideline on

Small Solar Photovoltaic Project Development in the Philippines

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

On behalf of

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

of the Federal Republic of Germany

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- Support to the Climate Change Commission in the Implementation of the National Framework Strategy on Climate Change (SupportCCC) Project
- Renewable Energy Support Programme for ASEAN (ASEAN-RESP)

Manila, October 2014

Disclaimers

Highest effort has been given to ensure and maintain accuracy of the Guidelines. Regulations and procedures for RE project development in Indonesia are complex, include numerous actors and are likely to be changed or updated over time. It is therefore not possible to cover all aspects and eventualities of RE project development with these Guidelines. The Guidelines are regularly updated in order to ensure correctness and completeness. However, GIZ and its implementing partners cannot be held responsible for any use of the Guidelines. The Guidelines shall not, in any case, replace or be used instead of existing laws, regulations and official guidelines issued by the relevant authorities in Indonesia.

Suggestions, feedbacks and updates are very welcome and can be addressed to asean-resp@giz.de.

Foreword

Director Mario Marasigan

Department of Energy

In 2008 the Philippines enacted the Renewable Energy Act (Republic Act 9513), opening the path for the expansion of renewable energy (RE) in the country. The Department of Energy (DOE) is committed to paving the way to triple the capacity of RE between 2010 and 2030 to 15,304 MW, as outlined in the National Renewable Energy Program (NREP). Thus, the implementation of RE support mechanisms, such as feed-in tariffs (FIT) and net-metering, is a top priority of the DOE.

With an aspirational target of 1,528 MW by 2030, solar energy is meant to play a crucial role in the future energy mix in the Philippines. Presently, the DOE is strengthening its commitment for solar PV by increasing the installation target for solar PV under the FIT regime to 500 MW.

With the FIT and net-metering in place, solar power is expected to grow exponentially in the Philippines. This can be evidenced by the substantial number of RE developers who were granted RE service contracts under the FIT scheme. However, the conversion of service contracts into actual RE plant construction has suffered significant delays, largely due to complex permit procedures encountered throughout the project cycle.

Most of the administrative and legal procedures for RE projects are taken from procedures for constructing traditional power stations and have not yet been fully adapted to the specific characteristics of RE projects. Moreover, there is also a lack of harmonisation and standardisation of the administrative processes at the national and local level, which thereby creates further risks of non-compliance and delays for the RE project developer.

Foreword

"…With an aspirational target of 1,528 MW by 2030, solar energy is meant to play a crucial role in the future energy mix of the Philippines.."

Director Mario Marasigan

Department of Energy

The DOE's ultimate goal is to have well-coordinated, transparent and streamlined administrative procedures to ease doing business in the RE sector. The first step for this is to give a clear picture to the stakeholders (both administrators and developers) on the processes involved in obtaining a project permit.

As such, the DOE lauds the effort of GIZ to develop the Solar PV (SPV) Guidebook, which offers an overview of the project cycle and all related administrative requirements for the development and implementation of SPV projects. The SPV Guidebook will serve as a springboard for policymakers to assess the administrative procedures and streamline them for efficient solar PV market development.

The SPV Guidebook, which was developed in close co-ordination with the ASEAN Center for Energy (ACE) under a regional undertaking, will produce similar RE guidelines in Malaysia, Indonesia, and Vietnam. This will afford us the opportunity to gauge our own competitiveness vis-à-vis our ASEAN neighbours. With regard to the forthcoming ASEAN market integration in 2015, this is of great importance.

We need to be ready and we need to be efficient to attract RE investors to our shores.

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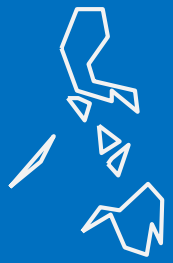
Solar PV in the Philippines

Potential of solar energy; framework for solar PV project development in the Philippines, related regulations, market condition…



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Terms and definitions

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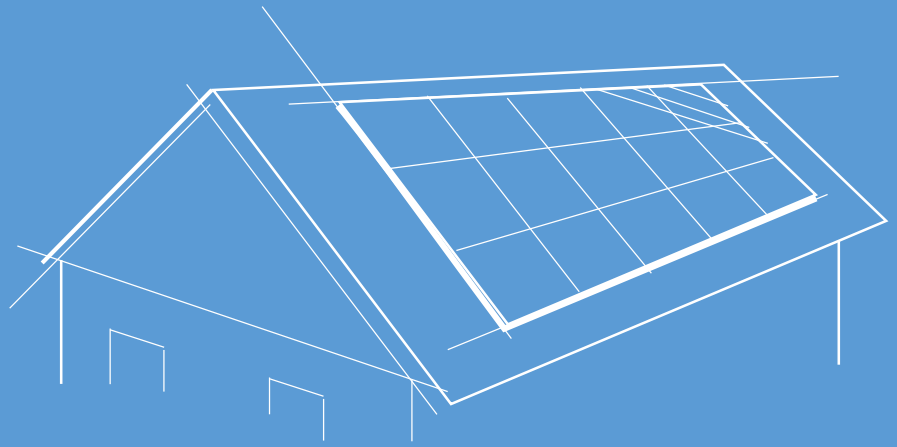
How it work?



Procedure: Step-by-step Small solar PV - The Philippines

Procedures for development of Small solar PV project in the Philippines; overall development process is presented in Gantt's chart and Flow Chart view

Solar PV in the Philippines

Background information

In 2008, the Renewable Energy Act (Republic Act 9513) was passed in the Philippines, laying the groundwork for the net-metering scheme (NM Scheme), as well as for other financial incentives and supporting mechanisms, e.g., feed-in tariff (FIT), renewable energy portfolio standard, (RPS) etc. to promote RE development in the Philippines. The Energy Regulatory Commission (ERC) was tasked by the RE Act to create an interconnection standard, pricing methodology, and implementation rules for the NM scheme. In 2013, the ERC adopted the resolution to approve the rules for the net-metering scheme (ERC Resolution no. 9, series of 2013), paving the way for electricity consumers to become electricity producers under the net-metering scheme.

"Net-metering" is defined by the RE Act as a consumer-based RE policy mechanism. The electricity generated by a so-called qualified end-user (QE)[1] from an eligible on-site solar PV system and delivered to the local distribution grid can be used to offset the electricity supplied by the distribution utility (DU) to the QE. Under the net-metering scheme, the QE plays the role of project developer and system owner (The term "QE" shall be used hereinafter), meaning that a homeowner or owner of a commercial building / office becomes the project developer.

How are feed-in tariffs calculated?

The electricity tariff in the Philippines consists of many components. One is an average cost of electricity from various sources of the DU (so-called "blended generation cost"). Others are, for example: additional charges for transmission, distribution, supply, metering, system losses, taxes, etc.

During the day, when self-consumption is low and generation high, excess electricity produced can be rerouted back to the grid. That portion of electricity can be credited (in PHP) from the respective DU. This is equivalent to the blended generation cost of the DU. The credit can then be used to reduce the amount on the QE's electricity bill in the next billing cycle.

Note 1: QE can be defined as customers of any distribution utility (DU) who are in good credit standing on payment of electricity bill. The DU is mandated by the RE Act to enter into the net-metering scheme with any QE without discrimination.

Solar PV in the Philippines

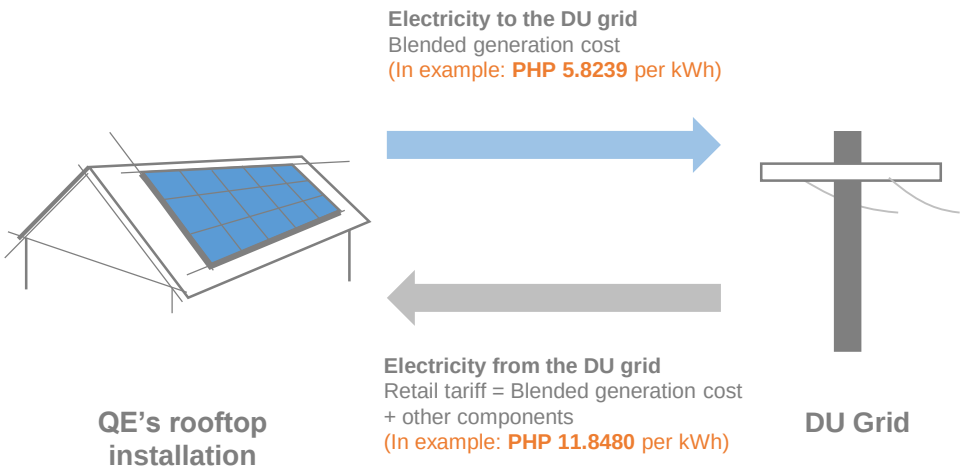
Background information

However, additional components to the blended generation cost of the retail price will not be paid back to the qualified end-user (QE) under the Net-metering scheme. Therefore, from the QE's point of view, the monetary value of a kWh produced for personal consumption is approximately double as the monetary value of a kWh exported to the grid. It more attractive for a QE to use the electricity produced by the system for self-consumption rather than have it fed back to the grid. As a result, a solar PV system under the Net-metering scheme should be sized as close as possible to the maximum capacity for self-consumption. Nevertheless, the maximum capacity of an individual RE system under the Net-metering scheme is limited to 100 kW (or 100 kWp for a solar PV project) in accordance with the definition of "distributed generation" given by the RE Act.

Example: Cost of electricity in the Philippines

In the MERALCO[1]'s grid, the blended generation cost was PHP 5.8239 per kWh (~ US 13 cents) in April 2014. Generation costs were approximately 50% of the total power tariff charged to a private household consuming 300 kWh per month, which was PHP 11.8480 per kWh (~ US 27 cents).

For a solar PV project under the Net-metering scheme, excess electricity that supplied back to the distribution utility's (DU) network can only get a credit of PHP 5.8239 per kWh (~ US 13 cents) .



Note 1: MERALCO is the largest DU in the Philippines

Solar PV in the Philippines

Background information

From the distribution utility (DU)'s point of view, they also benefit from the Net-metering scheme through earning RE Certificates from qualified end-users (QE) who own generation facilities from an RE source under the net-metering scheme. These certificates can help the DU comply with its obligations when the RE Portfolio Standards (RPS) come into effect in the Philippines.

There are also other possible business schemes for an RE project in the Philippines such as a feed-in tariff, power supply agreement with the DU or with a bulk consumer. They are, however, not covered by this guideline. The details regarding development of a solar project under those schemes can be found in the document titled "Large Solar PV Project Development in the Philippines", a sister guideline. The electronic versions of the RE guidelines for the Philippines and for other selected ASEAN member states can be downloaded from the ASEAN RE Guidelines web platform at (www.re-guidelines.info)

About the Guidelines

In recent years, ASEAN member states (AMS) have made considerable strides to tap into the vast wealth of renewable energy (RE) the region has to offer. Several countries introduced feed-in-tariffs or regulations for REs as well as other supportive policies, e.g., tax and customs exemptions or tax holidays.

Despite those efforts and some promising developments, a large scale market for RE applications has not yet been established in the region. In particular, complex administrative procedures, a lack of transparency in the project cycle and permitting procedures as well as insufficient access to financial resources can be identified as important obstacles to an effective market and industry development.

The ASEAN RE Guidelines were developed to facilitate increased private sector activity and investment in the RE sector of the ASEAN region. Since the confidence of QEs and investors is vital to boosting region-wide RE deployment, the provision of transparent project development and permit procedures is essential.

To this end, the Renewable Energy Support Programme for ASEAN (ASEAN-RESP), jointly implemented by the ASEAN Centre for Energy (ACE) and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), is devleoping a comprehensive, easy-to-access and regularly updated online tool which includes complete information on ideal RE project development cycles in the respective countries. The ASEAN RE Guidelines:

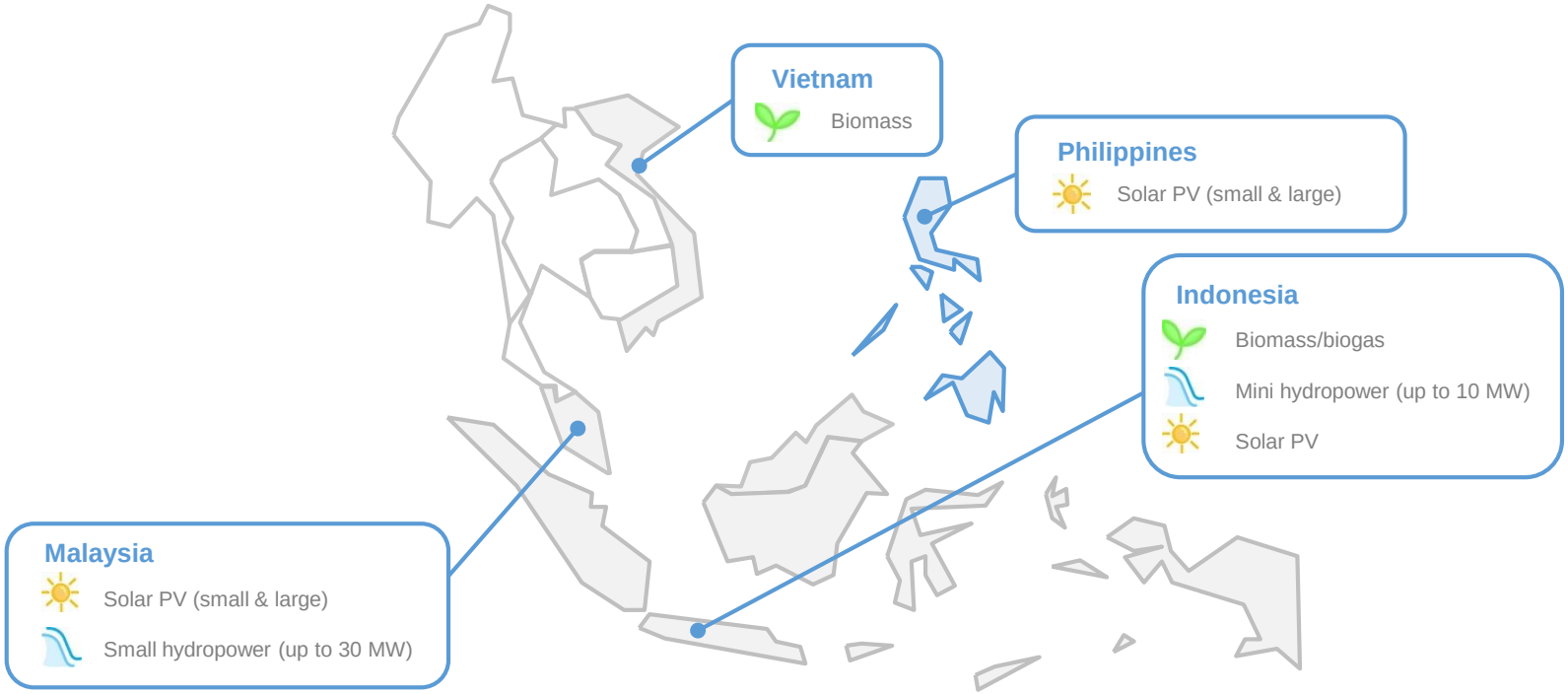
- highlight administrative procedures, including requirements for QEs and/or investors;
- list legal and regulatory provisions as well as necessary permits;
- identify country-specific challenges for project development; and
- offer information on how to obtain financial closure.

