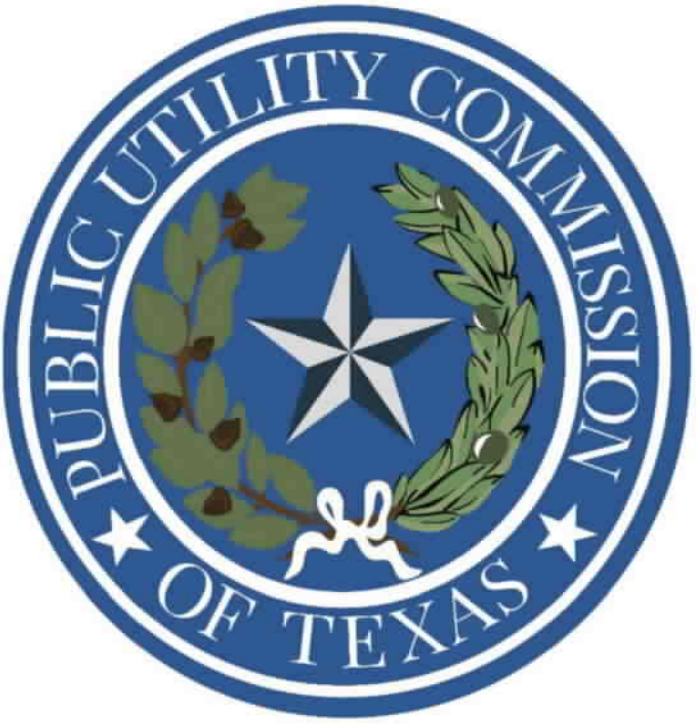


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**PUC PROJECT NO. 54233**

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|---|---|---|
| **TECHNICAL REQUIREMENTS AND INTERCONNECTION PROCESSES FOR DISTRIBUTED ENERGY RESOURCES (DERS)** | § § § | **PUBLIC UTILITY COMMISSION OF TEXAS** |

# CPS ENERGY'S COMMENTS REGARDING JULY 14 WORKSHOP

TO THE HONORABLE PUBLIC UTILITY COMMISSION OF TEXAS:

The City of San Antonio, acting by and through the City Public Service Board (CPS Energy), submits these comments to the Public Utility Commission of Texas (Commission) in response to the workshop of July 14, 2023, and the July 7, 2023 memo from Mariah Benson, Market Analysis Division, in Project No. 54233. CPS Energy separates these comments into two sections: (1) general comments; and (2) comments related to the July 14 workshop. In addition to the comments offered herein, CPS Energy attaches proposed redline changes to the proposed rules.[1]

## I. GENERAL COMMENTS

As noted in its last filing in this project, CPS Energy agrees with Texas Public Power Association's comments that the Commission may adopt minimal standards that distributed energy resources (DERs) interconnected with ERCOT and deploying ancillary services into the wholesale market are obligated to comply with, regardless of whether they are operating within a municipally-owned utility (MOU) or an investor-owned utility (IOU). However, this authority does not allow the Commission to impose regulatory requirements on an MOU nor regulate the relationship, including the interconnection terms or requirements, between an MOU and a DER, including DERs that are wholly behind the meter on an MOU's system and not selling energy services into the wholesale market.[2] Accordingly, Rule 25.212 should set out standards for DERs without imposing requirements on distribution service providers (DSPs), unless such requirements

[1] As it did with its last filing in this docket, CPS Energy's redline essentially accepts all of Staff's proposed changes simply for purposes of comparison and shows redlines only for CPS Energy's proposed revisions to Staff's proposed language.

[2] In its earlier comments in this Project, CPS Energy outlined the applicable statutory provisions that limit the Commission's jurisdiction regarding MOUs and the independent authority granted to cities concerning the regulation of MOU rates, services, and operations. We will not repeat those comments and statutory provisions here but incorporate them by reference as applicable to the discussion regarding revised Rule 25.212. *See CPS Energy's Initial Responsive Comments in Project 54233* (Interchange Filing No. 19); *also CPS Energy's Comments Regarding June 16 and June 30 Workshops* at 1-3 (Interchange Filing No. 65).

are limited to applying to IOUs. Otherwise, requirements imposed on DSPs will improperly infringe upon an MOU's operation of, and jurisdiction over, its own distribution system (and the same would be applicable of electric cooperatives).

