FABRIC Asia

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On-site solar regulation and policy framework

Pakistan

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On-site solar regulation and policy framework

PAKISTAN

Who is this for?

Factory owners in the textile and garment industry

In this note on solar regulations and policy frameworks you will learn about:

1. On-site solar system configurations
2. Net-metering scheme
3. Requirements for grid-connected systems
4. Application procedure for grid-connected systems

Value proposition

It is important to get to know the policies and regulations that govern the installation of on-site solar PV in your country **to ensure that your investment in a solar system is the most suitable one for your factory** and **to check that it is also legally permitted.**

Pakistan

This document will provide factory owners with insights into the policy and regulatory framework around implementing on-site solar PV in Pakistan.

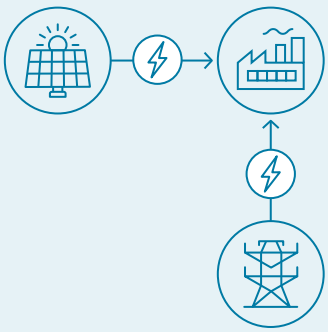
Practical context – drivers of on-site solar PV systems' implementation in Pakistan

The Pakistani government has shown keen support for fostering the use of on-site solar power in the country via the following policy and financial incentives:

- Allowing the export of excess solar generation through the net-metering scheme
- Removing bottlenecks and streamlining the application process for net-metering
- Providing tax incentives and financing schemes for solar PV installations

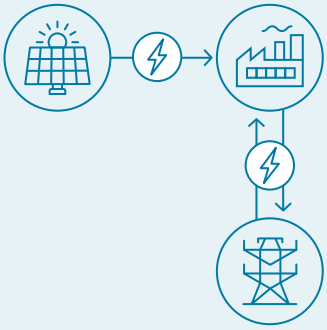
The basics: on-site solar system configurations

Generally, there are two configurations for the installation of on-site solar systems in Pakistan.



1. Behind-the-meter (BTM) for self-consumption

- Typically designed for 100% self-consumption, thus not designed to generate a surplus of power unused by the factory.
- Currently, there is no permit required for the installation and operation of the off-grid on-site solar PV systems.



2. Grid-connected for net-metering

- The on-site system is connected to the grid; the excess power can be exported to the grid via net-metering.
- Compared to the self-consumption/off-grid configuration, specific permits and system technical criteria are required for on-grid systems, as detailed in the next section.

Net-metering for grid-connected systems

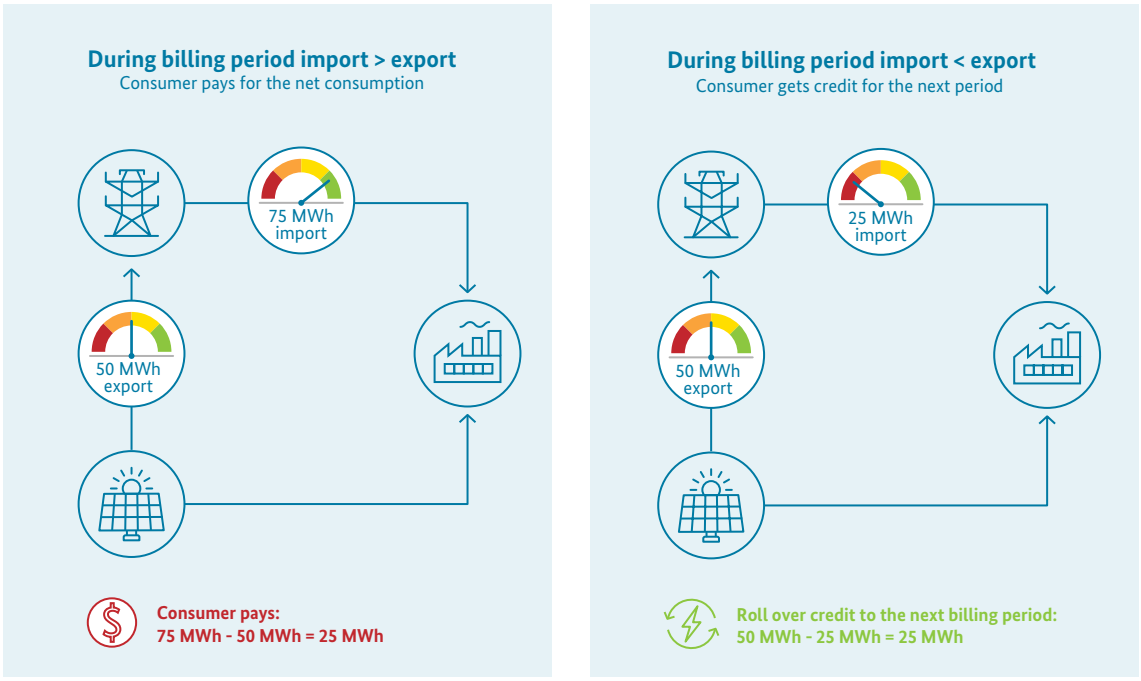
Introduced in 2015 by the National Electric Power Regulatory Authority (NEPRA), the net-metering policy allows residential, commercial and industrial users with on-site solar PV and wind installations under 1 megawatt (MW) of capacity (referred to as "Distributed Generators") to sell excess generated power back to the national grid via the local distribution companies (DISCOs). In this context, the factory is known as the Distributed Generator.

