



Scottish & Southern
Electricity Networks

Constraint Managed Zone (CMZ) General Technical Requirements

January 2021



Within the Future Networks department of SSEN, the Flexible Solutions Team key responsibilities include the specification, design, delivery and ongoing management of flexible solutions (in accordance with the regulated flexible connections process). Flexibility on the SSEN network is achieved through initiatives such as Constrained Managed Zones (CMZs), the use of Active Network Management (ANM) systems and an ability to apply innovation within 'Business As Usual' scenarios, such as our market leading Flexible Connections suite.

A Constraint Managed Zone is an area of our existing electrical network that is or could potentially experience one of the following scenarios;

- Forecast to exceed its firm capacity, where network requirements related to peak electrical demand are met using demand reducing or demand shifting techniques. CMZ techniques do not seek to increase capacity on the network, but will reduce or time-shift demand to avoid capacity constraints.
- Will experience planned maintenance works, where DER flexibility services could be employed to maintain network operation or reduce the risk of outage,
- Could experience outages due to a combination of maintenance works and/or circuit faults, where DER flexibility services could be employed to avoid or minimise outages,
- In the event of outages, DER flexibility services could be employed to aid in the restoration of normal supply by reducing loading or providing additional power injection, or;
- In the event of prolonged outage, DER flexibility services could be employed to restore and maintain supply as significant or long duration repairs are undertaken to the distribution network.

SSEN do not dictate how CMZ services should be provided and anticipate solutions ranging from Embedded Generation, Energy Storage and Demand-Side Management Response. SSEN are continually developing their systems, service requirements and interfaces and as such reserve the right to amend detail within this document on an as needs basis. Additionally, requirements may change for specific services and will be detailed within any procurement exercise, as such the information contained in this document is provided as a guide only.

1 CMZ Management System/ Process

The CMZ management system used by SSEN to issue control signals to instruct the contracted third party to provide SSEN with the agreed service is currently based on telephone or email based communication. This system for SSEN will develop in time as new management systems are adopted. However, SSEN are currently ongoing the Flexible Power system, which alongside improvements to our network management systems, will deliver a more automated, efficient and accessible process for the management of flexible services in 2021. In the interim, the CMZ services will not be deployed unless SSEN has issued a control email, call or signal to initiate it. Additional SSEN systems are currently utilised to collect, store and report on data provided by network monitoring and CMZ service providers.

This is the existing process, which will change in 2021, as per the above comment on the Flexible Power system.

1.1 Monitor Status/Availability

The status of the services which SSEN communicate with shall be monitored in order to enable SSEN to efficiently manage the services available to them.

1.2 Provide usage data

Data is required to be gathered by SSEN to pass onwards to the SSEN Settlements team. This data is used by SSEN to validate the 'Utilisation' payment to the service provider. In the case of DSM/DSR and ADR the counterfactual base demand profile for measurement of volume of service must be provided.

1.3 Report

Management reporting shall measure the availability and utilisation of each SSEN service type which will help to maintain accurate billing/settlement and inform future business decisions.

1.4 Select Service from a pre-defined list

The CMZ management system/process will hold a list of SSEN services and their status, which it can then select from when it requires.

1.5 Start Service

The CMZ management system shall select and instruct which SSEN service provision is initiated. The communication of this will be to either a third party aggregator who shall organise and communicate with the multiple DERs under one service offering or SSEN shall communicate directly with the DER Management system.

1.6 Stop Service

The CMZ management system shall select and instruct which SSEN service provision is stopped. The communication of this will be to either a third party aggregator who shall organise and communicate with the multiple DERs under one service offering or SSEN shall communicate directly with the DER Management system.

1.7 Adjust Service

The CMZ management system shall select and instruct which SSEN service provision is adjusted. The communication of this will be to either a third party aggregator who shall organise and communicate with the multiple DERs under one service offering or SSEN shall communicate directly with the DER Management system.

2 Aggregator of Service Providers

Service providers may wish to group together to offer a block or bundle of services in a location where we have a need. SSEN shall contact the aggregator when their contracted service is required to be initiated. This contact may be made over the telephone by a Control Engineer who has a need to instruct the aggregator to deliver a service now.

2.1 Instruct DER

The Aggregator shall issue an instruction to the DER to request they provide the agreed service provision on the back of a telephone call from SSEN control room.

2.2 Provide Status Data

The Aggregator shall provide to SSEN the status of the group DER service provision.

2.3 Select a Group of Services

The Aggregator shall respond to deliver the requested group service when prompted to do so by the CMZ management system/Process. DER shall respond to a request to Start, Stop or Update a service.

3 DER Management System/Process

SSEN shall contact the DER Management system/Process to instruct when a service is required to be initiated. This contact may be made over the telephone by a Control Engineer who has a need to instruct the DER management system provider to deliver a service now.

3.1 Post Service offers

The service provider can look at the visibility platform and post offers to the needs that suit their provision.

3.2 Instruct DER

The service provider shall issue an instruction to the DER to request they provide the agreed service provision on the back of a telephone call from SSEN control room.

3.3 Provide Status Data

The service provider shall provide to SSEN the status of the DER service provision.

3.4 Provide Agreed Service

The service provider shall respond to deliver the requested service when prompted to do so by the CMZ

management system. DER shall respond to a request to Start, Stop or Update a service.

4 DER

Each Distributed Energy Resource (DER) shall be capable of responding to controls originating directly or indirectly from SSEN CMZ management system.

4.1 DER

The range of DERs services will be reviewed by SSEN under the tender process in order to deliver the required step change on our network where we have a requirement to manage our network constraints.

DER will be able to deliver the following capability:

- Reduce / Increase Demand;
- Reduce / Increase Generation.

4.2 Energy Efficiency Devices/Approaches

Energy Efficiency (EE) devices or engagement approaches are considered 'background' solutions and as such are not directly controllable, requiring no interfaces or technical requirements from SSEN's perspective. However, to be considered as part of a CMZ solution, the installation of devices and total energy reduction must be closely monitored, reported and any significant alteration to the EE 'population' must be escalated to SSEN as soon as it is identified, for example if 200 homes have LED lighting installed and subsequently 100 homes then remove these devices.