Participation Guidance

UK Power Networks (Operations) Limited

Version 1.2
May 2025

DSO | UK Power Networks Delivering your electricity

1 Introduction

UK Power Networks - Distribution System Operator (DSO) is seeking to recruit Flexibility Service Providers to manage peak demands and generation on its network. This is part of its commitment to facilitate the Net Zero transition while delivering £410m of benefits by using flexibility. All flexibility requirements are publicised and procured through the EPEX SPOT Localflex platform.

There are number of ways to participate and benefit – including through biannual long-term auctions (commencing Spring and Autumn each year) and day-ahead auctions. This document describes how to participate – covering the requirements from registration through to being paid. For each long-term auction we additionally run a public webinar to summarise our requirements, run through the process and answer any questions. Further information can be found on our DSO website.

UK Power Networks prides itself on the accessibility of its flexibility markets. We welcome interest from all types of organisation and technology, subject to the minimum requirements described in Section 3.

If you have any questions upon reading this document, please contact us via flexibility@ukpowernetworks.co.uk.

Version	Date	Key changes
1.0	April 2024	• First issue covering both long-term and day-ahead auctions
1.1	October 2024 (Tender Round 11)	• Introduction of Long Term Scheduled Utilisation to replace Peak Reduction (Section 2) • Simplification of baselines (Section 6.2) • Introduction of limits to volume of planned assets (Section 3)
1.2	May 2025 (Tender Round 12)	• Amendment on eligibility of speculative assets (Section 3) • Reference to Day-Ahead clearing (Section 5)

2 Flexibility Services Overview

2.1 The need for flexibility

UK Power Networks procures services to manage constraints on the network where high demand or generation is forecasted to exceed network limits for short periods. This includes procurement to defer network reinforcement and manage planned maintenance. These Flexibility Services offer an alternative approach to traditional network solutions, such as upgrading network assets.

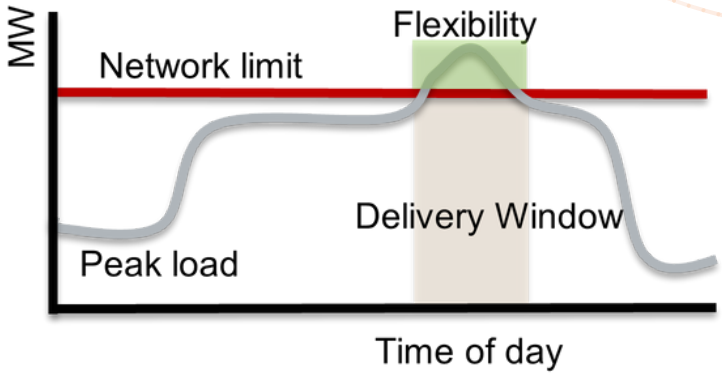


Figure 1: Flexibility targeting peak electricity demand at a substation

Flexibility Services can be provided by Distributed Energy Resources (DER), which is defined as a solution that can change its level of consumption or generation relative to its expected operations (as measured by a 'baseline'). This may be in response to a day-ahead signal, at times agreed at the point of a long-term auction. The DER may be a generator, storage or demand asset, or a combination of these located at the same site.

We particularly welcome interest from energy efficiency solutions that can reduce network demand.

2.2 Flexibility products overview

We procure flexibility through three products. These products are a subset of the industry standard flexibility products defined in Open Networks Products Review and Alignment paper.

1. Long-term Scheduled Utilisation (LT-SU) [1]
2. Long-term) Scheduled Availability and Operational Utilisation (SAOU)
3. Day-ahead Scheduled Utilisation (DA-SU)

Each product is described in the table overleaf.

**[1] From October 2024, LT-SU replaces our previous requirement for 'Peak Reduction'*

Table 1: Overview of the flexibility products

	Long-term (LT)		Day Ahead (DA)
Products	**LT Scheduled Utilisation**	**Scheduled availability & operational utilisation**	**DA Scheduled Utilisation**
Product Summary	Flexibility providers commit to reduce demand or increase generation during pre-contracted windows. Can be combined with time of use tariffs	Flexibility providers commit to being available to reduce demand during set contracted windows, but actual utilisation is confirmed the day before.	Flexibility providers enter an auction to deliver flexibility at a day's notice.
Payment	Utilisation Fee (£/MWh)	Availability Fee (£/MW/h) Utilisation Fee (£/MWh)	Utilisation Fee (£/MWh)
Required delivery / availability	Seasons & time windows specified in tender		Delivery as agreed at day ahead
Capacity & price variation	Providers commit delivery and fees as part of long-term auction		Providers commit delivery and fees at day ahead
Notification timing	Long-term delivery schedule (no regular dispatch instruction)	Day ahead dispatch	
Level of connection	All flexibility connected at, or below, the level of the constraint can participate		
Minimum contractable unit	10kW sustainable for 30 mins This can be aggregated across multiple DER within the same flexibility zone.		

2.3 Long-term Scheduled Utilisation

Providers are paid a Utilisation Fee (£/MWh) to reduce their demand (or increase their generation) for the duration of the contracted windows. UK Power Networks makes a long-term commitment to paying for the service while providers commit to regular delivery over a sustained period.

This service is ideal for flexible solutions that can provide a long-term reduction in load during particular windows or for solutions which cannot respond to a day-ahead dispatch instruction. The service can be provided through enduring demand reduction programmes such as energy efficiency, if it can be demonstrated that the programme will have the required impact on demand.

2.4 Scheduled availability & operational utilisation

Providers are paid to be available during fixed service windows and only dispatched when needed to resolve operational constraints that occur within the service window. Specific months of the year and windows during the day are identified and the FP receives an Availability Fee (£/MW/h) in return for guaranteeing availability for the service periods.

The provider is also paid a Utilisation Fee (£/MWh) for each utilisation instruction. Utilisation of SAOU contracts is instructed day ahead. This means the utilisation portion of the bid is cleared along with the other Day-Ahead bids. This allows other participants in the Day-Ahead market to offer flexibility at a lower cost, fostering competition. Providers with long-term contracts can reduce their utilisation prices to remain competitive. The availability portion of the contract will still be paid according to the settlement rules regardless of whether the utilisation was awarded.

