

Direct Transfer Trip (DTT) Specifications for DER Interconnections

(This document provide requirements for DTT installation only for developer. Please refer to Smart Grid Small Generator Interconnection Procedure (SGIP) for more information.

*Developer shall provide **Page 3** of this document to Verizon to order lease line communication line for DTT)*

The DTT scheme shall be implemented via an RFL GARD 8000 relay over a leased T1 communication line from LIPA substation to Distributed Energy Resource (DER) facility. The DTT scheme and related equipment must be represented on the relay functional one-line diagram and DC schematics. Model/part numbers of all DTT equipment must also be included on drawings.

RFL GARD 8000 Relay

A single RFL GARD 8000 relay must be ordered by the developer to be installed at the DER facility. This will serve as the DTT receiver relay. The developer must order the GARD 8000 relay with logic **CD66045**. The developer is to select one of the three part numbers listed below dependent upon the control power voltage available at the DER facility:

RF-GARD3U-1034 = GARD3UTSDTTD1250MPTP0E000ST0RI000 (125VDC)

RF-GARD3U-1034-1 = GARD3UTSDTTD480MPTP0E000ST0RI000 (48VDC)

RF-GARD3U-1034-2 = GARD3UTSDTTD240MPTP0E000ST0RI000 (24VDC)

PSEG Long Island will specify and procure the appropriate GARD 8000 relay to be installed at the LIPA Substation. This will serve as the DTT transmitter relay. All costs associated with purchasing, engineering and installing DTT equipment at LIPA's substation shall be paid for by the DER owner.

Leased Communication Circuit

The DTT equipment shall be capable of receiving direct transfer trip from the LIPA substation and tripping the interconnection breaker installed at the DER facility. A dedicated leased digital T1 Circuit (Preferably on fiber transport) point to point communication circuit (B8ZS line coding with ESF) and RJ-48C jack with a full (1.544 Mbps, unchannelized) between LIPA substation and DER facility is required. If any part of the T1 circuit is over metallic wires, that part of the circuit must be Type 4 with Class A SPO and no repeaters. This leased line shall be ordered and paid for by DER owner. This communication circuit shall be dedicated for the DTT scheme only

and may not be used as the Supervisory Control Access and Data Acquisition (SCADA) communication circuit.

Design Guidance

1. The DTT receiving equipment shall provide four outputs: two trip outputs, one major alarm output and one communication failure output. One of the trip outputs shall trip the interconnection breaker directly. DTT cannot trip the interconnection breaker through the utility grade protective relay. The DTT equipment shall be mounted indoors or in an environmentally controlled outdoor enclosure.
2. When SCADA is required, the second output of the DTT equipment shall be wired to the RTU to provide DTT trip indication. The major alarm and communication failure outputs shall also be wired to the RTU.
3. The DER interconnection breaker shall not be closed, or remain closed, if the DTT system or associated lease line is out of service.
4. The RFL GARD 8000 relay and all equipment associated with the leased communication circuit must be supplied by at least an 8 hour duty cycle battery/UPS at the DER facility.

Developer/Customer to provide below information to Verizon to order T1 line communication:

Developer of Distributed Energy Resource (DER) has to submit below information to Verizon when ordering a T1 circuit for Direct Transfer Trip (DTT) scheme. T1 Order communication line shall be point to point from DER facility to LIPA Substation

If Developer have a Dedicated Verizon Account Team, they would perform all the ordering– if not – order circuit from Local Verizon Business Office

- Verizon Business Office
 - www.customercare6@verizon.com or 800-698-7431

Ordering T1 service Template for Verizon:

Please provide **Point to Point T1 connection** as follows:

Order: A dedicated leased **digital T1** Circuit (Preferably on fiber transport) point to point communication circuit (B8ZS line coding with ESF) and RJ-48C jack with a full (1.544 Mbps, unchannelized) between LIPA substation and DER facility is required.

If any part of the **T1 circuit is over metallic wires**, that part of the circuit must be **Type 4 with Class A SPO and no repeaters**.

Customer Name (Developer Name):

Address (Developer's address):

Contact Person (Developer's contact name):

Developer to provide **FROM** and **TO** information to Verizon for Point to Point T1 connection.

FROM:

("A" location Name) – *Developer to provide name of DER*

Address - *Developer to provide location of DER*

TO:

("B" location Name) - *Developer to provide LIPA Substation Name*

Address - *Developer to provide location of LIPA Substation.*