



ELECTRICAL DISTRICT NO. 4 DISTRIBUTED GENERATION PROGRAM

CUSTOMER GUIDE

Introduction

Improvements in solar photovoltaic ("PV") and other power generation technologies are making customer-owned distributed generation ("DG") more cost-effective than ever before. In recognition of interest expressed by our customers in installing various types of distribution generation facilities as well as the benefits that distributed generation provides to the utility, the ELECTRICAL DISTRICT NUMBER FOUR (ED4) of PINAL County has established the ED4 Customer-Owned Distributed Generation Program (the "DG Program").

The DG Program allows customers to install their own DG Systems, interconnected with ED4's distribution system, to support environmental sustainability and to offset the cost of their purchased power. At this time, ED4 will only accept applications for DG Systems of ten kilowatts (10 kW AC) or less for residential accounts and thirty kilowatts (30 kW AC) or less for commercial accounts. The Solar DG system size shall not exceed 125% of the customer's peak load.

DG Systems must meet certain requirements, including appropriate integral voltage conversion, synchronization, power quality, and protection circuitry, to be approved for interconnection with the ED4 distribution system. You must work with your contractor to ensure that your DG System is installed in a proper and safe manner, and in accordance with all applicable codes, standards, regulations, and insurance requirements. You will also need to coordinate the installation and approval of your DG System with your local building code and inspection authority.

Investment Incentive

ED4 is not offering an investment incentive at this time in order to keep our power costs as low as possible.

Metering and Excess Generation Policy

The ED4 DG Program provides customers with a method of compensation for excess energy generated by the DG System (See: ED4 Solar Rider).

The customer's energy usage is netted against the DG System's output each month. If the energy generated by the DG System exceeds the customer's usage, a kWh credit will be applied against the remaining bill and if a credit remains, it will be carried forward for application to subsequent months. If the customer's energy usage exceeds the energy generated by the DG system, the net amount is billed to the customer at the applicable rate, after application of any accumulated excess generation credit. Any excess generation credit that remains at the end of any fiscal year, or upon disconnection of the DG System, will be paid at ED4's avoided cost of energy.

Application

ED4 has created this packet to guide you through the process of installing your DG System and interconnecting it to ED4's distribution system. Remember that this process is applicable to DG Systems of ten kilowatts (10 kW AC) or less at a residence, or thirty kilowatts (30 kW AC) or less at a business.

If you do not intend to interconnect your DG System with ED4's distribution system, all you need to do is give us a call and let us know the electrical capacity and manufacturer of your DG System and the name of your electrical installer.

We may ask you to send us a copy of your manufacturer information and installation plans. There is no application required, but you may use the ED4 "Application for Operation of Customer-Owned Solar Photovoltaic Distributed Generation Facility" form to provide information to us. The DG System must be completely isolated from ED4's distribution system at all times.

The application packet for DG Systems that are intended to be interconnected with ED4's distribution system includes the following:

Application Form

If you are planning to interconnect your DG System with ED4's distribution system you must complete the ED4 "**Application for Operation of Customer-Owned Solar Distributed Generation Facility**" and submit it to us. It is necessary that ED4 review your plans to ensure that ED4 personnel safety and ED4 electric system reliability will not be compromised. Once we receive your application, we will review your proposed DG system and installation plans. As part of our review we may request additional information regarding your planned installation, and may require that special steps be taken during the installation process.

In the application review process we will examine the ability of the ED4 electric distribution system to accept your DG system. On certain parts of our system, we might need to replace existing equipment or add new equipment in order to accommodate your DG System. In such circumstances ED4 would incur costs beyond what is normally required to operate and maintain its system for the benefit of all customers. Therefore, to be fair to other customers, you might be required to pay for any system upgrades needed to support the addition of your DG System. If this is the case for your installation, we will advise you of the additional cost, and request that you approve and sign a **System Upgrade Estimate** before we approve your application.

Interconnection Agreement

Your application must also include a signed ED4 "**Agreement for Interconnection of Customer-Owned Distributed Generation Facility**". This agreement commits you to operate and maintain your DG System in a safe and proper manner and provides ED4 certain rights with respect to access to your DG System, suspension of the interconnection, and other matters.