## II. COMMENTS RELATED TO JULY 14TH WORKSHOP

The proposed language in Rule 25.212 would prescribe minimum technical and operational requirements for distribution interconnected DERs. By setting minimum standards for DERs, but not limiting a DSP's authority to set more stringent standards, this proposed application appears consistent with the Commission's authority and reasonably designed to address the concerns underlying this project. However, on its face, this rule does not appear to be limited to DERs interconnected with IOUs or otherwise participating in the ERCOT wholesale market. Further, at several points throughout the rule, certain technical requirements apply depending on whether the DER exports energy to the "distribution system," which could imply: (1) the rule is intended to include all distribution system interconnected DERs (including those interconnected to MOU distribution systems) regardless of whether energy is exported to the wholesale market; **or** (2) the export of energy to the distribution system is used as a proxy for energy exported to the wholesale market. The language should be clarified to remove any requirements imposed on a DSP that is not an IOU, or alternatively should be clarified to exclude any DERs that are on an MOU's system that are not participating in ERCOT, to ensure that this rule would not infringe upon an MOU's authority over its own distribution system.

The Commission generally has no authority to establish technical, operational, or process standards for MOU distribution system connected DERs installed behind-the-meter that do not export energy to the distribution system or DERs connected either behind-the-meter or in-front-of-the-meter that may export energy to the distribution system, but not to the ERCOT wholesale market. Accordingly, the proposed rule should be modified to clarify this issue. CPS Energy has proposed language to accomplish this.

Finally, on its face, the rule establishes technical standards applicable to "small" DERs (less than 1 MW) connected to distribution systems and grants ERCOT authority to establish technical protocols applicable to "large" DERs (greater than 1 MW) and registered DERs that may be less than 1 MW. The aggregation of small DERs and/or small and large DERs, which is likely to be common in the future, will require additional technical standards beyond the scope of this rule. This should be specifically clarified in the rule and CPS Energy has proposed language to this effect.

## III. CONCLUSION

In conclusion, CPS Energy recommends that Draft Rule 25.212 be revised as included in the attached redlines.

Respectfully submitted,

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**ATTORNEYS FOR CPS ENERGY**

# Proposed
# Redline Changes

**§25.212. Technical Requirements for Interconnection and Parallel Operation of On-Site Distributed Generation. (REPEAL)**

**§25.212. Minimum Technical and Operational Requirements for Parallel Operation of Interconnected Distributed Energy Resources (DERs).**

(a) **Application.** Except as otherwise provided herein, tThis section prescribes the minimum technical and operational requirements that must be maintained on an ongoing basis for all distributed energy resources (DERs) in Texas interconnected on a DSP's distribution system. Subsection (k) of this section The only part of this section that applies only to (1) DERs located in the Electric Reliability Council of Texas (ERCOT) region thatand have a nameplate capacity of at least one megawatt (MW), or(2) DERs that are registered with ERCOT,, is subsection (k) of this section. or (3) DERs interconnected with the distribution system of If a DSP that is located outside of the ERCOT region and which establishes and maintains technical and operational requirements for DERs with a nameplate capacity of one MW or more that are different from those provided in subsection (c)-(j) of this section, then the only part of this section that applies to the DERs with a nameplate capacity of one MW or more that interconnected to that DSP's distribution system is subsection (k). Individual DERs must comply with this section, and this section does not purport to establish standards to address the aggregation of DERs. Rather, all DERs within the jurisdiction of the Commission are required to individually comply with the requirements of this section. Further, notwithstanding anything else in this section, this sectionrule does not apply to DERs that are interconnected with a municipally-owned utility (MOU) or electric cooperative, but not interconnected with ERCOT or deploying ancillary services into the ERCOT wholesale market.

(b) **Definitions.** The following words and terms when used in this section have the following meanings, unless the context indicates otherwise:

(1) **Interconnection application** – means the form provided in 25.211(q) or 25.210(n) as applicable to the size of the DER.

(2) **Interconnection agreement** – means the form provided in 25.211(p) or 25.210(m) as applicable to the size of the DER.

(3) **Interconnection** – means the physical connection of a DER to a DSP's distribution system in accordance with the requirements of 25.210 or 25.211 as applicable to the size of the DER.