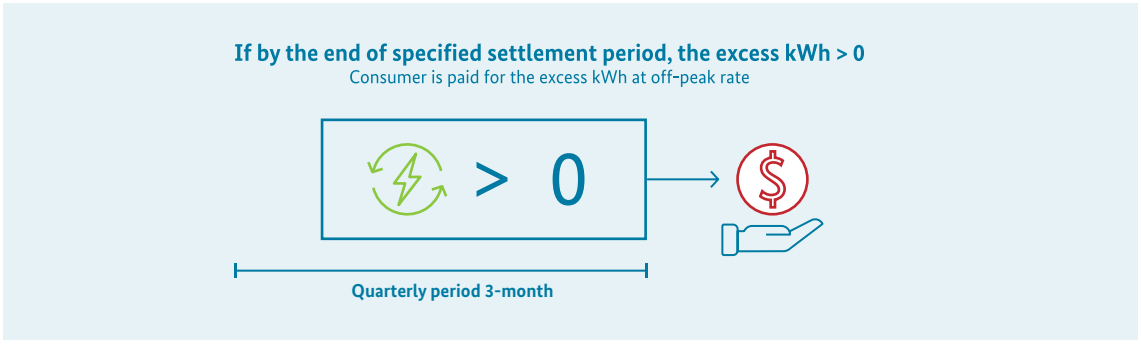
The net-metering connection approval is valid for three years, after which time it can be renewed following the mutual agreement of both the local DISCOs and the Distributed Generators.

The exported power is eligible for the off-peak electricity rate and the costs are settled during each billing period, as illustrated in the infographic below.

Billing for net-metering facility

- If the Distributed Generator (e.g. a factory) uses more electricity from the grid than the power it exports to the grid during a given billing period, it is considered a net-importer and will be charged the balance amount by the DISCOs.
- If the Distributed Generator exports more electricity to the grid than it consumes from the grid during a given billing period, it is considered a net-exporter. The excess kilowatt hour (kWh) credits can be carried forwards to the next billing cycle and used to offset the electricity consumption of the following month.
- The kWh credits are allowed to roll over for a maximum four-month period, after which time any excess credits will be paid by the Distribution Company at an off-peak rate.





Requirements for grid-connected systems

Parameters	Requirements for grid-connected on-site systems

1. Customer's requirements	• All commercial and industrial (C&I) customers with the following connections:
	  • Three Phase 400 volt (V)
	  • Three Phase 11 kilovolt (kV)
	• Rented properties and customers implementing the on-site power purchase agreement (PPA) model are not eligible for net-metering.

2. Project size limitations	Customers can only install 1.5 times the facility's grid-sanctioned load, with a maximum size of 1 MW for C&I users.
3. System requirements	• The Distributed Generator shall be responsible for the costs and installation of the equipment used for interconnection (including, but not limited to, electrical lines or circuits, transformers, switchgear, safety and protective devices, meters or an electrical plant). • The on-site system should be equipped with a manual disconnect device to isolate the solar PV system from the facility.

Application procedure for grid-connected systems

The installation and operation of a grid-connected on-site PV system in Pakistan requires the following permits and application process.