The ASEAN RE Guidelines are designed to as closely as possible meet the needs of QEs, as well as promote transparency and clarity in the RE projects' pathway. The Guidelines cover the various procedures and help identify the risks embedded in each step, all so that proper mitigation measures can be designed and implemented.

About the Guidelines

The ASEAN RE Guidelines were developed for different technologies in several ASEAN member states. One precondition stipulates that a clear legal framework exist and that minimum market readiness exists. The ASEAN-RESP is working closely with relevant organisations and projects in the respective member states in order to ensure quality, completeness and accuracy of data.

Against this backdrop, ASEAN-RESP developed the Guideline for small solar photovoltaic (PV) project development in the Philippines. This guideline covers Solar PV installations of up to 100 kWp in capacity. Another Guideline, "Large Solar PV Project Development in the Philippines", covers Solar PV installations above 100 kWp.



About the Guidelines

The Department of Energy (DOE), together with the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) under the "Support of the Climate Change Commission" (SupportCCC) project funded by the International Climate Initiative of the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB; *Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit*), developed the Solar Photovoltaic (SPV) Guidebook to provide a clear overview of the administrative and regulatory requirements for on-grid solar PV project development in the Philippines. The SPV Guidebook was later split into two electronic guidebooks (E-Guidebook) under the ASEAN RE Guidelines Initiative: (i) Large Solar PV Project Development in the Philippines and (ii) Small Solar PV Project Development in the Philippines.

The E-Guideline for small solar PV provides guidance to QEs on the development of a solar PV system on their premises under a net-metering scheme. It also gives information to decision makers within the Philippines' energy sector and other stakeholders to ensure efficient administration and timely implementation of solar PV projects. It is the goal of the guidelines' developers that recommendations for policymakers be formulated based on the information given by the guidelines – specifically on how administrative procedures can be improved o increase private investment and market activity in the Philippine Solar PV sector.

In this Guideline, legal and administrative milestones and procedures are analysed based on the RE Act of 2008 (Republic Act 9513) and the Implementing Rules and Regulations (IRR) of the Republic Act 9513.

This guideline is integrated into the online ASEAN RE Guidelines platform, jointly developed by the ASEAN Centre for Energy (ACE) and the Renewable Energy Support Programme for ASEAN (ASEAN-RESP) under the ASEAN RE Guidelines Initiative. It will be used as a part of regional knowledge sharing. Further information is available at www.re-guidelines.info.

About the Guidelines

The scope of the guidelines are as follows:

Project characteristics

The guideline covers solar PV projects with a capacity of up to 100 kWp and only a grid-connected project.

In the Philippines, the “grid” means a backbone high-voltage power network that is operated and maintained by the National Grid Corporation of the Philippines (NGCP). So, a "grid connection" means a connection of a system to said grid. This also includes the connection of a system to a distribution network connected to the NGCP’s transmission network. In general, most projects located on the three main islands (Luzon, Visaya, and Mindanao) and some smaller islands (e.g., Samar, Leyte, Cebu, Negros, Mindoro and Panay) can be considered as on-grid systems.

Transmission and distribution networks on other small islands may not be operated by the NGCP. Therefore, systems connected to such networks are defined as “off-grid system”. They are not included in the scope of this guideline as they have their own particular models and different milestones. Projects on the following islands are considered off-grid systems: Palawan, Masbate, and others.

The “on-grid” and “off-grid” definitions are important. Project developers must be aware of the fact that although a power plant is connected to the local grid in the area, it may still be considered an off-grid project.

Technical Aspects

Although not always the case, a small solar PV system of less than 100 kWp will usually concern a rooftop installation. Therefore, the technical parts of this guideline, i.e. site evaluation, system sizing, etc. is formulated based on a rooftop system. A ground-mounted system of less than 100 kWp is also possible. In such a case, please refer to the technical part as provided in the “Large Solar PV Project Development in the Philippines” Guideline.

About the Guidelines

Business Models

This guideline covers only solar PV projects under the Net-Metering Scheme. There are also other business models possible in the Philippines for solar PV projects: feed-in tariff scheme (FIT Scheme), power supply agreement with the DU (PSA Scheme) and power supply agreement with a bulk consumer (B2B Scheme). The FIT, PSA, and B2B schemes are mentioned in detail in the "Large Solar PV Project Development in the Philippines" Guideline.

Project cycles

This E-Guidebook aims to cover the entire spectrum of project development, from site selection to operation and maintenance. In the Philippines, development of an RE project can be divided into the four following phases:

- Phase 1: Project preparation (including selection of site and business model)
- Phase 2: Pre-development
- Phase 3: Development and commercialisation
- Phase 4: Registration and connection

However, in order to cover the entire project development cycle, this E-Guidebook includes an additional phase:

- Phase 5: Operation and Maintenance

Nevertheless, as there are not many solar PV projects in the Philippines at the moment, not much in the way of lessons learned and experience can be collected from the field. Therefore, in the first edition of this guidebook, the Operation and Maintenance (OPM) step does not contain or provide detailed information. After more information is made available and collected, more details will be provided in the OPM step in the next edition of the guideline.

About the Guidelines

Sub-step's details

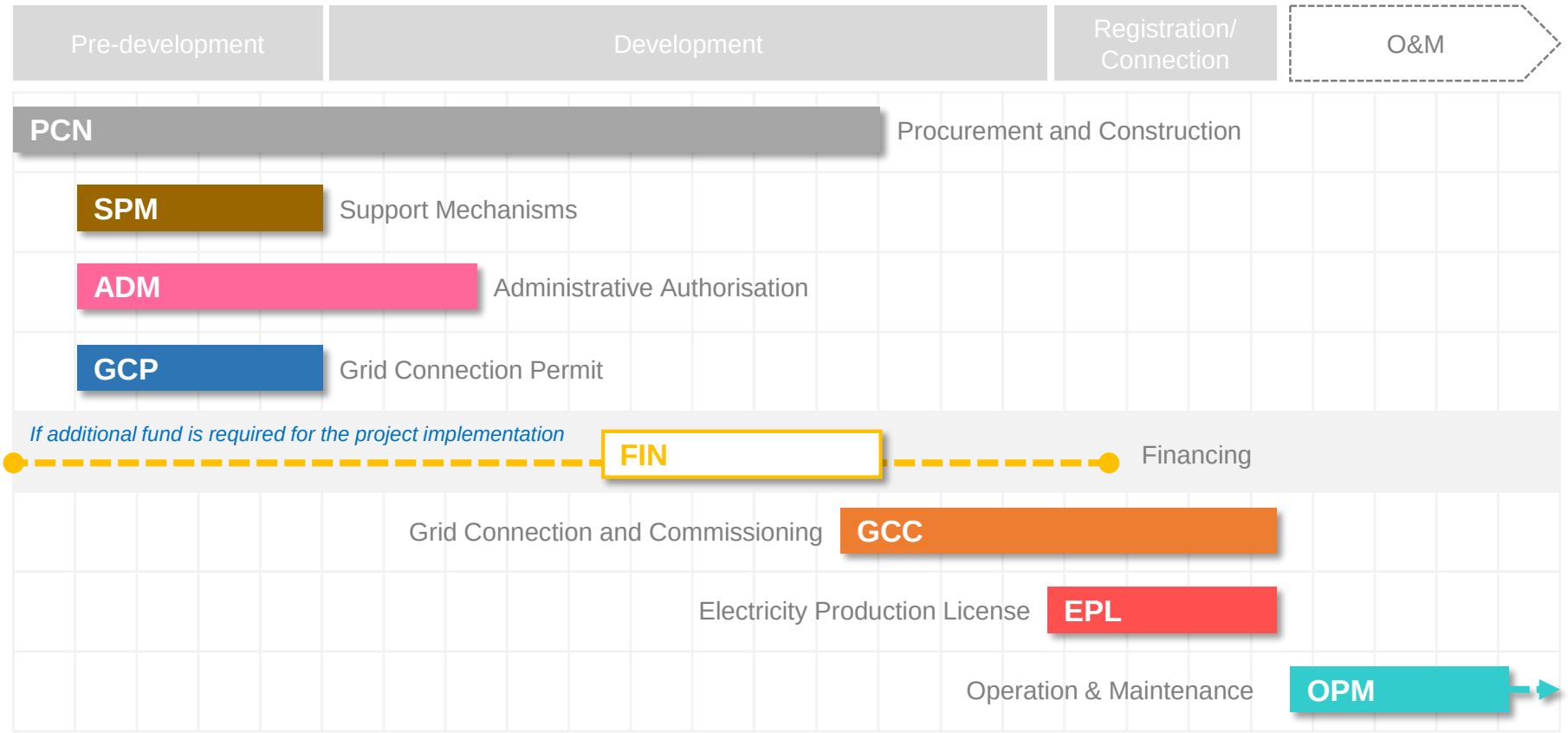
The information provided for each step or sub-step includes:

- Legal framework – Laws and regulations that are relevant to a particular step of project development
- Reference documents – The documents or sources of information that are not legal documents, e.g. study, report, website that contains useful information, etc.
- Involved authorities from different levels – The authorities or government institutions that are directly involved in a particular sub-step
- Applied procedures
- List of required documents – The list of documents that must be prepared and submitted to authorities in a particular sub-step
- Incurred fees – Official fee according to the regulation that must be paid to the authorities in each sub-step (if any)
- Challenges and recommendations – Challenges found in each step and recommendations on how to address/overcome them

Procedures: Step-by-Step

Small Solar PV Project Development in the Philippines

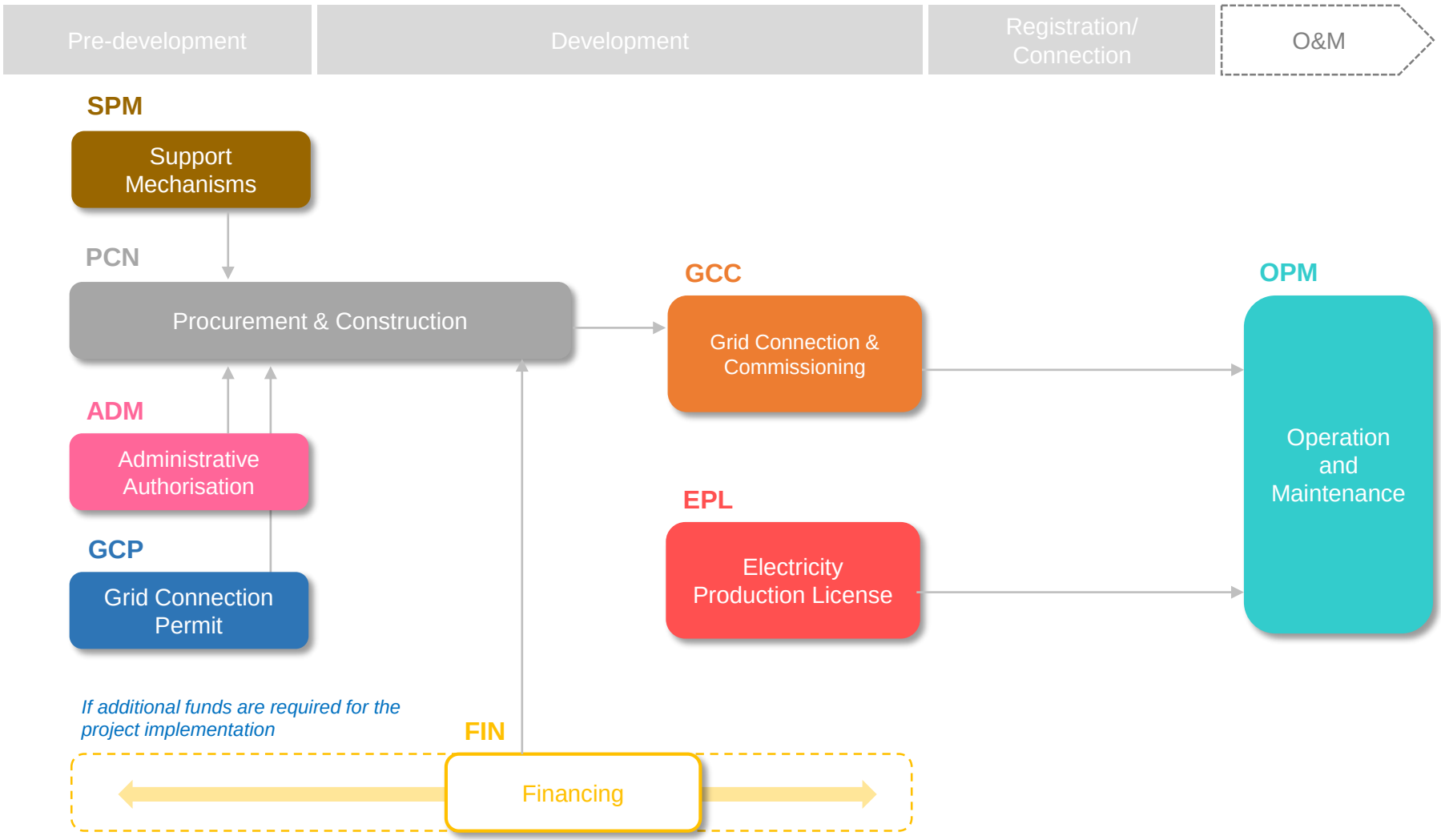
Gantt's Chart | Flow Chart | Description