(4) **Protective Function** – will be the same as in 25.210

(5) **DER** – will be the same as in 25.210 and 25.211

(6) **DER provider** – will be the same as in 25.210

(7) **Parallel operation (includes parallel and paralleling)** – will be the same as 25.210 and 25.211

(8) **Point of interconnection (POI)** – will be the same as 25.210 and 25.211

(9) **Certified equipment** – will be the same as 25.210 and 25.211

(10) **Stabilized** – A distribution system is considered stabilized when, following a disturbance, the distribution system returns to normal range of voltage and frequency for a duration of no less than two minutes. A shorter time may be mutually agreed to by the DSP and DER provider.

(11) **Distribution system** – will be the same as 25.210 and 25.211

(c) **New and legacy DERs.**

(1) **New DERs.** A DER is subject to the requirements for new DERs under subsection (c) of this section, unless a DER is a legacy DER under paragraph (2) of this subsection. A new DER must comply with this section, as applicable, other than subsection (d) of this section.

(2) **Legacy DER.** A legacy DER must comply with this section, as applicable, except for subsection (c) of this section. A legacy DER is:

(A) a DER that was interconnected to a DSP on or before January 1, 2024; or

(B) a DER for which an interconnection application was received by the DSP, <u>determined to be complete by the DSP,</u> and was under review prior to January 1, 2024.

(3) **Transition from legacy DER standards to new DER standards.**

(A) Beginning 90 calendar days after the effective date of this section, any equipment or facilities being installed on a legacy DER must comply with the standards required for a new DER under subsection (c) of this section.

(B) A legacy DER must transition to the standards required for a new DER under subsection (c) of this section within 90 calendar days from the occurrence of:

(i) For a DER with a nameplate capacity rating of one MW or greater, the aggregate replacement of 50% or more of the equipment or facilities of that DER;

(ii) A change in the fuel type of any one or more of the generators at the DER;

(iii) The replacement of any inverter or protective relay, whether determined by the DER provider or DSP; or

(iv) An increase in capacity of more than 10% of the previous capacity at the DER.

(d) **Operational standards and performance requirements for new DERs.** A DER, except as provided under paragraph (b)(2) of this section, must comply with the requirements of this subsection on an ongoing basis.

(1) A DER must not cause the primary and secondary circuit voltage to exceed the ranges established in American National Standards Institute (ANSI) C84.1-2011.

(2) A DER must comply with the following power quality requirements.

(A) A DER interconnected at a voltage of one kilovolt (kV) to 35kV must not cause step or ramp changes in the root mean squared (RMS) voltage at the point of interconnection exceeding 3% of nominal and exceeding 3% per second averaged over a period of one second.

(B) A DER interconnected at a voltage less than one kV must not cause step or ramp changes in the RMS voltage exceeding 5% of nominal and exceeding 5% per second averaged over a period of one second.

(C) Flicker must be measured and assessed by methods defined in IEEE 1453-2015 and must be no more than:

| $\mathbf{E_{Pst}}$ | $\mathbf{E_{Plt}}$ |
|---|---|
| 0.35 | 0.25 |

(i) $\mathbf{E_{Pst}}$ is the emission limit for the short-term flicker severity ($P_{st}$). If not specified differently, the $P_{st}$ evaluation time is 600 seconds.

(ii) $\mathbf{E_{Plt}}$ is the emission limit for long-term flicker severity ($P_{lt}$). If not specified differently, the $P_{lt}$ evaluation time is two hours.

(D) The following current distortion limits are exclusive of any harmonics present in the DSP's distribution system without the DER connected. Current distortion must be no more than:

| **Individual odd harmonic order (h)** | ***h<11*** | ***11≤h<17*** | ***17≤h<23*** | ***23≤h<35*** | ***35≤h<50*** | **Total Rated current distortion (TRD)** |
|---|---|---|---|---|---|---|
| **Percent (%)** | 4.0 | 2.0 | 1.5 | 0.6 | 0.3 | 5.0 |

| **Individual even harmonic order** | ***h=2*** | ***h=4*** | ***h=6*** | ***8≤h<50*** |
|---|---|---|---|---|
| **Percent (%)** | 1.0 | 2.0 | 3.0 | Range and limits as defined for odd harmonics |

(3) For short-circuit faults on the distribution system to which a DER is connected, the DER must cease to energize and trip within two seconds unless specified otherwise by the DSP. This requirement is not applicable to faults that cannot be detected by the DSP's protection systems.