2.5 Day-Ahead Scheduled Utilisation

The Provider is paid a Utilisation Fee (£/MWh) for the change in energy delivered. FPs participate by providing offers of flexibility in daily auctions on the Localflex market platform. FPs can update the available capacity and Utilisation Fee (UF) at any time up to 12:00 pm day ahead to reflect their expected running or opportunity costs and can choose to accept dispatch requests from UK Power Networks.

Providers are notified of the dispatch instruction by 13:30 day ahead, to maximise their opportunity to also participate in other day ahead and within day flexibility services.

This service is ideal for flexible solutions which can only commit to delivering flexibility on these short time scales, such as those participating in other energy or flexibility markets or those with variable flexible capacity (for example, demand reduction or intermittent generation reduction).

3 Minimum technical requirements

A group of DERs located within the same zone can be aggregated together into a single controllable unit called a Flexible Unit (FU) or a portfolio.

3.1 Direction of service

The portfolio shall be able to deliver a change in active power as seen from the distribution network. In demand constrained zones, the required direction is reduced imports or increased exports. In generation constrained zones, the required direction is increased imports or reduced exports.

3.2 Flexible capacity

The flexible capacity contracted from a portfolio must be at least 10kW, and the Maximum Run Time contracted from a portfolio must be at least 30 minutes.

Please note that the flexible capacity may differ from the installed capacity depending on the DER type due to load diversity. The numbers also vary depending on the hours of the day. For example, the network impact of a domestic EV is 1.3kW in the evening hours, which is also the maximum capacity that can be flexible. The baseline methodology also aligns with these numbers (see Section 7.2 for further information).

Table 2: Flexible capacity by technology type

DER type	Flexible capacity down	Flexible capacity up
Intermittent generation	N/A	Max export
Dispatchable generation	Max export	Relative to baseline
Storage	Max export	Max import
Commercial DSR	Relative to baseline	Relative to baseline
Domestic EV Charge Points	1.3 or 2.7kW	6.7kW
Domestic Heat pump	Winter: 2kW Summer: 0.5kW	Depends on the max export
Non-LCT Household	Winter: 0.9kW Summer: 0.6kW	Depends on the max export

3.3 Control authority and capability

The provider should have appropriate systems and processes to control or incentivise DER delivery to reliably deliver the contracted capabilities.

Where requested, the provider shall be able to submit evidence to UK Power Networks' satisfaction that proves they have the authority to act on behalf of the owner of the DER in respect of the service. For example, this will be required if the provider's DER is contested by another provider. In this instance, the second provider will be notified that the MPAN has already been registered. They can provide evidence of informed consent from the end customer. and the incumbent provider can challenge this by providing their own evidence of consent.

3.4 Communications and data provision

All notifications, instructions and data exchange for the standard flexibility procurement process will be completed using Localflex. At each stage, flexibility providers have the option of full automation via APIs, or standardised processes using csv uploads/downloads, platform User Interface (UI) and email notifications. Further details can be found in the Localflex user guide.

3.5 Metering requirements

A DER must have metering installed for the purposes of performance management and payment. The metering must be located at a suitable location (which can be at asset-level or at the site boundary) and must be at least half-hourly. Meter data needs to be submitted monthly for each portfolio (at aggregate level for each zone) for baseline and settlement calculations. In addition, UK Power Networks reserves the right to request disaggregated meter data for audit purposes.

3.6 DER connection conditions

Assets must be electrically connected to the network asset(s) subject to the constraint and at a connection voltage less than or equal to the Maximum Connection Voltage, to ensure that it is effective at resolving the constraint. The area of the network containing suitable points of connection is referred to as a Flexibility Zone. An approximation of the zones is provided on Localflex and through publication of eligible postcodes. Please note that UK Power Networks will conduct a more definitive connectivity check using additional data such as the Meter Point Administration Number (MPAN) provided. Please refer to Section 5.2 for further information on connection conditions.

DERs connected to an Independent Distribution Network Operator (IDNO) network are eligible if the IDNO network is electrically supplied from the appropriate network asset(s). Please note there may be delays in confirming eligibility of these DERs.

Generators and storage assets with export greater than 16A per phase shall have a long-term parallel connection compliant with the requirements of Engineering Recommendation (EREC) G59 or G99. Those less than 16A per phase shall be compliant with the requirements of EREC G83 or G98.

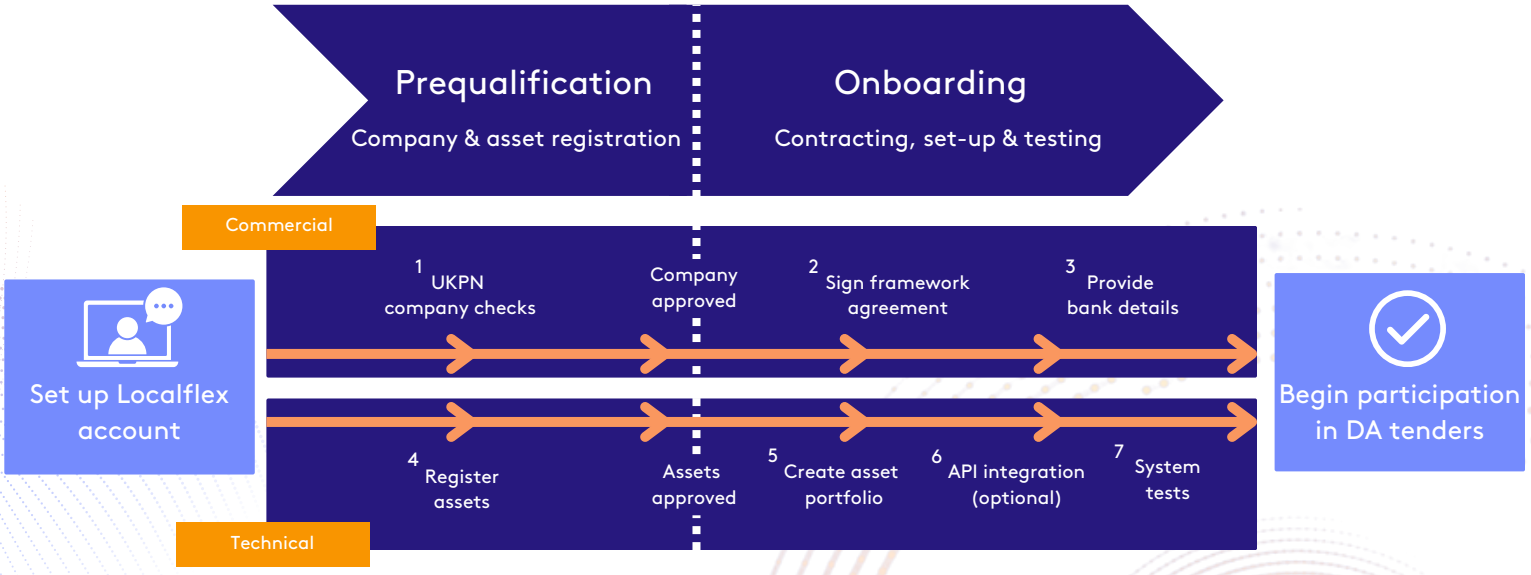
DERs with flexible connections are allowed to provide flexibility services subject to the conditions of the connection agreement and as confirmed by the Company as part of pre-qualification. Where there are any discrepancies between the flexible connection instructions and flexibility services instructions under this agreement, the DER shall follow the instruction that will result in the lowest operational set point.

