MAYOR OF LONDON

West London Electricity Capacity Constraints

March 2024 - GLA Update Document

This update document sets out:

This is issued as a further update to the West London Electricity Capacity Constraints documents published in June 2023, November 2022 and July 2022. The previous documents set out the background and proposed solutions to resolve the electricity capacity constraints in West London, the Greater London Authority's (GLA's) role and the impact on development delivery in the three affected London Boroughs of Hounslow, Hillingdon and Ealing.

This fourth document outlines the latest status of the capacity constraints, the progress made against the initial, short, and medium-term solutions, and the new solution being introduced by Scottish and Southern Electricity Networks (SSEN), National Grid Electricity System Operator (NGESO) and National Grid Electricity Transmission (NGET).

Also included in this document is an overview of the work the GLA has led in collaboration with the affected boroughs, developers, Government and Ofgem to ensure coordinated action and that the solutions developed are in the best interest of Londoners. While the Mayor does not have powers over electricity networks, all parties appreciate that the original timelines for connecting in West London were unacceptable and have made resolving these challenges a priority. The document includes updated figures on homes unlocked by the solutions to date, and homes still requiring support.

Key updates in this document include:

- Results from the 2023 GLA developer survey on the number of homes that now have an electricity connection secured and those that are still waiting to connect.
- SSEN, NGET and NGESO's new solution to allow developments to proceed that require greater than 1MVA of electricity capacity ramping up per year.
- SSEN's acceleration of the use of flexibility solutions to deliver additional capacity, unlocking schemes currently awaiting distribution upgrades.
- Key measures from Government and Ofgem's Connections Action Plan to overhaul the connections process.

Summary

>1MVA ramping solution update

SSEN, NGET, and NGESO have come together to introduce a new solution allowing schemes to receive more than 1MVA of electricity network capacity per year, ramping up over time (e.g. 2MVA in year 1, additional 2MVA per year in year 2 and year 3, meeting the project needs of 6MVA in the last year of ramping). The amount of MVA will depend on each scheme and the GSP where it sits.

SSEN has undertaken analysis on all schemes that responded to the GLA's October 2023 developer survey as well as projects that engaged with the GLA on connections issues subsequently, and SSEN identified a way forward for all schemes included, some of which can utilise the >1MVA ramping solution alongside the provision of additional network capacity that SSEN will secure from flexibility tenders.

For more information, see **New >1MVA ramping solution** below.

Fig 1. Summary of >1MVA ramping solution

Since the publication of the previous GLA update document, progress has been made to address the constraints challenges in West London. SSEN, NGET and NGESO have seen an uptake of the initial 1MVA ramping solution in West London introduced in Spring 2023 – where developments that can proceed with under 1MVA of electricity network capacity per year can move forward (assuming there are no additional distribution-level constraints in the area). A total of **10.5 MVA** of Demand Capacity is now being provided as ramped connections.

To date, **7,800** homes (of which **2,900** are affordable) have been unblocked through GLA support and introduction of the 1MVA ramping solution. Overall, **12,600** homes in the affected West London boroughs that we are aware of have an electricity connection secured, while **3,900** homes that are on site or have planning permission do not. You can find more details in the **GLA Updates** section of this document. The GLA is encouraged by these results, which demonstrate good progress. However, more work is still required to ensure those without a connection are able to progress.

To that end, SSEN, NGET and NGESO will now be increasing the threshold of their ramping solution to allow developments to proceed that require greater than 1MVA per year. This is especially important for schemes that require a larger electricity connection up front, including net-zero related projects like rapid EV charge points, as well as leisure centres, hospitals, and education facilities. Further details on this solution can be found in **Figure 1** and see **New >1MVA ramping solution** below.

A total of 10.5 MVA of Demand Capacity is now being provided as ramped connections.

To date, 7,800 homes have been unblocked through GLA support and introduction of the 1MVA ramping solution.

Overall, 12,600 homes in the affected West London boroughs that we are aware of have an electricity connection secured.

Summary continued

The >1MVA ramping solution will be particularly crucial because NGET has confirmed that there have been no changes to the transmission upgrade timelines provided previously and the upgrade date is unlikely to change for the remainder of the year. The GLA expects that the transmission upgrade timelines in West London will eventually accelerate, given Government's recently announced Transmission Acceleration Action Plan promises to halve timelines for transmission upgrades. In the interim, the >1MVA ramping solution should allow many schemes to progress that would otherwise be stalled.

The GLA has been focused on finding solutions for projects looking for a connection in the short-term but affected by distribution-level constraints, given that the 1MVA (and now >1MVA) ramping solutions can only be utilised where sufficient distribution capacity is in place. (Necessary upgrades are currently scheduled in 2027 for some Grid Supply Points (GSPs); distribution upgrades have historically taken 1-3 years across London). Crucially, SSEN has determined that sufficient capacity will be created through flexibility tenders—contracting in June 2024—to allow all known schemes currently behind distribution constraints to progress before physical upgrades occur. This will be subject to schemes' timely entry into the application process.

Previous documents highlighted a suite of short and medium-term solutions that the network companies have been exploring to address the electricity constraints in West London. As these solutions have progressed in their implementation, some have proved to have limited impact for West London given their focus has been on the transmission generation queue, including NGESO's Five-Point-Plan. As the majority of projects in West London are seeking demand connections to the distribution network, and there is limited renewable power generation in the area, these new solutions have not yielded the change hoped for in the impacted boroughs.

Overall, network companies are continuing to pursue connection and queue reforms through the Energy Networks Association (ENA) and Government and Ofgem's Connections Action Plan, both of which may positively impact the demand queue at the distribution level. The GLA remains hopeful that these additional interventions could help stalled projects move forward in West London by using existing electricity assets more efficiently. These actions are in the process of implementation and their full impact is to be determined.

The GLA will continue in its role as a facilitator to identify any potential opportunities that will unlock capacity and help advance stalled projects in West London.

GLA update

Homes unlocked in West London

In October 2023, the GLA circulated a survey addressed to developers with schemes in the affected areas of West London. The GLA first undertook a developer survey in Summer 2022. The 2023 survey was circulated to as many developers as possible, beyond just those who had completed the 2022 survey.

The aim of the survey was to identify developments the GLA was not aware of in the affected areas facing issues securing power, so that the GLA can support work towards resolution, as well as measuring any progress to date for developments the GLA was already aware of. Additionally, the survey asked developments with power secured if they would be interested in collaborative streetworks opportunities as part of the GLA's 'dig once' approach to reduce disruption for Londoners.

The survey questions were formulated with SSEN to ensure the resulting data would be most useful in informing decision making around the short, medium and long-term solutions to the electricity capacity constraints issues. The information gathered was shared with SSEN, NGET and NGESO.