Procedures: Step-by-Step

Small Solar PV Project Development in the Philippines

Gantt's Chart | **Flow Chart** | Description



Procedures: Step-by-Step

Small Solar PV Project Development in the Philippines

The procedure for a Solar PV project under the net-metering scheme (NM scheme) is less complex, less costly, and less time consuming compared to a solar PV project under the feed-in tariff (FIT scheme), the power supply agreement with distribution utility (PSA scheme), or the power supply agreement with bulk consumer (B2B scheme).

For a rooftop system, site selection is usually not applicable. As the first step, a qualified end-user (QE) shall perform sizing and design the system to be installed on the roof. This must take into account several aspects, e.g., PV technology, inverter types, etc. This is a part of the Procurement and Construction[1] (**PCN**) step. A reliable technology / system provider shall be contracted to assist in the process.

With some preliminary design / selection, the QE can apply for a NM scheme. This is explained in the Supporting Mechanisms (**SPM**) step. In parallel, two important permits must be obtained from the respective local government unit (LGU). They are (1) building permit and (2) electrical permit. They are parts of the Administrative Authorisation (**ADM**) step. Furthermore, the Grid Connection Permit (**GCP**) step may have to be performed. This depends on the decision given by the respective distribution utility (DU). The DU shall determine if a distribution impact study (DIS) is required. The result of the DIS will also determine whether a further Distribution Assets Study (DAS) is required.

After the permits from the LGU have been granted, the QE can start with the system installation (also under the **PCN** step). Upon completion of the system installation, inspection of the system by the LGU's field engineer and by the distribution utility (DU) must be arranged. This is described in the Grid Connection and Commissioning (**GCC**) step. Following that, a Certificate of Compliance (CoC) must also be obtained from the Energy Regulatory Commission (ERC), in turn allowing the QE to generate electricity in the Philippines. This is explained at length in the Electricity Production License (**EPL**) step. A connection agreement must be signed as described in the Power Purchase Agreement (PPA) step before the system can be operated (Operation and Maintenance step; **OPM**)

Note 1: The term "Construction" is used in this guideline for the purpose of maintaining consistencies among all guidelines under the ASEAN RE Guidelines initiative. For a small Solar PV rooftop project, the more suitable term is "installation".

Procedures: Step-by-Step

Small Solar PV Project Development in the Philippines

Only in instances where the QE needs sufficient funds for project development is the Financing (**FIN**) step needed. This step may take place at a different time depending on the bank policy, e.g., some banks may request additional documents to ensure their investment. Hence, the loan approval can only be done at a later stage.

Gantt's Chart | Flow Chart | More Details…

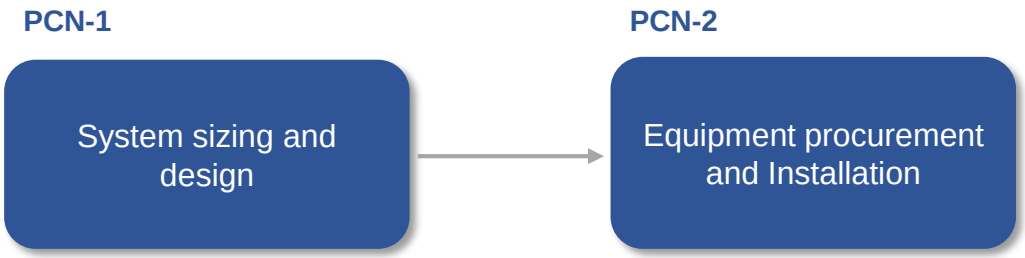
PCN | Procurement and Construction

PCN-1 System sizing and design

PCN-2

Equipment procurement and Installation

PCN | Procurement and Construction



Step Description

First, the qualified end-user (QE) must size and design a system to be installed on the roof (Sub-step PCN-1). This should be done together with an experienced system provider or technical consultant. Several factors and information must be checked and verified, e.g., suitability of the roof for the installation, yearly electricity demand, etc.

After the QE has secured a building permit (Sub-step ADM-1) and an electrical permit (Sub-step ADM-2) from the respective local government unit (LGU), the installation of the solar PV system can start (Sub-step PCN-2). For a small system, the equipment supplier is usually the one who also installs the system, performs a grid-connection, and commissioning (turn-key installation). The QE must ensure that all procured equipment / devices meet the technical standards according to international standards. Proper equipment procurement and installation can ensure long-term operation of the system.

… Gantt's / Flow Chart

Step Description | Related Regulations | Related Documents | Identified Challenges

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Related Regulations

Regulation No.	Name
Republic Act No. 6541 (1972)	National Building Code of the Philippines *Full title: "An act to ordain and institute a national building code of the Philippines"*
-	Philippine Electric Code
ERC Resolution No. 115, Series of 2001	The Philippines distribution code
ERC Resolution No. 9, Series of 2013	Rules enabling the net-metering programme for renewable energy (so-called "Net-metering Rules") *Note: The Net-Metering Interconnection Standard is included in this resolution*

ERC: Energy Regulatory Commission

… Gantt's / Flow Chart

Step Description | Related Regulations | Related Documents | Identified Challenges

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Related Documents

Document Name	Description
Net-metering Reference Guide	A publication of GIZ with support from the Department of Energy (DOE), guiding qualified end-users (QE) on how to develop a solar PV project under the net-metering scheme (NM Scheme) in the Philippines. Chapter 4 of this guide, "How to buy a solar roof top from your installer" serves as a good buying guide for a QE. This publication can be downloaded at www.renewables-made-in-Germany.com

… Gantt's / Flow Chart

Step Description | Related Regulations | Related Documents | Identified Challenges

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Identified Challenges

Challenges	Details
-	-

No challenges has been identified in this step (as of October 2014)

System Sizing & Design

Sub-step Details

Sizing and design of the system shall be done first. This is not defined by a specific regulation but is mandatory for any solar PV project and must be performed by a qualified end-user (QE) in consultation with the system provider. The QE should pay attention in selecting the right system provider to assist in the system sizing and design.

- **Sizing and Selecting Components for Solar Roof**

Typically, for a small solar PV system, the system provider has a predefined solution to assist the QE in selecting and sizing the components for the system. The major components for rooftop solar PVs are: solar PV modules, an inverter (grid-connected type), and cables (DC and AC).

In order to allow the system provider to come up with good sizing and design, the QE must be able to provide adequate and detailed information regarding the self-consumption. One of the important documents that should be made available to the system provider is the electricity bill of the QE for the past few months.

- **Solar resource irradiance data**

Solar irradiance data and sunlight hours are important information for any solar PV project. There are many online sources which the QE can refer to during a preliminary study. The National Renewable Energy Laboratory (NREL) reveals the annual insolation 3.6 kWh/m^2/day (Source: Science Garden). The study reveals that the spatial variation of the solar resource across the Philippines in any given month is low (approximately 10% to 20%), while the variation between the wet and dry seasons is quite high (30% to 50%). Thus, the solar energy resource of the country is affected by the monsoon system. More detailed data can be obtained from the Philippine Atmospheric, Geophysical & Astronomical Services Administration (PAGASA), the country's weather bureau. However, the QE should not rely too heavily on satellite data and should ask the system provider to perform a preliminary measurement at the site.

AC: Alternating current; DC: Direct current

System Sizing & Design

Sub-step Details

- **Roof Condition**

Suitability of the roof to install the solar PV system must be carefully checked. Some aspects to consider include: roof inclination and direction, structure and strength. The QE shall check with the system provider on how a solar PV module can be mounted on the roof.

Equipment Procurement and Installation

Sub-step Details | Reference Standards

Major components for a solar PV project that must be procured are, among others: PV modules, an inverter (grid-connected type), AC/DC cables, and mounting structures. Imports of RE-related equipment can be exempted from all import duties, providing that some conditions / criteria are met. Usually, the system provider who performs system design and sizing is responsible for supplying the system components.

In this step, the qualified end-user (QE) shall ensure that procured equipment comes with an appropriate certificate according to the international standard. A list of relevant standards for PV project-related equipment is available for reference. For a small system, the system provider may also be the one who installs the system. The QE shall also ensure that the system installation is in accordance with the Philippines National Building Codes and the system can perform according to the Philippines Distribution Code and the Net-Metering Interconnection Standard.

AC: Alternating current; DC: Direct current

Equipment Procurement

Standard No.	Description
IEC 61215 (2005)	Crystalline silicon terrestrial PV modules – Design qualification and type approval
IEC 61646	Thin-film terrestrial PV modules – Design qualification and type approval
IEC 61730	PV module safety qualification
IEC 61701 (2011) 2nd Edition	Salt mist corrosion testing of PV module *Note This standard should be considered for a solar PV project located in coastal area.*
IEC 61683 (1999)	PV system – Power conditioners – Procedure for measuring efficiency

Note
The list above is only indicative one. It is adapted from the "Utility Scale Solar Power Plants: A Guide for Developers and Investors" published by International Finance Corporation (IFC)

Caution
Please note some requirement set by the international standards may not be sufficient for equipment used in some location due to harsh environmental condition in that area e.g. heavy rainfall, high wind speed, very corrosive environment etc. Qualified end-user (QE) must not take only compliance with the international standards for grant that the system or equipment will last for a long-run

SPM | Support Mechanisms

SPM-1

Net-metering application

SPM | Support Mechanisms

SPM-1

Net-metering application

… Gantt's / Flow Chart

Step Description | Related Regulations | Related Documents | Identified Challenges

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Step Description

For a solar PV project under the Net-metering Scheme ("NM Scheme"), the qualified end-user (QE) must apply for the net-metering scheme with the respective distribution utility (DU) in the area. This step is regulated by the Net-metering Rules (ERC Resolution No. 9, Series of 2013).

Applications for other permits from the authorities (as described under the Administrative Authorisation (ADM) step) can be done simultaneously. The QE may also start applying for permission to obtain a grid connection with the DU (described in the Grid Connection Permit (GCP) step).

… Gantt's / Flow Chart

Step Description | Related Regulations | Related Documents | Identified Challenges

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Related Regulations

Regulation No.	Name
ERC Resolution No. 09, Series of 2013	Rules enabling the net-metering programme for renewable energy (so-called "Net-metering Rules")
ERC Resolution No. 115, Series of 2001	The Philippines distribution code

ERC: Energy Regulatory Commission

… Gantt's / Flow Chart

Step Description | Related Regulations | Related Documents | Identified Challenges

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Related Documents

Document Name	Description
Net-metering Reference Guide	A publication of GIZ with support from the Department of Energy (DOE), guiding qualified end-users (QE) on how to develop a solar PV project under the net-metering scheme (NM Scheme) in the Philippines. This publication can be downloaded at www.renewables-made-in-Germany.com
Example of application form (MERALCO)	In 2013, MERALCO, the largest distribution utility (DU) in the Philippines, made its net-metering application form available. Although it has not yet be published on the MERALCO website, the application form can be downloaded at: http://thisisphilippines.files.wordpress.com/2013/12/meralco-renewable-energy-app.pdf

… Gantt's / Flow Chart

Step Description | Related Regulations | Related Documents | Identified Challenges

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Identified Challenges

Challenges	Details
Complicating application filling	An application form for the net-metering scheme in the Philippines can be very detailed and complicating. For Qualified End-users (QE) who do not have extensive knowledge on the technical aspects of the system, they may not be able to complete it properly and correctly alone. Recommendation: Any QE who does not have in-depth knowledge on a solar PV system should not try to submit an application without support or assistance from an experienced consultant or system provider.
Non-uniform procedure	The exact application procedures for the net-metering scheme vary, depending on the distribution utility (DU) involved. Although the framework was determined by the net-metering rule (ERC Resolution no. 9, Series of 2013), the exact and detailed procedure is determined by each DU. This results in different procedures, application forms, list of documents to be submitted, and incurred fees from area-to-area.