4 Pre-Qualification (PQ) and onboarding

This section focuses on the steps to get started in both Day Ahead tenders and Long Term tenders. These steps, as outlined in Figure 2 are both commercial and technical

Flexibility Providers can seek further clarification by emailing: flexibility@ukpowernetworks.co.uk.

UK Power Networks and EPEX SPOT will also host webinars and bilateral meetings with interested FPs throughout the Pre-Qualification process. The dates of webinars will be communicated to you via email and posted on our website here.



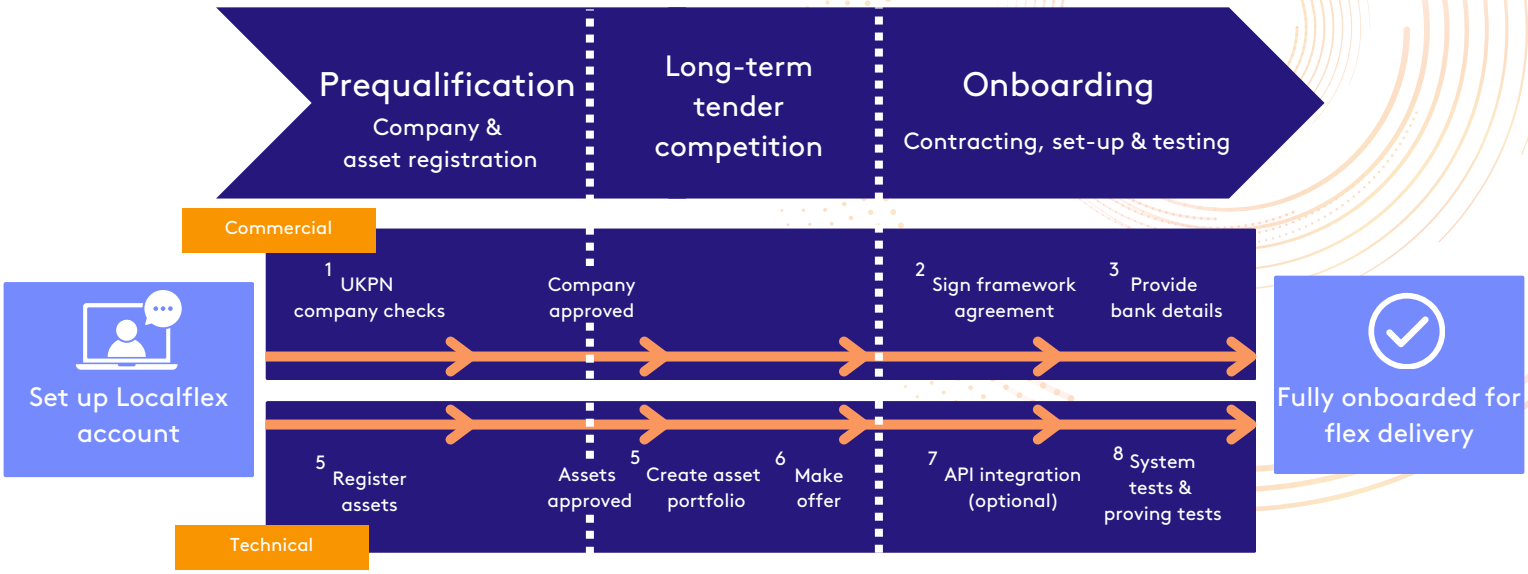


Figure 2: Overview of the onboarding process, continued

The PQ process is on-going for Day Ahead market and any pre-qualified asset can begin to trade whenever there is a relevant opportunity. For Long-Term tenders, providers will need to register assets by the PQ Submission Deadline. Any new providers participating for the first time will also need to submit company information for the initial commercial check. The sections below provide further information.

4.1 How to identify opportunities

1. All active zones can be found on Localflex and when DER are registered, Localflex will highlight DER that are likely to be in a zone.
2. Competition Data, including expected maximum prices and MW requirements, and a postcode list are provided on the Tender Hub. Please note that the postcodes only serve as a guidance as postcodes do not always align perfectly to the network topology.

4.2 Commercial steps

4.2.1 UK Power Networks Company Checks

UK Power Networks will complete company checks to determine eligibility of providers to participate in Flexibility Services. The provider needs to be a registered company, submit all required information, including company insurance cover, and be verified as a dependable supplier in order to be considered. Checks include an initial credit check. The information required is as per the ENA standards and needs to be submitted on Localflex.

The company details provided must be for the organisation that will enter into contract with UK Power Networks. If the FP intends to transfer any of their rights, benefits, duties or obligations under the flexibility contract to another company after the Pre-Qualification, it must inform UK Power Networks at this stage. UK Power Networks may require a parent company guarantee in the case that a subsidiary company does not meet the company check requirements.

