

ERO Enterprise Registration Practice Guide:

Distribution Provider “directly connected” Determinations

Version 2: July 5, 2018

Purpose

The purpose of this Practice Guide is provide a reference to be used by Regional Entity (RE) and NERC staff when reviewing registration applications for the Distribution Provider (DP) function that specifically pertain to “directly connected” determinations. The intent of the Practice Guide is to facilitate a consistent application of the DP criteria¹ across the ERO Enterprise (ERO) with emphasis on determining the DP system and load “that is directly connected to the [Bulk Electric System] (BES).”

Background

On March 19, 2015, the Federal Energy Regulatory Commission (FERC) issued an order approving proposed revisions to NERC’s Rules of Procedure (ROP) to implement the Risk Based Registration (RBR) initiative. One of the approved RBR revisions was to the DP criteria. The DP criteria, in ROP Appendix B, Section III., was revised to the following, excluding footnotes:

- III.a.1 Distribution Provider system serving >75 MW of peak Load that is directly connected to the BES; or
- III.a.2 Distribution Provider is the responsible entity that owns, controls, or operates Facilities that are part of any of the following Protection Systems or programs designed, installed, and operated for the protection of the BES:
 - a required Undervoltage Load Shedding (UVLS) program and/or
 - a required Special Protection System or Remedial Action Scheme and/or
 - a required transmission Protection System; or
- III.a.3 Distribution Provider that is responsible for providing services related to Nuclear Plant Interface Requirements (NPIRs) pursuant to an executed agreement; or
- III.a.4 Distribution Provider with field switching personnel identified as performing unique tasks associated with the Transmission Operator’s restoration plan that are outside of their normal tasks.

As applicable here, section III.a.1 of the criteria was changed in two areas. The first area increased the amount of peak load served by the DP system from 25 MW to 75 MW. The second area changed the connection point from peak load that is directly connected to the “Bulk Power System” (BPS) to peak load that is directly connected to the BES.

¹ The DP criteria is located in the NERC Rules of Procedure, Appendix 5B, Statement of Compliance Registry, Section III, @ http://www.nerc.com/FilingsOrders/us/RuleOfProcedureDL/Appendix_5B_RegistrationCriteria_20161031.pdf.

Prior to the RBR revisions, the scope of what was considered the BPS² was broadly interpreted and as a result the use of the term ‘directly connected’ did not usually result in varying applications of the DP criteria. Subsequent to RBR, in combination with the ruling in the South Louisiana Electric Cooperative Association (SLECA) Registration Appeal (Docket No. RC13-4-000)³, has resulted in varying interpretations of the DP criteria across the ERO.

Distribution Provider Reference

The definition of the DP function as stated in the ROP⁴ is the following:

Provides and operates the “wires” between the transmission system and the end-use customer. For those end-use customers who are served at transmission voltages, the Transmission Owner also serves as the Distribution Provider. Thus the Distribution Provider is not defined by a specific voltage, but rather as performing the distribution function at any voltage.

As explained further below, the DP criteria applicable here involves evaluating whether a system serving >75 MW of peak Load is directly connected to the BES. The point where the system transitions from a transmission to distribution function is the start of the distribution system or “the wires between the transmission system and the end-use customer”. This transition occurs where non-BES elements such as radial transmission lines, local networks and step-down transformers connect to the BES. These non-BES elements are distribution system elements that are “directly connected” to the BES. Therefore, for registration purposes, the owners of these non-BES elements are candidates for DP registration due to ownership of a distribution system that is directly connected to the BES. Only the entity that owns the non-BES elements that are directly connected to the BES will be considered for DP registration. An entity that owns distribution facilities that are connected to a non-BES element would not be a candidate for DP registration because their distribution system is connected to the non-BES and not directly connected to the BES⁵.

