



Respectively submitted,

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### **CERTIFICATE OF SERVICE**

I hereby certify that a true and correct copy of the foregoing was served by electronic mail, or First Class United States Postal Mail, postage prepaid, on this 2<sup>nd</sup> day of October, 2019, to all counsel of record.

**/s/ Whitney Payne**

**Title 20**

**DEPARTMENT OF  
COMMERCE AND  
INSURANCE**

Division 4240—Public Service Commission  
Chapter 22—Electric Utility Resource  
Planning

**20 CSR 4240-22.055 Distributed Energy Resource Analysis**

*PURPOSE: This rule specifies the minimum standards for the scope and level of detail required for Distributed Energy Resource analysis and reporting. Planning for future Distributed Energy Resources is to be conducted as part of electric utility resource planning, but due to rapidly evolving technology, relative speed of deployment, and site specific characteristics, this regulation requires some targeted analysis that is different from other rules in Chapter 22.*

(1) Definitions. For purposes of this rule:

(A) Congestion means a situation where the desired amount of electricity is unable to flow due to physical limitations;

(B) Distributed Energy Resource (DER) means a resource that can provide all or some of a customer's immediate electricity and power needs and can also be used ~~by the system~~ to either reduce demand, modify the net consumption of electricity used by customers or supply electricity to satisfy the energy, capacity, or ancillary service needs of the distribution grid. The resources, if providing electricity or thermal energy, are connected to the distribution system and close to load. Examples of different types of DERs include, but are not limited to, distributed generation (DG), distributed energy storage, demand response, energy efficiency;

(C) ~~Distributed Generation means any DER which generates or electricity from sources that are near the point of consumption.~~ Distributed Generation means any generation that employs small-scale or modular technologies to produce electricity close to the end users of power and is interconnected to the electric utility's distribution system. Examples of different types of DG include solar photovoltaic, wind, combined heat and power (CHP) and thermal energy.; ~~and~~

(D) ~~Planning horizon means a future time period of at least twenty (20) years' duration over which the costs and benefits of alternative resource plans are evaluated.~~

(2) Distributed Generation ~~and~~ Distributed Energy Storage Database. Electric utilities shall create, and update annually, a database of information on distributed generation and distributed energy storage for purposes of evaluating current penetration and planning for future increases in the levels of distributed generation for distributed energy and distributed energy storage ~~as outlined in subsection (2)(D).~~

(A) Electric utilities will be responsible for maintaining the following information in the database:

1. Existing distributed generation and distributed energy storage presently connected to the utility's grid, including areas of low, medium and high, medium, and low penetration;

2. Information characterizing the location (according to Geographic

Information System coordinates) on the distribution circuits where distributed generation and distributed energy storage are connected;

3. Aggregated capacity of distributed generation and distributed energy storage for each circuit and annual peak load of each circuit;

4. Relevant interconnection standard and standby service requirements, as applicable, that specify distributed generation and distributed energy storage performance capabilities; and

5. Summaries of the utility's DER Adoption Potential Studies performed to comply with section (3) and the DER planning process evaluation under section (4); and

(B) To the extent that the ~~electric~~-utility is not in possession of all of the information required herein, it shall state which information it does not possess, the reason the information is not possessed, and how the electric utility plans to will obtain the information for future filings for planning purposes.

(C) The utility shall separately track the costs associated with creating, maintaining and updating this database, and make these costs available upon request.