The FP will be notified of the result via an email notification from Localflex. FPs that are rejected will be provided with a reason for rejection and will have the opportunity to revise and resubmit their application.

Applications submitted will be valid for future Pre-Qualification events, on condition that the FP's information has not changed.

4.2.2 Sign Framework Agreement

Following successful company checks, UK Power Networks will issue providers with a Framework Flexibility Services Standard Agreement to sign. This will be completed through UK Power Networks' Digital Signature process.

Following the signing of the agreement, providers may wish to transfer any of their rights, benefits, duties or obligations under the flexibility contract to another company. They shall do this in accordance with the clauses in the Flexibility Services Standard Agreement.

4.2.3 Register on UK Power Networks' SAP Sourcing system as a supplier

New providers will then be invited to register on UK Power Networks' SAP Sourcing system as a supplier. This may trigger an additional credit check of the provider's financial circumstances and will be subject to UK Power Networks' usual supplier checks. This registers the provider as a supplier to UK Power Networks and provides the information required for invoicing and settlement.

For long-term tenders, this step can take place after bidding.

4.3 Technical steps

4.3.1 Asset upload to Localflex

Providers can upload asset details in parallel with company checks. Assets can be registered on Localflex via csv upload, directly onto the platform via the user interface or via API. For more information see the Localflex user guide. Asset information required follows the standard ENA template.

UK Power Networks will undertake a technical evaluation of the information submitted. The provider may be contacted to clarify the information submitted. Asset connectivity will be assessed to ensure the asset is connected to the network asset(s) subject to the constraint, and that it is at a connection voltage less than or equal to the Maximum Connection Voltage, to ensure that it is effective at resolving the constraint. The approximate zone boundary is provided on Localflex, and a list of postcodes for each Flexibility Zone and the Maximum Connection Voltage are also provided on the Tender Hub within the relevant Competition Data file. Note, the Flexibility Zones / postcodes only give an indication of whether a site is electrically connected to a constraint. For further details see 3.6.

In February 2025, we ran a consultation on the eligibility to participate in our long-term tenders. We have made some changes based on feedback received:

- Operational assets are eligible, subject to connectivity and voltage checks. An MPAN is required for all operational assets.
- Planned assets with an accepted connection offer are eligible, subject to connectivity and voltage checks if applicable. We reserve the right to terminate the flexibility awards if the final connection point differs from the initial assessment.
- All other planned and speculative capacities are eligible but shall not exceed a total of 1 MW per FP per tender or an additional 3x the existing operational capacity in zone, whichever is higher. Anything above the threshold will be rejected. You do not need to create “speculative assets” on localflex, you can bid more capacity than the total operational capacity. For example, you have 0.5MW operational assets approved for Zone 1, you can bid up to 2MW for that zone.

Planned and speculative assets may be subject to further evaluation, such as past deliverability, the urgency of capacity needs at the relevant Flexibility Zone and available network options in case of under-delivery. We will work with providers to understand a realistic and achievable delivery plan.

Only operational assets are eligible for Day-Ahead auctions.

4.3.2 Create an asset portfolio or Flexible Unit

A group of assets/DERs can be aggregated together into a single controllable unit called a portfolio. A portfolio is made up of one or more DER located within the same zone. This is the unit that then participates in auctions and for which information is provided for metering and settlement. Portfolios must have an aggregated flexible capacity of at least 10kW and must be able to deliver flexibility for a minimum of 30 minutes. It is the responsibility of the provider to ensure that the portfolio meets the minimum technical requirements, including those pertaining to metering and communication before their service start date.

4.3.3 API Integration (optional)

In parallel with all other onboarding steps, a provider may need to build up their internal process and system integrations required to enable participation. This process can be fully automated through APIs. See the Localflex Welcome Pack (which will be issued to you upon registering for the system) for details of APIs.

4.3.4 Training/system tests

Before trading in Day Ahead or Long Term tenders on the Localflex platform, users will receive training from the Localflex team. This training may include tests to ensure that users can safely and accurately use the platform. If APIs are being set up, participants will have access to a dedicated environment for integration testing and these will be included in the system tests.

5 Trading process and market rules

Onboarded providers can bid into the auctions of zones for which they have been prequalified. The bids are assessed in accordance with the Assessment Methodology (see section 5.3). Note, any information provided by participants at any point during the procurement event is subject to the Procurement Terms and Conditions (Appendix 2).

5.1 Day Ahead Auction process

At day ahead, auction requirements are published by 10am; FPs submit offers by the provider by 12:00; and notification of awards will be by 1:30pm. Figure 3 provides an illustration of the day ahead process and timings. The next day, the provider will deliver the services as instructed.

Figure 3: The Day Ahead processes and timescales

Market Rules – Day Ahead tenders
The FP can only submit a single offer by portfolio for each half-hourly period. Detailed instructions on how to submit offers are available on Localflex.

The following auction rules will apply:

- An Offer can be submitted and changed at anytime up to gate closure of 12pm
- An Offer consists of a Capacity (MW) and Price (£/MWh)
- Offer capacities need to be 10kW or greater, and less than the sum of the flexible capacities of the DER that are part of the portfolio
- Only one Offer is allowed per portfolio per half-hourly market period
- Offers can be recurring where specified

Day-Ahead Awards

The clearing logic for Day-Ahead flexibility auctions are automated on the EPEX SPOT Localflex platform. At 12pm, the Localflex platform looks at all the available offers put forward by flexibility providers and automatically selects the best ones through the clearing engine.

Automated acceptance and clearing of bids provide flexibility providers with faster auction results and greater confidence that market rules have been followed. For more detailed information on the market clearing logic, please refer to the flexibility market clearing logic document published.

5.2 Long Term Tender Auction Process

Pre-qualified providers can bid from Competition Open until Competition Close dates. All bids related to the same Flexibility Zone will be assessed after Competition Close dates. Detailed instructions on how to submit bids is available on Localflex.

UK Power Networks shall assess the bids in accordance with the Assessment Methodology. The outcome of each tender will be made available on Localflex as well as in a Post Tender Report published on the UK Power Networks Tender Hub.

