

Appendix 2 Technical Specification

Flexible Service requirement

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1 DEFINITIONS

Agreed Availability Capacity mean the volume of capacity required to be made available for service provision following the agreement between the Company and Provider during the availability refinement period, where applicable.

Applications Programming interface (API) is a set of functions and procedures allowing the creation of applications that access the features or data of an operating system, application, or other service

Availability Refinement Period is a period defined within product parameters where a refinement of the availability window and capacity is agreed.

Availability window defines the likely time periods when we expect to seek flexible services support from the provider.

Contracted Performance Window means a Committed Performance Window in respect of a Site(s) / Group which is allocated by the Company for Flexible Services which is to be agreed and documented within the Flexible Services contract.

Contracted Capacity means the target net MW to be delivered by a Flexible Resource at a Site(s) / Group.

Demand the demand of MW and MVAR of electricity.

Distributed Energy Resource (DER) means resources like generators, consumers, and electricity storage connected to the distribution network .

Distributed Generation (DG) means a generator connected to the distribution network.

Distribution Network Operator (DNO) means the owner and operator of a distribution network licensed by the Gas and Electricity Markets Authority.

Electricity Storage in the electricity system is the conversion of electrical energy in a form of energy which can be stored, the storing of that energy, and the subsequent reconversion of that energy back into electrical energy.

Feeding area means the geographic area that is supplied electricity by the cables and/or overhead lines connected to the local substation.

Flexible Resource means resources like generators, consumers, and Electricity Storage connected to the distribution network.

Flexible Services means the provision of a change in import and/or export when instructed. This is also sometimes referred to as demand side response.

Generation means the electrical output (in MW) of any apparatus which produces electricity.

Grace Factor: A tolerance which is applied to the MW delivered, if the delivered % is within this tolerance then full payment is made for the minute.

Group means a group of sites being aggregated to offer Flexible Services.

High voltage (HV) means the voltages of 6.6kV or 11kV in Electricity North West's distribution network.

Low voltage (LV) means the voltages of 400V / 230V in Electricity North West's distribution network.

Manual Override means the inhibit switch installed at each Provider Site(s) / Group which may be operated to prevent the despatch of Flexible Services by The Company.

Minimum Utilisation Period means the pre-defined operating window which the Company have contracted for Flexible Services Delivery.

Network Management Hub means the Company control facility from where the network is monitored and managed.

Policies means any instructions, rules or policies issued by the Company from time to time.

Post-fault condition means the situation where the distribution network is operating abnormally, generally following the disconnection and isolation of a section of the network due to an electrical fault on that section of network.

Recovery Period means the period taken for a Service to recover from provision of Flexible Services. This would include the necessary period for re-fuelling of generators.

Response Time means the maximum period of time (in minutes) which is permitted to elapse from despatch of Flexible Services by the Company or issue of an Instruction by the Company (as relevant) to achieving the Contracted Capacity at the relevant Site(s) / Group in connection with the service.

Site means each of the locations offering Flexible Services. For aggregated Flexible Resources the site is classified as the group of aggregated supplies.

Term means the duration of this Agreement.

Utilisation means, in respect of a Site(s) / Group, any despatch of a Flexible Service which is provided continuously until the Event End Time and "**Utilised**" shall be construed accordingly.

Utilisation rate defines the maximum number of hours that we expect flexible services will be required from the provider.

2 CONDITIONS PRECEDENT

The Bidder will need to meet the following high-level conditions in order to provide a Flexible Service to the Company:

- a. The Flexible Resource must:

either be already connected to the network location being supported; providers should use the highlighted area on the maps provided in each appendix as an indication of whether the resource is in the right geographic location¹,

or

be able to locate (i.e. install, commission, and deliver) the Flexible Resource in the locality of the network asset being supported 1 month prior to the delivery start date² .
- b. The minimum size for directly contracted resources should be at least 10kW. There are no restrictions on the size of sub-sites of aggregated portfolios, but the total portfolio size also needs to be at least 10kW (flexibility capability and not installed capacity).
- c. The Provider should be able to deliver and manage, upon the Company's request, a net reduction in the demand or an increase in the export, as seen by the distribution network.
- d. The Flexible Resource should have the ability to act (provide a response) reliably and consistently, in both magnitude and duration, throughout the contracted windows.
- e. Generators and electrical Storage, greater than 16A per phase, looking to export to the network will need to have a long-term parallel connection and be compliant with the requirements of EREC G59 or EREC G99.
- f. Generators and electrical Storage, less than 16A per phase, looking to export to the network will need to have a long-term parallel connection and be compliant with the requirements of EREC G83 or EREC G98.
- g. Flexible service Providers should be able to deliver the service by the specified delivery start date (specific start dates are stated for each site in [Appendix 3: Site Requirements](#)).

