



FLEXIBLE & CURTAILABLE CONNECTIONS – OFFER GUIDANCE

REF-NET-COM-027	Flexible & Curtailable Connections – Offer Guidance		Applies to
			Distribution ✓
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CONTENTS

1	Introduction	3
2	References	3
3	Background	3
4	Some ANM Terms Explained.....	4
5	Other Schemes to Control Capacity	5
6	Early Connection Schemes.....	6
7	Last In First Out (LIFO)	6
8	Site Requirements for ANM and Similar Schemes	6
9	Alternative Providers	7
10	Further Information.....	7
11	Revision History	7

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1 Introduction

This Guidance Note provides supporting information on 'Flexible Connections', 'Curtailable Connections', 'Active Network Management' and 'Early Connection Schemes' for the Distribution System Connection Offer provided to the Customer by the Company. This Guidance Note applies to large and major 'Demand' and/or 'Generation' Connection Offers.

Reference to this Guidance Note when reviewing and interpreting Connection Offers is essential to ensure consistent interpretation and approach.

2 References

The documents detailed in Table 2.1 – Scottish and Southern Electricity Networks Documents should be used in conjunction with this document.

Table 2.1 – Scottish and Southern Electricity Networks Documents

Reference	Title
REF-NET-COM-004	SSEN Standard Terms and Conditions for Large and Major Demand Connections
REF-NET-COM-019	SSEN Standard Terms and Conditions for Large and Major Generation Connections
REF-NET-COM-020	Connection Offer – Glossary of Defined Terms
REF-NET-COM-021	Alternative Providers – Connection Offer Guidance
REF-NET-COM-022	Reinforcement Works – Connection Offer Guidance *under development 05/05/26
REF-NET-COM-023	Transmission Works – Connection Offer Guidance *under development 05/05/26
REF-NET-COM-024	Site Requirements – Connection Offer Guidance *under development 05/05/26
REF-NET-COM-025	Land Rights – Connection Offer Guidance *under development 05/05/26
REF-NET-COM-026	Metering – Connection Offer Guidance *under development 05/05/26
REF-NET-COM-028	Change & Variations – Connection Offer Guidance *under development 05/05/26
REF-NET-COM-029	Project Programming – Connection Offer Guidance *under development 05/05/26
TG-NET-COM-005	SSEN Active Network Management Schemes Guidance
TG-NET-ENG-032	Curtailable Connections – Customer Technical Guidance

3 Background

The Company is a regulated Distribution Network Operator (DNO) owning and operating electricity distribution systems through its companies Southern Electric Power Distribution plc in southern England and Scottish Hydro Electric Power Distribution plc in the north of Scotland.

Under the Electricity Act 1989 customers may notify a request for connection to these electricity distribution systems. The Company in response notifies a formal connection proposal to the Customer, which the Customer may accept. This Guidance Note clarifies, supports and should be read with the Connection Offer issued by the Company to the Customer.

Where the Connection is at a location where electrical capacity is constrained:

- The Connection Offer sets out whether the Connection may need to be constrained or Curtailed by Active Network Management (ANM) or be subject to Technical Limits in certain circumstances. Where ANM is required the maximum amount of electricity that may flow from the Connection or from the Distribution System may be Curtailed by the Company under the Connection Agreement as required to manage constraints on the capacity of the Distribution System and/or the National Electricity Transmission System (NETS)

REF-NET-COM-027	Flexible & Curtailable Connections – Offer Guidance		Applies to
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- The Company may enable the Customer to opt for an earlier or more cost-effective connection subject to ANM or other flexible, curtailable or early connection schemes

It may be possible that customers connect subject to multiple methods of ANM and capacity control for their Connection.

A Flexible Connection is offered to applications triggering network reinforcement where the customer is willing to accept some level of Curtailment. In the event of Curtailment, there is no contractual obligation or penalty payment available to the customer.

From 1st April 2023, Curtailable Connections are offered to applications triggering network reinforcement on the distribution network, until that reinforcement is completed or on a permanent basis.

Flexible and Curtailable Connections are managed using Active Network Management Systems as described below.

Curtailable Connections are specifically managed by Distributed Energy Resource Management Systems (DERMs), a type of ANM System where Curtailment is managed in accordance with [Access SCR - SSEN](#).

4 Some ANM Terms Explained

ANM is a control principle where power flow on the Distribution System is managed in near real time using a control system which monitors the Distribution System and/or the NETS at measurement points and compares real time power flow against network limits of an asset or commercially agreed limits and controls connected customers to avoid constraints on the Distribution System and/or the NETS.