Market Rules – Long-term tenders
The same portfolio can be created for different products i.e. the same group of EVs can be created for LT Utilisation and Scheduled Availability & Operational Utilisation. However, we ask FPs to only choose ONE product for each portfolio. If the same portfolio bid for both products, the more expensive one will be rejected. Detailed instructions on how to submit bids is available on Localflex.

The following bidding rules will apply:

- **Flexible Capacity** – can offer the Flexible Capacity at a single price or split the Flexible Capacity into smaller volumes but at different prices.
- **Service Window** – bids must be for whole Service Window but does not have to be for all Service Windows where there are multiple Service Windows in any given Delivery Season.
- **Delivery Season** – must be for a whole Delivery Season.
- **All-or-nothing** – variations within the bid are treated as all-or-nothing - the whole bid must be either accepted or rejected. Summer and Winter seasons are treated as independent bids.
- **Product choice** – For each portfolio, the provider may choose to submit an offer for either, but not both of, Long-term Scheduled Utilisation or Scheduled Availability Operational Utilisation.
- **Additional parameters** – no additional commercial parameters can be submitted in the bid, above the technical limitations as specified in the asset registration. If there are other technical limitations that have not been captured, FPs should make UK Power Networks aware.

Long-term Awards

UK Power Networks' assessment of bids will seek to meet the volume requirement, at a cost that is within budget, as economically as possible. The maximum price for each zone is calculated based on the Present Value of the deferred reinforcement cost for that zone. If, over time, the volume requirement in a given zone is satisfied at a total cost to UK Power Networks below the budget for the zone, UK Power Networks reserves the right to use the remaining budget in other zones, where beneficial.

The auction is cleared for the entire block, based on minimising cost of meeting the required capacity.

- Offers above the max price are rejected.
- Bids below 10kW are rejected.
- If more than one product was submitted for the same portfolio then the more expensive one will be rejected.
- If the total remaining offered capacity is less than zone requirement, then all offers are accepted.
- Where more capacity is offered than required then the most economical options will be accepted. To compare between products for a given flexibility zone, a Comparable Rate (in £/MWh) is derived to convert the total cost of each bid into a unit rate that allows comparison between bids. The total cost per season is divided by the total capability per bid.

The volume requirement is an indication of how much and when flexibility is needed. UK Power Networks may consider procuring more or less than this amount based on the bids received in the zone, budget available, other mitigating network measures, changes in load growth forecasts, and future tendering opportunities.

The above assessment methodology is a guidance to the general approach, but UK Power Networks may make reasonable variations to this calculation where there are material differences in technical restrictions between portfolios. It is crucial for UK Power Networks to ensure there is sufficient network capacity at the right time in the right place and at the lowest cost to our end customers as governed by the Distribution Network Options Assessment (DNOA) Methodology. We may derate or reject unit(s), regardless of price, based on past delivery performance, the urgency of capacity needs at the relevant Flexibility Zone and available network options in case of under-delivery.

During exceptional and unforeseen network conditions, where provision of flexibility from the unit(s) is ineffective or not possible, for example if the network has been reconfigured or following a network outage, and we have been unable to notify the affected providers prior to the auction, we may reject offers from such unit(s) even if in merit and communicate the reasons with provider(s).

5.3 Dispatch: Notification of competition result

For day ahead competitions, providers will be notified of the outcome by 1.30pm via email from Localflex, or, optionally through API. For long-term tenders, the timeline (including notification of results) will be communicated at the start of the tender.

6 Post trading – baselines and payment

6.1 Calculation of flexibility service charges

The section below describes the high-level process for calculating availability and utilisation payments. For detailed methodologies and the relevant formulas, please refer to the Flexibility Services Standard Framework Agreement.

The Scheduled Availability & Operational Utilisation product has two service charges – Availability Fee and Utilisation Fee, and the Day Ahead and Long-Term Scheduled Utilisation product only has the Utilisation Fee.

Table 3. Flexibility product payment structure

Long-term Scheduled Utilisation	Scheduled Availability & Operational Utilisation	Day Ahead Scheduled Utilisation
	Availability payment (performance adjusted)	
Utilisation payment (performance adjusted)	Utilisation payment	Utilisation payment

Utilisation Fee calculation:

The Utilisation Fee is calculated using the same approach for both Scheduled Availability & Operational Utilisation and Day Ahead Scheduled Utilisation. **Note the calculation is different for LT utilisation, see section below.**

For UK Power Networks to calculate the Utilisation Fee at the end of each month, the provider shall submit half-hourly meter data onto the Localflex platform. The meter data is compared to the baseline to calculate the energy delivered during utilisation events and hence utilisation payments.

The Utilisation Payment (£) = Utilisation Fee (£/MWh) x Energy Delivered (MWh).

Note that over-delivery in any period is not paid, nor will it be treated as compensating under-delivery in another period.

See figure below for an example of a generator responding to a utilisation instruction, showing the change in energy delivered (green box) and the expected change in energy (yellow box). The same principle applies for all directions of service (demand turn-up/generation turn-down and demand turn-down/generation turn-up).

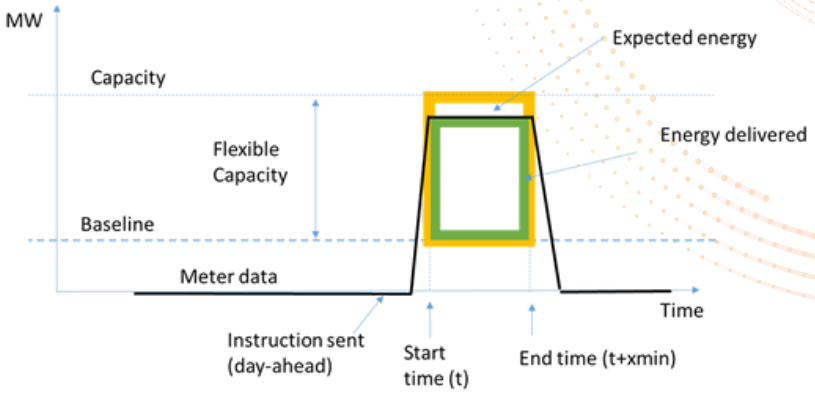


Figure 4: Delivery of flexible energy from an example generator or storage

Availability payment performance adjustments:

For the Scheduled Availability & Operational Utilisation product, the provider shall be paid availability payments for all periods available even if the portfolio is not dispatched.