Furthermore, as stated above, the DP criteria requires the distribution system serve greater than 75MW. Distribution system load will be aggregated at each BES transition point. When determining the load fed from each BES transition point, the DP system should be in its normal state with switching devices, such as normally open tie switches, in their expected positions under typical peak load conditions. For registration purposes, each distribution system will be evaluated on the basis of the loading at each BES transition point. Distribution system load will not be aggregated at more than one BES transition point for

² From the NERC Glossary of Terms @ http://www.nerc.com/pa/Stand/Glossary%20of%20Terms/Glossary_of_Terms.pdf;

Bulk-Power System: (A) facilities and control systems necessary for operating an interconnected electric energy transmission network (or any portion thereof); and (B) electric energy from generation facilities needed to maintain transmission system reliability. The term does not include facilities used in the local distribution of electric energy. (Note that the terms “Bulk-Power System” or “Bulk Power System” shall have the same meaning.)

³ Available at <https://www.ferc.gov/whats-new/comm-meet/2013/071813/E-9.pdf>

⁴ The DP definition is located in the NERC Rules of Procedure, Appendix 5B, Statement of Compliance Registry, Section II, @ http://www.nerc.com/FilingsOrders/us/RuleOfProcedureDL/Appendix_5B_RegistrationCriteria_20161031.pdf.

⁵ This is consistent with FERC’s determination in *South Louisiana Electric Cooperative Association*, 144 FERC ¶ 61,050, *reh’g denied*, 145 FERC ¶ 61,232, P 34 (2013) (stating, “If, as the Commission determined, the facilities within the Landry substation into which SLECA’s facilities connect are radial, the “directly connected” registry criterion is not satisfied.”)

systems with a single point of connection to the BES. If the system being evaluated has more than one connection to the BES, such as a local network, or other networked configurations, then the total load served by the network is considered.

Directly Connected Determination

The following steps are used to make the determination of which entities are candidates for DP registration based on Section III.a.1 of the DP criteria:

- 1) Identify the BES to non-BES connection points
 - a. This occurs at locations where there are electrical connections between BES Elements and non-BES Elements.⁶

- 2) If there is a radial system that meets BES Exclusion E1 at the BES transition point, then the radial system and all of the load supplied by the radial system is considered directly connected to the BES.
 - a. Radial systems have a single point of connection to the BES.
 - b. The total peak load served by the radial system is aggregated, including load served by downstream transformers. If the total peak load is greater than 75MW, the owner and operator of the radial facilities at the BES connection point is a candidate for DP registration.

- 3) If there is a network at the BES transition point, including local networks that meet BES Exclusion E3 or other networked configurations, then the network and all of the load served by the network is considered directly connected to the BES.
 - a. Networks have multiple points of connection to the BES.
 - b. The total peak load served from each point of connection to the BES is aggregated, including load served by downstream transformers. If the total peak load is greater than 75MW, the owner and operator of the network at the BES connection points is a candidate for DP registration.

⁶ Non-BES elements that connect to the BES include transmission lines or transformers that do not have the primary terminal and at least one secondary terminal operated at greater than 100kV (per BES Inclusion I1).

Attachments: Single Line Diagrams of Directly Connected Configurations

- Figure 1 – Radial System
- Figure 2 – Two Radial Systems
- Figure 3 – Local Network
- Figure 4 – Networked Configuration
- Figure 5 – Local Network with Embedded UFLS-Only System

Key to diagram color coding:

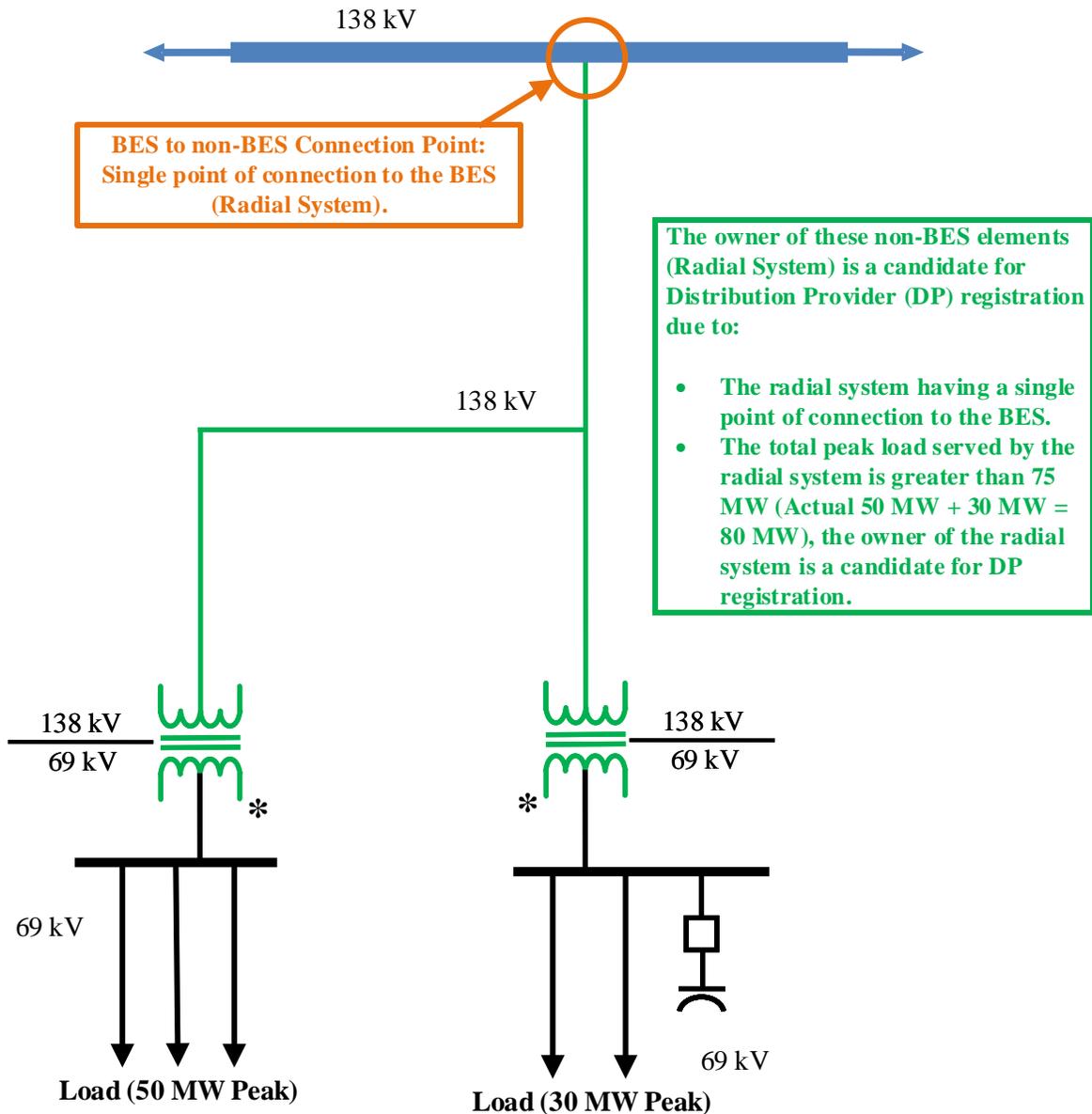
- **Blue** indicates that an Element is included in the BES
- **Green** indicates that an Element is not included in the BES
- **Orange** indicates ‘points of connection’
- **Black** indicates Elements that are not evaluated for the specific exclusion depicted in the individual diagrams being shown

Version History

Version	Date	Action	Change Tracking
1	January 3, 2018	Final “Distribution Provider Reference Document for “directly connected” Determinations”	New
2	July 5, 2018	Added “key to diagram color coding” for single line diagrams. Revised language to clarify that (1) the guide only applies to section III.a.1. of Appendix B of the ROP, and (2) the 75 MW threshold is considered when evaluating whether a DP is directly connected to the BES.	Revision