(4) A DER must detect and cease to energize and trip all phases to which the DER is connected for any open-phase condition. The DER must cease to energize and trip within two seconds of the open-phase condition.

(5) A DER must detect any unintentional island condition and, within two seconds of the formation of the island, must cease to energize and trip. The DER must not remain connected to or energize a de-energized circuit owned by the DSP. When restoring output after momentary cessation, the restore output settings of the DER must be coordinated with the DSP's reclosing timing.

(6) A DER must not connect and operate in parallel with the distribution system unless it is capable of detecting the system voltage and frequency, and synchronizing with the DSP's distribution system, and the applicable system voltage and frequency are within the ranges specified below:

| Enter Service Criteria | | System |
|---|---|---|
| **Applicable voltage within range** | Minimum | 0.917 per unit (p.u.) |
| | Maximum | 1.05 p.u. |
| **Frequency within range** | Minimum | 59.5 Hz |
| | Maximum | 60.1 Hz |
| **Phase Angle Difference (in kilovolt-amperes (kVA))** | 0-500 kVA | Within 20° |
| | >500-1500 kVA | Within 15° |
| | >1500 kVA | Within 10° |

(7) Each DER must have frequency droop parameters set to a maximum of 5% at 0.017 Hz.

(8) Each DER utilizing synchronous generation must have over-voltage and under-voltage relays set to trip during the following operating conditions:

| Synchronous Must-Trip Settings | Voltage (V) (p.u. of nominal) | Clearing Time (seconds) |
|---|---|---|
| **OV2** | ≥ 1.20 | 0.16 |
| **OV1** | ≥ 1.10 | 2 |
| **UV1** | ≤ 0.70 | 2 |
| **UV2** | ≤ 0.45 | 0.16 |

(9) Each DER utilizing synchronous generation must ride through the following operating conditions:

| Voltage (p.u. of nominal) | Minimum Ride-Through Time (seconds) |
|---|---|
| $0.88 \leq V \leq 1.10$ | continuous |
| $0.70 \leq V < 0.88$ | Linear slope of 4 seconds/1 p.u. voltage starting at 0.7 seconds at 0.7 p.u. |

(10) Each DER utilizing inverter-based generation must have over-voltage and under-voltage relays set to trip during the following operating conditions:

| Inverter Must-Trip Settings | Voltage (p.u. of nominal) | Clearing Time (seconds) |
|---|---|---|
| **OV2** | $\geq 1.20$ | 0.16 |
| **OV1** | $\geq 1.10$ | 13.0 |
| **UV1** | $\leq 0.88$ | 21.0 |
| **UV2** | $\leq 0.50$ | 2.0 |

(11) Each DER utilizing inverter-based generation must ride-through the following operating conditions:

| Voltage (p.u. of nominal) | Ride-Through Mode | Minimum Ride-Through Time (seconds) |
|---|---|---|
| **$1.10 < V \leq 1.20$** | Momentary Cessation | 12 |
| **$0.88 \leq V \leq 1.10$** | Continuous Operation | continuous |
| **$0.70 \leq V < 0.88$** | Mandatory Operation | 20 |
| **$0.50 \leq V < 0.70$** | Mandatory Operation | 10 |
| **$V < 0.50$** | Momentary Cessation | 1 |

(12) Each DER must have under-frequency and over-frequency relays set to trip during the following operating conditions:

| Must-Trip Function | Frequency (Hz) | Clearing Time (seconds) |
|---|---|---|
| **OF2** | 62.0 | 0.16 |
| **OF1** | 61.2 | 300.0 |
| **UF1** | 58.5 | 300.0 |
| **UF2** | 56.5 | 0.2 |

(13) Each DER must ride-through the following operating conditions:

| Frequency (f) (Hz) | Ride-Through Mode | Minimum Ride-through Time (seconds) |
|---|---|---|
| $f > 61.8$ | No ride-through requirements | |
| $61.2 < f \leq 61.8$ | Mandatory Operation | 299 |
| $58.8 \leq f \leq 61.2$ | Continuous Operation | continuous |
| $57.0 \leq f < 58.8$ | Mandatory Operation | 299 |
| $f < 57.0$ | No ride-through requirements | |

(14) Each DER must meet the reactive power requirements below and must have dynamic voltage support enabled.

| Category of DER | Injection capability as percent of nameplate apparent power rating (kVA) | Absorption capability as percent of nameplate apparent power rating (kVA) |
|---|---|---|
| A (non-inverter based) | 44 | 25 |
| B (inverter based) | 44 | 44 |

(15) A DER which parallels with the distribution system for 100 milliseconds or less (high speed closed transition switching), must also have at minimum the following protective devices: an interconnect disconnect device, a generator disconnect device, and an automatic synchronizing check for a DER with stand-alone capability.