The Availability Fee will be reduced by a Performance Factor derived on a monthly basis by comparing the energy delivered to the energy requested to be delivered during utilisation events. If a FP provider notifies UK Power Networks of periods of unavailability this will avoid affecting the Performance Factor through un-delivered utilisation requests however these periods will not receive Availability Fee payments.

The Performance Factor is derived from the percent energy delivered using a 5% Grace Factor and a 3% Penalisation Multiplier as shown below. If there were no utilisation events in a month, then it is assumed that the Performance Factor = 1.

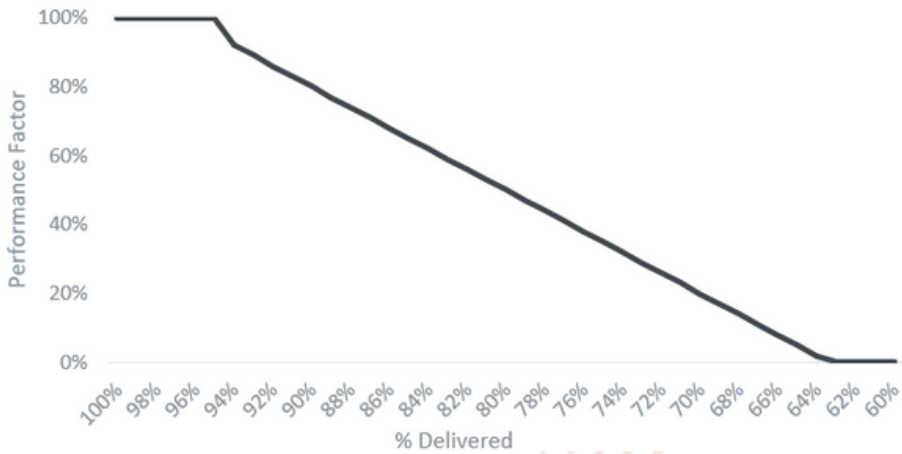


Figure 5: Performance Factor after Grace Factor and Penalisation Multiplier

The figure below shows the high-level method for calculating Day Ahead Scheduled Utilisation and Scheduled Availability & Operational Utilisation

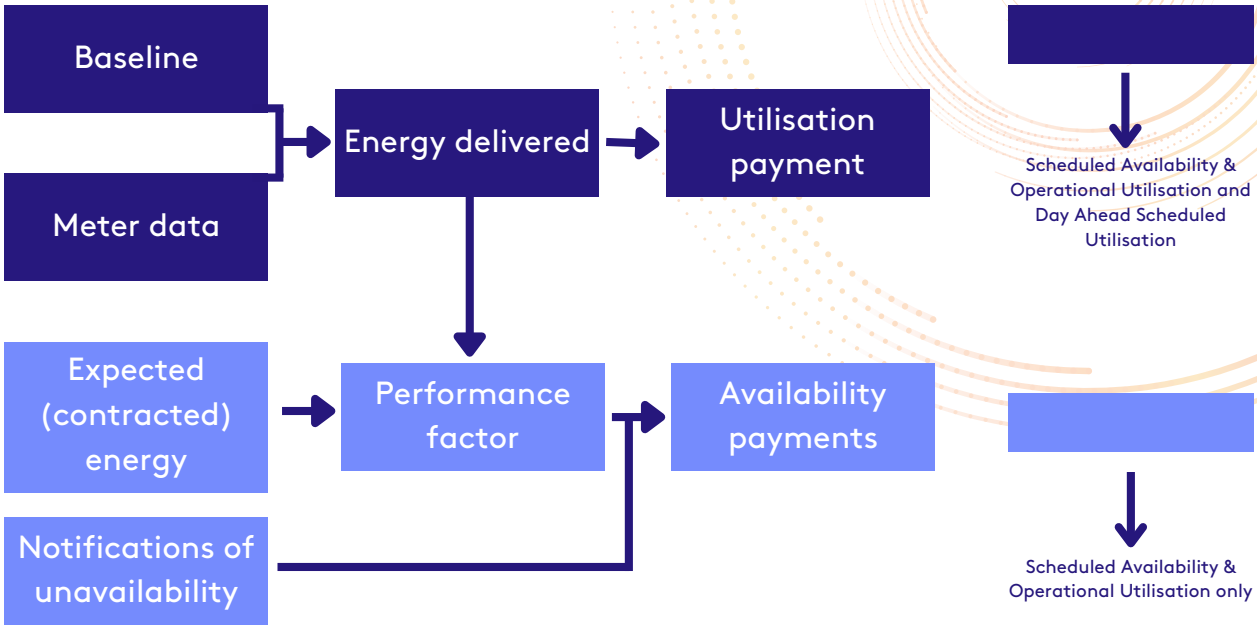


Figure 6: Payment calculation method: DA-SU and SAOU

Long-Term Scheduled Utilisation Payment:

The calculation is largely the same as the other utilisation payment calculation. The only difference is there is a performance factor adjustment for LT utilisation. The figure below shows the high-level method for calculating the LT Utilisation payment.

