

## D33 SOLAR PV INITIATIVE

# CONNECTION CONDITIONS FOR CAPTIVE GENERATORS OF ELECTRICITY FOR D33 SOLAR PV INITIATIVE

FOR THE IMPLEMENTATION OF THE DUBAI ECONOMIC AGENDA D33

ATTACHMENT TO APPLICATION FOR CONNECTION OF CAPTIVE GENERATORS OF ELECTRICITY  
FROM SOLAR ENERGY AND SOLAR CONNECTION AGREEMENT FOR D33 SOLAR PV INITIATIVE.

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# 1 GENERAL PROVISIONS

## 1.1 Subject Matter

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These 'Connection Conditions for Captive Generators of Electricity for the D33 Solar PV Initiative' (D33 Solar Connection Conditions) are issued by Dubai Electricity and Water Authority PJSC (DEWA) as part of the implementation of Dubai Economic Agenda D33, and they form an integral part of the Application for Connection of Captive Generators of Electricity from Solar Energy and Solar Connection Agreement for the D33 Solar PV Initiative.

**Note on Off-Grid Systems** - Law No. (27) of 2021 Concerning the Dubai Electricity and Water Authority designates DEWA as the entity exclusively in charge of achieving the objective of implementing and managing projects related to electricity generation. Generation of electricity by third parties using off-grid systems - whether powered by fossil fuels, renewables, hydrogen or any other source – is not permitted in the emirate, with the following exceptions:

- a) Generation by back-up systems during emergency operations.
- b) Exceptional cases (for example, remote areas) for which prior written approval has been obtained from DEWA to utilise an off-grid system for normal operations.

In all cases, the third party shall obtain the design approval from DEWA for the off-grid system.

These D33 Solar Connection Conditions shall come into effect as of publication on the website of Dubai Electricity and Water Authority PJSC.

## 1.2 Reference Documents

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The following documents are available on DEWA website ([www.dewa.gov.ae](http://www.dewa.gov.ae)), and the Producer shall comply with the applicable requirements set forth in such documents:

- DEWA Standards for Distributed Renewable Resources Generators Connected to the Distribution Network (DRRG Standards);
- DEWA Monitoring and Control Requirements for Generators Connected to the Distribution Network under D33 Solar PV Initiative (D33 Solar PV Monitoring and Control Requirements).
- DEWA Connection Guidelines for Distributed Renewable Resources Generators Connected to the Distribution Network.
- (For LV installations) DEWA Regulations for Electrical Installations;
- (For MV installations) DEWA Distribution Substation Guideline; General conditions/requirements for providing direct 11 kV supply; Power Supply Guidelines for Major Projects; Design Requirements & Guidelines for MV (11kV) supply;
- Safety of People for Renewable Resources Generators;
- Safety of Environment for Renewable Resources Generators;
- DEWA Inspection and Testing Guidelines for Distributed Renewable Resources Connected to the Distribution Network;
- Application for Connection of Captive Generators of Electricity from Solar Energy and Solar Connection Agreement for the D33 Solar PV Initiative.

## 1.3 Definitions

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**Authority (DEWA)** – Dubai Electricity and Water Authority PJSC.

**Approved Load** – the maximum power that can be drawn from the Distribution System under one Consumption Account at any point in time, as approved by the Authority for that Consumption Account.

**Connection Point** – the location at which the Renewable Generator is connected to the Distribution System.

**Consumption Account** – any DEWA electricity account for which electricity imported from the Distribution System is measured by a meter dedicated for such purpose.

**Consultants and Contractors** – consultants and contractors included in the ‘List of Electrical & DRRG Solar PV Consultants and Contractors’ published by DEWA on its website, whose personnel have attended DEWA’s Solar PV Training Course.

**D33 Company** – a company to which the Dubai Department of Economy and Tourism (DET), the Dubai Department of Finance (DOF) and DEWA issued a certificate (D33 Company Certificate) stating that the company is eligible for the applicable incentives under the D33 Industry Friendly Power Policy.

**D33 Company Certificate** – a certificate jointly issued by the DET, DOF and DEWA documenting that a company is eligible for D33 incentives, and listing the D33 Sites where the site-specific incentives are applicable.