Net-metering Application

Sub-step Details | Required Documents

Each distribution utility (DU) is allowed to implement its own form and apply its own procedure for issuing net-metering applications. In 2013, MERALCO[1] was the first DU that provided a net-metering application form.

The qualified end-user (QE) who owns a solar PV installation must submit an application, along with support documents explaining the technical specifications on the installation. The DU shall then decide whether a distribution impact study (DIS) is needed or not.

In general, the applied procedure is as follows

- The QE sends a request to the respective DU, declaring that he/she will enter into a net-metering scheme.
- The DU provides the list of required documents to be submitted by the QE
- The QE prepares all documents based on the list and files an application
- After receiving the application, the DU checks its completeness and issues an acknowledgement receipt to the QE within ten working days. In case the submitted documents are not completed, the DU shall advise the QE on which documents are to be submitted or resubmitted
- If the submitted documents are complete, the DU conducts a detailed technical evaluation then determines whether a DIS is needed or not. If a DIS is required, Sub-step GCP-1 shall be performed.

Related Authorities

Central level	(none)
Local level	▪ The distribution utility (DU) operating the local distribution grid

Note 1: MERALCO is the largest DU in the Philippines

Net-metering Application

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Sub-step Details | Required Documents

A | General Requirements

- Information on the power generating facility - At minimum following data / information must be provided:
  - Type *(for a solar PV system – inverter type)*
  - Fuel source type *(solar)*
  - Capacity rating *[kW]*
  - Kilovolt-Ampere rating *[kVA]*
  - Power factor
  - Voltage rating *[V or kV]*
  - Ampere rating *[A]*
  - Number of phases *(single or three phases)*
  - Frequency *(in the Philippines, this is normally at 60 Hz)*
  - Do you plan to export power? *(If yes, what is maximum amount expected)*
  - Pre-certification of type number
  - Expected energising and start-up date
  - Normal operation of interconnection *(e.g. provide power to meet base load, demand management, stand-by, back-up, others etc.)*
  - Single-line diagram
  - Information whether the manufacturer has supplied its dynamic modeling values to the distribution utility
  - Layout sketch showing lockable, "*visible*" disconnect device.

- Name and address of the qualified end-user (QE)
- Plant parameters for a distribution impact study (DIS)
- Address of the service point where the Solar PV plant shall be installed
- Name and address of the person who prepared the information submitted in the application form
- Impact assessment information (in particular for Solar PV and wind converters)
  - Electric systems description
  - Load information: Customer and generating facility
  - Generator facility fault contribution for faults at the connection point
  - Generator facility characteristics
  - Interface transformer characteristics
  - Operation information
  - Expected monthly generation, load consumption and net consumption from the facility *(12 month period)* for the first year and annually for the remaining four years

ADM | Administrative Authorizations

ADM-1

LGU Building Permit

LGU Buidling Permit is required only in some area. RE developers should check with the respective local government unit (LGU) regarding the requirements of the building permit.

ADM-2

LGU Electrical Permit

LGU: Local Government Unit

ADM | Administrative Authorizations

ADM-1

LGU Building Permit

LGU Buidling Permit is required only in some area. RE developers should check with the respective local government unit (LGU) regarding the requirements of the building permit.

ADM-2

LGU Electrical Permit

LGU: Local Government Unit

Step Description

To develop an RE project in the Philippines, several permits must be obtained from the respective local government unit (LGU). A small solar PV project is subject to a simpler procedure compared to a large scale solar PV project, as only two permits are required: (1) LGU Building Permit (Sub-step ADM-1), and (2) LGU Electrical Permit (Sub-step ADM-2). They allow qualified end-users (QE) to install the system in the Procurement and Construction (PCN) step.

In some LGUs, a building permit is not required. The QE shall check with the LGU regarding the requirements for this permit.

… Gantt's / Flow Chart

Step Description | Related Regulations | Related Documents | Identified Challenges

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Related Regulations

Regulation No.	Name
Republic Act No. 6541 (1972)	National Building Code of the Philippines *Full title: "An act to ordain and institute a national building code of the Philippines"*

… Gantt's / Flow Chart

Step Description | Related Regulations | Related Documents | Identified Challenges

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Related Documents

Document Name	Description
City of Manila Engineering Department Website	The official website of the City of Manila's Engineering Department is at: www.manila.gov.ph
The Quezon City Government Website	The official website of the Quezon City Government is at: www.quezoncity.gov.ph
Net-metering Reference Guide	A publication of GIZ with support from the Department of Energy (DOE), guiding qualified end-users (QE) on how to develop a solar PV project under the net-metering scheme (NM Scheme) in the Philippines. This publication can be downloaded at www.renewables-made-in-Germany.com

… Gantt's / Flow Chart

Step Description | Related Regulations | Related Documents | Identified Challenges

< Page 4/4

Identified Challenges

Challenges	Details
Insufficient capacity of LGU officials and electrical engineers to handle the process	Officials or electrical engineers in the local government unit (LGU) may not yet be familiar with the RE technology and its application. They may usually work in different areas and not have sufficient training or capacity to handle the permit application in a timely manner. This can cause delays in the approval process.

LGU Building Permit

Sub-step Details | Required Documents

Qualified end-users (QE) must obtain a building permit from the respective local government unit (LGU). With a building permit, the QE can commence with the system (Sub-step PCN-2). The exact procedures vary depending on the local regulations of that particular LGU. In general, the procedures are as follows:

- The QE submits a filled out application form and all necessary documents to the building official in the respective LGU
- The building official reviews the completeness of the submitted documents
- The documents are reviewed and evaluated in detail
- In case the application and supporting documents meet the requirements, the QE shall pay the applicable fees
- The building official issues a building permit to the QE

Related Authorities

Central government	(none)
Local government	▪ Building official in the respective local government unit (LGU)

Note: Procedures and incurred fee are different depending on the LGU. The building permit is not a general requirement for all rooftop PV installation. Only in some LGU that this permit must be obtained.

LGU Building Permit

Sub-step Details | Required Documents

A | General Requirements

- Duly completed application form
- Engineering documents as requested by the local government unit (LGU)
  Note: All documents must be signed by appropriate professional

LGU Electrical Permit

Sub-step Details | Required Documents

Qualified end-users (QE) shall apply for an electrical permit from the Office of the Building Official (OBO) of the respective Local Government Unit (LGU). The permit allows the QE to perform installation of electrical equipment/devices on their premises.

This is a procedure at the local government level. It differs from one LGU to another. Typically, the procedures are as follows:

- The QE submits a filled out application form, along with the necessary documents to the Office of the Building Official (OBO)
- The receiving officer checks the completeness of the documents and assesses the applicable fees
- The QE pays the fees
- The OBO reviews and evaluates the documents
- The OBO processes and approves a wiring permit. The permit is then released to the QE, thereby allowing installation of electrical equipment to commence.

The final inspection by the LGU's field engineer will be done after substantial installation has taken place. A Certificate of Electrical Inspection (CFEI) will be issued after the inspection (Sub-step GCC-1)

Related Authorities

Central government	(none)
Local government	▪ Office of the Building Official (OBO) in the respective local government unit (LGU)

Note: Procedures and incurred fee are different depending on the LGU

LGU Electrical Permit

Sub-step Details | Required Documents

A | General Requirements

- Filled out application form
- Duly-filled out application of wiring permit
  Note: "DPWH Form 90-001C"
- Electrical plan
  Note: This document must be duly-signed by a Professional Electrical Engineer
- Other documents *(if requested by the authority)*

DPWH: Department of Public Works and Highways

GCP | Grid Connection Permit

If a DIS is required by the distribution utility (DU)

GCP-1

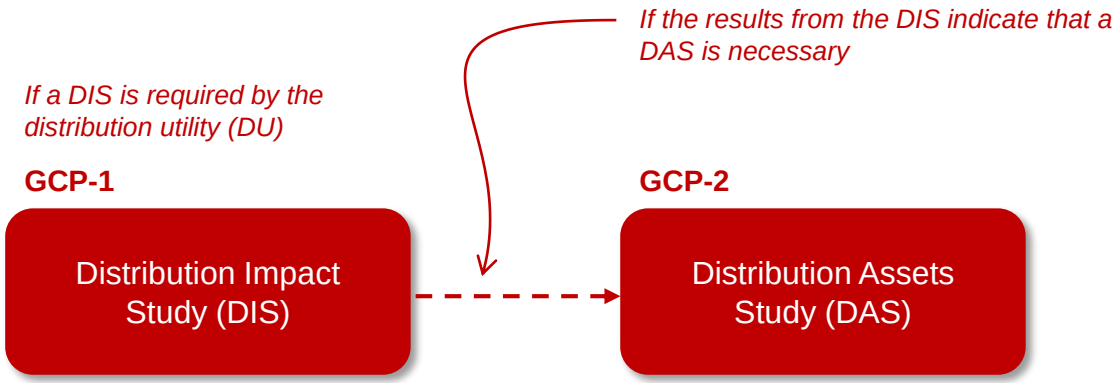
Distribution Impact Study (DIS)

If the results from the DIS indicate that a DAS is required

GCP-2

Distribution Assets Study (DAS)

GCP | Grid Connection Permit



… Gantt's / Flow Chart

Step Description | Related Regulations | Related Documents | Identified Challenges

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Step Description

For a small solar PV project under the Net-metering Scheme (NM Scheme), a qualified end-user (QE) must request permission from the respective distribution utility (DU) to connect the solar PV installation to the grid. This is to ensure the stability of the distribution system. During the net-metering application (Sub-step SPM-1), the DU determines if a distribution impact study (DIS) is required. If a DIS is required, Sub-step GCP-1 shall be performed.

The DU shall also decide later on, based on the result of the DIS, if an additional study, known as a *"distribution assets study"*, is required (Sub-step GCP-2)

Related Regulations

Regulation No.	Name
Republic Act No. 9513 (2008)	Renewable Energy Act of 2008 *Full title: "An act promoting the development, utilisation, and commercialisation of renewable energy resources and for other purposes"*
Department Circular (DOE) No. 2009-07-0011	Implementing Rules and Regulations (IRR) of Republic Act no. 9513
ERC Resolution No. 09, Series of 2013	Rules enabling the net-metering programme for renewable energy (so-called "Net-metering Rules")
ERC Resolution No. 115, Series of 2001	The Philippines Distribution Code

Abbreviations
DOE: Department of Energy; ERC: Energy Regulatory Commission

… Gantt's / Flow Chart

Step Description | Related Regulations | Related Documents | Identified Challenges

< Page 3/4 >

Related Documents

Document Name	Description
Net-metering Reference Guide	A publication of GIZ with support from the Department of Energy (DOE), guiding qualified end-users (QE) on how to develop a solar PV project under the net-metering scheme (NM Scheme) in the Philippines. This publication can be downloaded at www.renewables-made-in-Germany.com
Manual for Interconnection – Report for Supporting the Interconnection of rooftop-PV systems in the Philippines	A publication of GIZ designed to provide relevant information about distribution grids in the Philippines for enabling or simplifying the interconnection of rooftop PV-systems.

… Gantt's / Flow Chart

Step Description | Related Regulations | Related Documents | Identified Challenges

< Page 4/4

Identified Challenges

Challenges	Details
Requirement of Distribution Impact Study (DIS)	The fee for performing a distribution impact study (DIS) creates an additional economic barrier for qualified end-users (QE), especially for small solar PV projects. The application form is very detailed and requires specialist know-how in order to complete it. It is up to the respective distribution utility to determine whether or not a DIS is needed.

Distribution Impact Study

Sub-step Details | Required Documents | Incurred Fee

With the submission of a filled out net-metering application (Sub-step SPM-1), the application proceeds to the technical evaluation phase. The distribution utility (DU) will perform an initial assessment to determine whether a Distribution Impact Study (DIS) will be needed, in accordance with the Distribution Services and Open Access Rules (DSOAR), and inform the qualified end-user (QE) accordingly. The DIS is conducted to assess the ability of the power distribution network to safely and reliably accommodate a proposed interconnection of a generation source and if any upgrades may be required.

In case the DU determines that a DIS is required, the applied procedures are as follows:

- The DU informs the applicant and relays the following details on the DIS:
  - Scope of the study
  - Estimated time to complete the DIS
  - Incurred fee for performing the DIS
- Within 30 days from receipt of the details on the DIS, the QE shall inform the DU of his decision on whether or not to proceed with the DIS. If the DIS is to be performed, the QE must pay the fees to the DU first.
- While conducting the DIS, additional information may be requested from the applicant

…

Related Authorities

Central level	(none)
Local level	▪ The distribution utility (DU) operating the local distribution grid

Distribution Impact Study

…

- From the receipt of complete information for the Distribution Impact Study (DIS), the distribution utility (DU) shall complete the study within 60 days
- Within five days after the DIS is completed, the DU forwards the results of the study to the qualified end-user (QE)
- The DU shall share its findings on whether a Distribution Assets Study (DAS) is necessary (Sub-step GCP-2)

Distribution Impact Study

Typically, a qualified end-user (QE) does not have to submit any documents to the distribution utility (DU) in this sub-step. The documents submitted during the net-metering application (Sub-step SPM-1) are usually sufficient for the DU to conduct a DIS. Only in some cases may the DU may request the QE to provide additional data / documents.