Figure 1 - Radial System

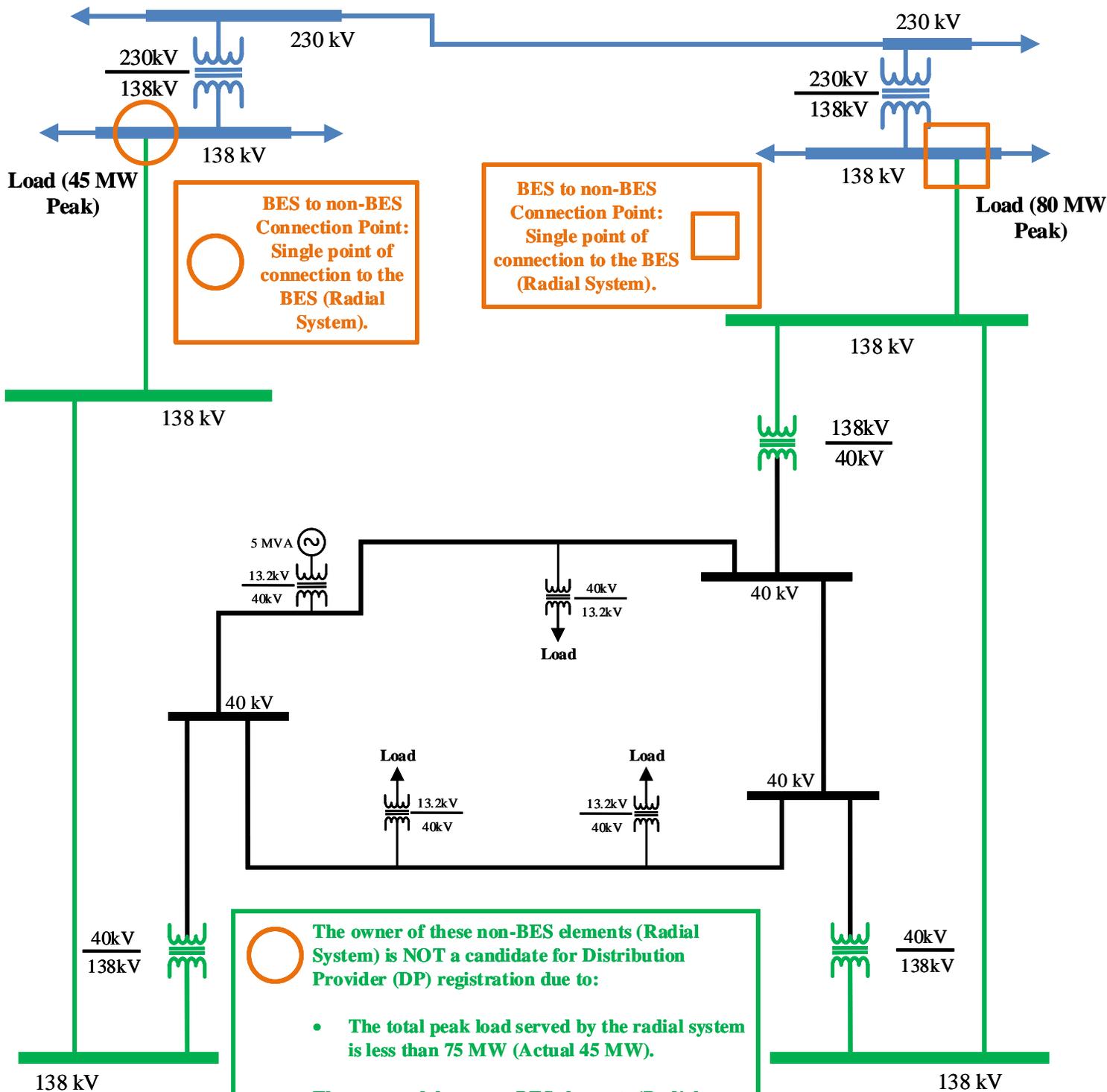
This figure depicts a radial system at the BES to non-BES connection point, therefore, the radial system and all of the load supplied by the radial system is considered directly connected to the BES.