**D33 Site** – a Plot where a D33 Company is eligible for the D33 Solar PV Initiative, as documented in the D33 Company Certificate.

**Demand Factor** – ratio of Maximum Demand to Approved load, reflecting the diversity of the underlying loads, as approved by DEWA. The Demand factor will be a number equal or less than one.

**Distribution System** – the electrical network at 33kV and below, and its components which are owned and operated by the Authority with the main purpose of delivering electricity to consumers from the Power Transmission System, including but not limited to all associated equipment such as lines and cables, electrical substations, pole-mounted transformers, analogue electrical elements such as resistors, inductors, capacitors, and switches.

**Export Electricity** – electricity that is generated by the Producer and injected into the Distribution System by the Renewable Generator, as measured by the export register of the DEWA tariff meter of the Hosting Account.

**Hosting Account** – the Consumption Account under which a Renewable Generator is connected.

**Maximum Capacity** – the maximum active power that a Renewable Generator can generate at any point in time. This corresponds to the sum of the maximum active power deliverable by the inverters at the AC side of the Renewable Generator.

**Maximum Demand** – the maximum power that can reasonably be expected to be drawn from the Distribution System under one Consumption Account at any point in time as approved by DEWA taking into account the diversity of the underlying loads. It is obtained by multiplying the Approved Load by the applicable Demand Factor.

**Plot** – a portion of land identified by a unique number assigned by Dubai Municipality or by the competent authority in charge of issuing development permits for the area where the land is located.

**Plot Maximum Demand** – the sum of Maximum Demand for the Consumption Accounts held by the Producer within the Plot, excluding any Consumption Accounts not directly related to D33-eligible activities.

**Person** – natural or legal person, whether public or private.

**Producer** – any D33 Company that generates electricity from solar energy under the D33 Solar PV Initiative, as per the terms and conditions set forth by the Authority.

**Renewable Generator** – one or more generating units that generate electricity exclusively from Solar Energy connected under one Consumption Account (Hosting Account).

**Solar Energy** – the radiant light energy emitted by the Sun.

**Transmission System** – the system belonging to the Authority which entirely or mainly comprises the high-voltage (higher than 33 kV) electricity cables, lines and electricity installations and facilities owned and/or operated by the Authority and used to transmit electricity from a power unit to a power substation or other electricity generation unit.

## 2 PROVISIONS RELATED TO CONNECTION OF RENEWABLE GENERATORS AND EXPORT ELECTRICITY INVOICING

### 2.1 Installation of Renewable Generators and Technical Requirements

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The Producer shall:

1. Make sure that only equipment compliant with requirements set forth in the DEWA Standards for Distributed Renewable Resources Generators Connected to the Distribution Network, as well as any other applicable regulation, is installed as part of the Renewable Generator;

**Note:** The information presented on DEWA's website ('Non-Exhaustive list of eligible equipment under DEWA Standards for Distributed Renewable Resources Generators Connected to the Distribution Network') provides an overview of the manufacturers and equipment that meet DEWA technical standards. However, this does not constitute an endorsement or warranty of any kind, whether express, implied or statutory, including but not limited to warranties of title, merchantability, satisfactory quality, fitness for particular purpose, warranty for performance, professional advice, professional financial guidance, and shall not be relied upon as the only source of information for purchasing, contracting, investment decisions or for executing other binding agreements.

2. Rely on DEWA-enrolled Consultants and Contractors for the design, installation and verification of the Renewable Generator.

**Note:** DEWA's website only provides the list of enrolled Consultants and Contractors whose personnel have attended DEWA's Solar PV Training Course and possess the necessary qualifications and skill ('List of Electrical & DRRG Solar PV Consultants and Contractors'). However, DEWA will not be responsible for any professional or boundary advice or other professional technical guidance given by the Consultant and Contractor or for any injuries, damage, loss, substandard designs, construction, building, installation and delays, or for any negative consequences arising from the services delivered by the listed Consultants and Contractors.