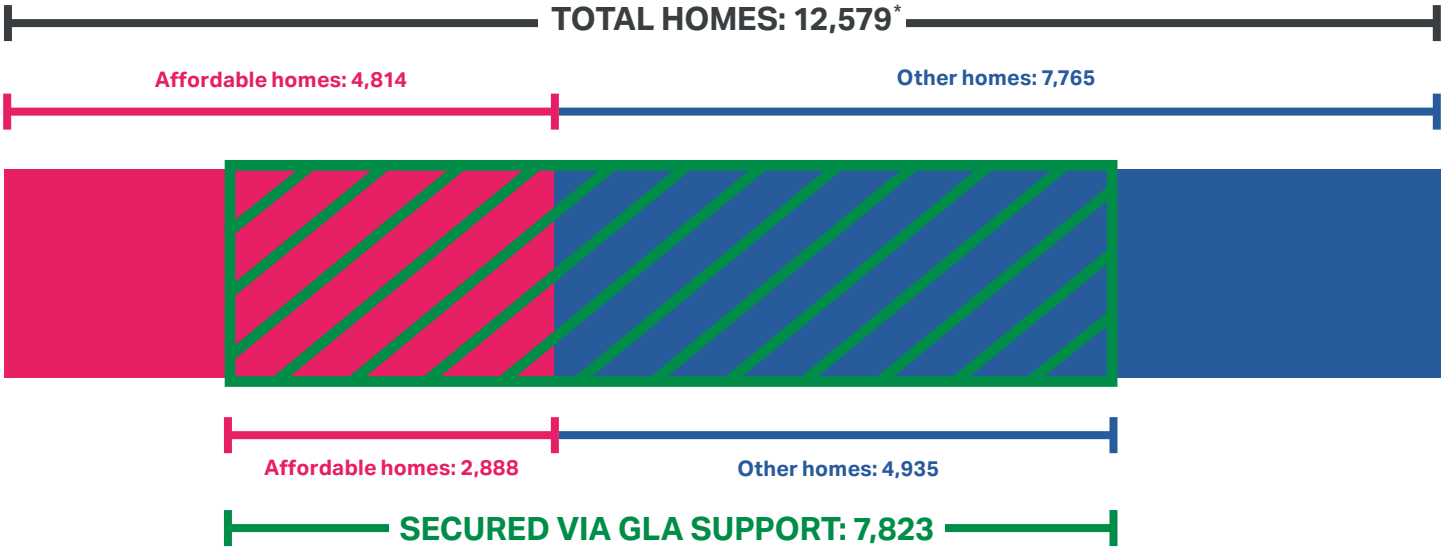
The GLA is working with all developers in West London who have raised power connection issues with City Hall. We are currently engaged with **64** development schemes*, **37** of which have their point of connection already confirmed. Of the **27** schemes without a point of connection, **15** are not yet in the planning system.

The GLA regularly convenes sessions between SSEN and West London development teams to discuss their queries and help unlock solutions specific to their sites. As well as this scheme-by-scheme approach, the GLA intends to organise additional workshops between SSEN and groups of developers to improve transparency around upcoming distribution network upgrades.

Fig 2. West London Boroughs affected by capacity constraints

GLA update continued

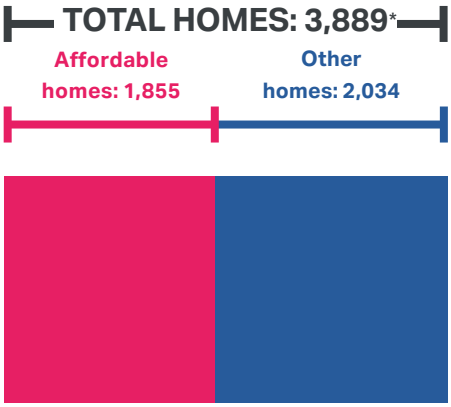
Number of West London homes **with** power secured:



* From GLA 2023 Developer Survey results as well as projects that approached the GLA with connections issues before March 2024, therefore will not be representative of entire West London development pipeline.

Fig 3. West London homes with secured power

Number of West London homes **without** power secured:



* From GLA 2023 Developer Survey results as well as projects that approached the GLA with connections issues before March 2024, therefore will not be representative of entire West London development pipeline. The above includes only schemes with planning permission secured or currently onsite. The GLA is aware of an additional 4,280 total (1,953 affordable) homes awaiting planning permission that do not yet have a point of connection secured; it is not unusual to be without a connection during the planning process.

Fig 4. West London homes without power secured

GLA update continued

Suggestions for Developers

The GLA has the following suggestions for development teams applying for an electricity connection from SSEN in the West London affected boroughs:

- Due to the West London electricity capacity constraints, developers should begin conversations with SSEN as early as possible. For example, before submitting an application, developers may benefit from an SSEN Pre-application call. More information can be found here.
- When submitting a connection application, developers may want to consider if they require the least expensive option (the default) or the fastest option (likely to be more expensive) and make this clear to SSEN in the application text.
- Development teams should consider the novation of any existing power supply on their plot from previous site developments. Novation in this context means transferring rights and obligations under a connection agreement from one party (e.g. previous site owner) to another (e.g. new site owner). More information can be found here.
- Before submitting an application, developers requiring over 1MVA in total should consider if their power requirements can be ramped over a yearly basis. If so, developers should clearly highlight in their application that they wish their project to be considered as part of the West London Ramped Capacity Scheme trial.

Collaborative Connections and Trench Sharing

Cross Distribution Network Operator (DNO) boundary connections (e.g. a developer within SSEN's area connecting into UKPN's network by undertaking a long connection stretching across boroughs) should be considered only as a last resort, as they are more expensive, carry more risk, and are very disruptive to Londoners. Where a developer chooses to move forward with a stretch connection, the GLA can explore collaborative streetworks opportunities to reduce road network disruption, as part of the GLA's 'dig once' approach. The GLA is currently engaged with a small number of schemes that are exploring stretch connections for their sites to overcome electricity capacity constraints. Developers are also encouraged to coordinate with boroughs to identify opportunities where nearby Council-led developments may also benefit from trench sharing (e.g., estate regeneration, leisure centre-re-development).

Case study:

The GLA is currently engaged in a feasibility-stage conversation with two projects that are considering stretch connections, to identify if trench sharing is possible. The point of connection sits within UKPN's DNO area, whilst the two sites sit in a neighbouring borough within SSEN's DNO area. The two interested teams applied for their stretch connections independently and if connection offers are accepted after this feasibility stage, the GLA will work with the developers and UKPN on the excavation of a single trench to house the multiple cables. Shared trenching is a disruption mitigation measure employed on long connections—there are considerable routing requirements that add risk to the projects, but the benefits include reduced costs to the project teams and reduced disruption for Londoners.

Fig 5. Case Study of collaborative connections projects

GLA update continued

Local Area Energy Planning

In the previous update document, we shared that the GLA is facilitating and funding local area energy planning at a subregional scale across London. A Local Area Energy Plan (LAEP) is a public sector-led approach in collaboration with infrastructure providers, setting out to identify the most effective route for an area to meet its Net Zero target, across all relevant infrastructure. The first subregional LAEP was completed in partnership with SSEN, UKPN, West London Alliance boroughs, and two neighbouring boroughs, with engagement from London Councils, focusing on West London. Following the completion of the West London Subregional LAEP, several cross-borough work packages were identified and are being taken forward by the GLA and West London boroughs. Many West London boroughs are building on the subregional LAEP to finish the process for their own local area.

