

SOP - Installation of Solar System at Res, Comm & Amenity Bldgs at DHAG

1. **Purpose**

SOP aims to promote the efficient and equitable use of solar energy systems within DHA while ensuring the safety, aesthetics and overall well-being of all residents.

2. **Scope**

- a. Provide guidelines for the installation, operation and maintenance of a solar energy system within DHA while highlighting its potential to reduce reliance on traditional energy sources, lower electricity bills and contribute to a greener future.
- b. Ensures safe integration of solar technology with existing electric system.
- c. Foster an environmentally conscious community that supports energy independence and sustainability for future generations.

3. **Mission**

Promote sustainable energy solutions and reduce the carbon footprint in DHA by implementing policies and guidelines for installing solar systems within our premises.

4. **Definitions**

- a. **Solar Energy System**. Any equipment or device that converts solar energy into electricity or heat.
- b. **Grid-Tied System**. A solar energy system that is connected to the electric grid.
- c. **Off-Grid System**. A solar energy system that operates independently of electric grid.
- d. **Net-Metering**. A system that allows solar energy system owners to offset their electricity consumption with the excess energy generated by Solar system.

5. **General Provisions**

- a. **Permitted Systems**. All residents are permitted to install solar energy systems on their individual properties, subject to the SOP.
- b. **Compliance with Regulations**. All installations must comply with regulations, including building codes and electrical safety standards.
- c. **Permits and Approvals**. Residents must obtain necessary approvals from Building Control Directorate and MEP Office ex Engineering Directorate before commencing any installation. **Solar System Application Form attached.**

6. **Approval and Documentation**

- a. A detailed proposal along with application form and layout plan with details of installation arrangements be submitted to the Bldg Con Dte for scrutiny and approval.
- b. The proposal should include capacity and sanctioned electric load of the solar system along with brand & specifications of Panels, Invertor, Circuit Breakers, Cables, Girders, Nut bolts, Channels, Earthing & Lightening arresters etc.
- c. **The solar panels must be installed through a certified vendor approved by the Alternate Energy Development Board (AEDB).**
- d. The vendor must provide a certificate regarding wind/ storm velocity and seamless integration of the solar system with existing electric system. Following details be covered: -
 - (1) Standard structure - 100 mph
 - (2) Customized structure - 125-140 mph
 - (3) AC/ DC earthing - Mandatory
 - (4) Lightening arrester - Mandatory
- e. Application will be submitted to Building Control Directorate. Building Control Directorate will forward application & drawings/layout etc to MEP ex Engineering Directorate for technical scrutiny. Staff ex building Control Directorate will visit site and approval will be granted within 15 days.

7. **Capacity of Solar System.** Capacity of solar system and sanctioned electric load of the building/ meter be in lines with rules of NEPRA, DIASCO, GEPCO and DHA Gujranwala. Following is also mandatory to be ensured: -

- a. No permanent structure is allowed for installation of solar system.
- b. Structures must be grounded with roof by stainless steel/steel anchors only.
- c. Concrete footing should be designed and constructed for strengthening the Structural Steel Columns.

8. **Installation Standards**

- a. Mumty and overhead water tank (OHWT) space will not be utilized for installation of solar panels on any Res bldg. However amenity bldgs, JV Projs will be considered for special permission on case to case basis as per site conditions/ neighborhood.
- b. **Solar Panels.** General guidelines are as under: -
 - (1) Tier 1 solar panel of good reputed firms should be used.
 - (2) **Height of Panels.** Keeping in view likely orientational angle required at Gujranwala, height of both installation structures are mentioned below: -

- (a) Low height C Channels close to roof slab, **Min 0-6 inches & Max 3 - 3.5 Feet.**
- (b) High girder frame arrangements, **Min 3 feet & Max 7 feet.**
- (c) Above two arrangements and heights are fix to maintenance a standard & aesthetics.

(3) **Sideways Extensions.** The installations must not extend outside of the roof/plot boundary and **a standard distance of 1.5 feet for 5 Marlas, 2 feet for 10 Marlas and 3 feet for 1 kanal houses be maintained from the parapet.**

(4) **Passage for Maintenance.** All panels should be approachable for maintenance. Open passage left from parapet can be used for maintenance purpose. However, **a passage of min 1.5-2 feet be kept, in between, while designing/installing panels over roof.**

(5) Solar panels must be installed on the rooftop only ensuring no permanent structures are created.

c. **Rooftop Installations**

(1) Solar panels must be securely mounted on rooftops, ensuring structural integrity and safety.