3. Comply with the technical requirements set forth by the Authority for the design, installation, and operation (including monitoring and control by DEWA) of the Renewable Generator. The applicable technical requirements are set out in the DEWA Standards for Distributed Renewable Resources Generators Connected to the Distribution Network (DRRG Standards), except for monitoring and control requirements, which are set out in the DEWA Monitoring and Control Requirements for Generators Connected to the Distribution Network under D33 Solar PV Initiative (D33 Solar PV Monitoring and Control Requirements). In case of conflict between requirements set out in the DRRG Standards and in the D33 Monitoring and Control Requirements, the latter shall prevail, unless specifically authorised otherwise by the Authority.

A Renewable Generator should be located entirely on the Plot where the Hosting Account is located. It is understood that a Plot is a portion of land with a homogeneous intended use, and that any design or re-design of Plot boundaries with the sole intent to overcome this limitation is not acceptable. In case of abuse, DEWA reserves the right to process the application relying on the reasonably applicable or original plot boundaries.

Any I-RECs or other renewable energy certificates obtained by the Producer for on-site clean energy generation shall be self-redeemed, without any sale or transfer to third parties.

## 2.2 Limits to capacity and use of Renewable Generators

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1. A Producer who wishes to connect one or more Renewable Generators to the Distribution System shall ensure that the aggregate Maximum Capacity of Renewable Generators connected by the Producer at a particular Plot (including generation capacity from any pre-existing project formerly under DEWA's Shams Dubai initiative, as per below point #2) does not exceed the Plot Maximum Demand.
2. The D33 Solar PV Initiative and the Shams Dubai initiative are alternatives, that is, a Person may not contract with DEWA under both initiatives simultaneously. Therefore:
  - A. If a D33 Company has previously connected one or more Renewable Generators under DEWA's Shams Dubai initiative at a certain Plot it may apply for connection of further solar PV generation capacity under these D33 Connection Conditions at the same Plot but subject to termination of its Shams Dubai contract, which shall be deemed simultaneous with its connection of the said further solar PV generation capacity under these D33 Connection Conditions. For the avoidance of doubt, all such solar PV generation capacity shall then be subject to these D33 Connection Conditions exclusively. Therefore, the net metering mechanism described in section 2.4 of Shams Dubai Connection Conditions (i.e. DEWA DRRG Connection Conditions, or Connection Conditions for Generators of Electricity from Solar Energy) will no longer be applicable, and any existing Surplus Electricity as defined in such section 2.4 will be forfeited.
  - B. For the avoidance of doubt, a D33 Company contracting for connection of a Renewable Generator at a Plot under these D33 Connection Conditions cannot connect any further Renewable Generator under DEWA's Shams Dubai initiative at the same Plot.
3. Electricity produced by a Renewable Generator is for the exclusive use within the Plot by the Producer holding the Hosting Account. The Producer is prohibited from making such electricity available to any third party.

## 2.3 Electricity metering

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A Producer who wishes to connect a Renewable Generator to the Distribution System shall:

- 1) Allow the Authority to install, test, inspect, maintain, connect/disconnect and replace or remove the required metering infrastructure. Safe access should be provided for the Authority to perform such activities;
- 2) Allow the Authority to access data registered by the metering infrastructure, via remote communication with the devices and via on-site readings. Safe access should be provided for the Authority to perform on-site readings;
- 3) Allow the Authority to use the data provided by the metering infrastructure for the purpose of billing, network operation and planning, and statistical reporting.

The metering infrastructure installed by the Authority consists of two electricity meters:

- One bi-directional meter ('tariff meter') measuring the electricity imported from the Distribution System and the electricity exported to the Distribution System for the Consumption Account under which the Renewable Generator is connected (Hosting Account). This meter will be installed by the Authority without any additional cost to the Producer over the normal service charges that the Authority applies to electricity customers.
- One meter measuring the electricity generated by the Renewable Generator ('PV generation check meter'). This meter will be installed by DEWA and charged as part of the one-off connection fees payable by the Producer.