An ANM Scheme is the overall active network management scheme (which includes the ANM System(s) and all central monitoring, communications and computational infrastructure, systems and technology) which enables the Company and/or the National Energy System Operator (NESO) to Curtail the import or export of electricity in the area in order to maintain the Distribution System and/or the NETS within their normal operating parameters and ensure the constraint(s) on the system in the area is not breached.

An ANM System is a system installed at the Customer's Facility by, or with the agreement of, the Customer for the purpose of managing the export or import of electricity from the Customer's Facility to the Distribution System within the existing constraints and capabilities of the Distribution System through the issue of dispatch instructions by the Company to the Customer and/or automatic switching of the Customer's Installation.

The Customer's ANM Installation is the communications link from the Customer's local control system to the interface wall box for the Customer in the Company's substation, required for delivering control instructions to the Customer. An Instruction means an instruction (or instructions) given by the Company to the Customer via the ANM System or verbally or in written form in order to undertake Curtailment.

Curtail and/or Curtailment means to limit from time to time the maximum amount of electricity that may flow into or out of the Company's Distribution System from the Connection Point.

Curtailment may happen in certain network conditions. For example, some customers may be Curtailed in N-1 conditions. N is the number of circuit components in a redundant system and N-1 refers to the Distribution System and/or the NETS circuit condition(s) where one component of the system(s) is not available through either network failure or planned outage. With respect to the Minety GSP Transmission ANM Scheme N-1-1 refers to the NETS circuit condition where NESO has lost an additional transformer. With respect to the Southwest Active Network Management (SWAN) Transmission ANM Scheme, N-3 refers to the NETS circuit condition where NESO has 3 transmission

REF-NET-COM-027	Flexible & Curtailable Connections – Offer Guidance		Applies to
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circuits 'offline'. Reverse Power Flow and Forward Power Flow limits may also be dependent on the network condition (N-1, etc.).

There are circumstances where customers may be Curtailed due to a failsafe action. Because the ANM System operates as a near real-time control system, it is vital that the system maintains visibility of power flows on the network at all times, to take action before exceedances occur. Therefore, if visibility is lost (due to measurement equipment failure, communication loss, system failure, etc.), the system is designed to default to a failsafe mode and Curtail the Customer to a predefined failsafe value.

The ANM Start-Date is the estimated energisation date of the Connection, or such other date as the Company may notify to the Customer by notice in writing.

5 Other Schemes to Control Capacity

There are other methods of controlling capacity such as Intertripping. Intertripping is a scheme where the tripping of circuit-breaker(s) is initiated by commands from the Company's Protection at a remote location. Operational Intertripping refers to the automatic tripping of circuit-breakers to prevent abnormal system conditions occurring, such as over voltage, overload, system instability, etc., after the tripping of other circuit-breakers following power system fault(s). Intertrip Apparatus is an apparatus which performs Intertripping (i.e., a piece of equipment that will automatically disconnect a customer from the Distribution System and/or the NETS, if it detects a specific event such as a system fault. Protection is the provisions for detecting abnormal conditions on a system (i.e., any customer's system and/or the Distribution System and/or the NETS) and initiating fault clearance or actuating signals or indications.

Technical Limits is a network management process whereby the Company and NESO allow Distribution schemes to connect at a specific constrained grid supply point subject to certain commercially agreed defined power flow limits, before large scale Transmission Works reinforcing the NETS is completed, as outlined on the Company's [Website](#). When those limits are met the Customer must reduce and/or cease export and/or import of electricity as required by NESO – so the Connection is non-firm.

This approach enables connections to be made ahead of necessary transmission reinforcements, facilitating the integration of low-carbon technologies and supporting the transition to net-zero. A customer may have to connect subject to Technical Limits, or may choose to do so, to allow earlier connection. The Customer can find out more about how the Technical Limits are calculated on the Energy Network Association's website: [Grid Supply Point Technical Limits for accelerated non-firm connections – Energy Networks Association \(ENA\)](#).

Forward/Reverse Power Flow Control is a network management process whereby the Company and NESO allow Distribution schemes to connect at a specific constrained Grid Supply Point (GSP) subject to certain limits based on the limit of the physical transmission assets.

A Distributed Energy Resource Management System (DERMs) is a type of active network management system. This may be installed where Curtailment is agreed with a customer pursuant to certain agreed criteria, see: [Access SCR - SSSEN](#). Where relevant terms are agreed pursuant to the industry Distribution Connection and Use of System Agreement (DCUSA), if the Company is unable to provide the Connection at an agreed Maximum Import Capacity and/or Maximum Export Capacity within an agreed Distribution Import Curtailment Limit and/or Distribution Export Curtailment Limit during any applicable Distribution Curtailment Period, the Customer may be entitled to receive a compensatory payment on the basis set out in DCUSA.