(3) DER Adoption Potential. As part of each triennial compliance filing, the utility will conduct a comparative analysis of traditional distribution equipment and DER within its service territory to help fulfill the fundamental planning objective and associated constraints or limitations set out in 420 CSR 4240-22.010. This study must cover no less than a twenty (20)-year planning horizon, and will consider both utility-owned DER and non-utility-owned DER. With respect to all DERs except utility-incentivized DG, utility-incentivized CHP, utility-owned or managed energy storage, and utility-incentivized energy storage, the study requirement can be satisfied by relying upon assessments of market potential developed as part of the utility's load analysis and load forecasting pursuant to 4 CSR 240-22.030, the utility's supply-side resource analysis pursuant to 420 CSR 4240-22.040, the utility's transmission and distribution analysis pursuant to 420 CSR 4240-22.045; and/or the utility's demand-side resource analysis pursuant to 420 CSR 4240- 22.050, provided that references to such analyses are included in the study described herein. The assessment of potential shall evaluate options for utility incorporation of existing and potential DER into the utility's Chapter 22 electric utility resource planning. The utility will include methodologies used to develop the low, medium, and high DER penetration scenarios, including subjective probabilities, the DER adoption rates, geographic deployment assumptions, expected DER load profiles (for both individual and bundled installations), and any other relevant assumptions factored for into the DER penetration scenario discussion.

Information and analysis under this section shall be made available upon request to any party.

(4) Evaluating DERs as part of the Chapter 22 electric utility resource planning. As part of each triennial compliance filing, the utility will include evaluation of and planning for future levels of DERs, and how they will be integrated into the utility's distribution system.

(A) In order to facilitate DER, the evaluation will acknowledge and reference the obligation of utilities to provide cost-based interconnection and standby service to qualifying facilities, as defined in the Public Utility Regulatory Policy Act of 1978.

(B) DERs will be evaluated in 420 CSR 4240-22.045 transmission and distribution analysis. This analysis includes existing and potential utility-owned DERs and non-utility-owned

DERs. The utility ~~will~~shall describe and document:

1. Reliability concerns including areas of congestion that could be improved by DERs;

~~2. Reliability concerns including areas of congestion that could be exacerbated by DERs;~~

~~2.3. Avoided or deferred transmission and distribution costs as defined in 420 CSR 4240-22.045(2) associated with, but not limited to decreased congestion, reduced transmission or distribution network losses, and resulting from the implementation of DERs non-wires alternatives; and~~

~~4. 3. Transmission and distribution costs associated with, but not limited to, additional transmission and distribution equipment upgrade costs attributed to increased congestion or increased transmission or distribution network losses resulting from the implementation of DERs;~~

~~5. Acceleration or modification of planned transmission and distribution improvements and associated costs and benefits due to increased penetration of DERs. This includes information on areas with existing or forecasted abnormal voltage or frequency issues that may benefit from the utilization of advanced inverter technology; and~~

~~3.6. The impact of investment in transmission and distribution system equipment on other utility programs, such as demand response, efficiency programs, etc., in each of the low, medium, and high DER penetration scenarios.~~

(C) Evaluation of future deployment of cost-effective DER is to be based on utility-owned or managed DERs and customer-owned DERs. ~~Cost-benefit analysis of deployment of DER as an alternative to instead of traditional resources will be included.~~

(D) The utility will evaluate the potential for integration of utility and customer-owned DERs to impact grid reliability, to beneficially modify customer energy consumption, and to delay or reduce the size of utility supply-side resources additions.

(E) The evaluation, including 420 CSR 4240-22.030 load analysis and load forecasting, must address no less than a twenty (20)-year planning horizon, on a year-by-year basis to assess annual and cumulative impacts of low, medium, and high DER deployment.

(F) The evaluation must address an estimate of the reduction or increase in transmission and distribution line losses ~~based upon existing and potential utility-owned DER~~. The utility may focus its analysis on particular portions of its transmission and distribution systems based on factors including, but not limited to, the need for location-specific upgrades.

~~(G) When assessing opportunities to reduce transmission and distribution line losses among the resources pursuant to 4 CSR 240-22.045(1)(A), the utility must conduct a detailed line-by-line analysis of the transmission and distribution systems. This assessment will be conducted for existing and potential utility-owned DER, as well as existing non-utility-owned DER.~~

(5) The requirements of 420 CSR 4240-22.055 shall apply to an electric utility effective with the due date of its first Chapter 22 triennial compliance filing occurring at least one year after the effective date of 420 CSR 4240-22.055.