**Title 4—DEPARTMENT OF**

**ECONOMIC DEVELOPMENT**

Division 240—Public Service Commission

Chapter 22—Electric Utility Resource Planning

4 CSR 240-22.055 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. Distributed Energy Resources are to be evaluated as part of the triennial resource planning process, but due to the rapidly evolving technology, relative speed of deployment, and site specific characteristics, this regulation requires some targeted analysis that is different from other portions of 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 Resources (DER) means resources sited close to customers that can provide all or some of their immediate electric and power needs and can also be used by the system to either reduce demand (such as energy efficiency) or provide supply to satisfy the energy, capacity, or ancillary service needs of the distribution grid. The resources, if providing electricity or thermal energy, are small in scale, connected to the distribution system, and close to load. Examples of different types of DER include solar photovoltaic, wind, combined heat and power (CHP) or other types of distributed generation (DG), energy storage, demand response (DR), electric vehicles (EVs), microgrids, and energy efficiency (EE); and

 (C) Planning horizon means a future time period of at least three (3) years’ duration over which the costs and benefits of alternative resource plans are evaluated.

(2) Existing Distribution Customer Owned and Utility Owned Generator & energy storage device database. Utilities shall be responsible for maintaining the following information if the specified DERS are known to the utility:

 (A) Existing generators & energy storage presently connected to the utility’s grid;

(B) Information characterizing the location (according to Geographic Information System (GIS) coordinates) on the distribution circuits where generators & energy storage are connected;

 (C) Aggregate capacity of generators & energy storage for each feeder; and

(D) Relevant interconnection standard requirements that specify generator & energy storage performance.

(3) DER Adoption Potential. As part of each triennial compliance filing, the utility will consider, at a minimum, the potential for cost-effective DER within its service territory to help fulfill the fundamental planning objective set out in 4 CSR 240-22.010. This study must cover no less than a three 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 EVs, 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 forecasting pursuant to 4 CSR 240-22.030, the utility’s supply side analysis pursuant to 4 CSR 240-22.040, and/or the utility’s demand side analysis pursuant to 4 CSR 240-22.050. The assessment of potential shall consider options for utility management of existing DER not currently owned or managed by the utility.

(4) Evaluating DERs as part of the resource planning process. As part of each triennial compliance filing, the utility will include planning for future levels of DERs, and how they will be integrated into the utility’s distribution system, as follows:

 (A) DER will be considered in the transmission and distribution analysis required by 4 CSR 240-22.045. This includes existing and potential utility-owned DER and non-utility-owned DER. The utility will describe and document:

1. Reliability concerns which could include areas of congestion which could be improved by DERs;

2. Avoided transmission and distribution (T&D) costs as defined in 4 CSR 240-22.045(2) associated with decreased congestion; and

3. Acceleration or modification of planned T&D improvements and associated costs.

 (B) Evaluation of future deployment of cost-effective DER is to be based on utility-owned or managed DERs.

 (C) The utility will evaluate the potential for integration of DERs to impact grid reliability, peak demand, and the timing or size of supply-side resources additions.

 (D) The evaluation must cover no less than a three-year planning horizon, on a year by year basis to assess annual and cumulative impacts of DER deployment. The utility is not required to utilize a twenty (20) year planning horizon as required elsewhere in Chapter 22.

(E) The evaluation must cover an estimate of the reduction in transmission network losses on existing and potential utility-owned DER, as well as existing non-utility-owned DER.