(e) **Operational standards and performance requirements for legacy DERs.** A DER that meets the requirements of paragraph (b)(2) of this section must comply with the requirements of this subsection on an ongoing basis until transition to the standards for new DERs listed in subsection (c) of this section is completed in the manner prescribed by paragraph (b)(3) of this section.

(1) **Voltage.** A DER provider must operate its generating equipment in such a manner that the voltage levels on a DSP's distribution system are in the same range as if the generating equipment were not connected to a DSP's distribution system. A DER provider must provide an automatic method of disconnecting the DER from a DSP's distribution system if a sustained voltage deviation in excess of +5.0 % or –10% from nominal voltage persists for more than 30 seconds, or a deviation in excess of +10% or –30% from nominal voltage persists for more than ten cycles. A DER may be reconnected when a DSP's distribution system voltage and frequency return to normal range and the distribution system is stabilized.

(2) **Flicker.** A DER must not cause excessive voltage flicker on a DSP's distribution system. This flicker must not exceed 3.0% voltage dip, in accordance with IEEE 519 as measured at the point of interconnection.

(3) **Frequency**. The operating frequency of a DER must not deviate more than +0.5 Hz or –0.7 Hz from a 60 Hz base. A DER must automatically disconnect from a DSP's distribution system within 15 cycles if this frequency tolerance cannot be maintained. A DER may be reconnected when a DSP's distribution system voltage and frequency return to normal range and the distribution system is stabilized.

(4) **Harmonics.** In accordance with IEEE 519 the total harmonic distortion voltage must not exceed 5.0% of the fundamental 60 Hz frequency nor 3.0% of the fundamental frequency for any individual harmonic when measured at the point of interconnection with a DSP's distribution system.

(5) **Fault and line clearing.** A DER must automatically disconnect from a DSP's distribution system within ten cycles if the voltage on one or more phases falls

below -30% of nominal voltage on a DSP's distribution system. This disconnect timing also ensures that a DER is disconnected from a DSP's distribution system prior to automatic re-close of breakers. A DER may be reconnected when a DSP's distribution system voltage and frequency return to normal range and the distribution system is stabilized. To enhance reliability and safety and with a DSP's approval, a DER provider may have installed a modified relay scheme with delayed tripping or blocking using communications equipment between the DER and the DSP.

(6) **Requirements specific to a DER paralleling for sixty cycles or less (closed transition switching)**. The protective devices required for a DER with nameplate capacity of ten MW or less which operates in parallel with the distribution system for 60 cycles or less is an interconnect disconnect device, a generator disconnect device, an automatic synchronizing check for generators with stand-alone capability, an over-voltage trip, an under-voltage trip, an over-frequency and under-frequency trip, and either a ground over-voltage trip or a ground over-current trip depending on the grounding system, if required by the DSP.

(f) **General interconnection and protection requirements for all DER.**

(1) A DER must meet all applicable national, state, and local construction and safety codes.

(2) A DER must be equipped with protective hardware and software designed to prevent the DER from being connected to a de-energized circuit owned by the DSP.

(3) A DER must be equipped with the necessary protective hardware and software designed to prevent connection or parallel operation of the DER with the DSP's

distribution system unless the DSP's distribution system service voltage and frequency is of normal magnitude.

(4) DER equipment must be certified in the following manner.

(A) Certification of DER equipment occurs when specific generating and protective equipment systems have been tested and certified by the NRTL as complying with applicable portion of UL-1741 and IEEE-1547 standards.

(B) Certified equipment may be installed on a DSP's distribution system in accordance with an approved interconnection control and protection scheme. The design of certified equipment may be reviewed and approved by the DSP.

(C) When the DER is exporting energy to the DSP's distribution system using certified equipment, the protective settings and operations must be those specified by the DSP.

(5) A DER provider is responsible for protecting its DER in such a manner that DSP's distribution system outages, short circuits, or other disturbances including zero sequence currents and ferroresonant over-voltages do not damage the DER. The DER provider's protective equipment must also prevent unnecessary tripping of the DSP's distribution system breakers that would affect the DSP capability of providing reliable service to other customers.