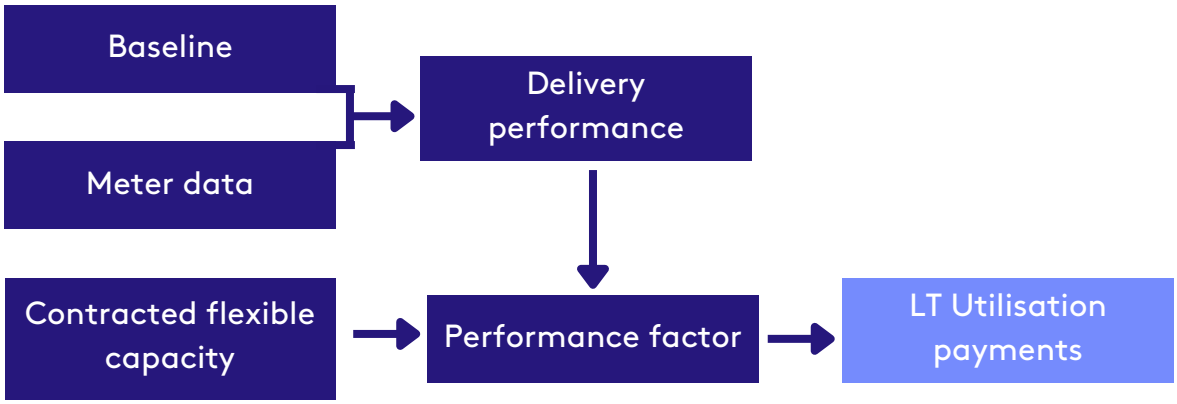


Figure 7: Payment calculation method: LT-SU

At the end of each month, the FP shall submit half-hourly resolution meter data for the portfolios to UK Power Networks. The FP shall be paid utilisation payments for all months that a LT Scheduled Utilisation service is provided. The Performance Factor is derived from the percent energy delivered using a 5% Grace Factor and a 3% Penalisation Multiplier as shown below. Note that over-delivery is not paid.

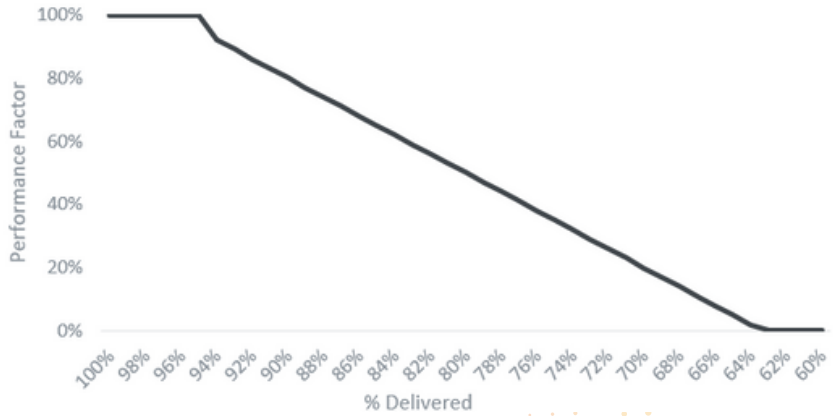


Figure 8: Performance Factor after Grace Factor and Penalisation Multiplier

6.2 Baseline methodology

There are a number of baselines established for different DER types for different services. We have moved to a technology-based fixed baseline as outlined below. Where the Provider proposes alternatives, the Company, acting reasonably, will decide and confirm in writing whether such proposed baseline can or cannot be used. The current baseline options are identified in the table below. These may be updated from time to time.

Table 3: Proposed baselines for each DER type

DER type	Scheduled Availability & Operational Utilisation (SAOU)	Long-term Scheduled Utilisation	Day Ahead Scheduled Utilisation
Intermittent generation (demand turn-up/generation turn-down sites only)	N/A	N/A	Preferred: Last observation or Meter-Before/After Option: Nomination
Schedulable generation	Zero baseline	Zero baseline	Zero baseline (GTU) or recent history (GTD)
Storage	Zero baseline	Zero baseline	Zero baseline
Commercial DSR	Recent history	Recent history	Recent history

Domestic EV charge points	Home EV profile	Home EV profile	Home EV profile
Domestic heat pump	Heat pump profile	Heat pump profile	Heat pump profile
Non-LCT household	Household profile	Household profile	Household profile

Operational Baselines

Recent History

- Select the set of Y most recent eligible days preceding a utilisation event. For workdays Y=10 and for non-workdays Y=4. Eligible Days are days of the same type as the day of the event, being a workday or non-workday type, and a day with no utilisation events.
- The baseline, resolved to half-hourly time periods, is the mean across the set of Y days for the same half-hourly time period.

Last Observation

The average output of the Flexible Unit in the full half hour preceding the Start Time of a Utilisation Instruction.

Meter-Before Meter-After

The average of the output of the Flexible Unit in the full half hour preceding a Utilisation Instruction and the full half hour proceeding the same Utilisation Instruction (applicable for renewable generation only).

Nomination baseline

The Provider submits a schedule at Day Ahead for a Flexible Unit by 12pm, applicable for the following Day, which will be used as the baseline.

The Provider shall also submit meter data for the same period as the nominated schedule in the Performance Report, and the Company shall calculate the schedule accuracy by comparing the schedule with the meter data for periods where there were no utilisation instructions.

Where the accuracy is less than 80% in a month, the Company may discuss and agree with the Provider remedial actions, and until such time as remedied to the Company's satisfaction, the Company shall use an alternative baseline methodology, and the Provider will be given reasonable notice.

Static Baselines

Zero baseline

The zero baseline methodology assumes that the baseline energy consumption or generation is zero, meaning any energy delivered during a dispatched utilisation event is considered the full response. This approach simplifies the assessment of delivery performance and settlement calculations, particularly for assets like dispatchable generators and domestic/grid-scale batteries.

Home EV

This methodology is only applicable to home-based EV charging. The diversified load impact per EV, as given in the following chart, is multiplied by the number of EVs in the Flexible Unit to give the total diversified load. The kW/EV ratio depends on whether the flexibility zone is in the LV network or the EHV/HV network (the latter's larger zones with more EVs will have a higher diversity). Where the site no longer has an EV or charger the Provider shall notify the Company and the site removed from the Flexible Unit.