The West London subregional LAEP includes the boroughs of Hounslow, Hillingdon and Ealing alongside 6 others, and is especially pertinent given that the electricity distribution and transmission grid in these regions is under pressure and that electricity demand is anticipated to grow significantly over the next few decades.

The Subregional LAEP can help to address the West London capacity issue by bringing together insights on future energy demand and capacity in the area, allowing informed decision making on solutions that support both decarbonisation and growth. The outputs of the LAEPs will inform the utilities' business planning process and influence future plans for investment to upgrade the networks.

The West London subregion is home to a higher than typical density of major energy users (including data centres). The subregional LAEP identifies that there is a potential opportunity to reduce operational energy demand associated with major energy users, such as data centres, by engaging with stakeholders to understand business and decarbonisation plans. The GLA has helped to advance this work by undertaking research and engagement with the trade body TechUK, which represents data centres, to help understand industry infrastructure demands and identify anticipated future growth in the sector. For further details on these engagements, please refer to the GLA's June 2023 public document.

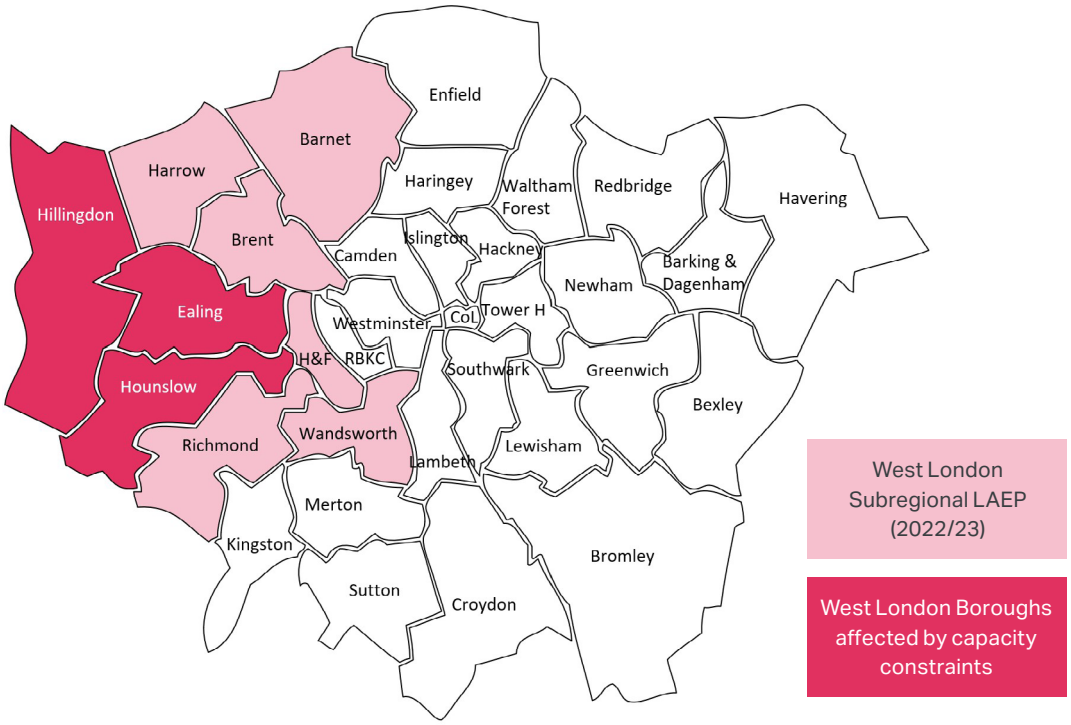


Fig 6. West London Subregional LAEP boroughs and West London Boroughs affected by capacity constraints