(6) For a DER that has a nameplate capacity greater than two MW, the DSP may require that a communication channel be provided by the DER provider to provide communication between the DSP and the DER.

(7) Circuit breakers or other interrupting devices at the point of interconnection must be capable of interrupting maximum available fault current. A DER that has a nameplate capacity greater than two MW and exporting energy to the DSP's distribution system must have a redundant circuit breaker unless a listed device suitable for the rated application is used or the DSP has a circuit breaker or other interrupting device on the DSP's side of the POI capable of interrupting current to the distribution resource.

(8) A DER provider will have installed a manual disconnect device as part of the DER that has a visual break that is appropriate to the voltage level (a disconnect switch, a draw-out breaker, or fuse block), that is accessible to the DSP's personnel, and capable of being locked in the open position. The DER must follow the ~~DSP's~~ switching, clearance, tagging, and locking procedures~~,~~ that~~which~~ the DSP ~~must~~ has provided to the DER provider.

(g) **Control, protection, and safety equipment requirements for all DERs.** A DSP may require a DER provider to install additional operational or protection devices on a DER exporting energy to the distribution system and may require the DER provider to coordinate operations for such operations with the DSP.

(1) **Single-phase generators connected to a DSP's distribution system.** The necessary control, protection, and safety equipment specific to a single-phase generator that has a nameplate capacity of 50 kilowatts (kW) or less connected to a secondary or primary system includes an interconnect disconnect device, a generator disconnect device, an over-voltage trip, an under-voltage trip, an over-

frequency and under-frequency trip, and a synchronizing check for synchronous and other types of generators with stand-alone capability.

(2) **Three-phase synchronous generators, induction generators, and inverter systems.**

(A) **Three-phase synchronous generators.** DER circuit breakers must be three-phase devices with electronic or electromechanical control. A DER provider is solely responsible for properly synchronizing its DER with a DSP's distribution systems.

(i) The excitation system response ratio must not be less than 0.5. A DER's excitation systems must conform, as near as reasonably achievable, to the field voltage versus time criteria specified in ANSI C50.13-1989 in order to permit adequate field forcing during transient conditions.

(ii) For a DER that has a nameplate capacity greater than two MW the DER provider must maintain, at all times, the automatic voltage regulator (AVR) for each generating unit in service and operable. If the AVR is removed from service for maintenance or repair, the DSP's dispatching office must be notified.

(B) **Three-phase induction generators and inverter systems.** A DER utilizing induction generation may be connected and brought up to synchronous speed (as an induction motor) if the DER provider can demonstrate that the initial voltage drop measured on the distribution system is within the visible flicker stated in subparagraph (c)(2)(C) of this

section for DERs subject to requirements for new DERs and paragraph (d)(2) of this section for DERs subject to the requirements for legacy DERs. If the DER provider cannot demonstrate that the initial voltage drop measured on the distribution system is within the visible flicker requirement, then the DER provider may be required to install hardware or employ other techniques to bring voltage fluctuations to acceptable levels.

(i) Line-commutated inverters do not require synchronizing equipment.

(ii) Self-commutated inverters whether of a DSP interactive type or stand-alone type must be used in parallel with a DSP's distribution system only with synchronizing equipment.

(iii) Direct-current generation must not be operated in parallel with the DSP's distribution system.

(C) **Protective function requirements.** The protective function requirements for three-phase facilities of different sizes and technologies are listed below.

(i) A DER that has a nameplate capacity of ten kW or less must have an interconnect disconnect device, a generator disconnect device, an over-voltage trip, an under-voltage trip, an over-frequency and under-frequency trip, and a manual or automatic synchronizing check (for facilities with stand-alone capability).

(ii) A DER that has a nameplate capacity in excess of ten kW but not more than 500 kW must have an interconnect disconnect device, a generator disconnect device, an over-voltage trip, an under-voltage trip, an over-frequency and under-frequency trip, a manual or

automatic synchronizing check (for facilities with stand-alone capability), either a ground over-voltage trip or a ground over-current trip depending on the grounding system if required by the DSP, and reverse power sensing if the DER is not exporting energy. Communication based telemetry and transfer trip may also be required by the DSP as part of a transfer tripping or blocking protective scheme.

