

## **Direct Transfer Trip (DTT) Specifications for DER Interconnections**

*(These specifications provide requirements for DTT installation at the DER Developer site only. Refer to the latest revision of the PSEG Long Island's Small Generator Interconnection Technical Requirements for more information, guidance, and details.)*

*Developer shall reference **Page 2 and 3** of this document when ordering lease line communications from Verizon for DER DTT.*

A DER DTT scheme shall be implemented using the RFL GARD 8000 relay with Voltage-Phase Comparison over a leased T1 communication line or a leased Ethernet "Switched E-Line Local" Service from the LIPA substation to the DER facility. The DER DTT scheme and all related auxiliary equipment must be represented on the relay functional/one-line diagram and DC schematics. Make/Model/Part Number of all DER DTT equipment must be depicted on all required interconnect drawings.

### **RFL GARD 8000 Relay with Voltage-Phase Comparison**

A single RFL GARD 8000 relay must be ordered by the DER Developer and be installed at the DER facility. This will serve as the DTT receiver relay. The DER Developer must order the GARD 8000 relay built to RFL drawing **CD67673**. The DER Developer shall select one of the three part numbers listed below dependent on the control voltage available at the DER facility:

|                          |          |
|--------------------------|----------|
| <b>RF-GARD3U1133-125</b> | (125VDC) |
| <b>RF-GARD3U1133-48</b>  | (48VDC)  |
| <b>RF-GARD3U1133-24</b>  | (24VDC)  |

### **RFL EXMUX 3501 MULTIPLEXER**

For Voltage-Phase Comparison DTT applications over leased Ethernet "Switched E-Line Local" service only, an additional RFL multiplexer communication device is required. A single RFL EXMUX 3501 unit must be ordered by the DER Developer built to RFL drawing **CD67849** and installed at the DER facility:

|                           |                   |
|---------------------------|-------------------|
| <b>RF-EX3501N-1037-48</b> | (125VDC or 48VDC) |
| <b>RF-EX3501N-1037-24</b> | (24VDC)           |

*For additional ordering guidance to procure the appropriate RFL EXMUX 3501N for the DER site as required for T1-to-Ethernet handoff, and for RFL technical and field commissioning support, the DER Developer can contact Dave McGuire at Hubbell at [dmcguire@hubbell.com](mailto:dmcguire@hubbell.com).*

PSEG Long Island will specify and procure the appropriate GARD 8000 relay that will serve as the DTT transmitter relay, and EXMUX 3501 if required, to be installed at the LIPA substation.

DER Developer will be responsible to ensure that all Verizon communication equipment is served by an Uninterruptible Power Supply (UPS) with 8 hour battery backup, and coordinate Verizon and RFL field support as required to test and commission the DTT application over the appropriate Verizon dedicated lease line communication service.

**DER Developer/Customer to provide below information to Verizon to order T1 or Ethernet “Switched E-Line Local” communication services:**

If you have a Dedicated Verizon Account Team, please provide below specification– if not – order circuit from Local Verizon Business Office.

- ☐ Verizon Business Office - 800-698-7431

DER Developer also have an option to engaged E78 Partners (The Avail Group), a premier Partner in the Verizon Partner Program, and their subcontractors, for purposes of optimizing the onboarding and ordering of services as outlined in the Process below. Please note this is optional, interconnection customer are not required to engage The Avail Group. If you are interested the order the required circuit from the Avail group please complete, execute the Letter of Authorization form provided on this document and send the documents/ information on project to

- Robert Smith – [rsmith@e78partners.com](mailto:rsmith@e78partners.com), 201-234-8907
- Ryan Patterson [rpatterson@e78partners.com](mailto:rpatterson@e78partners.com), 201-234-8906
- Stephen Casazza - [SCasazza@e78partners.com](mailto:SCasazza@e78partners.com)

Developer of Distribution Energy Resource (DER) must submit the following information to Verizon when ordering leased dedicated communication circuits for the DER Direct Transfer Trip (DTT) protection scheme:

**Customer Name** (Developer Name):

**Address** (Developer Address):

**Contact Person** (Developer Contact Name):

Developer to provide **FROM** and **TO** location information to Verizon for Point-to-Point T1 or Switched E-Line connections (both physical address and GPS coordinates).

**FROM:**

(“A” location Name) – Developer to provide name of DER

Address - Developer to provide location of DER site

**TO:**

(“B” location Name) - Developer to provide LIPA Substation Name

Address - Developer to provide location of LIPA substation.