* Note: The 69 kV facilities are not considered to be directly connected to the BES based on the points of connection being at non-BES Elements (i.e., distribution transformers). The owner of the 69 kV facilities, if different from the radial system owner, is NOT a candidate for registration as a Distribution Provider (DP) due to the 69 kV facilities NOT being directly connected to the BES.

Figure 2 - Two Radial Systems

This figure depicts two separate 'Radial Systems' as defined by application of Exclusion E1 of the Bulk Electric System (BES) definition. The operating voltage of the underlying 'networked configuration' (40 kV) allows for the application of the radial exclusion. The individual 'Radial Systems' define the BES to non-BES connection points, therefore, the individual 'Radial Systems' and the load supplied by each 'Radial System' is considered directly connected to the BES.



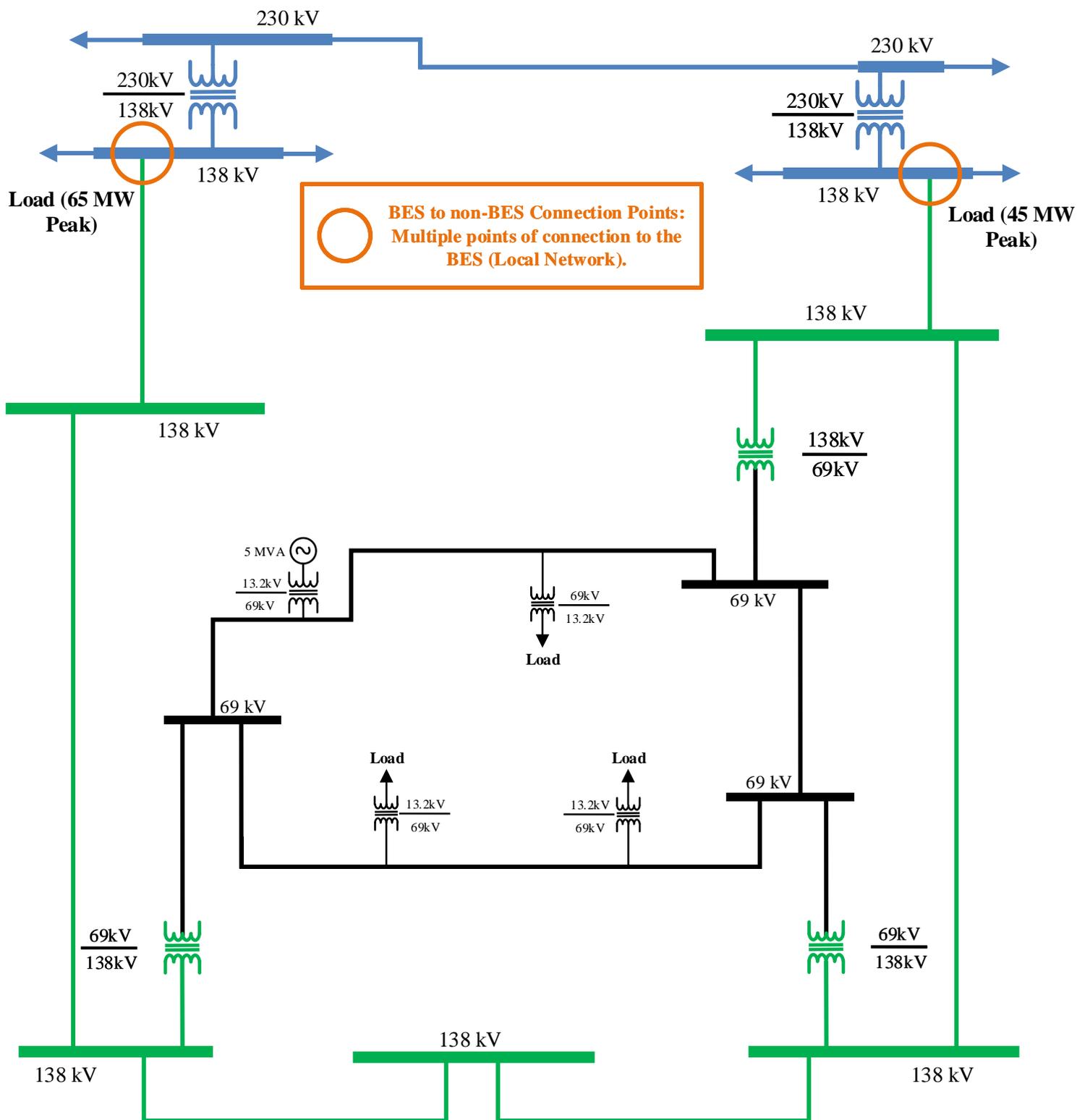
BES to non-BES Connection Point: Single point of connection to the BES (Radial System).