ED4 Solar Rider

This document explains options for receiving compensation for the power produced by your DG System, and the requirements for receiving the benefits of this policy, which include the obligation to pay ED4 for any costs it incurs to interconnect your DG System to ED4's distribution system.

Interconnection Requirements

Any DG System that will be interconnected with ED4's distribution system must meet certain technical requirements. These requirements include:

- (a) All equipment should be UL approved (when available)
- (b) System design for interconnection must meet the applicable standards set forth in IEEE 1547, "Standard for Interconnecting Distributed Resources with Electric Power Systems"
- (c) System design and installation must meet the applicable provisions of the National Electrical Code (NEC) and National Electric Safety Code (NESC)
- (d) System design, installation and operations must meet all applicable requirements of ED4's Rules and Regulations.



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APPLICATION FOR OPERATION OF A CUSTOMER-OWNED DISTRIBUTED GENERATION FACILITY

This application should be completed as early as possible and returned to Ron Wilhite, Electrical Superintendent at Electrical District Number Four (ED4) in order to begin the review process. **SEE: ED4 Distributed Generation Program- "Customer Guide"** for additional information. *The information provided on this application form will be used by ED4 to determine the required equipment configuration for interconnecting the Distributed Generation (DG) System to ED4's distribution system and for estimating the costs of interconnection to be paid by the customer. In order to expedite the review process every effort should be made to provide as much information as possible.*

PART 1 - PROJECT INFORMATION

OWNER/APPLICANT

Customer: _____

Mailing Address: _____

City: County: State: Zip Code: _____

Phone Number: Representative: _____

_____ Account Number: _____ Meter Number: _____

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LEASING COMPANY

Company: _____

Mailing Address: _____

City: County: State: Zip Code: _____

Phone Number: Representative: _____

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ENGINEER (or ARCHITECT)

Company: _____

Mailing Address: _____

City: County: State: Zip Code: _____

Phone Number: Representative: _____

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ELECTRICAL CONTRACTOR

Company: _____

Mailing Address: _____

AGREEMENT FOR INTERCONNECTION OF SOLAR PHOTOVOLTAIC DISTRIBUTED GENERATION

**ELECTRICAL DISTRICT NO. FOUR
P.O. BOX 605
ELOY, AZ 85131**

This Interconnection Agreement ("Agreement") is made and entered into this ____ day of _____, 20____, by Electrical District No. 4 of Pinal County, Arizona, ("ED4"), a political subdivision of the State of Arizona, an electrical district organized under Chapter 12 of Title 48 of the Arizona Revised Statutes, and

(Customer/Leasing Company Name)

a Solar Photovoltaic Distributed Generation Owner / Operator ("DG Owner / Operator"), each hereinafter sometimes referred to individually as "Party" or both referred to collectively as the "Parties". In consideration of the mutual covenants set forth herein, the Parties agree as follows:

This agreement provides for the safe and orderly operation of the electrical facilities interconnecting the DG Owner / Operator's facility at service location stated below and the electrical distribution facility owned by ED4.

Service Location: _____

Type of Service: Residential OR Commercial (circle one)

This Agreement does not supersede any requirements of any by-laws, applicable tariffs, rates, rules and regulations in place between the DG Owner / Operator and ED4.

1. **Intent of Parties:** It is the intent of (the DG Owner / Operator) to interconnect a solar photovoltaic electric power generator to ED4's electrical distribution system in order to offset electric power supplied by ED4.

It is the intent of ED4 to operate the ED4 distribution system to maintain a high level of service to their customers and to maintain a high level of power quality.

It is the intent of both parties to operate the DG facilities in a way that ensures the safety of the public and the ED4 employees.

2. **Operating authority:** The DG Owner / Operator is responsible for understanding operating procedures and standards for the solar photovoltaic system. The DG Owner/ Operator is responsible for operating and maintaining the generator facility in accordance with all applicable safety and electrical codes, applicable laws, and ED4 operational standards.

ED4 shall ensure that the DG Owner / Operator is aware of the provisions of any applicable ED4 operating procedures and regulations relating to the safe operation of the ED4 electrical power system.