2.1 Minimum requirements

The Flexible Services procured are for a decrease in import or an increase in export.

The following requirements are required for participation:

- a. Each Site / Group must be in one of the zones detailed within the Appendix 3: Site Requirements.

¹ If you would like the Electricity North West to verify that the electrical connection is suitable prior to submission of your proposal, please email flexible.contracts@enwl.co.uk with your meter point administration numbers (MPANs).

² Further information on connection to Electricity North West's distribution network is available at [Get connected](#). All connection charges will be payable by the connectee in accordance with our [common connection charging methodology](#).

- b. Each Site / Group must be minute by minute metered, or an agreed equivalent e.g Half Hourly. Certain products rely on minute-by-minute metering granularity for accurate performance monitoring and settlement. Where an alternative to minute-by-minute granularity is provided the data may be disaggregated. As such, this could result in performance monitoring and calculation inaccuracies.
- c. For dispatchable resources, Each Site / Group must be able to respond within 15 minutes of receipt of a dispatch signal. Providers who can respond faster should indicate this within their Asset Qualification response. Faster responses will score higher on bid review.
- d. Sustain services will be dispatched as part of a pre-defined schedule and as such the Provider should self-dispatch the agreed capacity at the agreed time.
- e. Where Energy Efficiency measures are utilised, there will be no dispatch command issued, Providers are expected to provide an enduring reduction in demand.
- f. Each Site / Group must be able to provide a minimum 30 mins response.
- g. Each Site must be built (ie commissioned) and have a connection agreement with final milestone one month prior to the start of the performance window.
- h. Provision of the service must not put the Provider in breach of other agreements (e.g. connection agreements).

3 TECHNICAL AND OPERATING CONDITIONS

3.1 For Dispatchable Services (i.e not Energy Efficiency Measures, or Pre-Scheduled Services)

This section is only applicable to services provided utilising dispatchable resources.

In the absence of any notification to the contrary in respect of a particular Site(s) / Group, the Company shall be entitled to assume that that the Flexible Resource is available to be despatched at all times during the contracted Performance Window and for the contracted capacity.

The Company may, in any Contracted Performance Window, issue a notice (an "Instruction") requiring the Provider to provide a Flexible Service, or may itself remotely despatch the Flexible Resource from that Site(s) / Group.

Where the Company remotely despatches the Flexible Resource, this shall be notified by the Network Management Hub to the Provider and shall continue uninterrupted for at least the Minimum Utilisation Period until the earlier of:

- a. Notification of reduced requirement by the Company, and
- b. The end of the relevant Contracted Performance Window (as relevant).

Where the Company issues an instruction requiring the Provider to provide Flexible Service the Provider shall, within the Response Time, provide the service from the Site(s) / Group continuously for the Minimum Utilisation Period until the earlier of:

- a. Notification of reduced requirement by the Company; and
- b. The end of the relevant Contracted Performance Window (as relevant).

3.2 For Energy Efficiency Services (Peak Reduction)

This section is only applicable to services provided utilising energy efficiency in order to reduce site demand.

The Company will not provide a dispatch command. It is expected that the utilisation of energy efficiency measures will provide an enduring reduction in the Site(s) / Group demand.

With energy efficiency measures it is recognised that it may not be possible to deliver a consistent volume of demand reduction, as the demand reduction will be proportional to the original demand profile prior to implementing energy efficiency measures. Providers should indicate against the requirements the level of demand reduction they will be able to provide. This can be provided in the form of a forecasted operating profile.

Where the provider enters into a contract for the provision of flexible services by the method of energy efficiency; prior to the installation of any new equipment to the site which is going to increase the site demands in a significant manner, the Company would expect that they would be notified of the sites intention to install new equipment or to use site demands in a different way, at which point the Company can review the changes and determine if it will have a material impact upon the contract. In most cases, as long as the changes in site demands do not counteract the energy efficiency measures that the site is being paid for, then there is unlikely to be a contractual issue. Failure to speak to the Company prior to a significant change in demand patterns may result in the termination of the contract.

3.3 For Pre-Scheduled services

This section is only applicable to services provided utilising Pre-Scheduled Services.

In the absence of any notification to the contrary in respect of a particular Site(s) / Group, the Company shall be entitled to assume that that the Flexible Resource is available at all times during the contracted Performance Window and for the contracted capacity.

Where a Pre-Scheduled service has been contracted, the Provider shall provide the service from the Site(s) / Group continuously for the Utilisation Period until the earlier of:

- a. Notification of reduced requirement by the Company; and
- b. The end of the relevant Contracted Performance Window (as relevant).