Update on solutions

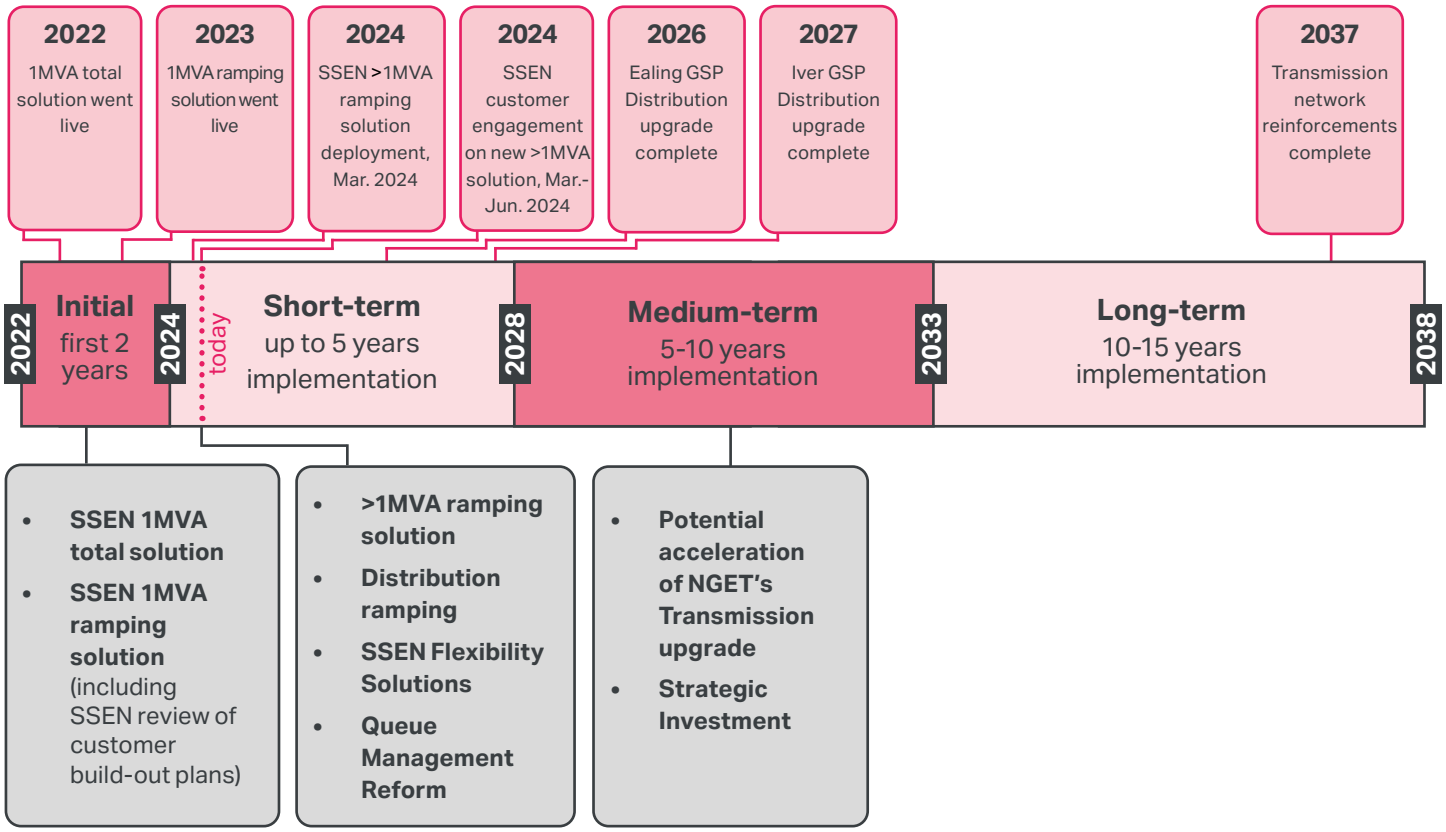


Fig 7. Timeline of proposed solutions to the West London Capacity constraints

Initial solutions

Reflections on the 1MVA ramping solution

Following the introduction of the 1MVA ramped capacity solution for distribution-level demand connections, SSEN has been contacted by a number of customers seeking further information on how this would support earlier connections to their project. To date, a total of **10.5MVA** of demand capacity is now being provided as ramped connections.

Update on solutions continued

Short-term solutions

New >1MVA ramping solution

SSEN, NGET and NGESO have been working together to identify opportunities to enable faster connections for projects where the existing 1MVA ramping solution has not been suitable or viable. Some of these projects require higher yearly ramping (above 1MVA annually) in order to proceed.

SSEN, NGET, and NGESO have come together, through GLA convening, to again review the network capacity at both transmission and distribution levels and the forecasted demand growth including projects already contracted for the 5 GSPs in West London which currently face constraints. (Note that the sixth GSP – Amersham – included in previous analysis is not within Greater London; it had been included because its capacity has knock-on impacts within Greater London).

Jointly, they have concluded that it will be possible to increase the ramping allowance per year beyond 1MVA for schemes that require it, so long as key principles are met:

- The project and the associated electricity demand needs must have been included in SSEN's long-term planning document—the Distribution Future Energy Scenarios (DFES). Projects would have been included in the DFES if a local authority was aware of the scheme entering the planning system by June 2023.
- The project must have been included as part of the local authority's Local Plan.

SSEN has carried out a review of the projects that responded to the GLA's October 2023 developer survey as well as projects that approached the GLA with connections issues before March 2024, and have outlined their conclusions in the table below.

Note that this table is not a reflection of capacity or headroom availability at each GSP. It represents an assessment of projects known to SSEN through the GLA's survey/engagement, and routes for those projects to connect:

Connections solutions for projects in GLA Survey/Engagement	Ealing GSP	Laleham GSP	North Hyde GSP	Willesden GSP	Iver GSP	Total per solution
Projects that can connect without any ramping and are already in contract (MVA)	1.5	0	0.5	2.0	0	**4.0**
Projects that can connect without any ramping and are not yet in contract (MVA)	0	0	0	4.5	0	**4.5**
Projects that can ramp now, subject to sufficient distribution capacity but by end of 2025, and are already in contract (MVA)	11.6	0.8	4.3	6.1	0.6	**23.4**
Future projects, not yet contracted with SSEN* that can use the ramping solutions (MVA)	28.8	0	4.1	22.9	0	**55.8**
Total MVA capacity per GSP	**41.9**	**0.8**	**8.9**	**35.5**	**0.6**	**87.7**

Fig 8. SSEN connections solution for projects in GLA survey/engagement

* Subject to connection offer request, assessment, and acceptance.

Update on solutions continued

Short-term solutions continued

New >1MVA ramping solution continued

According to SSEN, this would see SSEN enable the connection of approximately **87.7 MVA** of known projects which would otherwise depend on transmission reinforcement works, of which **27.4 MVA** are already contracted and can be brought forward by 2-10 years. If SSEN successfully unlocks the schemes included in the GLA October 2023 survey and schemes that have approached the GLA with connections issues since then, as they expect to do through this process, that would equate to an **additional 3,900 homes unlocked** that are currently on site or have permission secured; and **4,300 homes unlocked** that are earlier in the planning process or more speculative. SSEN expects there to be sufficient capacity still available beyond these schemes to connect more homes if and when they come forward (5,000 or more based on the current proportion of housing projects in the connections queue). This will enable new schemes to progress well ahead of the 2037 transmission upgrades, aligned with developers' and local authorities' plans to meet housing, commerce, and local low-carbon energy needs (e.g. EV charging points) in the Greater London area.

For those who have been engaging with the GLA and already have a contracted connection, SSEN will be in touch between April-June 2024 to provide a view on the impact of the new >1MVA ramping solution on their project. Customers who are not yet in contract are encouraged to do so at the earliest opportunity to secure capacity and queue position. Developers are encouraged to engage with SSEN even if they do not believe the new >1MVA ramping solution will solve any existing connection challenges, since the analysis undertaken by SSEN has generated ways forward for all schemes that responded to the October 2023 survey or have engaged the GLA subsequently.

For those schemes that have not engaged with the GLA, SSEN welcomes customers to apply for ramped connections above 1MVA for these 5 GSPs. SSEN will be in touch as part of the normal connections process to determine if each scheme can benefit from the >1MVA ramping solution.

This new process is made possible through an additional expected **76 MVA** of capacity that can be made available, from June 2024, based on the modelled benefits of flexibility tenders (see **Flexibility** section below).

This revised approach is based on the current network assessment, capacity availability and the contracted queue. Exact capacities available at each GSP will be subject to further modelling in line with flexibility tender returns but the benefit is expected to be spread across each GSP.

Enable the connection of approximately 87.7 MVA of known projects.

An additional 3,900 homes unlocked that currently have permission secured; and 4,300 homes unlocked that are earlier in the planning process.

An additional 76 MVA of capacity expected to be made available based on the benefits of flexibility tenders.

Update on solutions continued

Short-term solutions continued

New >1MVA ramping solution continued

The >1MVA ramping solution means that a developer may be able, for instance, to receive 2 MVA in the first year, an additional 2MVA per year in in year 2 and year 3, meeting the project needs of 6MVA in the last year of ramping. The amount of capacity available per year will depend on each scheme and the GSP it sits in.

Like the existing 1MVA ramping solution, customers may apply for >1MVA ramped capacity without utilising the electricity immediately but within reasonable timescales and achievement of project milestones consistent with fairness to all potential connectees. For instance, in the example above, the developer might secure a connection in the first year, allow the capacity allocation to increase to 6 MVA over three years, and then begin using the electricity after three years.