The operating authority for the DG Owner/Operator is:

Name: _____

Mailing Address: _____

Phone Number: _____

3. **Suspension of Interconnection:** It is intended that the interconnection should not compromise ED4's protection or operational requirements. The operation of the DG Owner/Operator's System and the quality of electric energy supplied by DG Owner/Operator shall meet the standards as specified by ED4. If the operation of the DG Owner/Operator's system or quality of electric energy supplied (in the case of power export) does not meet the standards as specified, then ED4 will notify DG Owner/Operator to take reasonable and expedient corrective action. ED4 shall have the right to disconnect the DG Owner/Operator's System, until compliance is reasonably demonstrated. Notwithstanding, ED4 may in its sole discretion disconnect the DG Owner/Operator's generating plant from the Distribution Facility without notice if the operation of the Generating Plant imposes a threat, in the District's sole judgment, to life or property.
4. **Maintenance Outages:** Maintenance outages will occasionally be required on ED4's system, and the District will provide as much notice and planning as practical to minimize downtime. It is noted that in some emergency cases such notice may not be practical. Compensation will not be made for unavailability of ED4's facilities due to outages.
5. **Access:** Access is required at all times by ED4 to the DG Owner/Operator's plant site for maintenance, operating and meter reading. ED4 reserves the right, but not the obligation, to inspect the DG Owner/Operator's facilities.
6. **Liability and Indemnification:** DG Owner/Operator shall assume all liability for and shall indemnify ED4 for any claims, losses, costs, and expenses of any kind or character to the extent that they result from DG Owner/Operator's negligence or other wrongful conduct in connection with the design, construction or operation of DG Owner/Operator's facility.
7. **Term:** This document is intended to be valid for the period of time that the DG Owner/Operator's system is connected to ED4's distribution system. It may be canceled by either party with not less than 30 days notice to the other party. The DG Owner/Operator's system will be disconnected from ED4's system if the contract is canceled.

AGREED TO BY

DG OWNER / OPERATOR:

ELECTRICAL DISTRICT NO. 4:

Name: _____

Name: _____

Address: _____

Address: _____

Date: _____

Date: _____

RESIDENTIAL/ COMMERCIAL SOLAR BUYBACK SERVICE RIDER

ELECTRICAL DISTRICT NO. FOUR
P.O. BOX 605
ELOY, AZ 85131

Effective: October 23, 2012

Applicability

Applicable to solar distributed generation ("Solar DG") systems with an AC electrical peak capability of ten kilowatts (10 kW) or less for residential service and thirty kilowatts (30 kW) or less for commercial service. The Solar DG system size shall not exceed 125% of the customer's peak load. Limited to customers served by ED4, who purchase power and energy provided by ED4, and whose solar generation systems are qualified to deliver power and energy back to ED4.

Conditions

1. The customer is required to provide a meter socket for any additional meters required due to the Solar DG. Typically, a meter is required for incoming service from ED4, and a meter is required for generated power from the Solar DG. At the discretion of ED4, if a single bi-directional meter is available that can record load and generation separately; a single meter may be used.
2. An "Application for Operation of Customer-Owned Solar Generation" with the customer shall be required for service under this rider.
3. The customer shall pay ED4 for interconnection costs prior to commencement of service under this rider. Interconnection costs may include but are not limited to reasonable costs of connection, switching, relaying, metering, safety provisions, engineering studies and administrative costs incurred by ED4 directly related to the installation of the physical facilities necessary to permit interconnected operations. An estimate of these costs will be provided to the customer following their completed "Application for Operation of Customer-Owned Solar Generation".

Billing Method

The customer energy usage (kWh) will be netted with the customer Solar DG kWh each month. If customer usage exceeds generation, the monthly net will be billed according to the applicable retail residential or commercial rate.

If the customer Solar DG exceeds the customer usage, a kWh credit will be applied against the remaining bill and if a credit remains, it will be carried forward to apply to future months.

If the Customer disconnects the Solar DG account, the Excess Generation credit kWh remaining will be paid to the customer at the avoided cost of energy rate in effect at the time¹. ED4 may periodically pay down the Excess Generation credit, if in its sole determination the amount being carried forward has become too large.

¹ ED4 avoided energy costs will be periodically evaluated and the amount paid under this rider will change accordingly. The generation/purchased power cost component included in ED4's retail rates can change based on actual costs incurred by ED4.