## 2.4 Export Electricity and Invoicing

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1. After successful completion of the Renewable Generator performance tests, Export Electricity will be purchased by DEWA at a flat rate of 10.5 Fils per kWh, excluding VAT, for the period between 1<sup>st</sup> March and 30<sup>th</sup> November. No payment from DEWA is due for Export Electricity before the successful completion of the Renewable Generator performance tests.
2. No payment is due from DEWA for any Export Electricity for the period between 1<sup>st</sup> December to 28<sup>th</sup> February (or 29<sup>th</sup> February for leap years).
3. Offsetting between Export Electricity and electricity provided by DEWA to the Producer under the Hosting Account or other Consumption Accounts held by the Producer at the plot is not applicable.
4. DEWA reserves the right to reduce or prevent electricity feed into DEWA's Distribution System through the control tools specified in the applicable monitoring and control technical requirements or through instructions to the Producer, without any financial compensation to the Producer for the cost implied by DEWA's action, or for the cost of complying with DEWA instructions, or for the reduction in Export Electricity that can be invoiced to DEWA in the following cases:
  - a. For the period between 1<sup>st</sup> December to 28<sup>th</sup> February (or 29<sup>th</sup> February for leap years);
  - b. For the period between 1<sup>st</sup> March and 30<sup>th</sup> November in cases of emergency, electricity grid constraints, ongoing electricity grid maintenance or in order to avoid oversupply and ensure the safe and reliable operation of DEWA's Distribution System and Transmission System.
5. The Producer shall invoice DEWA on a monthly basis for Export Electricity. DEWA will review and pay for the eligible units within 30 days.
6. In the event of the disconnection of the Hosting Account for non-payment, the Authority will stop any import and export of electricity to/from the Hosting Account.
7. In case any utility bill issued by DEWA to the Producer is outstanding beyond the due date, DEWA shall have the right to withhold payment of invoices issued by the Producer for the Export Electricity. In the case of protracted non-payment of said utility bills, DEWA shall have the right, but not the obligation, to offset the invoiced amount against the outstanding bills owed by the Producer, informing the Producer accordingly. This right is without prejudice to DEWA's separate right to insist on and enforce the payment of the utility bills from the Producer and, upon receipt of such payment, to subsequently pay the invoices issued by the Producer for the Exported Electricity. No automatic compensation or offset between DEWA bills and the Producer invoices shall be assumed or enforced unless expressly agreed upon in writing by both parties.



# 3 PROVISIONS RELATED TO RENEWABLE GENERATOR SAFETY, OPERATION, INSPECTION, MAINTENANCE AND DISPOSAL

## 3.1 Safety

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A Producer shall:

1. Avoid any manipulation of the Renewable Generator by any non-qualified Person.
2. Ensure that the Renewable Generator and any associated infrastructure and equipment is installed and maintained in safe working order at all times and in accordance with the specifications and manuals of each piece of equipment;
3. Have an isolation procedure displayed prominently and effectively secured at the main switchboard and keep a copy of the Renewable Generator operations manual in or near the main switchboard at all times;
4. Comply with any directions imparted by the Authority in order to ensure the safe and stable operation of the Renewable Generator and of the Distribution System and of the Transmission System;
5. Comply with the relevant requirements and regulations issued by the Authority for the installation, inspection and operation of Renewable Generators, including the applicable requirements to enable monitoring and control by DEWA.

## 3.2 Operation of Renewable Generators and compensation

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In addition to the specific provisions stated in Section 2.4, Clause 4, the following applies.

1. The Producer shall:
  - a. Comply with any request from the Authority to de-energise the Renewable Generator at the AC isolator switch (or switches) for reasons related to the operation or maintenance of the Distribution System or the Transmission System.
  - b. Comply with the applicable requirements enabling DEWA to monitor and control the Renewable Generator.
  - c. Without prejudice to the penalties stipulated by the Resolution, compensate the Authority for any reasonable direct losses from damage to the Distribution System or the Transmission System.
2. The Producer shall be responsible for protecting, at Producer's sole cost and expense, the Renewable Generator from any condition or disturbance in Authority's Distribution System or Transmission System, including, but not limited to, voltage sags or swells, system faults, outages, loss of a single phase of supply, equipment failures, and lightning or switching surges. For avoidance of doubt, the Authority shall not be liable for any loss of damage of whatsoever nature, including consequential or otherwise suffered by the Producer as a result of the connection or disconnection of the Renewable Generator.