Examples of specific schemes currently in operation include:

- To reduce connection delays for new distributed generation (generators connecting to the distribution network), National Grid Electricity Transmission (NGET) introduced an ANM Scheme at Minety GSP. Minety GSP has a high level of distributed generation

REF-NET-COM-027	Flexible & Curtailable Connections – Offer Guidance		Applies to
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connected which means reverse power flows from the Distribution System to the NETS are common. NGET identified potential constraints at the four 400/132kV Super Grid Transformers if more generation was to connect

- The Southwest Active Network Management (SWAN) Scheme has been developed by the Company to allow connecting generation customers to meet a requirement set by NGET. The requirement stipulates the need for suitable monitoring and control of connections within set ranges calculated by NGET, at key parts of the Company's southern Distribution System.

6 Early Connection Schemes

The Customer may be able to connect earlier or most cost effectively if it agrees to a flexible connection subject to certain flexible schemes, where these are available for that type of connection in that location and permitted by NESO. For example:

- a Ramped Capacity Scheme which enables the Customer to connect early in stages for agreed amounts of electrical capacity pending the completion of reinforcements, or
- a Scheduled Capacity Scheme which enables the Customer to connect early for lower base capacity and for additional electrical capacity available at off-peak times pending the completion of reinforcements.

7 Last In First Out (LIFO)

Under ANM, where more than one active constrained connection contributes to the same network constraint, when required, the Company will Curtail these on the basis of "Last-In First-Out" (LIFO). LIFO dictates that customers are Curtailed in reverse order of connection applications, so the last customer to make its connection application is restricted before the first. Where a group of connections is handled in this way, they are known as a LIFO stack. There may be different LIFO stacks for NETS ANM and for Distribution System ANM.

The place of the Customer's plant in each LIFO queue will be determined from the time the Customer's application for a Connection Offer was submitted with all the information required by the Company (often described as the Clock Start or Minimum Information date). The Company may provide early estimates of the place the Customer's plant is likely to occupy in the LIFO queue when sharing assessment data about the Connection, but such estimates are indicative only and may change.

8 Site Requirements for ANM and Similar Schemes

The Customer must provide and install any works at the Customer's Premises required to accommodate the Company's ANM control equipment in the switch room. The Customer will require to work with the Company and its ANM supplier(s) to incorporate the Customer's Facility into the ANM Scheme(s), responding to instructions to Curtail within the specified timescales. Where an Independent Distribution Network operator (IDNO) is appointed, they will also require to accommodate ANM control equipment and to respond to instructions to Curtail.

The Customer must install the communications link(s) from the Customer's local control system to the Company's marshalling kiosk or ANM controller (as applicable) in the Customer's substation. This is required for monitoring the Customer's parameters, status indication and to deliver control instructions to the Customer.

If all works at the Premises of the Customer (and any IDNO as applicable) which are necessary to accommodate and install required ANM System(s), including control equipment, cables and

REF-NET-COM-027	Flexible & Curtailable Connections – Offer Guidance		Applies to
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accessories are not completed in sufficient time this may delay the Connection and add to the cost of the Connection.

9 Alternative Providers

Where a Connection is subject to ANM Schemes or other schemes, including but not limited to Technical Limits, and the Contestable Works are being carried out for the Customer by an Alternative Provider, the Alternative Provider will need to understand what works it will need to carry out to enable the necessary ANM System(s) or other system(s) and provide these works before the Company can complete its ANM related Works.

In addition, where the Customer chooses to connect to the Company's electricity Distribution System through an IDNO, the IDNO will require to accommodate ANM or other scheme control equipment and to respond to instructions to Curtail. Both the IDNO and the Customer will require to agree to the ANM Scheme(s) or other scheme(s) information sharing terms set out in the Connection Agreement.

10 Further Information

Specific details regarding the purpose, design, installation, use and operation of individual ANM Scheme(s) and ANM System(s) along with general technical requirements and considerations can be found in TG-NET-COM-005 (SSEN Active Network Management Schemes Guidance) and TG-NET-ENG-032 (Customer Technical Guide) both published on the Company's website at www.ssen.co.uk/our-services/tools-and-maps/g81/access-scr-flexible-solutions/. Installation and use of ANM equipment and ANM System(s) and equipment for other schemes by the Customer is required to be in accordance with these documents.

The Customer can email FlexibleConnections@sse.com if it has any queries regarding the Company's technical requirements.

11 Revision History

No	Overview of Amendments	Previous Document	Revision	Authorisation
01	New Guidance Document	Not Applicable	1.00	Rob Gladstone
02				