3.4 For all service providers

In the event that, in respect of the despatch of a Flexible Resource in any Contracted Performance Window or other period of time previously notified, or deemed to be notified, as being available at any Site(s) / Group:

- a. the Flexible Service is not provided at a level of at least the required level of Contracted Capacity less any applicable grace factor,
- b. the volume in MWh of the Flexible Service provided following despatch is less than the required level of Contracted Capacity less any applicable grace factor, or
- c. the Flexible Service is not provided continuously at a level of at least the required level of Contracted Capacity less any applicable grace factor,

then the Company Service Charges otherwise payable by the Company to the Provider shall be reduced.

Where sites are contracted to deliver a Flexible Service following an Invitation to Tender there is an understanding that there may be a requirement for recovery following service delivery. In the event that a response is triggered but a site's maximum response duration is less than the total event period for the required response; the site should not excessively increase demand following the depletion of available Flexible Resources. An example of this would be that an Electricity Storage system once depleted should not instantly recharge if the trigger signal is still active, as this may compound existing network issues. The Company reserve the right to terminate Flexible Service contracts if Providers are seen to demonstrate activities such as that detailed above where they are seen to compound an existing network issue.

Providers should not demonstrate any practices which could be deemed as gaming the system. Examples of gaming the system would include (not an exhaustive list):

- a. Where a site has multiple supplies and they are viewed to reduce demand on one to provide a contracted Flexible Service but then move the demand to an alternative supply fed from the Company's network,
- b. Artificially increasing Demand or encouraging others to artificially increase Demand to stimulate the Company to trigger a Flexible Service,
- c. Any acts of vandalism or sabotage which may stimulate the Company to trigger a Flexible Service.

3.5 Availability Declarations

Availability declarations will be scheduled via the Company's nominated flexible services platform.

For Operational Utilisation Services it will be assumed that unless otherwise notified that the service will always be available for the full Contracted Capacity during the Contracted Performance Window.

For Operational Utilisation & Variable availability services, availability declarations and agreements will be made a minimum of a week ahead of the subsequent weeks Contracted Performance Window, this is referred to as the availability refinement period. At this stage the company may alter the required maximum capacity (MW), and period (days & hours). Providers will be paid availability payments based upon the required availability which is required following any such alterations to capacity and periods. Appendix 4: Half-hourly-data provides forecasts of the required capacities and periods for the duration of the tender.

Any variations to the agreed requirements will not exceed the contracted Capacity or Contracted Performance window levels, unless a subsequent written agreement has been made between the company and the Provider.

For Pre-Scheduled Services, utilisation will be agreed at the Contract award stage of the tender.

3.6 Method of dispatch

This section is only applicable to services provided utilising dispatchable resources.

Utilisation instructions for services as standard will be issued via an API or Email; at the discretion of the Company. For any Providers who cannot interface with an API/email; an option for Utilisation instructions for Operational Utilisation products may be offered via a Company owned Remote Terminal Unit (RTU) located within the Company substation supplying the site.

For sites requiring a new RTU, the Provider is responsible for providing a single-phase low voltage supply to the RTU. Additional signalling may be required to allow for availability signalling in real time. These requirements will be discussed as part of contract negotiations.

The Company reserve the right to modify the method of communications protocol. Site specific agreements shall be agreed prior to the awarding of a contract.

On receipt of a dispatch signal the Provider shall begin provision of the Agreed Availability Capacity as detailed within the service agreement.

The dispatch command will incorporate a required capacity to be delivered. The response should be at least equal to the dispatch commands required capacity and should remain continuous until either:

- a) The dispatch command required capacity (MW) changes; or
- b) The dispatch command signal indicates a stop command; or
- c) The Service is no longer within the Contracted Performance Window; or
- d) A verbal instruction is received from the Network Management Hub.

3.7 Fail safe actions

During provision of the Contracted service if the communications to the site from the Company's equipment are lost the site should cease delivery of the service until informed otherwise by the Network Management Hub or communications are restored.

3.8 Baseline for Measuring Actual Delivery

For Contracted Sites, the delivery of Flexible Services will be measured either at an asset level or at the point of supply depending upon the location of the metering.

The level of response will be calculated using the minute by minute, or an agreed equivalent e.g. Half Hourly, metering readings submitted by the provider; verified against half hourly settlement readings for the duration of the contracted performance window. Certain products rely on minute-by-minute metering granularity for accurate performance monitoring and settlement. Where an alternative to minute-by-minute granularity is provided, the data may be

disaggregated. As such, this could result in performance monitoring and calculation inaccuracies. Responses will be calculated on the number of full minutes of response.