Distribution Impact Study

A | Study Fee[1]

▪ Distribution Impact Study (DIS) fee for small solar PV applications of up to 5 kWp	PHP 5,000 *(USD 115)*
▪ DIS fee for solar PV installations above 5 kWp	PHP 19,000 *(USD 437)*

Note 1: Indicated fee in USD is only approximate based on the currency conversion of USD 1 = PHP 43.86 (as of May 2014)
Note 2: The study fee is only applicable when the distribution utility (DU) determines that a distribution impact study (DIS) is necessary
Note 3: The indicated study fee is applicable for a net-metering scheme under MERALCO, the largest distribution utility. For a net-metering scheme done under other DU, study fee can be different

Distribution Assets Study

Sub-step Details

If the distribution utility (DU) determines that a Distribution Assets Study (DAS) is required

From the result of the distribution impact study (DIS), the distribution utility (DU) shall determine whether a Distribution Assets Study (DAS) is required. If a DAS is required, the following procedure shall be applied.

- The distribution utility (DU) issues an offer for Distribution Assets Study (DAS) service to the qualified end-user (QE).
- Within 15 days from receipt of the DAS offer, the QE informs the DU on whether or not to proceed with the DAS
- Upon acceptance of the DAS offer and payment, the DU shall complete the DAS within 30 days
- Five days after the completion of the DAS, the DU informs the results to the QE

Related Authorities

Central level	(none)
Local level	▪ The distribution utility (DU) operating the local distribution grid

Gantt's Chart | Flow Chart | More Details…

FIN | Financing

FIN-1

Loan application

Financial closure **FIN-2**

FIN | Financing

Step Description

For a small solar PV installation, the qualified end-user (QE) may be able to finance the project himself/herself. However, in case additional funds are required, the Financing (FIN) step shall be performed.

This step involves securing a loan from a bank. The authorities or government institutions have little or no ability to intervene during this step. Rather, it is the QE's responsibility to source its project funds either through a bank loan or by its own capital. Many banks in the Philippines have already established a special lending facility for RE projects. They have invested significantly in capacity building on evaluating and performing due diligence on RE projects, covering not only the financial aspect but also the technical aspect. However, RE financing is still relatively new for the Philippines. Therefore, the heart of this step is rather general and based on international practices. They are merely recommendations by their nature.

Different banks apply different procedures and request different documents from QEs. The QE shall first apply for a loan (Sub-step FIN-1). When the loan is approved, the QE must submit several documents to the bank. When all documents are completed and submitted, a financial closure is reached (Sub-step FIN-2). The loan is then released to the QE's account.

This step starts after the QE has offered a sufficient amount of details about the system (e.g. system sizing, financial model, etc.). Most banks require permits / certificates issued by government agencies before approving the loan. This step may have to be done in parallel with the Administrative Authorisation (ADM) step.

… Gantt's / Flow Chart

Step Description | Related Regulations | Related Documents | Identified Challenges

< Page 2/4 >

Related Regulations

Regulation No.	Name
-	-

No regulations governs this step (as of October 2014)

Related Documents

Document Name	Description
Net-metering Reference Guide	A publication of GIZ with support from the Department of Energy (DOE), guiding qualified end-users (QE) on how to develop a solar PV project under the net-metering scheme (NM Scheme) in the Philippines. This publication can be downloaded at www.renewables-made-in-Germany.com
DOE Energy Investors' Guidebook	A guidebook published by the Department of Energy (DOE)
Official Bank's Websites	Websites for banks in the Philippines usually contain information about how to obtain a loan. Examples of banks that provide loans for RE projects include but are not limited to: ▪ Bank of the Philippine Islands: www.bpiexpressonline.com ▪ Development Bank of the Philippines: www.devbnkphl.com ▪ Land Bank of the Philippines: www.landbank.com ▪ Allied Banking Corporation: www.alliedbank.com.ph ▪ etc.

… Gantt's / Flow Chart

Step Description | Related Regulations | Related Documents | Identified Challenges

< Page 4/4

Identified Challenges

Challenges	Details
Long processing time for permits / licenses	Some permits / licenses may be subject to very long review period by the authority. Due to the high number of applications, some authorities may not have sufficient manpower to review and handle the applications in a timely manner. Delay in issuance of a permit/license can cause a delay in the RE project development.
Bank's low confidence on RE project	Banks request a number of documents from qualified end-users (QE) to ensure their investment will pay off. However, some documents cannot be provided by the QE at that point of time. For instance, a power purchase agreement (PPA) may be requested. However, due to the existing procedure in the Philippines, a PPA can be only obtained after the power plant has already been built. Without such a document, the bank's confidence on the project may be low, resulting in a high interest rate, short payback period, high collateral, etc.
High collaterals	Banks usually require collateral from a QE to secure a loan. Without sufficient collateral to satisfy the bank, the possibility of getting a loan is low.

Loan Application

Sub-step Details | Required Documents

Qualified end-user (QE) shall secure a loan from banks to carry out PV project development. Typical procedures in obtaining bank loans in the Philippines are as follows:

- The QE submits an application letter to a bank
- An acceptance of application is given to the QE
- The QE submits required documents to the bank
- The bank reviews the completeness of the submitted documents
- The bank processes, evaluates and analyzes a loan
- The bank review panel approves (or denies) the loan
- The bank informs the QE on the approval status of the loan

Requirements, procedures, and incurred fees vary depending on the bank. Several banks have a special loan facility for RE projects, for example, Bank of the Philippine Islands: www.bpiexpressonline.com, Development Bank of the Philippines: www.devbnkphl.com, Land Bank of the Philippines: www.landbank.com, and Allied Banking Corporation: www.alliedbank.com.ph, etc.

Loan Application

A | General Requirements

- Application letter
- Duly filled out loan application form
- Project summary report
- Document(s) pertaining to the collateral
- Work plan
- Photographs of project sites and collateral *(if applicable)*
- Certificate of Registration with the Department of Trade & Industry (DTI)
- Bio-data of applicant
- Permit from mayor
- Income tax return
  Note: This must covers the last three years
- Financial statement for the last three years
  Note: This must be filed by the BIR
- Latest interim financial statement
- Statement of assets and liabilities

Financial Closure

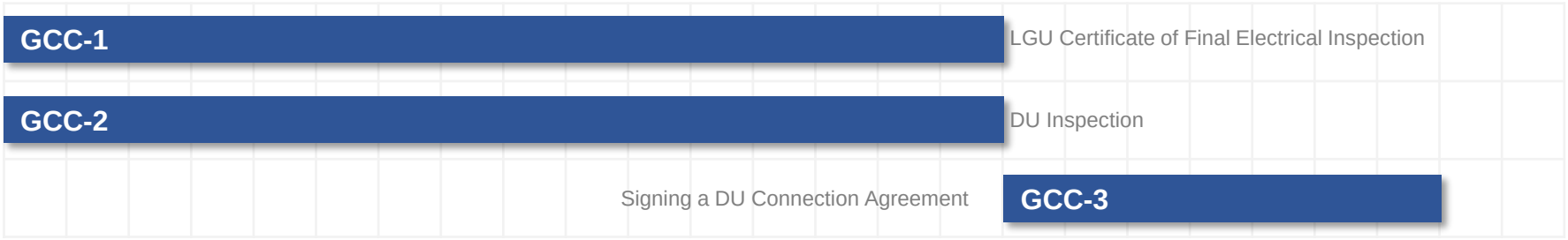
Sub-step Details

Financial closure is an important milestone in RE project development. It is when all conditions in a loan agreement have been satisfied (or waived). All documents have been signed and drawdown of the loan can take place.

After a loan is approved (Sub-step FIN-1), the qualified end-user (QE) must submit several documents before the bank releases the funds. The document requirements vary depending on the bank's policy and procedure and on the conditions stipulated in the loan agreement. After all documents have been submitted, the loan agreement will be signed by the QE and counter-signed by the bank. All the conditions in the loan agreement will become legally binding after this point. The bank will then transfer the loan capital to the account(s) of the QE. Payments to the contractor and supplier(s) can be now be done, allowing equipment procurement and the power plant construction and installation to commence.

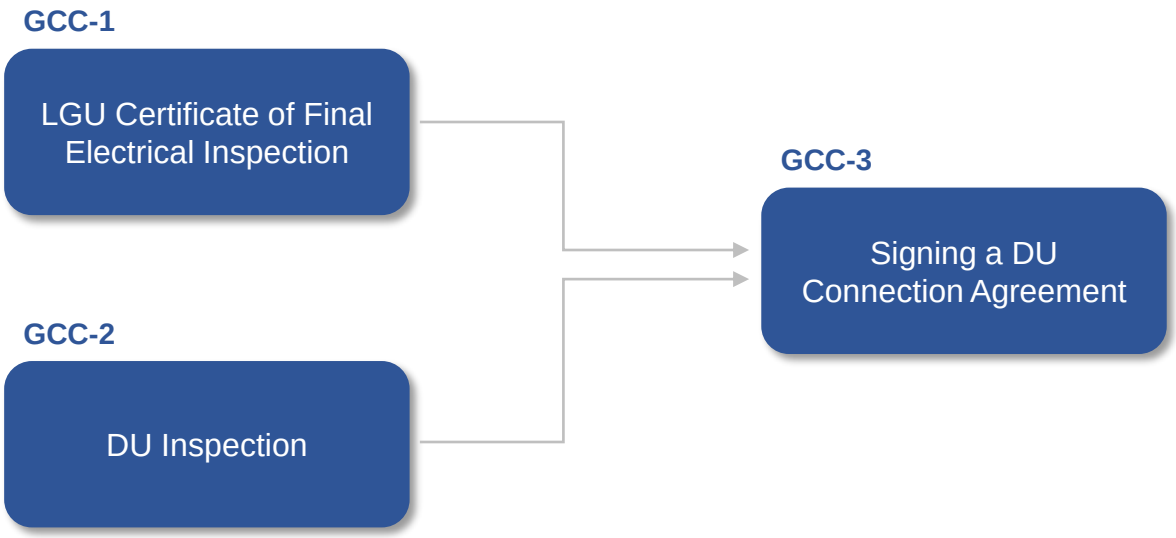
Gantt's Chart | Flow Chart | More Details…

GCC | Grid Connection and Commissioning



DU: Distribution Utility; LGU: Local Government Unit

GCC | Grid Connection and Commissioning



DU: Distribution Utility; LGU: Local Government Unit

Step Description

Upon completion of a solar PV system installation, inspections and commissioning must take place. In the Philippines, there are two authorities to perform the inspection: (1) inspection from the local government unit (LGU)'s field engineer and (2) inspection from the distribution utility (DU).

An LGU inspection is the follow-up of the LGU Electrical Permit (Sub-step ADM-2) described earlier in the Administrative Authorisation (ADM) step. A Wiring Permit allows a qualified end-user (QE) to install electrical devices / equipment. After the installation, the LGU must inspect the system and issue a Certificate of Final Electrical Inspection (CFEI) (Sub-step GCC-1). In parallel, a DU inspection shall be arranged (Sub-step GCC-2). This must be done before the energising of the connection point.

The last step to be done for a solar PV project under the Net-Metering Scheme (NM Scheme) is to conclude a connection agreement (Sub-step GCC-3) with the DU.

Related Regulations

Regulation No.	Name
Republic Act No. 6541 (1972)	National Building Code of the Philippines *Full title: "An act to ordain and institute a national building code of the Philippines"*
-	Philippine Electric Code
ERC Resolution No. 115, Series of 2001	The Philippines Distribution Code
ERC Resolution No. 09, Series of 2013	Rules enabling the net-metering programme for renewable energy (so-called "Net-metering Rules") *Note: The Net-Metering Interconnection Standard is included in this resolution*

ERC: Energy Regulatory Commission

Related Documents

Document Name	Description
Net-metering Reference Guide	A publication of GIZ with support from the Department of Energy (DOE), guiding qualified end-users (QE) on how to develop a solar PV project under the net-metering scheme (NM Scheme) in the Philippines. This publication can be downloaded at www.renewables-made-in-Germany.com

… Gantt's / Flow Chart

Step Description | Related Regulations | Related Documents | Identified Challenges

< Page 4/4

Identified Challenges

Challenges	Details
-	-

No challenges has been identified in this step (as of October 2014)

LGU Certificate of Final Electrical Inspection

Sub-step Details | Required Documents

The respective local government unit (LGU) conducts electrical safety inspection, testing, and verification of the electrical wirings (Sub-step ADM-9) before installation of electric meters by the electric power service provider to ensure their conformance to the provisions of the Philippine Electrical Code and before issuing a Certificate of Final Electrical Inspection (CFEI).

After substantial installation of electrical equipment in the power plant has been done, the qualified end-user (QE) must arrange for an inspection to be conducted by the LGU's field engineer. A physical inspection shall be made on the electrical installations, connections, switches, etc.

If the inspection / verification results do not meet the electrical standards, the LGU informs the QE about the defects/deficiencies and shares recommendations to be undertaken.

When the inspection yields satisfying results, a CEFI is issued to the QE.

Related Authorities

Central government	(none)
Local government	▪ Office of the Building Official (OBO) in the respective local government unit (LGU)

Note: The exact processing fee varies from one LGU to others

LGU Certificate of Final Inspection

Sub-step Details | Required Documents

A | General Requirements

- Electrical plan duly signed and sealed by a professional electrical engineer

DU Inspection

Sub-step Details

Testing and commissioning of a solar PV system must be witnessed by the distribution utility (DU).

After solar PV system installation has been completed and before the energising of the connection point, the qualified end-user (QE) must liaise with the DU to arrange for a joint inspection. This includes system components and a functional test to ensure that the system meet the requirements set by the Net-Metering Interconnection Standard.

Related Authorities

Central level	(none)
Local level	▪ The respective distribution utility (DU) in the area

Signing a DU Connection Agreement

Sub-step Details

This is the last step in the development of a solar PV system under the net-metering business model (NM Scheme). A connection agreement is the contract between the distribution utility (DU) and the owner of a net-metering RE installation.