Going forward, projects that seek to connect will be assessed on a case-by-case basis by SSEN. SSEN will engage with boroughs as part of the DFES process so that boroughs' future requirements can form part of SSEN's known investment need, which is submitted annually to NGESO and NGET. The DFES process should look at the pipeline of development that is best known to the borough at the time, including schemes yet to receive planning permission. SSEN will be engaging with boroughs annually to update the DFES.

Any projects requiring over 10 MVA in total would require further analysis and special consideration by SSEN. Note that the vast majority of housing and commercial schemes require less than 10 MVA in total.

Some projects are currently unable to immediately connect to the network not because they require over 1MVA ramping per year, but because they are awaiting necessary distribution network upgrades in the coming 1-4 years. Other solutions explained throughout the document (including flexibility) can help those currently awaiting distribution upgrades to connect now, so SSEN will continue to engage with these customers to inform them on when connection timescales can be improved. The >1MVA solution only applies where there is sufficient distribution network capacity in place.

GSPs included in the >1MVA ramping product are:

- Laleham
- Iver
- North Hyde
- Willesden
- Ealing

SSEN welcomes any customers and stakeholders, including local authorities who are located in SSEN's area, to get in contact with the Business Relationship Management Team (businessrelationship@sse.com) to provide information on future or planned developments and associated electrical load demand requirements, and to determine if the ramped >1MVA ramping solution is relevant for them.

Update on solutions continued

Short-term solutions continued

Distribution Network Ramping

Distribution-level constraints remain a blocker for projects in some parts of Hounslow, Hillingdon and Ealing that are seeking a connection within the next 4 years (see table in **Figure 9**). Where significant distribution level constraints exist, the threshold for projects that can connect before network reinforcement is **500kvA**.

However, following the revised network modelling and ramping analysis completed by SSEN in February 2024 (see **Figure 8**), SSEN has determined that capacity freed up through upcoming flexibility contracts will be sufficient to connect all projects currently known to SSEN and GLA that sit behind distribution-level constraints, subject to application where required (see **Use of flexible solutions** below). Looking ahead, SSEN expects to utilise flexibility on a regular basis to manage potential future constraints.

This negates a need for further solutions at a distribution level in the short-to medium-term. However, SSEN will continue to explore the potential for distribution-level ramping to become a standard product for customers who wish to connect over 500kvA at 11kvA level should it be required in future.

(Note that the ability to phase or ramp connections behind distribution-level constraints is more complex than at the transmission level, where ramping solutions have been in place since Spring 2023). This is due to the smaller scale of capacity and the greater cumulative impact of each new project within a localised network.)

Use of flexible solutions to deliver additional capacity

In line with the update earlier in this document, SSEN expects the tendering for flexibility services, which serve to reduce electricity demand at peak times, to be an important tool in mitigating both current and future capacity constraints at a distribution level.

Flexibility tenders aim to flatten the peak of demand on the network by reducing electricity usage at times of day when the grid is most constrained. SSEN puts a call out to its customers, offering to pay electricity users if they commit to undertaking high-energy activities at the hours most conducive to balancing the grid. Sometimes an aggregator sits in between SSEN and residential customers, managing the flexibility contract. When flexibility works well and lowers the peak of demand, capacity can be created without physically upgrading assets.

Since the last update, SSEN has accelerated the recruitment of aggregators and suppliers to provide domestic residential flexibility. A new procurement process was initiated in September 2023 to recruit market participants under an overarching agreement, allowing for multiple agile bidding rounds. All contracts were signed in February 2024.

Following a successful 'global call' that tested the market for flexibility and identified a potential of **59 MVA** in demand-side response in West London, further successful tender activity has uprated these estimates with at least **76 MVA of flexibility expected from the five GSPs.**

Work is now underway to understand the specific flexibility requirements for the five West London GSPs, including time of day, volume, and location requirements. The release of bidding rounds is expected in April/May 2024 with contracts awarded in May/June 2024.

Update on solutions continued

Short-term solutions continued

Queue Management Reforms Led by Network Companies

Due to a rapid growth of connection requests, various industry-wide initiatives are underway to improve outcomes for connections customers through reforms to the queue management process. As part of the ENA's 3-Step-Plan, which is intended to introduce rapid changes to the distribution connection system, the network companies are working together to identify new opportunities for improving the interface between the distribution and transmission networks. These discussions have so far focused on:

- **Long-term forecasting to drive better understanding of network development and investment needs** to support local development plans, customer needs and the journey to Net Zero.
- **Ensuring DNOs align with the new NGESO connections process** that will introduce windows of application and assessment, thus preventing distribution customers from having to wait one year before their connection can be assessed by transmission.
- **DNOs securing access to transmission capacity ahead of the submission of applications** by distribution customers, thus removing the time lag and associated uncertainty currently experienced by distribution connections.

There are additional plans to reform the distribution network connections queue by removing projects that fail to meet delivery milestones and releasing capacity to accelerate viable projects. The initial phases of this task focused on generation projects, of which none are located in West London. SSEN is working alongside other DNOs to consider a consistent approach for inserting milestones in demand connection contracts as part of future phases. DNOs have discretion, allowing them to focus where there are currently capacity issues and demand constraints.

Update on solutions continued

Short-term solutions continued

Government and Ofgem's joint Connections Action Plan

The Department for Energy Security and Net Zero (DESNZ) and Ofgem have published their joint Connections Action Plan in November 2023 outlining key areas of reform on how Government and network companies can significantly reduce connection timescales, freeing up space in the connections queue, better allocating available capacity, and improving information sharing and transparency.

The implementation of the Plan is currently underway, already resulting in some capacity to be freed up in the queue. Several actions outlined in the report demonstrate the potential to help address the capacity issue in West London:

- **Transmission connection dates to be reduced on average and for a significant majority of projects to receive the connection date requested.**
- **Reduce the friction at the interface across transmission and distribution networks by enhancing the use of non-firm connection offers, improving data transparency on constraints across the network, and reviewing the way transmission reinforcement costs can sometimes be passed through to distribution customers.**
- **Ensuring consistency and standardisation, including the allocation of costs, to improve outcomes for customers.**
- **End-to-end review of connection incentives, obligations and requirements relating to transmission and distribution connections to ensure improved quality of service and timely connections.**

Other actions, such as technical limits across all GSPs, will likely not have a direct and immediate impact on demand-driven distribution projects like housing, but the hope is that over time the overall improvements to the connections system will enable earlier connections for stalled projects in West London.

The action plan includes a task for review of a change of approach to the treatment of unused capacity that is contracted. Work has yet to be started on this by DNOs. Progress made toward implementing this action will be monitored and reported on in future update documents.

Update from Government

DESNZ continues to work with industry and Ofgem to implement the Connections Action Plan. Since November, these measures have led to over 40GW of energy projects being offered earlier grid connection dates, including over 18GW at distribution level, accelerating up to £40bn of investment.

As committed to in the action plan, Ofgem is reviewing the connections regulatory framework and will make recommendations by the end of June 2024 to ensure strong incentives and obligations are in place for network companies to deliver timely connections and excellent customer service – including distribution and demand customers.

