Constraint Managed Zones Guidance Information

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A Constraint Managed Zone (CMZ) is a geographic region served by an existing network where requirements related to network security are met through the use of load variation techniques, such as Demand Side Response, Energy Storage and stand-by generators. These techniques are CMZ services provided to SSEN by a CMZ Supplier, however across the wider industry these services are recognised as 'flexibility services'.

A CMZ 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.
- 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.

Types of Services

CMZ 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 Windows.

CMZ 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.

CMZ 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.

CMZ 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 more efficient or effective load restoration within a specific network area.

SSEN are constantly reviewing network conditions for new types of flexible services which can be trialed and released to Business as Usual (BAU) service offerings. As these are developed we will update this site to ensure our customers are aware of all the service opportunities available.

How can I get involved?

It is important to note that SSEN do not consider this opportunity as a "demonstration" or innovation project, any service provision will be fully commercial in nature. SSEN does not intend to restrict CMZ suppliers from participating in any other market that is compatible with the CMZ contracted service.

A CMZ Service is a service provided by the CMZ Supplier to SSEN which gives SSEN the ability to manage the load at a specific point of the network at certain points in time, in order to manage network requirements which would otherwise trigger reinforcement in the network, could potentially result in outages or to support restoration activities if outages have occurred.

The CMZ Service comprises two elements which may be combined or offered individually: Availability and Utilisation. The CMZ Supplier can provide this CMZ Service through different alternatives:

a)   Demand Side Response, via a customer or group of customers connected to the appropriate part of the SSEN network, which has the ability to reduce or increase the load at specific times in relation to what would have been the load if the CMZ Instruction had not been received.

b)   Via technologies connected to the SSEN network, which export power into the appropriate part of the SSEN network and have the ability to increase or reduce the amount of export in relation to what would have been exported if the CMZ Instruction had not been received (typically a generator, an energy storage unit or similar).

c)   Storage, via appropriate technologies connected to the SSEN network, which can increase the load or cease exporting to store energy, releasing the stored energy to increase export when the CMZ instruction is received.

d)   A combination of the alternatives above or where appropriate, Energy Efficiency approaches which are either responsive or reduce the overall demand on sections of our networks.

SSEN will release new CMZ opportunities as they are identified and will procure these services within a standard procurement process, specific details on the procurement process can be found here.

Zones will be advertised on the SSEN flexibility page or on the Flexible Power website via the SSEN Flexibility Map. We will also publish data on completed procurement rounds and historic zones on these pages.

Should you have any questions or wish to discuss CMZ areas please contact the Flexible Solutions Team at FlexibleServices@sse.com.