Subject to technical considerations and without discrimination and upon request by distribution end-users, the DU shall enter into net-metering agreements with qualified end-users (QE) who will be installing the RE system. Thereafter, the DU or QE shall furnish the executed net-metering agreement to the Energy Regulatory Commission (ERC), the Department of Energy (DOE) and the National Renewable Energy Board (NREB). The executed net-metering agreement shall be deemed approved and effective upon submission thereof to the ERC (Sub-step EPL-1).

No additional fees other than the distribution impact study (DIS) fee are required for a connection agreement made with MERALCO. For solar PV systems that are to be connected to another DU, additional charges may apply.

Related Authorities

Central level	(none)
Local level	▪ The distribution utility operating the local distribution grid

Gantt's Chart | Flow Chart | More Details…

EPL | Electricity Production License

EPL-1

ERC Certificate of Compliance (CoC)

ERC: Energy Regulatory Commission

EPL | Electricity Production License

EPL-1

ERC Certificate of Compliance (CoC)

ERC: Energy Regulatory Commission

EPL | Electricity Production License

Step Description

Qualified end-users (QE) must obtain a Certificate of Compliance (CoC) from the Energy Regulatory Commission (ERC) in order to generate electricity in the Philippines (Sub-step EPL-1). This document certifies that the QE complies with the obligations, cross-ownership and market restrictions. Without a CoC, the QE is not allowed to generate electricity in the Philippines.

The exact procedure for filling out a CoC application for a small solar PV has not been finalised yet. However, a CoC must still be obtained. That being said, the process is much more simplified than for a large solar PV project. Submission of documents is usually done by the respective distribution utility (DU) directly to the ERC.

EPL | Electricity Production License

Related Regulations

Regulation No.	Name
Republic Act No. 9136 (2001)	Electric Power Industry Reform Act (EPIRA) of 2001 *Full title: An act ordaining reforms in the electric power industry, amending for the purpose of certain laws and for other purposes* *Note: The relevance of this act to the Electricity Production License (EPL) step is in section 6*
-	Guidelines for the issuance of Certificate of Compliance for Generation Companies/Facilities. *Note: This guideline is issued by Energy Regulatory Commission (ERC)*
ERC Resolution No. 115, Series of 2001	The Philippines Distribution Code

EPL | Electricity Production License

Related Documents

Document Name	Description
Official website of ERC	The official website of the Energy Regulatory Commission (ERC) can be accessed at www.erc.gov.ph
Net-metering Reference Guide	A publication of GIZ with support from the Department of Energy (DOE), guiding qualified end-users (QE) on how to develop a solar PV project under the net-metering scheme (NM Scheme) in the Philippines. This publication can be downloaded at www.renewables-made-in-Germany.com

EPL | Electricity Production License

Identified Challenges

Challenges	Details
Risk of CoC rejection	A Certificate of Compliance (CoC) is a very important document that must be obtained. Failure to secure this document means that previously built power plants cannot become operational.

ERC Certificate of Compliance (CoC)

Sub-step Details | Required Documents | Incurred Fee

As of October 2014, the exact procedure for a Certificate of Compliance (CoC) application under the net-metering scheme has not yet been finalised yet. They are still under discussion and consideration by the Energy Regulatory Commission (ERC). The ERC is planning to issue an amendment to its Guidelines for the issuance of Certificate of Compliance for Generation Companies/Facilities. The procedure described in this sub-step is based on the amendment currently under consideration by the ERC.

A qualified end-user (QE) must still obtain a CoC from the ERC for the solar PV system. However, the submission of documents for a CoC application is done by the distribution utility (DU) on behalf of the QE. This submission is to be done together with the submission of a net-metering agreement for ERC evaluation.

When all documents have been submitted by the DU to the ERC, the QE will immediately be able to operate the facility under the net-metering scheme (The net-metering agreement becomes effective immediately).

The applied procedures are as follows:

- The QE enters into a net-metering agreement and fills out the CoC forms provided by the DU
- The QE issues a cashier's or manager's check payable to the ERC (CoC fee). It shall be submitted to the DU, together with the signed net-metering agreement and completed CoC application forms. The term of the CoC shall be according to the Net-Metering Agreement between the QE with the DU.

Related Authorities

Central government	▪ Energy Regulatory Commission (ERC)
Local government	(none)

ERC Certificate of Compliance (CoC)

Sub-step Details | Required Documents | Incurred Fee

- The distribution utility (DU) will submit the net-metering agreement, along with the Certificate of Compliance (CoC) application and supporting documents to the Energy Regulatory Commission (ERC). At this point, the net-metering agreement becomes effective immediately.
- The ERC evaluates the completeness and compliance of the net-metering agreement and other documents. If everything meets all requirements, the ERC will issue the CoC and official receipt (OR) directly to the QE. The issued CoC is valid for the duration of the net-metering agreement.

ERC Certificate of Compliance (CoC)

A | General Requirements

- Application Form (CoC Form No. 1)
- Company Profile (CoC Form No. 2)
- Certification from the distribution utility (DU), certifying that the QE complies with the Net-Metering Interconnection Standards issued by the Energy Regulatory Commission (ERC)
- Other documents that the ERC may require.

Note: Additional documents may be requested by Energy Regulatory Commission (ERC)

ERC Certificate of Compliance (CoC)

A | Processing Fee

▪ Exclusive of the actual cost of plant inspection	PHP 10,000 *(USD 230)*

Note: Indicated fee in USD is only approximate based on the currency conversion of USD 1 = PHP 43.86 (as of May 2014)

OPM | Operation and Maintenance

After a connection agreement is signed (Sub-step PPA-1), the qualified end-user (QE) can start the commercial operation of the power plant. A solar PV project is typically designed for a lifetime of around 25 years. To ensure long life of the plant, proper operation and maintenance must be performed.

In the Philippines, a solar PV power plant is still new. Experiences and lesson learned from the field have not yet been collected and fully understood. As a result, the Operation and Maintenance (OPM) step will not be covered in details by the first edition of the guideline. As more data and experiences are collected and learned in the future, they will be included in the subsequent edition of the guideline.

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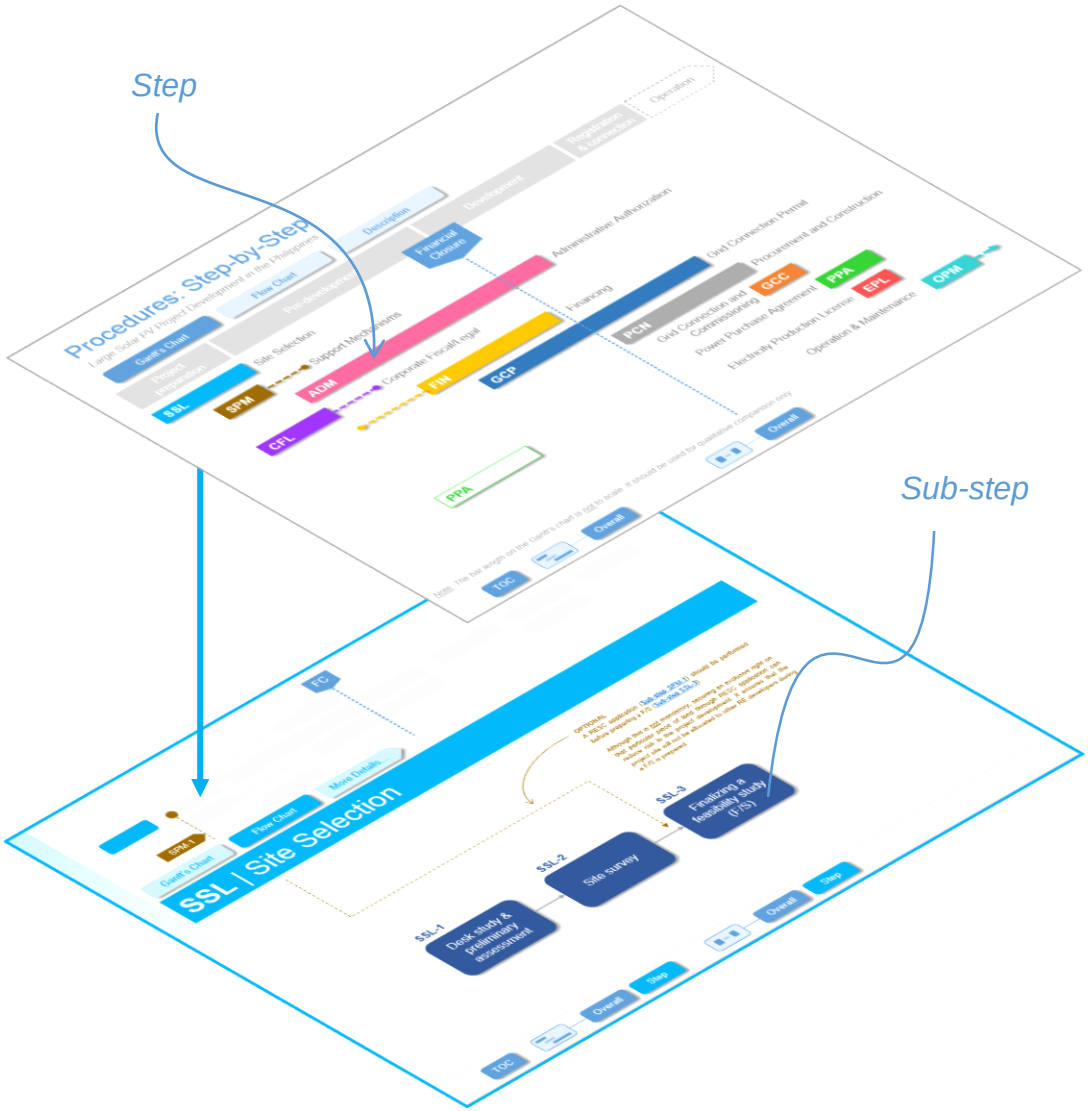
List of Abbreviations

Unless stated otherwise, the following abbreviations shall be used throughout this guidebook:

ACE	ASEAN Centre for Energy
AMS	ASEAN Member State
ASEAN	Association of South East Asia Nations
ASEAN-RESP	Renewable Energy Support Programme for ASEAN
BMUB	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (In German: Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit)
CCC	Climate Change Commission
CEFI	Certificate of Electrical Inspection
CoC	Certificate of Compliance (issued by ERC)
DAS	Distribution Assets Study
DC	Department Circular Direct current
DIS	Distribution Impact Study
DMC	Distribution Management Committee
DOE	Department of Energy (The Philippines)
DSOAR	Distribution Services and Open Access Rules
DTI	Department of Trade & Industry
DU	Distribution Utility E-Guidebook Electronic version of the guideline
EPIRA	Electricity Power Industry Reform Act
ERC	Energy Regulatory Commission (The Philippines)
FIT	Feed-in tariff
GDP	Gross Domestic Product
GIS	General information sheet (of SEC)
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
GMC	Grid Management Committee
IRR	Implementing Rules and Regulations
LBP	Land Bank of the Philippines
LGU	Local Government Unit
NM	Net-metering
NGCP	National Grid Corporation of the Philippines
NREB	National Renewable Energy Board
NREL	National Renewable Energy Laboratory (in U.S.)
NREP	National Renewable Energy Plan / Program
O&M	Operation & Maintenance
OBO	Office of Building Official
PAGASA	Philippines Atmospheric, Geophysical, and Astronomical Services Administration
PSA	Power Supply Agreement
PV	Photovoltaic (this term is similar to SPV)
QE	Qualified end-user
R.A.	Republic Act
RE	Renewable Energy
REMB	Renewable Energy Management Bureau
SPV	Solar Photovoltaic (Note: This term is used in the original publication, "SPV Guidebook". However, due to its tendency to be confused with other term e.g. special purpose vehicle, the ASEAN RE Guidelines will avoid using of this term. It will be replaced by the "solar PV" term.)
SupportCCC	Support to the Climate Change Commission in the Implementation of the National Framework Strategy on Climate Change Project
PHP	Philippines Peso
USD	US Dollar
W	Watt
kW	Kilowatt
MW	Megawatt

How to use the Guideline?

Guideline Structure



"Two levels of details"

Overview Layer

From the overview layer, readers can see the entire procedure in project development (from site selection to operation and maintenance). It gives a big picture on how biomass/biogas project development in Indonesia has to be done. Only predefined steps are shown in this layer in different colour codes (e.g. site selection, administrative authorization, etc.). These steps are standardised for every guideline.