In association with the ENA Open Network Project, we have developed a range of common baselining standards which can be used across the industry when measuring and settling flexible services dispatch contracts. We encourage participants within our tenders to engage with us regarding the baselining methodology which represents the best solution for their site's asset type and the level of data they are able to provide of historical and future usage patterns. The supported baselines are:

- Mid 8-in-10: A rolling historical baseline which uses data from the "middle" of the last 8 of 10 days.
- Mid 8-in-10 with Same Day Adjustment: A rolling historical baseline which uses data from the "middle" of the last 8 of 10 days, but also applies a "same day adjustment".
- Mid X-in-Y: A custom rolling historical baseline, where the user can choose how many days to consider and what length of same day adjustment to use.
- Nominated: A nominated baseline, which allows the user to input the self-declared baseline of the asset in advance of the flexibility dispatch event.
- Zero: A baseline which assumes that the asset is not operating except for when providing a flexible service.

An industry standard [baselining tool](#) and [user guide](#) has also been produced to allow participants to verify their baselines, delivering transparency into how baselines are calculated by DNOs.

The methodology for baselining will be agreed between the Electricity North West and the Provider post contract award and ahead of any service provision, this shall occur at least 2 months prior to the first utilisation period.

3.9 Testing and monitoring

Testing will need to be conducted at least 1 month prior to the beginning of the contracted delivery window. The Company also reserve the right to request additional Proving Tests (test of ability to deliver a response) at its discretion.

Utilisation payments will apply for proving tests as requested by the Company.

Performance will be monitored, and payments made in accordance with the below set of performance delivery criteria.

Response provided as % of contracted service	Payment	Actions
>100%	No additional payment made for services greater than requested	None
95% - 100%	Payment in full. These includes a 5% grace factor	None
64% - 95%	A 3% Penalisation Multiplier is applied to payments	Service delivery under 90% will be monitored. Greater than three utilisations delivered at <90% will be constituted as service failure.
<64%	Service failure. No payment made.	Potential contract termination

Penalisation Multiplier: If the delivery % is outside the grace factor then a Penalisation Multiplier is applied to reduce the % paid by the Penalisation Multiplier for each 1% that actual delivery falls outside the tolerance.

3.10 How to respond to technical specification

Assets should be registered on the [ElectronConnect](#) or [PicloMax](#) platform, and bidders should confirm which assets they intend to put forward for each competition zone. Bidders are required to complete all relevant technical information within [ElectronConnect's](#) or [PicloMax's](#) pre-qualification questionnaire. Every field should be completed and should include brief and relevant information only for each Site / Group. If a Bidder is unsure how to complete any field they should contact the Company with sufficient time before the end of the pre-qualification window.

Where it is relevant; additional technical information relating to development timescales and loading profiles should be uploaded within [ElectronConnect's](#) or [PicloMax's](#) pre-qualification questionnaire, however Bidders should avoid providing unnecessary additional data. The Company may choose not to review all additional information where it demands significant resource to do so.

Bidders should indicate where their assets can achieve faster response times than the required Maximum Response Time. Faster responses will score higher on the bid assessment.

4 Product Parameters

	Parameter Name	Operational Utilisation	Operational Utilisation & Variable Availability	Peak Reduction
Structure	Payment Structure	Utilisation Only	Availability and Utilisation	Utilisation Only
	When prices are set (procurement timescales)	At trade	At trade	At trade
Availability	Availability Request Mechanism	N/A	Request initiated by DNO,	N/A
	Availability Acceptance timing	N/A	At trade	N/A
	Availability Refinement timing	N/A	Week Ahead	N/A
	Availability Changes Allowed	N/A	No	N/A
	Minimum Aggregate Unit Size	10kW	10kW	10kW
	Partial Availability Acceptance Possible	N/A	Yes	N/A
	Time Variable Availability Volumes Allowed	N/A	Yes	N/A
	Availability Payment Unit	N/A	£/MW/h	N/A
	Availability Period	N/A	Settlement Periods	N/A
Utilisation	Utilisation Payment Unit	£/MWh	£/MWh	£/MWh
	Utilisation Period	Minutes	Minutes	Settlement Periods
	Delivery Expectation	Continuous	Continuous	Peak Delivery
	Maximum Response Time	15 mins*	15 mins*	N/A
	Payments during response time?	No	No	No
	Minimum Utilisation Time	30 mins	30 mins	30 mins
	Minimum Utilisation Volume	N/A	N/A	N/A

	Utilisation Instruction Timings	Real Time	Real Time	At trade
	Partial Utilisation Instruction possible	Yes	Yes	Yes
	Time Variable Utilisation Volumes Allowed	Yes	Yes	Yes

** Bidders should indicate where their assets can achieve faster response times than the required Maximum Response Time. Faster responses will score higher on the bid assessment.*