BES to non-BES Connection Point: Single point of connection to the BES (Radial System).

- The owner of these non-BES elements (Radial System) is NOT a candidate for Distribution Provider (DP) registration due to:**
- The total peak load served by the radial system is less than 75 MW (Actual 45 MW).
- The owner of these non-BES elements (Radial System) is a candidate for Distribution Provider (DP) registration due to:**
- The radial system having a single point of connection to the BES.
 - The total peak load served by the radial system is greater than 75 MW (Actual 80 MW).

Figure 3 - Local Network

This figure depicts a 'Local Network' as defined by application of Exclusion E3 of the Bulk Electric System (BES) definition. The 'Local Network' defines the BES to non-BES connection points, therefore, the 'Local Network' and all of the load supplied by the network is considered directly connected to the BES.

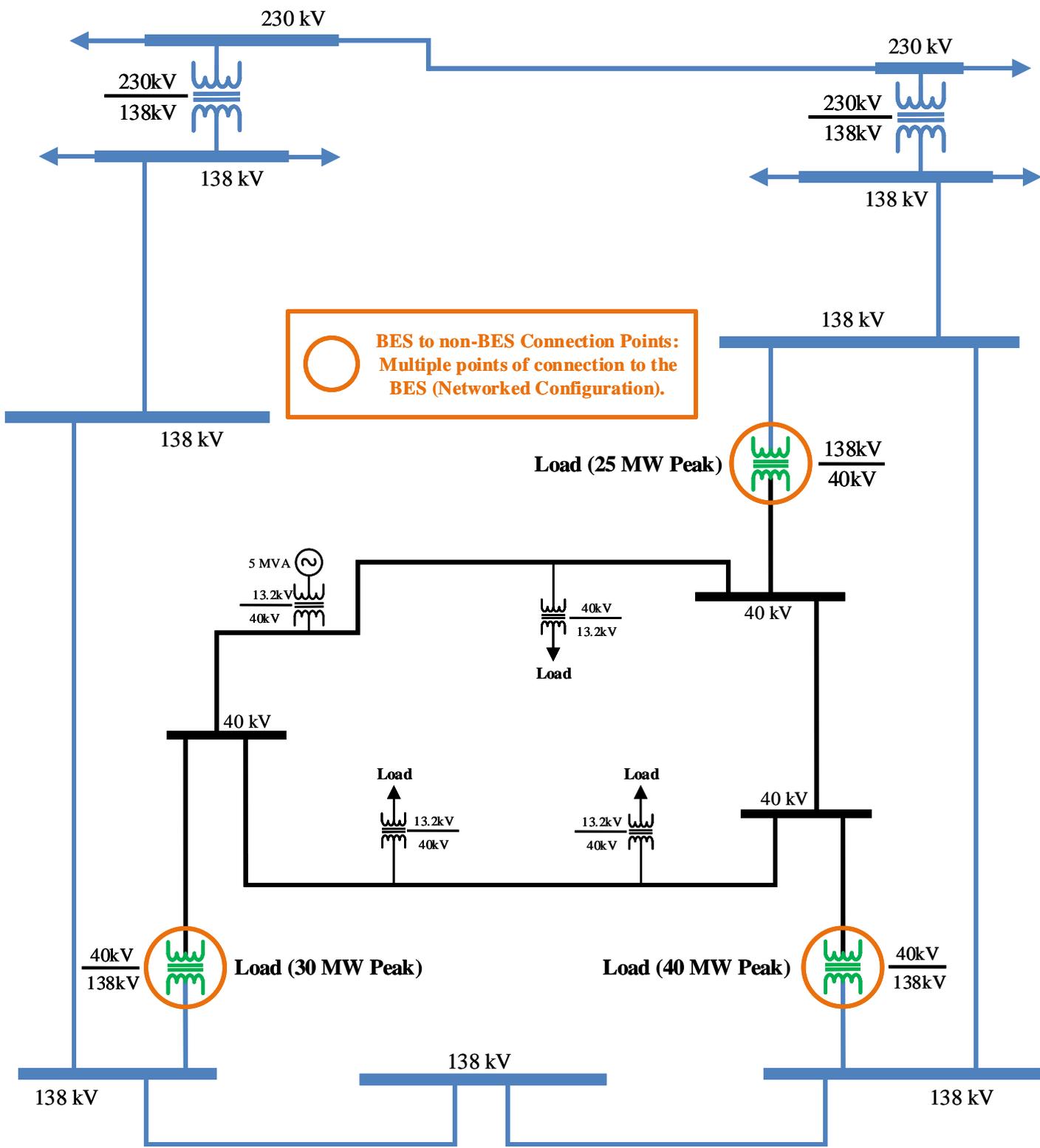


The owner of non-BES elements (Local Network) at the BES to non-BES Connection Points is a candidate for DP registration due to:

- The Local Network having multiple points of connection to the BES.
- The total peak load served by the Local Network is greater than 75 MW (Actual 65 MW + 45 MW = 110 MW),

Figure 4 - Networked Configuration

This figure depicts a 'networked configuration' at the BES to non-BES connection points, therefore, the 'networked configuration' and all of the load supplied by the network is considered directly connected to the BES.