Good practice

Generally, there are eight schedules/documents required for the net-metering application. Additional technical documents may also be required, subject to the local DISCO regulation. **Check the applicable templates for each schedule and the additional documents (if any) with your local DISCO offices.**

A list of DISCOs can be found below:

- Faisalabad Electric Supply Company (FESCO)
- Gujranwala Electric Power Company (GEPCO)
- Hyderabad Electric Supply Company (HESCO)
- Islamabad Electric Supply Company (IESCO)
- K-Electric
- Lahore Electric Supply Company (LESCO
- Multan Electric Power Company (MEPCO)
- Sukkur Electric Power Company (SEPCO)
- Peshawar Electric Power Company (PESCO
- Tribal Electric Supply Company (TESCO)

Step	Required documents	Timeline and process
1. **Applicant submits the net-metering application** to the relevant local DISCO office.	Standard Distributed Generation Application Form for Distribution Company (Schedule-II)	Within five working days of receiving an application, the DISCOs shall acknowledge receipt and inform the applicant whether the application is complete in all respects. In case of any missing information or documents, the applicant shall resubmit the required information to the DISCO office within seven working days of being informed by the office.
2. The **local DISCO office performs an initial review** to determine whether the applicant qualifies for the net-metering interconnection.		The initial review shall be completed within 20 working days. In the event that the initial review reveals that the proposed facility is not technically feasible, the DISCO office shall return the application and communicate the reasons to the applicant within three working days of the completion of the initial review.
3. Upon satisfactory results of the initial review, the DISCO office and the applicant shall **sign the net-metering agreement**	• Distributed Generation Interconnection Agreement between Distributed Generator and Distribution Company (Schedule-I)	Signature of agreement shall take place within 10 working days of the completion of the initial review. A copy of the Interconnection Agreement shall be sent by the DISCO office to NEPRA Authority within seven working days of it being signed.
4. The local **DISCO office issues the Connection Charge Estimate** to the applicant for the proposed interconnection facility to the interconnection point, including the installation of the meter.	Fee Schedule (Schedule-V)	Within seven working days of the Interconnection Agreement being executed.
5. The **applicant makes the payment of Connection Charge** fees to the local DISCO office.	Fee Schedule (Schedule-V)	Within 20 days of the Connection Charge Estimate issuance.
6. The applicant submits the necessary documents to **obtain a Generation Licence Template from NEPRA** via the DISCO office.	• Signed Distributed Generation Interconnection Agreement (Schedule-I) • Application for grant of Licence to NEPRA (Schedule-III) • Application for Exemption from section 24 of the Act (Schedule-IV) • Evidence of Connection Charge Deposit (Schedule-V) • Affidavit (on non-judicial paper) (Schedule-VI) • Generation Licence Template (Schedule-VII)	The DISCO office forwards the Application for grant of Licence (Schedule-III) to NEPRA along with the other required schedules.

Step	Required documents	Timeline and process
7. The **DISCO office installs and commissions** the proposed interconnection facility.		Within 30 days of the receipt of the Connection Charge payment by the applicant. The net-metering arrangement shall commence upon grant of the Generation Licence (Schedule-VII) to the Distributed Generator by NEPRA.

List of acronyms and abbreviations

Abbreviation/Acronym	Description	Abbreviation/Acronym	Description
AC	Alternating current	**MW**	Megawatt
AEDB	Alternative Energy Development Board	**NEPRA**	National Electric Power Regulatory Authority
BTM	Behind the meter	**PPA**	Power purchase agreement
C&I	Commercial and industrial	**PV**	Photovoltaic
DISCO	Distribution company	**RESCO**	RE service company
kWh	Kilowatt hour	**RE**	Renewable energy
kV	Kilovolt	**V**	Volt

To explore more topics related to solar PV in Pakistan, please review the full set of briefing notes.

Topics include:

- ☐ Introduction to commercial and industrial (C&I) RE sourcing
- ☐ 101 Crash Course: How a solar system works
- ☐ Assessing suitability for rooftop solar projects (technical perspective)
- ☐ Assessing the business case for on-site solar (financial perspective)
- ☐ Different investment models for rooftop solar projects
- ☐ Local financing programmes for rooftop solar projects

Image: © GIZ / Sabrina Asche, 2017

ABOUT FABRIC

The project FABRIC (Fostering and Advancing Sustainable Business and Responsible Industrial Practices in the Clothing Industry in Asia) is implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, which works on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ). To successfully shape the desired economic growth in Asia's textile and garment production in a sustainable way, many parties need to be involved. GIZ's FABRIC project brings together people from the Asian industry, public sectors, NGOs and from international buyers, promoting knowledge transfer and cooperation. FABRIC is working in Bangladesh, Cambodia, Myanmar, Pakistan, Viet Nam and together with China to strengthen an industry that offers quality jobs, protects the environment and contributes to economic growth.

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