**Developer shall order T1 service or Switched E-line service based on site availability.**

- **Ordering specification for T1 service from Verizon:**

Provide ***Dedicated Point-to-Point T1 connection*** as follows:

**Order:** A dedicated leased **digital T1** (preferably on fiber transport) point-to-point communication circuit (B8ZS line coding with ESF) and RJ-48C jack with a full (1.544 Mbps, un-channelized) 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**.

- **Ordering specification for “Switched E-Line” service from Verizon:**

Provide ***Dedicated E-Line service connection*** from the DER facility to the applicable LIPA substation.

**Order:** Formally known as Ethernet Switched E-Line Transparent LAN Service - Ethernet Relay Service (TLS - ERS) for equipment requiring RJ-45 handoff. The order should be for a 10Meg Access Port, 5Meg EVC with Real Time Class of Service for the lowest latency between the LIPA substation and the DER site. The following performance objectives should be specified: EVPL-RT is the class of service that will be relevant based on the circuit order; RTD objective of no more than 20ms; Frame Jitter objective is 5ms.

| Performance Attribute     | Parameters                              | Class of Service Offering |            |
|---------------------------|---|---------------------------|------------|
|                           |   | EVPL-RT                   | EVPL-PD    |
| Round-trip Delay (RTD)    | RTD Objective                           | 20 ms                     | 50 ms      |
|                           | Percentile                              | 99%                       | 99%        |
|                           | Directionality                          | Round-trip                | Round-trip |
|                           | Time interval                           | 1 hour                    | 1 hour     |
| Frame Jitter (FJ)         | FJ Objective                            | 5 ms                      | N/A        |
|                           | Percentile                              | 99%                       | N/A        |
|                           | Directionality                          | 2-way                     | N/A        |
|                           | Time interval                           | 1 hour                    | N/A        |
| Data Delivery Ratio (DDR) | DDR Objective                           | 99.5%                     | 99%        |
|                           | Directionality                          | Round-trip                | Round-trip |
|                           | Time interval                           | 1 hour                    | 1 hour     |
| Monthly Performance SLA   | Monthly SLA (% of hours meet objective) | 99%                       | 99%        |



**Sales Authorization and CPNI Consent Form**  
**Verizon Partner Program**  
**For use in Commercial and Public Sector Accounts**

NASP ID:  
(For Verizon internal use)

|   |  |
|---|--|
| <b>Customer Name</b>  |  |
| <b>Customer Address</b>                                     |  |
| <b>Customer Authorized Signor Name</b>                      |  |
| <b>Phone Number</b>   |  |
| <b>Email Address (*Signor, Required)</b>                    |  |
| <b>Customer Signature<br/>(*Customer Authorized Signor)</b> |  |
| <b>Title</b>  |  |
| <b>Effective Date</b>                                       |  |

By signing this form, you hereby authorize

(List name of VPP Member and Subagent, if applicable), a participant in the Verizon Partner Program ("Authorized Representative"), to submit requests and review account information including CPNI as defined below, pertaining to services your company purchases from Verizon. You further authorize Verizon Companies\* to provide such information directly to the Authorized Representative, noting this authorization does not prevent you from acting on your own behalf whenever you deem it necessary.

By signing this form, you agree to serve as the Customer primary contact for purposes of administration of services purchased from Verizon.

☐

By initialing here, you are designating that the following individual is to serve as alternate Customer point of contact. (VPP Member and Subagent may not serve as primary and/or alternate Customer point of contact)

Name:

Email:

Also, in order to better serve your company and offer you additional products and services, Verizon Companies\* may need to share information about you as described below.

To facilitate these offers, you consent to the use and sharing of Customer Proprietary Network Information ("CPNI") and Confidential Information ("CI") within Verizon Companies, and with third parties subject to non-disclosure protection, solely to offer current and future Verizon products and services.

We protect the confidentiality of CPNI, which is information that identifies the quantity, technical configuration, type, destination, location, and amount of use of your subscribed telecommunications and interconnected VoIP services, and related local and toll billing information.

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By initialing here, you represent that you have the authority to consent, and do consent, on behalf of your current and future affiliates who receive services and products from the Verizon Companies, to the use, disclosure, and access to CPNI and CI as above.

You have a right to disapprove of the uses of CPNI and CI as set forth above, and you may withdraw consent at any time by notifying us in writing at [cpni-notices@verizon.com](mailto:cpni-notices@verizon.com). Your consent will remain valid until we receive such a notice withdrawing consent. If you refuse or withdraw consent for use or disclosure of your CPNI and CI, it will not affect our provisioning of services to which you subscribe.

**Verizon Confidential 3-19-21**

\*\*"Verizon Companies" refers to Verizon Business Network Services Inc. on behalf of MCI Communications Services, Inc. d/b/a Verizon Business Services, Cellco Partnership d/b/a Verizon Wireless and their Verizon affiliates.