Government and Ofgem are actively tracking the impact of the action plan and engage regularly with network companies to consider if further measures are required to create a more efficient, transparent, and equitable connections process.

Update on solutions continued

Medium-term solutions

Potential Acceleration of Transmission Upgrades

In response to the report from Electricity Network Commissioner Nick Winser, DESNZ recently published its Transmission Acceleration Action Plan. The plan focuses on accelerating electricity transmission network deployment with the aim of halving existing timeframes from 14 to 7 years. With this in mind, NGET may revise the dates for transmission network reinforcements work required across all 5 affected GSPs* in West London, potentially bringing forward the date from 2037. The report was published in November 2023 – its actions will be fully implemented later in the decade and so should start to impact build timelines by then. It should be noted that this commitment may not directly impact demand-capacity in West London.

* Previously, we had mentioned 6 affected GSPs. This included Amersham GSP, which does not receive direct connections from connectees in the Greater London area. It has been included in analysis as there is a relationship between Amersham GSP and Iver GSP, in terms of interconnection at a transmission level and to a smaller extent, distribution. At this stage, this is not having a material impact on West London connection dates.

GSP	Type of reinforcement required	Transmission reinforcement completion date (NGESO)	Distribution Reinforcement completion date (SSEN)	When are the >1MVA solutions applicable to applicants
Iver (66kv and 132kv)	Transmission (NGET) & Distribution (SSEN)	2037	2027	Majority can connect, subject to application, remainder to be assessed when flexibility contracts established (June 2024)
Laleham	Transmission upgrade (NGET)	2037	No reinforcement triggered to date	Today
Ealing	Transmission (NGET) & Distribution (SSEN)	2037	2026	Majority can connect, subject to application, remainder to be assessed when flexibility contracts established (June 2024)
North Hyde	Transmission upgrade (NGET)	2037	No reinforcement triggered to date	Today
Willesden	Transmission upgrade (NGET)	2037	No reinforcement triggered to date	Today

Fig 9. Distribution and Transmission Network Upgrade timelines

Update on solutions continued

Medium-term solutions continued

Strategic investment

It remains the GLA's view that proactive investment ahead of demand is needed across London to support the delivery of Net Zero, as well as affordable housing delivery.

The delivery of LAEPs, in collaboration with London's boroughs, DNOs, and other key stakeholders, supports the development of a unified view of upcoming demand and capacity across London, and investigates innovative area-based solutions.

The GLA continues to regularly engage with Ofgem and Government regarding the need for strategic investment, ensuring that London is prepared to meet Net Zero targets. Existing LAEP work in London provides a rationale and evidence base for investing ahead of demand and should form a key building block of the work of the Regional Energy Strategic Planner function, being delivered by Ofgem to better plan for and support the transition to Net Zero and the changes to energy infrastructure it entails.

Previously Mentioned Solutions:

NGESO Five-Point Plan

In previous update documents, several NGESO interventions were identified to support queue management reform and facilitate more connections capacity where transmission constraints exist:

- Batteries and non-firm connections
- Review of planning and modelling assumptions
- Creating more certainty for transmission customers
- Amnesty on unused capacity
- Inserting queue management milestones into transmission connection contracts

All of these workstreams have progressed into their implementation phase since our June 2023 update document was published. However, upon further review, these solutions have not yet resulted in any released capacity in the West London region. These solutions have had an impact where there are many projects in the generation queue that are aiming to connect to the transmission network (e.g. wind generation projects). The issues in West London are not the result of generation projects aiming to connect and are instead the result of the high volume of large demand projects seeking connections to the distribution network.

In the long-term, these initiatives may eventually help to release capacity and speed up the queue for stalled projects in West London. In its recent Connections Action Plan, Government indicated that by clearing up the transmission connections queue, it "should eventually lead to improvements at the distribution level where distribution customers are delayed by transmission elements of their connection agreements, and by improving alignment across the transmission-distribution boundary." There may also be opportunities to consider the few examples of generation projects in the West London area (e.g. battery storage projects) as part of future phases of NGESO's Five-Point Plan.

SSEN Amnesty on Unused Capacity

In the previous update document, SSEN set out their plans to engage with large, connected customers (such as data centres and battery storage systems) to reduce their contracted capacity to their actual 'in use' capacity in exchange for a reduction in their Distribution Use of System charges. Customers were invited to update their contracts. However, this has not yet resulted in any changes to contracted capacity in the West London region.

Fig 10. Previously mentioned solutions that no longer apply to the West London Capacity constraints

Network updates

Electricity Network Capacity and Upgrades

NGET and SSEN

NGET and SSEN confirm that there have been no changes to the network capacity and utilisation in West London since the last update document was published in June 2023, nor any changes to the dates for distribution or transmission upgrades. For the distribution and transmission peak capacity utilisation maps and the asset upgrade timelines included in previous documents, please refer to the appendices.

UK Power Networks

Some stakeholders are interested in knowing whether there is available headroom within UKPN's distribution network, which borders West London and services other areas of the city. UKPN has confirmed that there remains a sufficient level of capacity forecast in other areas of London. Maps of capacity for these areas are available at UK Power Networks Open Data Portal.

However, the GLA discourages developments within SSEN's geography from seeking to connect to UKPN's network given they will incur high costs and result in increased roadworks and pollution, negatively impacting the local community. In cases where developers are committed to pursue these types of connections, it is recommended that they seek the support of the GLA to identify potential collaborative streetworks opportunities to reduce the impact.

