



2021 Exit Capacity Allocations Report (redacted)

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nationalgrid

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1 Summary

This report provides details of the 2021 Exit Capacity allocation process. In line with 3.43 of the Exit Capacity Planning Guidance requirements it provides details of the applications received for the Exit (Flat) Capacity, Exit (Flex) Capacity and Assured Offtake Pressures (AOP) during the Exit Capacity application windows. Definitions of Exit (Flat) and Exit (Flex) Capacity can be found in Appendix A.

An assured offtake pressure (AOP) represents the minimum pressure required by a Distribution Network Operator (GDN) at the offtake from the gas National Transmission System (NTS) in order to maintain adequate pressures in their own downstream system.

Key Outcomes are:-

- a. NGGTs assessment of the agreements reached on Capacity and AOP's, is that they are risk neutral for NGGT when compared to previous years allocations.
- b. The agreements reached are cost neutral for NGGT and in addition do not require any additional capital investment on the part of NGGT in order to be met under 1 in 20 demand conditions.
- c. All but one LDZ has requested Exit (Flat) Capacity above FES predicted peak demand. These requested Exit (Flat) Capacity figures are used in the exit analysis and therefore have informed NGGT assessment of NTS capacity.
- d. All Exit (Flat) Capacity was allocated as requested for all relevant years.
- e. Requests were accepted as non-obligated capacity release, for an increase in Exit (Flat) Capacity above the obligated level at eight offtakes, as shown in table 1.

| Offtake | LDZ |
|------------------------------------------------------------------|-----|
| This information has been redacted due to commercial sensitivity | |

Table 1 Offtakes with non-obligated capacity release

- f. From gas year 2024, further Firm Enduring Annual NTS Exit (Flat) capacity (above baseline) was allocated at six offtakes as shown in table 2, this will be met through capacity substitution.

| Offtake | LDZ |
|------------------------------------------------------------------|-----|
| This information has been redacted due to commercial sensitivity | |

Table 2 Offtakes with capacity allocated through substitution

- g. Total Exit (Flex) Capacity
 - increased: East Anglia, East Midlands, Northeast, Northern, and Northwest.
 - decreased: North London (North Thames) and West Midlands.
 - no change: Scotland, Southeast, Southern, Wales North, and Wales South.

- h. Some of the initial Exit (Flex) Capacity increase requests in the South West LDZ and West Midlands LDZ could not be allocated, as allocations apply under all supply scenarios. This is due to uncertainty around supply and demand patterns; specifically low LNG entry at the Milford Haven ASEP.
- i. Through collaboration with GDNs, a number of Exit (Flex) and AOP revisions were agreed:
 - Some Exit (Flex) and AOP increases in the Midlands' and Northwest LDZ offtakes were facilitated by an agreed reduction in AOP at an offtake in the Northwest which is one of the current constraint points for NTS capability in the Midlands and South West.
 - 22:00 hours AOP increase requests at 2 west Midlands offtakes were made possible by a reduction in 06:00 hours AOP reduction at these offtakes.
 - Higher Flex was released in East Anglia by moving Flex towards offtakes nearer an ASEP, and in combination with an AOP reduction at an offtake.
 - Agreement on AOP reductions was reached at 2 offtakes in the Wales South LDZ.
- j. The following table summarises the outcomes of the requests for respective LDZs.

| LDZ | Flat | Flex | Pressure |
|---------------|----------------------|----------------------|----------------------|
| East Anglia | Requested allocation | Revised allocation | Revised allocation |
| East Midlands | Requested allocation | Requested allocation | No change requested |
| North East | No change requested | Requested allocation | No change requested |
| North | Requested allocation | Requested allocation | No change requested |
| North Thames | Requested allocation | Revised allocation | Revised allocation |
| North West | Requested allocation | Requested allocation | Revised allocation |
| Scotland | Requested allocation | No change requested | No change requested |
| South East | No change requested | No change requested | No change requested |
| South | Requested allocation | No change requested | No change requested |
| South West | Requested allocation | Revised allocation | No change requested |
| West Midlands | Requested allocation | Revised allocation | Revised allocation |
| Wales North | No change requested | No change requested | No change requested |
| Wales South | Requested allocation | Requested allocation | Requested allocation |

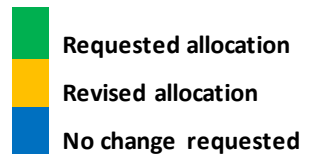


Table 3 Summary of Exit allocation outcomes

- k. There was a significant decrease in Flat capacity bookings by Direct Connect sites, about 38% in the first year.

2 Capacity Overview

National Grid releases Exit (Flat) Capacity at each offtake from the NTS in compliance with its Gas Transporter Licence and Uniform Network Code (UNC) obligations.