3. The Authority shall not be liable to the Producer for losses of generation output, including those arising from:
  - a. Any request from the Authority to de-energise the Renewable Generator for reasons related to the operation or maintenance of the Distribution System or Transmission System;
  - b. Temporary inability of the Distribution System or Transmission System to accept the surplus of energy generated by the Renewable Generator;
  - c. Tripping off of the Renewable Generator due to Distribution System or Transmission System transient events, Distribution System or Transmission System failure or any event of black-out;
  - d. Remote actions of the Authority altering the operation of the Generator, including those related to limiting the active power or changing the reactive power contribution based on temporary requirements of the Distribution System or Transmission System, or disconnecting the Generator if there is a risk for the safe and secure operation of the Distribution System or Transmission System.

### 3.3 Inspection, maintenance and disposal

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The Producer shall:

1. Ensure that inspection and maintenance of all components of the Renewable Generator are performed in accordance with the manufacturer's recommendations and with the requirements set forth in DRRG Inspection and Testing Guidelines;
2. For components for which no specific recommendations are indicated by the manufacturer, ensure that regular inspection and condition-based maintenance are performed;
3. Ensure that routine general maintenance of the generator is conducted as appropriate for the site condition, and in any case at least once a year. This should include cleaning of the panels, ground maintenance, pest control and vegetation management.

The Producer shall also:

4. Ensure that all critical maintenance activities (including all repairs and equipment replacements) are performed only by a DEWA-enrolled Electrical and DRRG Solar PV Contractor;
5. Ensure that any component of the Renewable Generator replaced during maintenance is compliant with the Authority's applicable standards and regulations, and request the Authority's approval before replacing any inverter or solar panel with a model/make different from the one stated in the originally approved design;
6. Have a valid maintenance contract in place with a DEWA-enrolled Electrical and DRRG Solar PV Contractor for performing, at least once every twelve months, the following activities:
  - a. Inspection of PV System and supporting structure, including:
    - i. Visual check of PV panels condition, with detection of damages or impaired ventilation, due to obstructing objects, dirt or any other causes;
    - ii. Check that the mounting structure is firmly secured; tightening of bolts and fixing systems; detection of rusting or any other damage;
    - iii. Visual check and tightening of the string cables, combiner boxes and switchgears

- b. Inverter/Combiner Box inspection and preventive maintenance according to the manufacturer's operation and maintenance requirements, including:
  - i. Visual inspection of inverter box, seals and electrical connections;
  - ii. Inspection and replacement where necessary of the inverter's air filters;
  - iii. Inverter electrical performance testing;
  - iv. Any other action recommended by the manufacturer in the Inverter's O&M Manual;
- c. PV electrical system testing and servicing, including:
  - i. String level voltage and current testing
  - ii. Inspection operation of switches, disconnectors and circuit breakers
  - iii. Verification of fuses
  - iv. Insulation resistance measurements
  - v. Verification of PV systems performances to detect possible failures
- d. Functional checks of all protections and safety installations
- e. Compile, after each inspection, a maintenance report recording all findings (documented by pictures when relevant), any actions taken and any recommendation for further actions.

It is responsibility of the Producer to ensure that the obligations under such contract are timely honoured by the DEWA-enrolled Electrical and DRRG Solar PV Contractor. Inspection is mandatory at least every twelve months. Nevertheless, inspection every six months is recommended.

The Producer shall also:

- 7) Provide within five working days, upon request of the Authority:
  - a. The inspection reports resulting from any inspections carried out in accordance with the requirements of the Authority.
  - b. Proof of a valid maintenance and service contract with a DEWA-enrolled Electrical and DRRG Solar PV Contractor.
- 8) Grant safe access to the Authority in order to inspect the Renewable Generator at discretion of the Authority with prior notification of one working day, except in cases of emergency, where the Authority shall inspect without prior notice.

Finally, the Producer shall:

- 9) Ensure that disposal of solar PV panels and other equipment complies with the applicable waste management legislation and regulations.