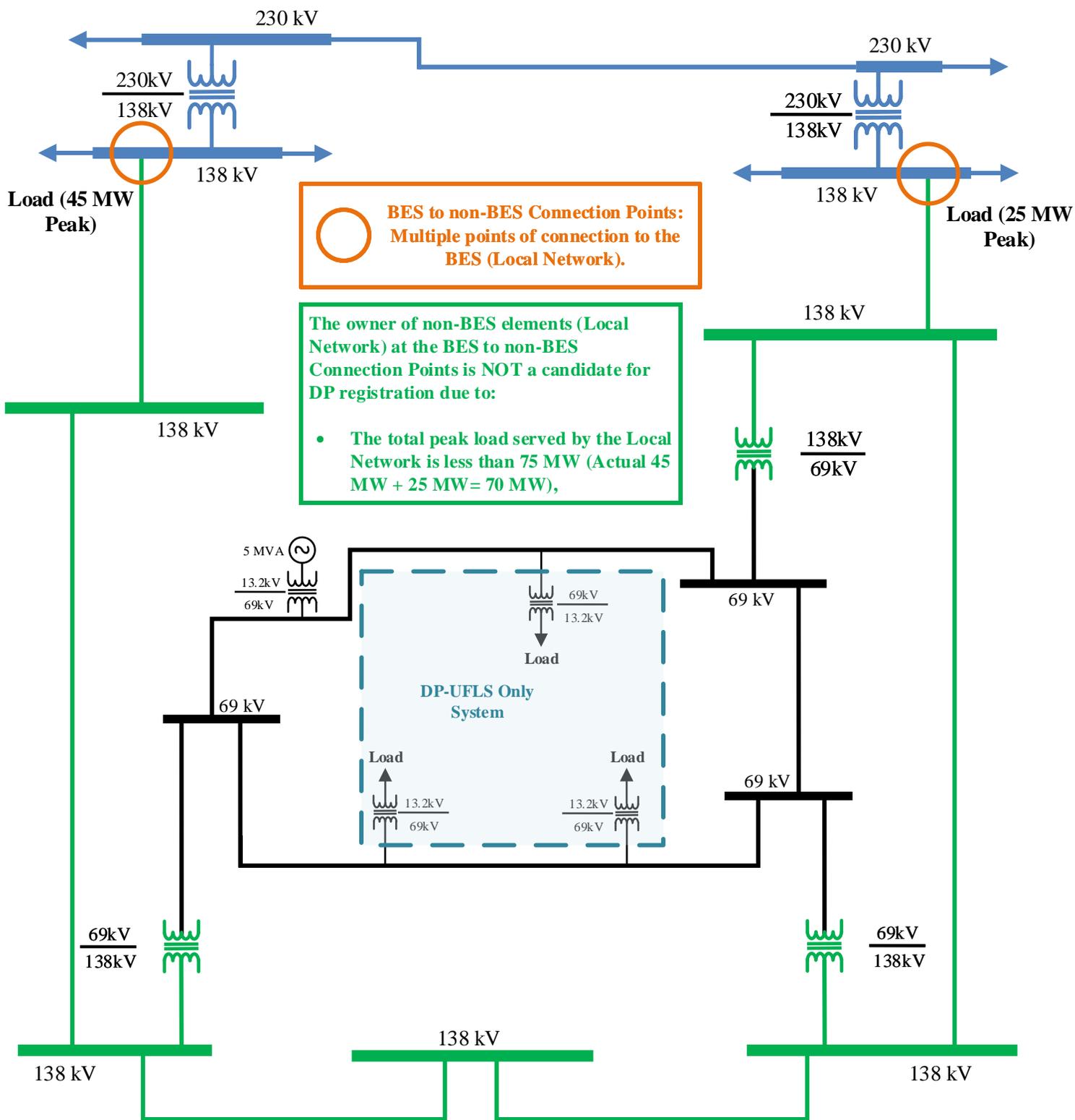
BES to non-BES Connection Points:
Multiple points of connection to the BES (Networked Configuration).

The owner of the non-BES elements (network configuration) at the BES to non-BES Connection Points is a candidate for DP registration due to:

- The networked configuration having multiple points of connection to the BES.
- The total peak load served by the networked configuration system is greater than 75 MW (Actual 25 MW + 30 MW + 40 MW = 95 MW).

Figure 5 - Local Network with Embedded UFLS-Only System

This figure depicts a 'Local Network' as defined by application of Exclusion E3 of the Bulk Electric System (BES) definition. The 'Local Network' defines the BES to non-BES connection points, therefore, the 'Local Network' and all of the load supplied by the network is considered directly connected to the BES.



BES to non-BES Connection Points:
Multiple points of connection to the BES (Local Network).

The owner of non-BES elements (Local Network) at the BES to non-BES Connection Points is NOT a candidate for DP registration due to:

- The total peak load served by the Local Network is less than 75 MW (Actual 45 MW + 25 MW = 70 MW),

The owner of the embedded 13.2 kV distribution system is a candidate for registration as a 'Distribution Provider-UFLS Only' due to:

- Not meeting any of the other registration criteria for a Distribution Provider, and
- Is the responsible entity that owns, controls, or operates UFLS Protection System(s) needed to implement a required UFLS Program designed for the protection of the BES.