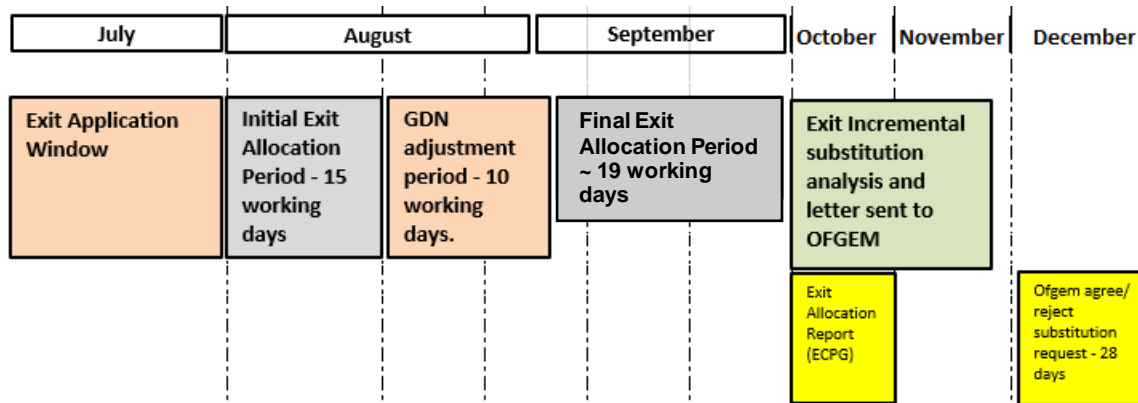
National Grid makes firm and Off Peak capacity available to the market at each offtake point. Overview descriptions¹ of capacity products which are booked during the annual Exit allocation process can be found in appendix A.

Off Peak capacity is made available to the market at all offtake points, within day and the day ahead, when forecast demand is below 80%² of peak demand. For further information refer to the [capacity guidance website](#).

¹ For more detailed description refer to [UNC Transportation Principle Document – Section B: System Use and Capacity](#) (UNC TPD section B)

² UNC TPD section B 3.6)

3 Exit Allocation Process Overview



3.1 Assured Offtake Pressures

Prior to the Exit Allocation period, National Grid can request reductions to AOP, which GDNs can either agree or reject based on network impact. During the Exit Allocation period GDNs are able to request AOP increases and decreases, which National Grid can either agree or reject based on network impact. Any previously agreed reductions to AOP prior to the Exit Allocation initial submission should be reflected in the GDN submissions.

Appendix A gives further details on the Exit process, and Appendix B shows a timeline for the Exit period.

4 2021 Exit Capacity Allocations

Network analysis using Simone software package is carried out to assess the Exit Capacity and AOP requests. As well as information supplied by Exit users, National Grid ESO's Future Energy Scenarios (FES) are used as inputs to Simone network simulations. Sensitivity scenarios are further undertaken for constrained capability regions, i.e. zone 5³ (Southwest) and zone 7 (Southeast). Additional sensitivities can optionally be carried out for other regions when there are significant local changes to expected flows, such as potential new loads.

4.1 Exit (Flat) Capacity

There was an increase from last year's booking in total GDNs Exit (Flat) Capacity bookings across all years. This year's capacity requests were also higher than FES peak 1 in 20 forecasts (diversified) across all scenarios⁴, as shown in figure 1 below.

The total capacity booking represented an increase of between 8% and 12% from last year. Of this increase, the above baseline represented between 5% and 8%, which is between 0.2% and 0.3% of the total capacity bookings. The Exit Capacity assessment showed that these increases did not materially increase the current level of risk to the NTS. Therefore, all Exit (Flat) Capacity requests were allocated including those above baseline.