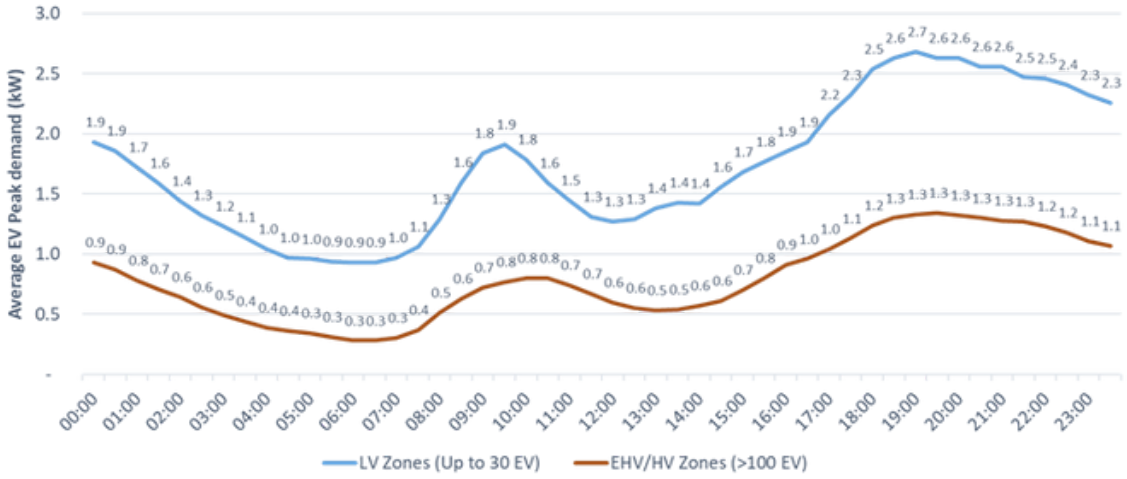


Figure 9. EV fixed baseline for LV and HV zones

Flexible capacity

The baseline also dictates the maximum flexible capacity. The maximum demand turn-down would be 1.3kW for HV zones and 2.7kW for LV zones. The maximum demand turn-up would be 6.7kW (no demand turn-up services in LV zones).

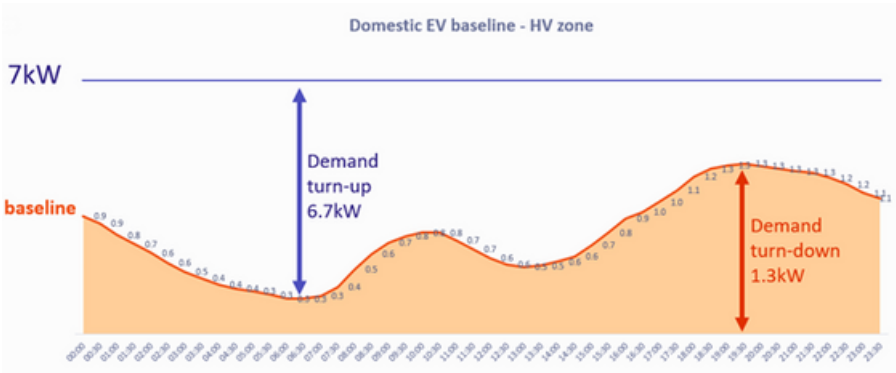


Figure 10. Flexible capacity of an EV

Heat Pump profile

This methodology is only applicable to home-based heat pumps. The diversified load impact per heat pump, as given in the following chart, is multiplied by the number of heat pumps in the portfolio to give the total diversified load. Where the site no longer has a heat pump the Provider shall notify the Company and the site removed from the portfolio.

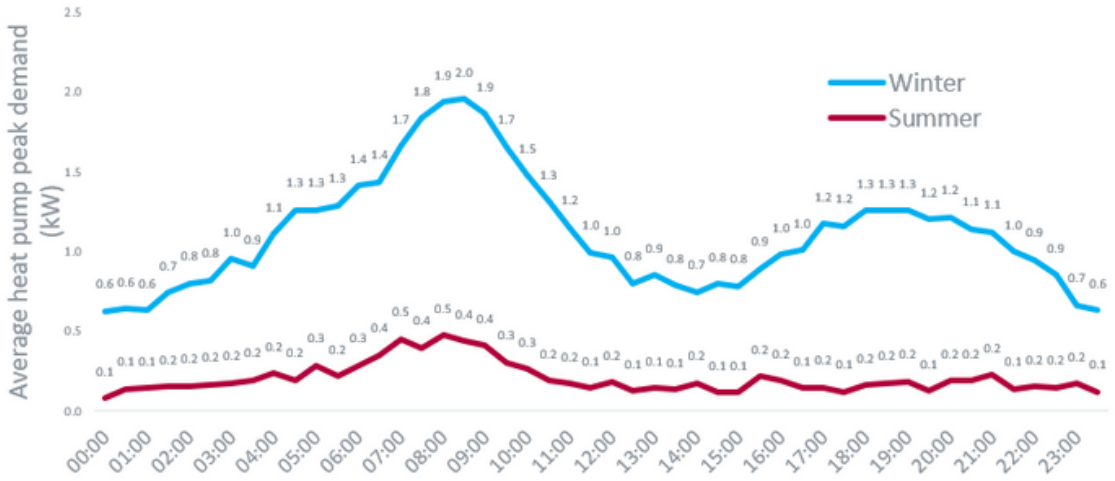


Figure 11. Heat pump fixed baseline for winter and summer

Flexible capacity

Similar to EVs, the maximum demand turn-down for a heat pump would be 2kW in the winter and 0.5kW in the summer. The maximum demand turn-up would depend on the maximum capacity of the heat pump. If the heat pump is 4 kWe then the maximum demand turn-up (overnight) in winter would be 4kW - 0.6kW = 3.4kW.

It is important to bid in the correct flexible capacity according to the baselines. This will help prevent penalisation on payments due to under-delivery as outlined in Section 6.1.

UK Power Networks may consider an alternative baseline to the methodologies described above if the FP enters an appeal to flexibility@ukpowernetworks.co.uk providing satisfactory reasons why these methodologies are not suitable prior to Pre-Qualification close. UK Power Networks can accept or reject that request. The baseline methodology cannot be changed during the contract term without satisfactory reason.

7 Links to key information

- EPEX SPOT Localflex platform
- UK Power Networks' DSO tender hub

Contacts for Queries & Further Information

If you have any questions or queries, please contact:
flexibility@ukpowernetworks.co.uk

To find out more about flexibility services and our current tender opportunities, please visit:
https://dso.ukpowernetworks.co.uk/flexibility

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