



Scottish & Southern
Electricity Networks

Constraint Managed Zones



Constraint Managed Zones (CMZ)

Introduction

Scottish and Southern Electricity Networks (SSEN) build and operate networks to best meet customer needs using the most efficient and flexible techniques possible. This is why we have introduced Constraint Managed Zones (CMZ) into our every day network operations.

Context

SSEN has established and evaluated a number of solutions to the challenges facing networks in the UK and beyond, we have formed the view that a number of these solutions are at a state of maturity both technically and commercially that it is time to turn to the market for real. One of the biggest opportunities for the application of "smarter" solutions on the network today is in the management of thermal and voltage constraints.

What is a Constraint Managed Zone (CMZ)?

This is a geographic region served by an existing network where network requirements related to network security of supply are met through the use of flexible services, such as Demand Side Response, Energy Storage and stand-by generation. These CMZ techniques will be offered as a managed service to SSEN by a CMZ supplier.

It is important to note that we do not consider this opportunity as a "demonstration" or innovation project, the service provision will be fully commercial in nature.

We do not intend to restrict CMZ suppliers from participating in any other market that is compatible with the CMZ contracted service. We anticipate that a key element of any successful response will be the effectiveness with which the supplier generates other income from the assets to increase the competitiveness of the offered service.

Nature of Services

Sustain - SSEN is considering electrical networks which are approaching a point where the pre-existing network capacity cannot meet power requirements should an outage coincide with periods of highest demand where the system's firm capacity (post outage) is lower than the demand. Traditional reinforcement techniques would increase overall capacity across all time periods by including an additional circuit or by up-rating an existing one. CMZ techniques do not seek to increase capacity but will reduce or time-shift demand to avoid capacity constraints. Since capacity constraints only occur at periods of maximum demand, and only if an outage coincides, CMZ techniques need only be available during pre-defined Service.

Secure - In the same manner as CMZ Sustain, SSEN will procure ahead of time the required power injection/demand response services from available DER providers based on network conditions to manage pre-planned outages. This style of service will be appropriate for implementation across wide and locally specific areas, dependant on the maintenance scenarios affecting the network.

Dynamic – SSEN will procure ahead of time, the ability of a Service Provider to deliver an agreed change in output to avoid or following a network fault, for example to avoid in N-1 scenarios overloading of the 2nd circuit or to constrain loadings during restoration or repair

scenarios. Utilisation is then instructed when the fault occurs on the network (but only if loading is beyond the post fault rating of the remaining assets), or to enable constraint management during restoration activities.

Restore - Based on a static, rolling contract and utilising DER to manage networks more efficiently during fault conditions, SSEN will instruct a provider to either remain off supply, to reconnect with lower demand, or to generate into a network zone isolated from the main fault to support increased and faster load restoration within a specific network area.

Should a CMZ technique require a new electrical Point of Connection to the SSEN network, the CMZ supplier should make a separate application following the normal connection application request.

A future contract with a CMZ supplier will be built on the following high-level principles:

- SSEN is looking to establish contracts with a rolling term of one (1) years up to a maximum duration of five (5) years.
- The tender will be for five lots (5) CMZ (ZONES) Achintee (Lot 1), Cassley (Lot 2), Dunnon (Lot 3), Kilmelford (Lot 4), and Port Ann (Lot 5). A ZONE is determined by geography or region and will contain specific ZONE information as detailed within the ZONE Scope of Works. A map of all zones has been provided in a separate attachment.
- Generation assets in the designated areas that meet the requirements are within scope for this project and may take part in the tender exercise
- SSEN is looking to procure services within the **Secure, Restore** and **Dynamic** service types within this procurement exercise. These services vary for each lot.
- SSEN reserves the right to tender future ZONES as and when the need arises.
- SSEN has no technique or technology preference in terms of how the service is provided. Any assets utilised shall remain fully within the ownership of the service provider, who it is anticipated will use their assets for other purposes. All maintenance on any asset shall therefore be the responsibility of the service provider also. The service provider shall be responsible for balancing the demand of various customers on their assets when deployed for other purposes outside of a Risk Period; SSEN shall not be drawn into negotiation with other third parties.
- SSEN will only contract with generation that is visible by our DMS (data Management System) and DCC (Distribution Control Centre)
- Intermittent generation for Islanded CMZ requests may not be contracted.
- The service provider shall be able to demonstrate, via report, availability of the service across the period irrespective of use.
- Within a set period SSEN will randomly test the service irrespective of whether it is needed to ensure that it is available.

Contract Lots;

By splitting a contract into Lots, SSEN are effectively awarding separate contracts under the same tender exercise. This is beneficial to both you the Tenderer and SSEN as the information need only be provided and assessed once. The result will be separate lists of tenderers that may be called upon under an outage scenario depending on whether their offering complies with the requirements of each specific Lot.

This opportunity is split into five Lots due to the outages experienced on the network. The system is not always fully disconnected from the mainland 132kV circuit and is only partially on outage which results in differing restrictions in terms of the solutions that can be offered and called upon;

- **Achintee** – Dynamic and Restore service requested to support Voltage on the network in the event of an upstream transmission fault.
- **Cassley** – Secure, Dynamic and Restore service requested to reduce the reliance on diesel generation.
- **Dunoon** – Dynamic/Restore contract to manage voltage constraint under islanded conditions.
- **Kilmelford** – Secure/Dynamic and Restore for security of supply. Islanded condition in the event of a fault or outage on the network.
- **Port Ann** – Dynamic/Restore for voltage constraint during abnormal running arrangements.

All outage scenarios depend on the network conditions at the time of the outage and it cannot be guaranteed that we will require the use of flexible services during every outage. This will be highlighted to tenderers within the procurement documents.

Customer Impact

SSEN acts to ensure the customers it serves now and into the future are protected. CMZ suppliers are required to demonstrate high customer service standards and compliance with all relevant license conditions. This is especially relevant in the areas of customer engagement and data protection.