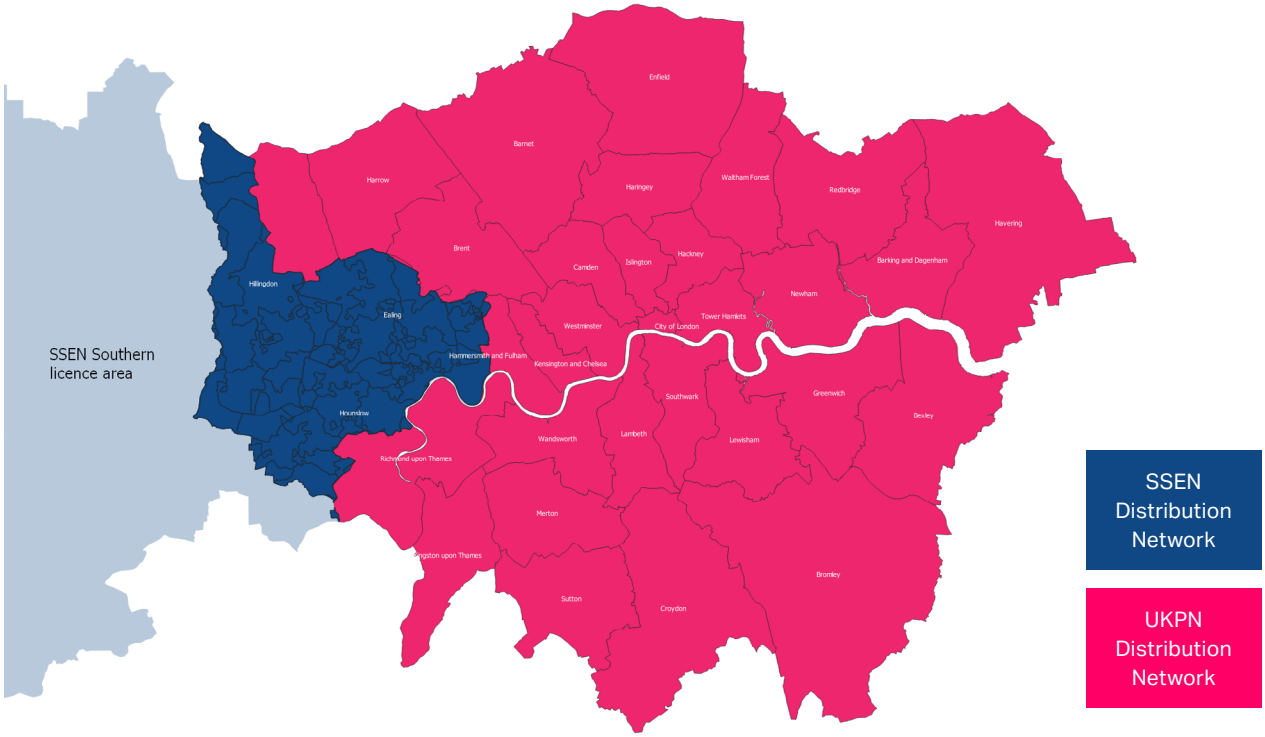


Fig 11. Map of London showing SSEN Distribution Network and UKPN Distribution Network

Next steps

Please get in contact if:

- Your project is still struggling with power constraints
- You are interested in learning more about the solutions mentioned in this document
- The solutions set out in this update document have unlocked your project
- You would like to discuss collaborative connections
- You would like to provide feedback

Appendix

- Appendix A. Grid supply points location
- Appendix B. Primary substation peak capacity utilisation (SSEN) (As of 2024)
- Appendix C. Peak Capacity Utilisation (NGET) (As of 2024)
- Appendix D. SSEN Contracted Ramped Capacity
- Appendix E. Data centre loading profile
- Appendix F. Securities deposits

Press

For press enquiries please contact:

MayorsPressOffice@london.gov.uk

Appendix

Appendix A.

Grid supply points location

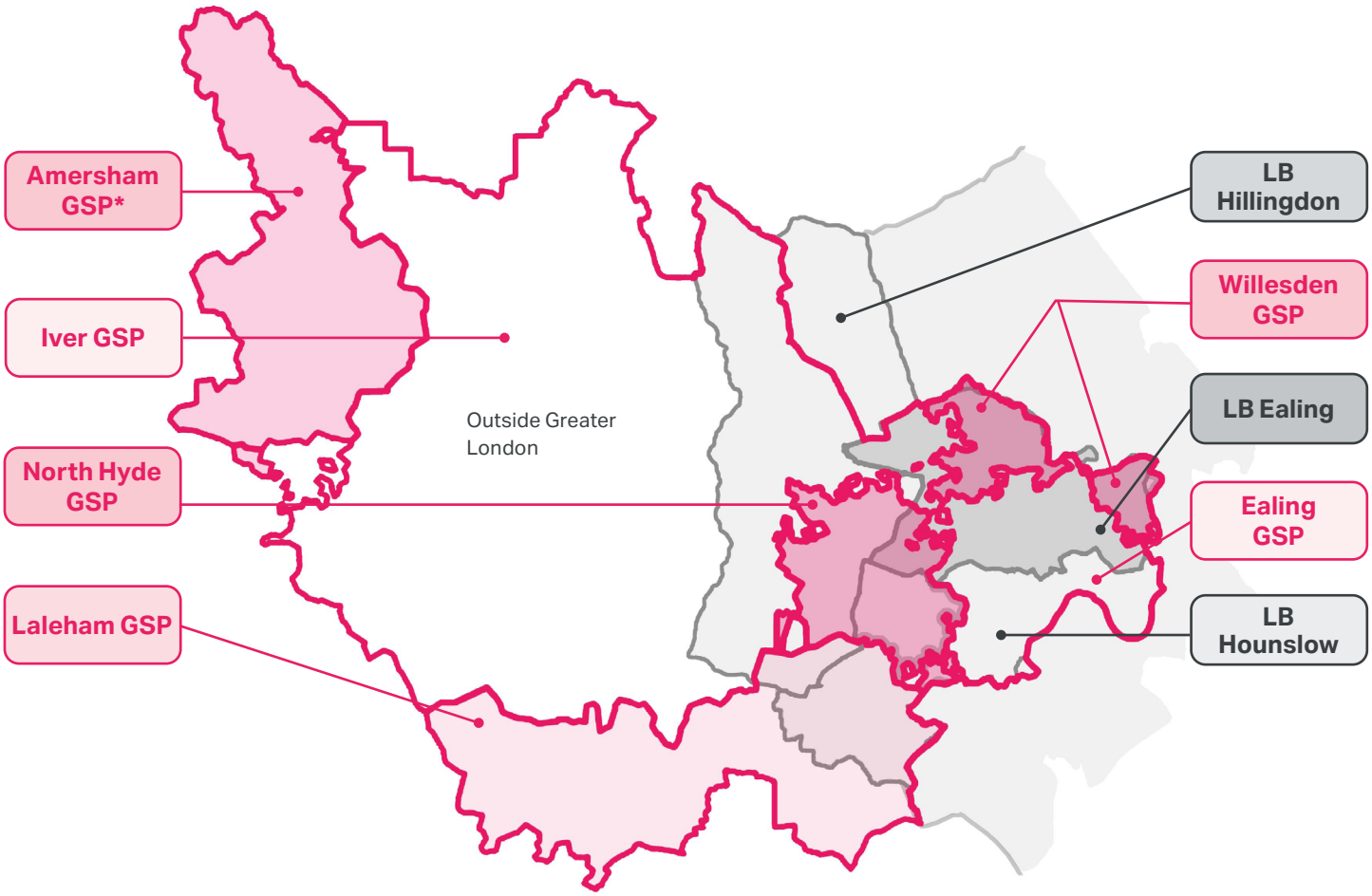


Fig 12. West London SSEN Grid Supply Points location

Appendix continued

Appendix B.