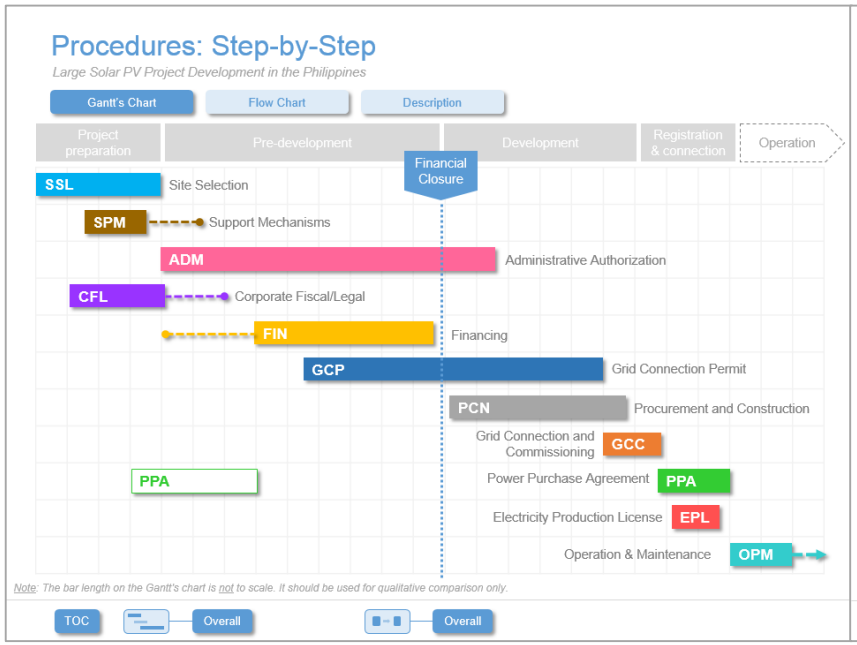
Detailed Layer

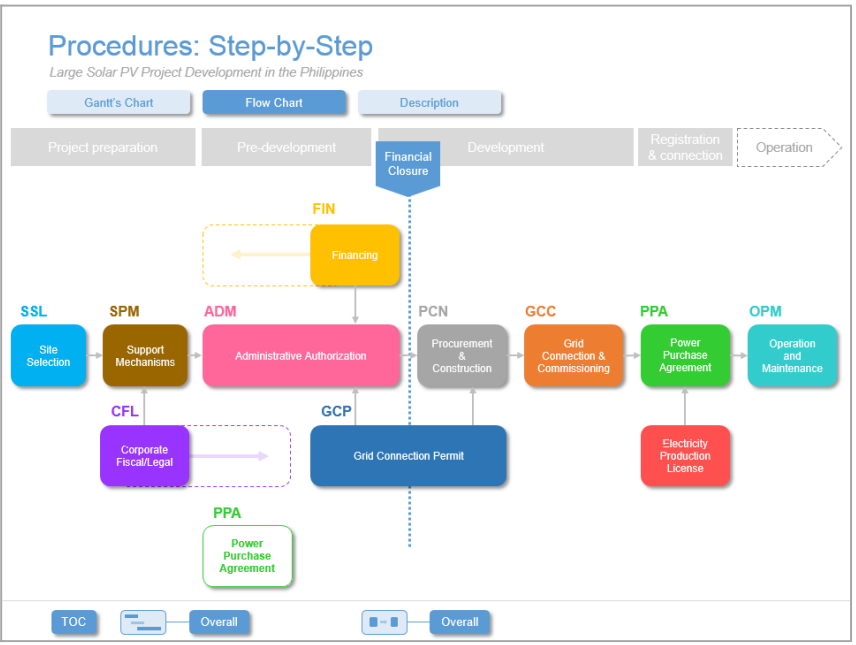
The detailed layer provides more details to each step shown in the overview layer. This allows more flexibility in providing more details to readers on a specific phase of the project development.

How to use the Guideline?

Guideline Structure

"Two ways to illustrate the procedural flow"





Gantt's Chart View

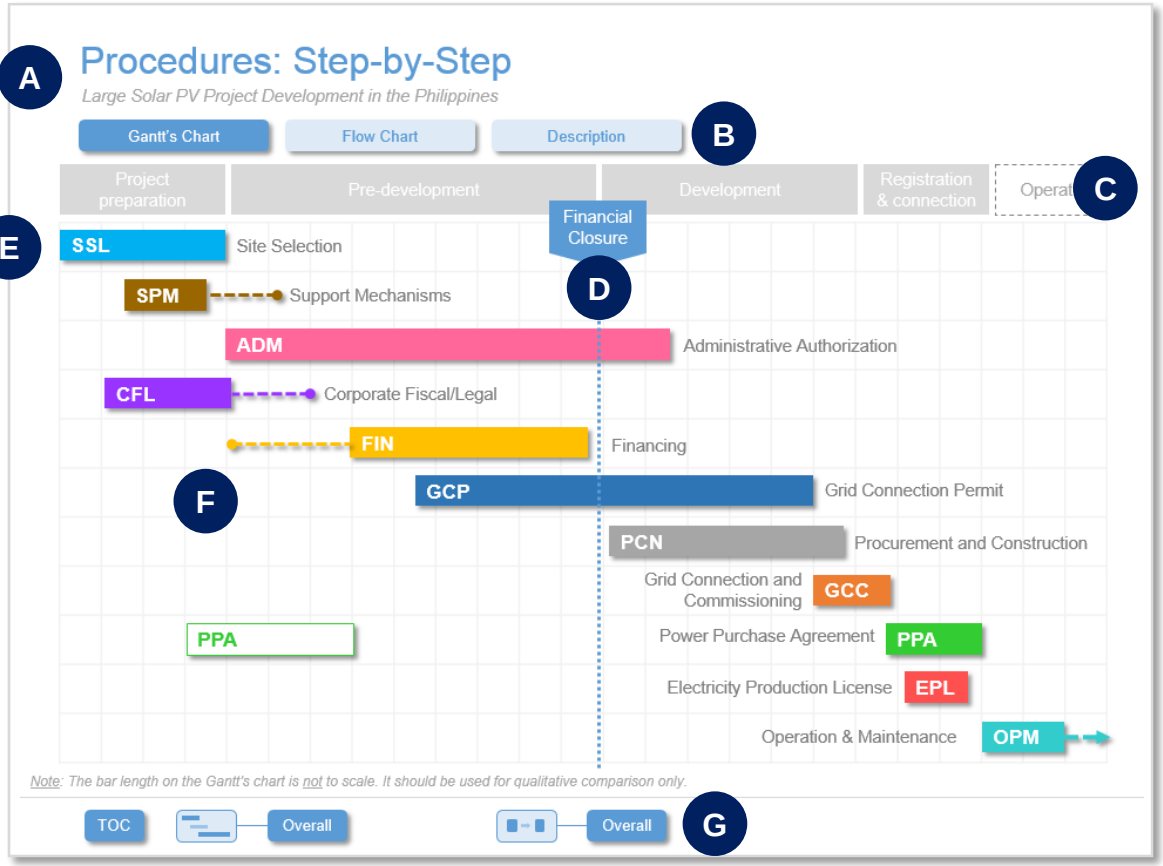
The Gantt's chart is a typical planning tool for project developer. It can show sequences of steps / sub-steps.

Fow Chart View

The flow chart is a simplified version to illustrate procedural flow. It can better show the relation between steps / sub-steps.

How to use the Guideline?

Page details – Overall Gantt's Chart



A **Page title and sub-title**

B **Section navigation**

Click these navigation buttons to jump directly to the respective sub-section. There are three buttons: Gantt's Chart (change to Gantt's chart view); Flow Chart (change to flow chart view), and Description (go to the overall description page). The current page is always highlighted in dark

C **Phase of project development**

The typical phase of project development

D **Financial Closure milestone**

Financial closure is an important milestone in RE project development. It is clearly marked on the Gantt's chart and flow chart, allowing comparison of the procedure in different countries.

E **Step bar**

Click this bar to jump directly to the respective step

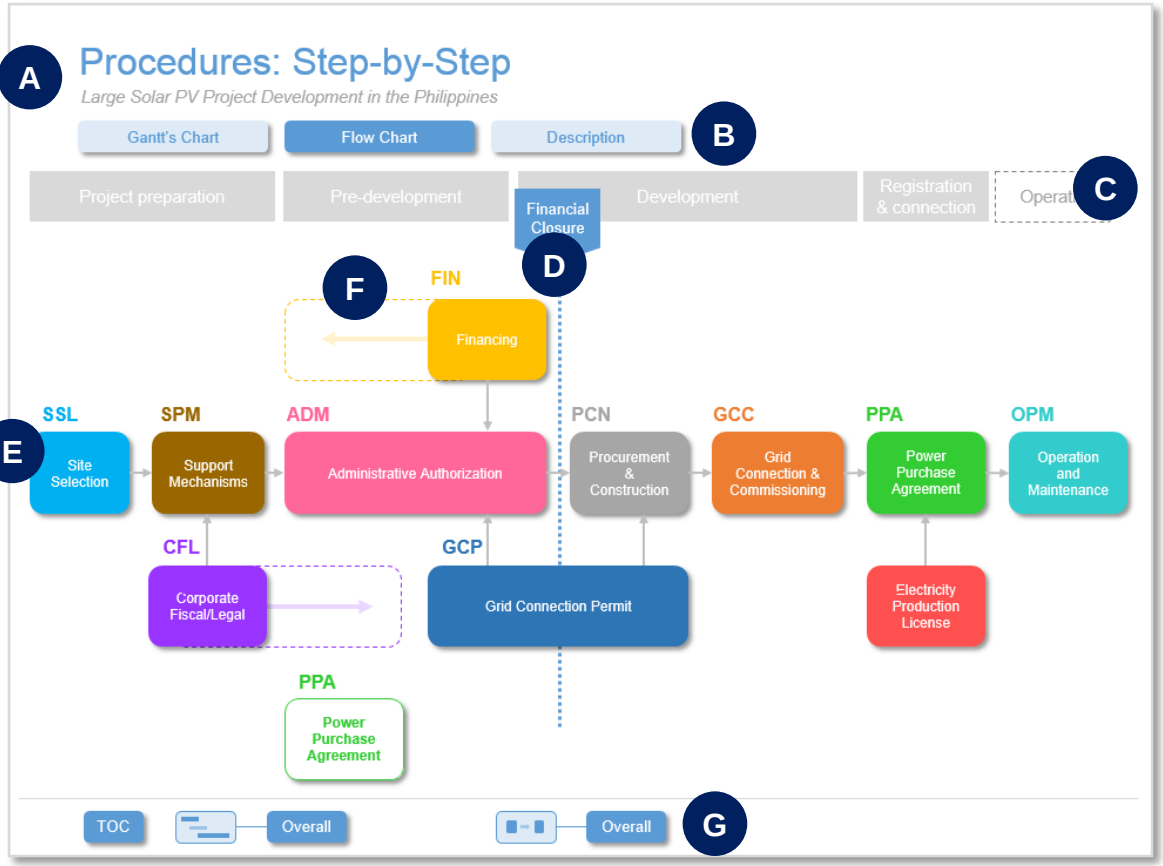
F **Flexibility indication**

Some steps can be done at different times. The dotted line indicates the flexibility of the step.

G **Main navigation**

How to use the Guideline?

Page details – Overall Gantt's Chart



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E **Step block**

Click these blocks to jump directly to the respective step

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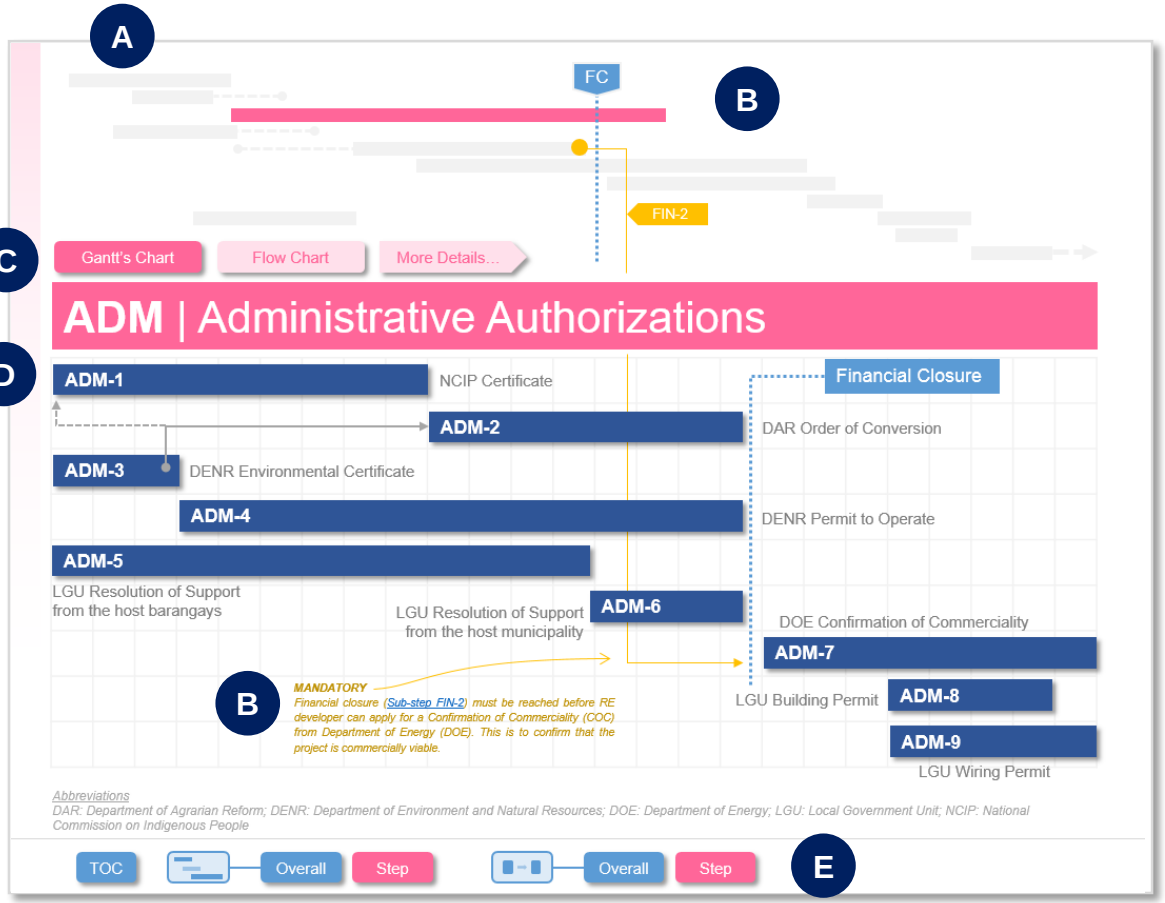
G **Main navigation**

How to use the Guideline?