(2) Proper water proofing and grounding of structure must be ensured to avoid seepage or leakage.

d. **Ground-Mounted Systems.** Ground-mounted systems must be installed in designated areas, avoiding common areas or obstructing views.

9. **Neighbor Rights and DHA Bylaws**

a. Solar panel installation should not obstruct the view or sunlight of neighboring properties.

b. The installation must comply with local building codes and safety regulations.

c. The DHAG may charge a fee for the use of common areas for solar panel installation.

d. **Noise and Vibration.** Installations must minimize noise and vibration levels to avoid disturbing neighbors.

10. **Environmental and Aesthetic Considerations**

a. **Aesthetics.** Solar panels should be installed in a manner that maintains the surrounding aesthetic value. Height difference of two systems, with similar installation arrangements, over two neighboring houses be avoided.

b. Cables laying from roof to inverter, meter etc be routed well and properly ducted.

c. The use of environmental friendly materials and methods are encouraged.

- d. Landscaping and greenery should not be compromised due to the installation of solar panels.

11. **Grid-Tied Systems**

- a. **Net Metering**. Resident will abide by Govt Rules/ Regulations and obtain net metering facility from GEPCO.
- b. **Synchronization**. Grid-tied systems must be synchronized with the grid to ensure safe operation.
- c. **Backup Power**. Residents may install battery storage systems for backup power but they must comply with relevant regulations of the GEPCO.

12. **Off-Grid Systems**

- a. **Independence**. Off-grid systems must be designed to operate independently of the grid, with sufficient capacity to meet the needs of the property.
- b. **Backup Generators**. Residents may install backup generators for emergency power, but they must comply with noise and emissions regulations.

13. **Maintenance and Safety**

- a. **Regular Inspections**. Residents must conduct regular inspections of their solar energy systems to ensure proper functioning and safety.
- b. **Maintenance**
 - (1) The solar system must be maintained by the resident or a designated service provider.
 - (2) Any necessary maintenance or repairs must be carried out promptly to avoid safety hazards. Resident will be solely responsible for any hazards to his or any other resident or property of resident. Where required, penalties will be imposed by DHAG.
 - (3) Any repairs or maintenance work must be carried out without causing inconvenience to the neighbors.
- c. **Inspection by DHA**. The DHA has the right to inspect the solar system periodically. Staff ex Building Control & MEP will inspect to check safety & maintenance issues.

14. **Miscellaneous Points**

- a. **Dispute Resolution**. Any disputes arising from the implementation of this SOP shall be resolved through mediation or arbitration by Secy DHAG. ADHA DHAG is sole authority to settle all disputes.
- b. **Insurance**. Residents are encouraged to have appropriate insurance coverage for their solar energy systems.

- c. **Amendments**. The DHA management may revise the SOP from time to time to address changing circumstances or technological advancements.

15. **Conclusion**

- a. These SOP are formulated with a view to facilitate Residents and to ensure well-being and safety. All are expected to adhere to these SOPs in true ltr & spirit.
- b. Any suggestions for improvement, may be referred to **Bldg Con Dte**.



APPLICATION FOR INSTALLATION OF SOLAR SYSTEM

To: Director Building Control
Defence Housing Authority Gujranwala

Respected Sir,

I am owner of House / Villa / Comm Plaza No. _____, Block _____, Sector _____, Phase _____, measuring _____ Marla / Kanal and my residential / commercial building is completed / near completion.

Due to current need of energy requirements, I intend to install solar system of _____KW capacity on my building. I will abide by the SOP / Bylaws of DHA Gujranwala and Instructions issued by GEPCO / NEPRA. All required design / drawings / specifications are enclosed. I take responsibility of any damage, due to breakage of solar items to my or any other property. Any penalties will be paid by me.

It is requested to kindly allow me to install solar system on my aforementioned building.

Thanking in anticipation for Your kind cooperation.

Yours Faithfully,

Signature: _____

Name: _____

Contact No: _____

Date: _____

For Office Use Only

Received by

Ref No: _____

Date: _____

Officers Signature