Primary substation peak capacity utilisation (SSEN) (As of 2024)

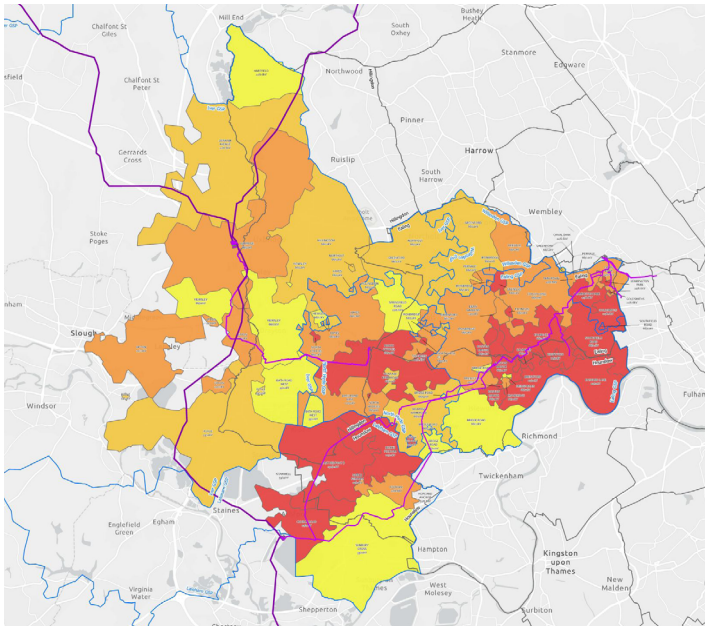


Fig 13. West London Primary Substation Peak Capacity Utilisation 2024 (%) (SSEN)

Appendix C.

Peak Capacity Utilisation (NGET) (As of 2024)

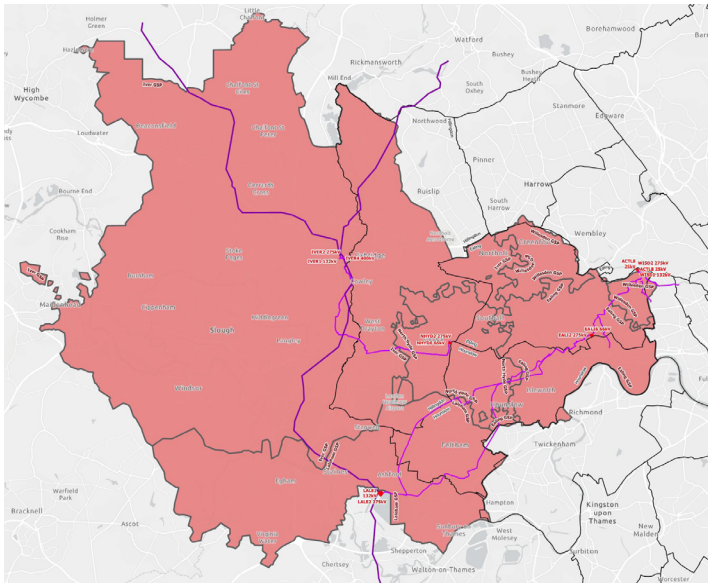


Fig 14. West London Peak Capacity Utilisation 2024 (%) (NGET)

Appendix continued

Appendix D.

SSEN Contracted Ramped Capacity

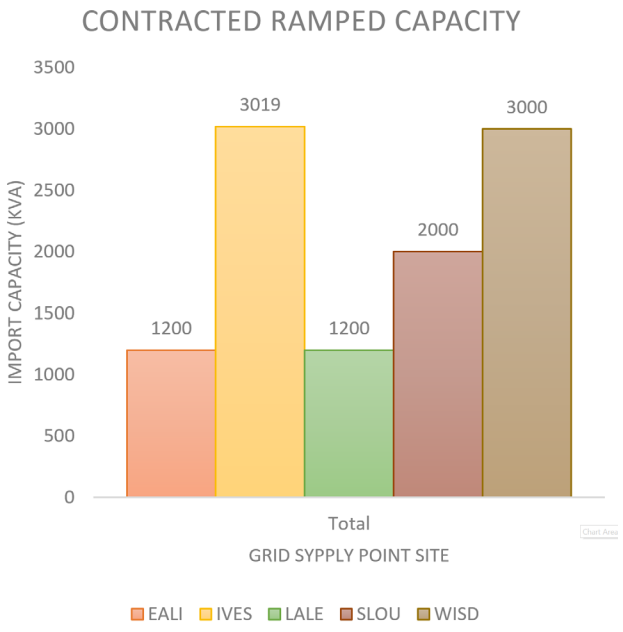


Fig 15. SSEN 1MVA Ramped Capacity solution for Distribution Demand Connections

Appendix E.

Data centre loading profile

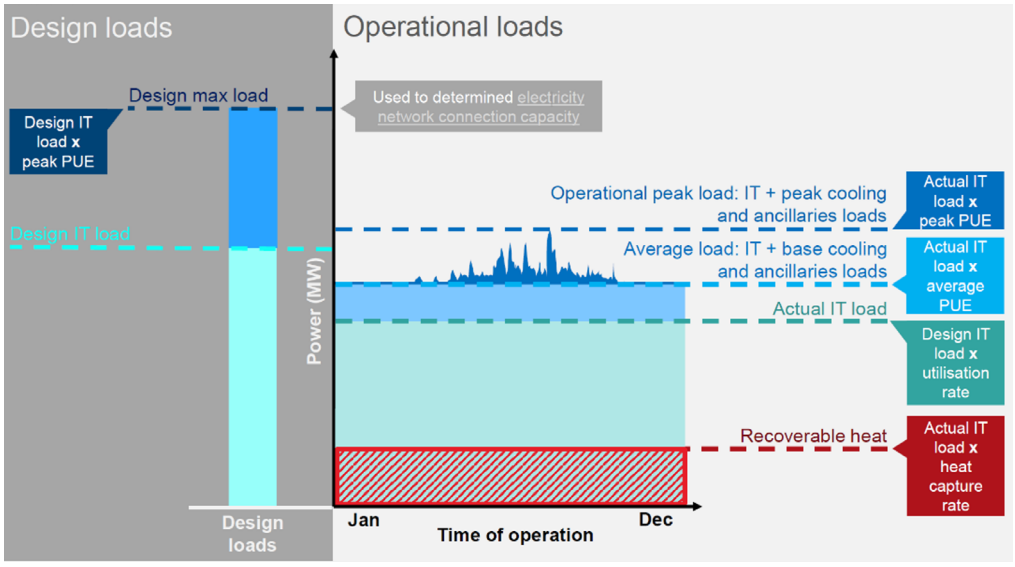


Fig 16. Loading profile of data centres. [Source: Arup Data Centre Energy Modelling]

Appendix continued

Appendix F.

Securities deposits

In the previous document, we stated the NGESO are developing a code modification to the CUSC Section 15 to look at the disparity in securities and liabilities for the different user categories and bring forward a fairer approach. In July 2023, NGESO raised the CUSC Modification CMP417 "Extending principles of CUSC section 15 – User Commitment Methodology" to all users, with working groups beginning in September 2023.

The proposed solution will reduce a users' security requirements based on the progression of their project. This helps to bring the liability and security methodology in line with what is currently used for generators connecting at the transmission level. Further changes are being pursued to align liability and security requirements, including calculation of cancellation charges and security amounts for users remaining on final sums. A decision will be submitted to Ofgem for a decision by mid-2024.