(iii) A DER that has a nameplate capacity of more than 500 kW but not more than 2,000 kW must have an interconnect disconnect device, a generator disconnect device, an over-voltage trip, an under-voltage trip, an over-frequency and under-frequency trip, either a ground over-voltage trip or a ground over-current trip depending on the grounding system if required by the DSP, an automatic synchronizing check (for facilities with stand-alone capability) and reverse power sensing if the DER is not exporting energy. If the DER is exporting energy, the power direction protective function may be used to block or delay the under-frequency trip if the DSP agrees in writing to such use. Communication based telemetry and transfer trip may also be required by the company as part of a transfer tripping or blocking protective scheme.

(iv) A DER that has a nameplate capacity of more than two MW must have an interconnect disconnect device, a generator disconnect device, an over-voltage trip, an under-voltage trip, an over-

frequency and under-frequency trip, either a ground over-voltage trip or a ground over-current trip depending on the grounding system if required by the DSP, an automatic synchronizing check and AVR for facilities with stand-alone capability, and reverse power sensing if the DER is not exporting energy. If the DER is exporting energy, the power direction protective function may be used to block or delay the under-frequency trip if the DSP agrees in writing to such use.

(h) Other **DER requirements**~~**facilities not identified**~~. In addition to the ~~f~~standards ~~for a specific DER are not~~ prescribed under this section, the DSP and DER provider may interconnect a facility using other ~~mutually agreed upon~~ technical standards specified by the DSP.

(i) **Alternative requirements.** Certain specific interconnection sites and conditions may require the installation and use of more sophisticated protective devices and operating schemes than prescribed by this subsection, such as when the DER is exporting energy to the DSP's distribution system.

If the minimum operational and technical requirements described under this section are inappropriate for a specific DER within the Commission's jurisdiction, the DER provider and the DSP may agree to different requirements. A ~~DER provider or DSP may~~ petition may be filed with the commission for a good cause exception to one or more requirements specified under this section after every commercially reasonable effort to resolve a disagreement related to a such a requirement between the DER provider and the DSP has been made. Such a petition to the commission

must indicate the specific operational and technical requirements of this section that are alleged to be inappropriate for the specific DER and include all commercially reasonable efforts made up to the date the petition was filed.

(j) **Maintenance**. A DER provider is responsible for routine maintenance of the DER and for maintaining control, protection, and safety equipment. A DER provider must use good utility practice to maintain each DER and associated interconnection facilities under its ownership or control to reduce the likelihood of adverse impacts on other customers or the distribution system.

(1) A DER provider must maintain records of such maintenance activities, which the DSP may review at reasonable times. For a DER greater than 500 kW, a log of DER operations must be kept. At a minimum, the log must include the date, facility time on, and facility time off, and MW and megavar output. The DSP may~~must~~ review such logs at intervals the DSP deems appropriate.~~least once every 30 calendar days.~~

(2) When a one MW or greater DER is rendered offline for maintenance or repair for greater than 24 hours, the DSP must be notified by the DER provider immediately. The DSP must also be notified by the DER provider prior to return to service through each DSP's designated point of contact.

(k) **Requirements for DERs with a nameplate capacity over one MW or registered with ERCOT**. DERs with a nameplate capacity over one MW must follow the technical and operational requirements established by ERCOT or, as applicable, a DSP outside of the ERCOT region.

(1) ERCOT must establish and maintain rules for technical and operational requirements of DERs over one MW and for DERs registered with ERCOT that are interconnected in the ERCOT region for the purpose of participation in the ERCOT wholesale market.

(2) A DSP outside of the ERCOT ~~region may~~should establish and maintain technical and operational requirements that are ~~different than established in this section but, as applicable, are~~ consistent with the operational requirements established by the DSP's applicable ISO. A DER interconnected outside of the ERCOT power region with a nameplate capacity over one MW is required to comply with this section, unless the interconnecting DSP established different technical and operational requirements. ~~A DSP outside of the ERCOT region that establishes and maintains technical and operational requirements with a nameplate capacity over one MW that are different than in this section, must:~~

~~(i) Make the requirements publicly available on the DSP's website;~~

~~(ii) Provide all interconnected DER providers and DER providers in the process of seeking interconnection a copy of the published DSP's technical and operational requirements; and~~

~~(iii) Must provide all existing interconnected DER providers, at a minimum, six months to come into compliance with the new technical and operational requirements.~~