Page details – Step Flow Chart



A **Navigation Gantt's chart**

The overall Gantt's chart is shown with the current step highlighted. Click on any Gantt's bar to jump to the respective step.

B **Relationship to other steps**

The relationship of this step to others is shown with a short explanation. There are two types of the relationships: (1) Recommendation – Based on good practice; and (2) Mandatory relationship – By regulations

C **Section navigation**

Click these navigation buttons to jump directly to the respective sub-section. There are three buttons: Gantt's Chart (change to Gantt's chart view); Flow Chart (change to flow chart view), and More Details (go to the detailed description page). The current page is always highlighted in dark

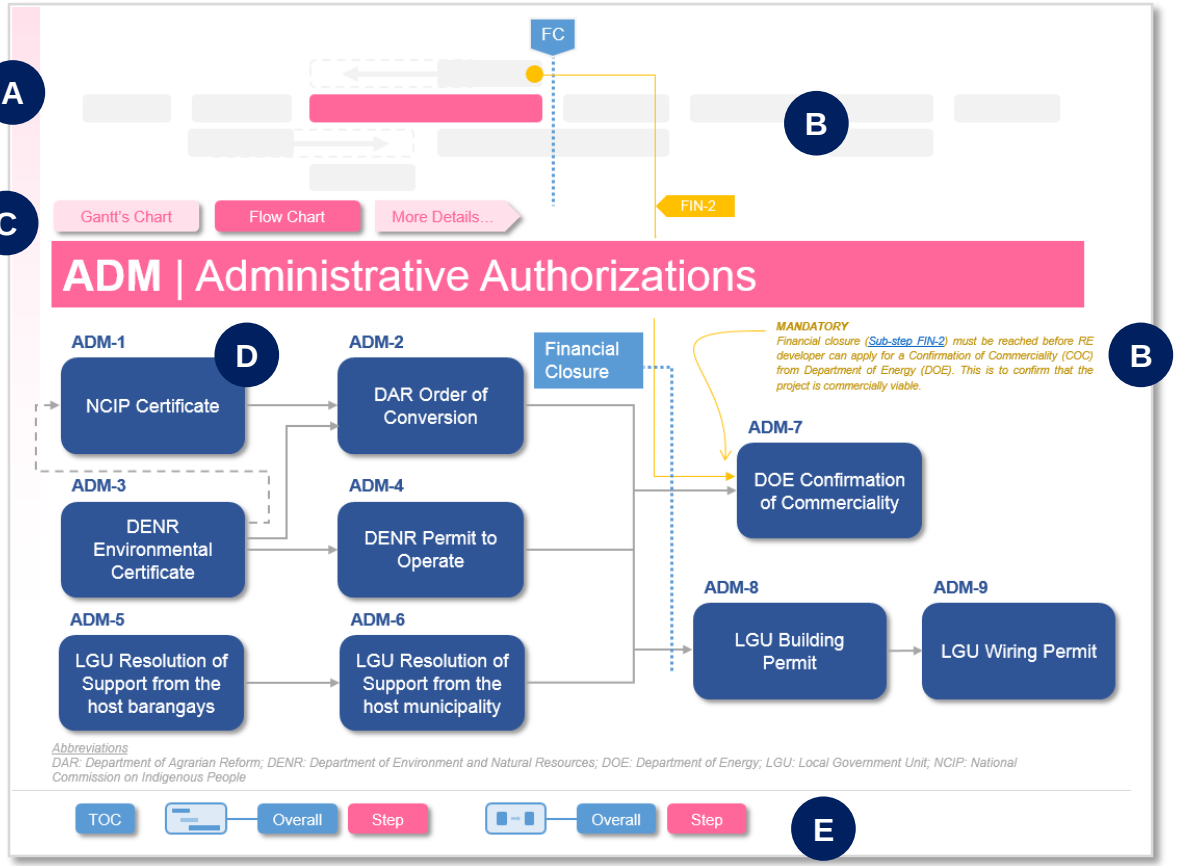
D **Sub-step bar**

Click these bars to jump directly to the respective sub-step

E **Main navigation**

How to use the Guideline?

Page details – Step Flow Chart



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C **Section navigation**

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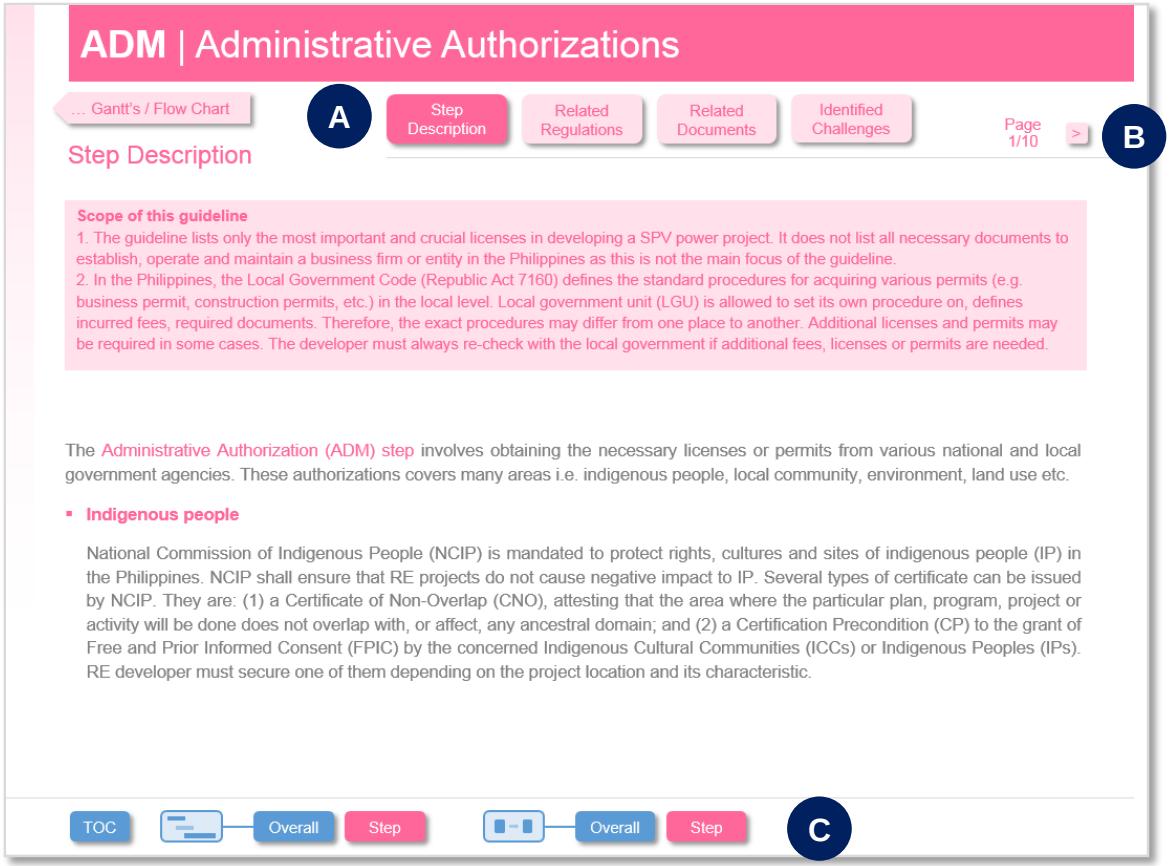
D **Sub-step block**

Click these blocks to jump directly to the respective sub-step

E **Main navigation**

How to use the Guideline?

Page details – Step Flow Chart



A **Section navigation**

Click these navigation buttons to jump directly to the respective sub-section. There are four buttons:
Step description – Click to see explanation of the step
Related regulations – Go to the list of relevant laws / regulations
Related documents – Go to the list of reference documents which are not legal documents (e.g. guidebook, study, etc.)
Identified challenges – Go to the list of challenges associated with this step
The current page is always highlighted in dark

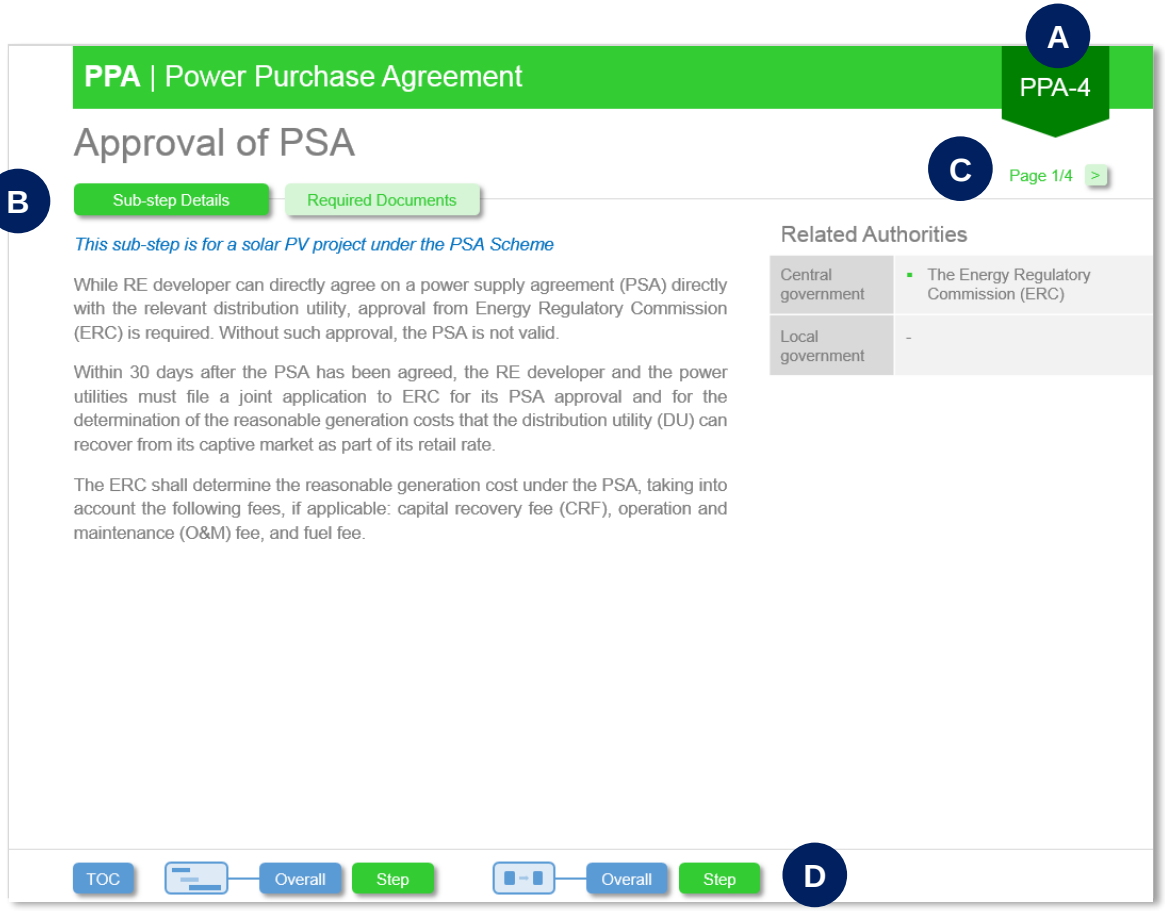
B **Section page**

The current and total page of the section

C **Main navigation**

How to use the Guideline?

Page details – Step Flow Chart



A **Sub-step identifier**

The identifier of sub-step for cross-reference purpose. The number does not represent the flow sequence.

B **Section navigation**

Click these navigation buttons to jump directly to the respective sub-section. In the sub-step level, there is no predefined structure for the sub-section. Each sub-step has a different structure. Nevertheless, typical sub-steps consist of three sub-sections::
Sub-step details – Click to see explanation of the sub-step
Required documents– Go to the list of documents that the RE developer must prepare and submit to authority
Incurred fee – Click to see information regarding regulated fee for each sub-step

C **Section page**

The current and total page of the section

D **Main navigation**

How to use the Guideline?

Main Navigation

Main navigation bar (general)

Normally, three navigation buttons appear at the bottom of each page

Main navigation bar (in step & sub-step level)

On pages in the step or sub-step level, two additional buttons are present.

*In the Financing (**FIN**) Step…*

*In the Corporate Fiscal / Legal (**CFL**) Step*

The colour varies depending on the location of the current page – it represents the colour of the current step.

A **Table of Content (TOC)**

Click to go back to the Table of Contents page

B **Overall Gantt's Chart**

Click to go back to the overall Gantt's Chart

C **Overall Flow Chart**

Click to go back to the overall Flow Chart

D **Step Gantt's Chart**

Click to go back to the respective Gantt's Chart of the step. For example, if the current page is a part of Site Selection (SSL) step, this button will lead to the Gantt's chart of the SSL step.

E **Step Flow Chart**

Click to go back to the respective Flow Chart of the step. For example, if the current page is a part of Site Selection (SSL) step, this button will lead to the Gantt's chart of the SSL step.

Renewable Energy Guidelines on

Small Solar Photovoltaic Project Development in the Philippines

1st Edition, October 2014

german cooperation
DEUTSCHE ZUSAMMENARBEIT

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