RESIDENTIAL/ COMMERCIAL SOLAR BUYBACK SERVICE RIDER

ELECTRICAL DISTRICT NO. FOUR
P.O. BOX 605
ELOY, AZ 85131

Effective: October 23, 2012

Responsibility

Customer understands and agrees that it is solely responsible for, and bears any and all liability for, the payment of all costs associated with the purchase and installation of the PV System. Customer agrees that any failure of the PV System shall be the responsibility of Customer and/or the installer and not the responsibility of ED4. Additionally, ED4 is not responsible for ensuring that the design, engineering, or construction of the PV System is proper or complies with any particular laws, regulations, codes, licensing, certification and permit requirements or industry standards. ***ED4 provides no warranty of any kind, whether express or implied, with respect to the PV System and/or its installation, manufacture, or reliability, nor does ED4 warrant or guarantee the amount of energy or energy savings that may be produced by the PV System.***

Rules and Regulations

Service under this schedule is in accordance with the terms of ED4's Rules and Regulations, including any amendments. Prior to receiving service under this rider, the customer will be required to sign the ED4 "Agreement for Interconnection of Solar Photovoltaic Distributed Generation".



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CUSTOMER CHECKLIST

Before submitting your application package for Customer-Owned Distributed Generation please be sure you have:

- _____ Signed the **Application** form
- _____ Verified that the **Application** includes all required information
- _____ Included your installer's active **AZROC License Number**
- _____ Included a **Site Map and Site Plan**
- _____ Included a **One-Line Diagram**
- _____ Included **Cut Sheets** for all equipment
- _____ Signed the **Agreement for Interconnection**
- _____ Provided a **copy of your most recent ED4 bill**

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Questions concerning the application process or any of these items should be directed to:

Ron Wilhite, Electrical Superintendent
231 S. Sunshine Blvd.
P. O. Box 605
Eloy, Arizona 85131

Or by Email to:
SolarAdmin@caidd.com

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CRITERIA FOR CUSTOMER SITE INSPECTION

The purpose of this site inspection checklist is to alert the customer to the elements that will be included in the ED4 interconnection field inspection. This is the same checklist that ED4 personnel use in the field.

1	All loads are on the correct side of the dedicated kWh meter (customer owned)	Yes	No
2	ED4 has provided "Caution – Possible Backfeed" label under ED4 meter.	Yes	No
3	ED4 personnel have unobstructed, unrestricted 24-hour access to the Utility Disconnect switch per approved site plan.	Yes	No
4	SES, PV System kWh meter and breakers are all labeled as possible backfeed sources. The labels are Micarta labels.	Yes	No
5	Placed "Electric Shock" warning label and "Utility Disconnect" label on the Utility Disconnect switch or verified that they are present.	Yes	No
6	Utility Disconnect switch is grounded.	Yes	No
7	Utility Disconnect switch is visibly open.	Yes	No
8	Utility Disconnect switch has no fuses (unless it is a supply side tap).	Yes	No
9	Utility Disconnect switch is properly wired.	Yes	No
10	Ground Electric Conductor (GEC) is present.	Yes	No
11	Utility Disconnect is not used as a raceway for wiring to other components.	Yes	No
12	Utility Disconnect switch handle can be locked in the OFF position.	Yes	No
13	Utility Disconnect switch has not been modified to accommodate the ED4 lock.	Yes	No
14	ED4 lock placed on Utility Disconnect switch	Yes	No
15	Dedicated kWh meter turns in the correct direction normally forward rotation.	Yes	No
16	Dedicated kWh meter is grounded.	Yes	No
17	Dedicated kWh meter is not used as a raceway for wiring to other components.	Yes	No
18	Size and UL listing of the inverter are verifiable.	Yes	No
19	Combiner box (if present) has a label affixed that states no loads should be added to the panel.	Yes	No
20	Combiner box (if present) does not have any added loads.	Yes	No
21	Azimuth and tilt angles, and shading, appear to be consistent with information provided in the Application for Operation.	Yes	No
22	Transformer is tagged.	Yes	No
23	System Shutdown Test: Inverters are automatically disconnected from the source in less than one (1) second upon loss/simulated loss of power to inverter.	Yes	No