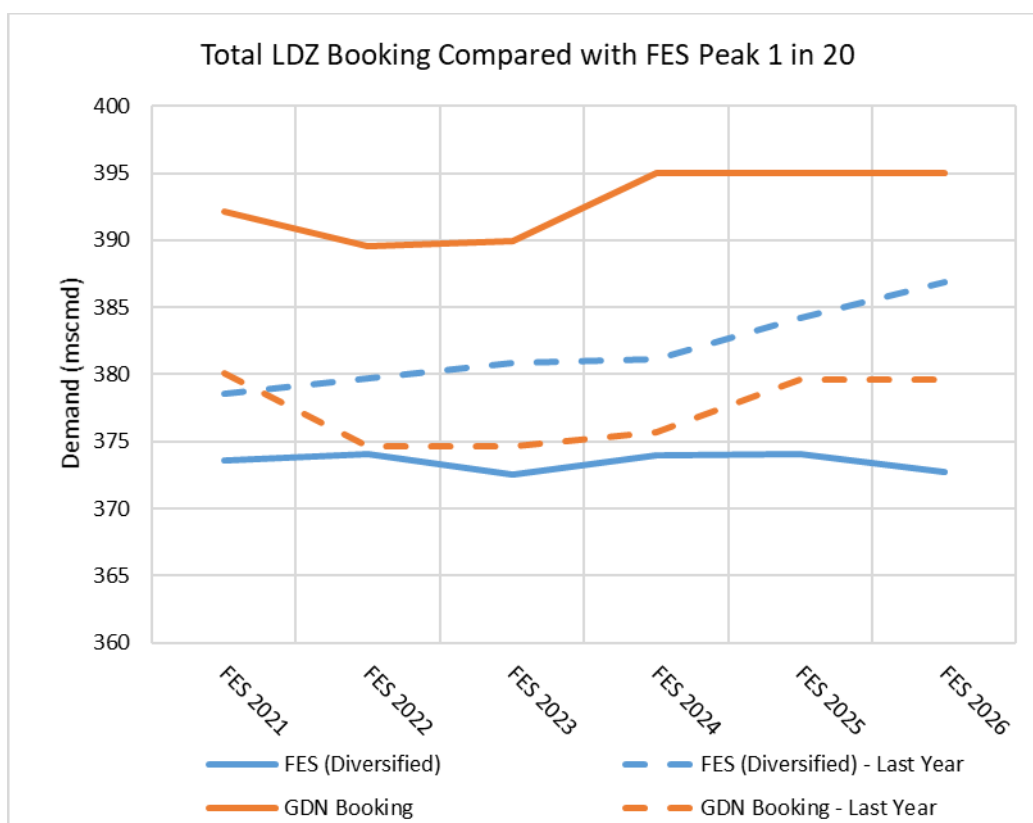


Figure 1 Comparison of GDNs' Peak 1 in 20 bookings with Undiversified FES Steady Progression.

Most of the Exit (Flat) Capacity increase was across the Northwest, Midlands, and East Anglia LDZs. While there were reductions in Wales South and Scotland LDZs. Other regions were broadly consistent with the 2020 allocations. The map in figure 2 depicts the flow changes in LDZs

³ See the [Annual Network Capability Assessment Report \(ANCAR\)](#)

⁴ FES Steady Progression scenario is used for Exit Allocation network analysis. Refer to the methodology statement for detailed discussion on network analysis.

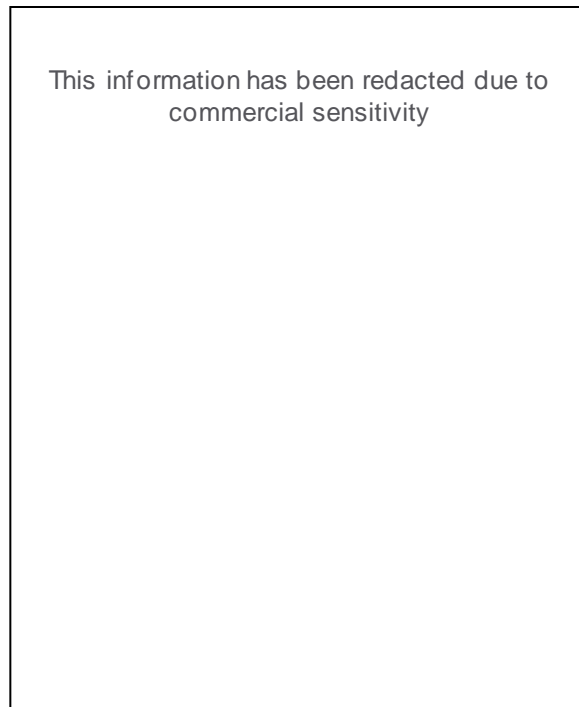


Figure 2: flow changes at LDZs offtakes

4.2 Incremental Exit Capacity Release

The above baseline capacity for the years Y+1 to Y+3 were allocated as non-obligated capacity, as shown in table 4.

| | | | | |
|------------------------------------------------------------------|--|--|--|--|
| This information has been redacted due to commercial sensitivity | | | | |
|------------------------------------------------------------------|--|--|--|--|

Table 4 Incremental capacity which was allocated as non-obligated capacity

For the gas years Y+4 onwards the capacity above baseline will be allocated through Exit Capacity substitution⁵. Table 5 shows offtakes where Exit (Flat) Capacity is being progressed through substitution.

⁵ Capacity substitution is moving unsold capacity from one Exit point to another Exit point where it has been requested but there is not enough remaining unsold capacity.

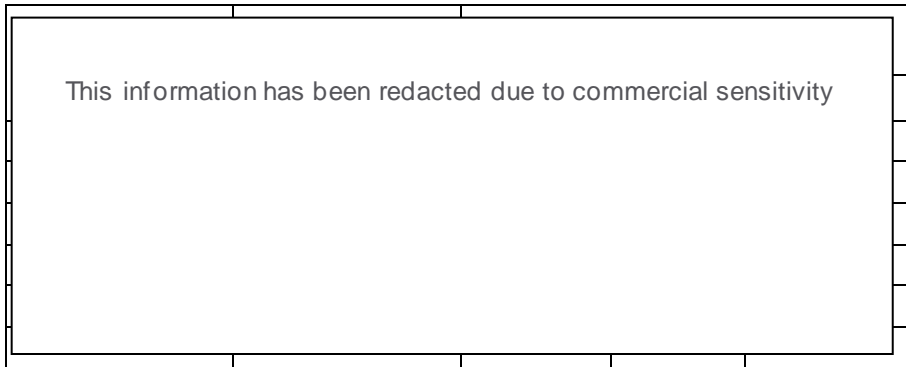


Table 5 Incremental capacity to be allocated through substitution

4.3 Exit (Flex) Capacity

There was an overall increase in Exit (Flex) Capacity booking from last year's, as shown in figure 3.

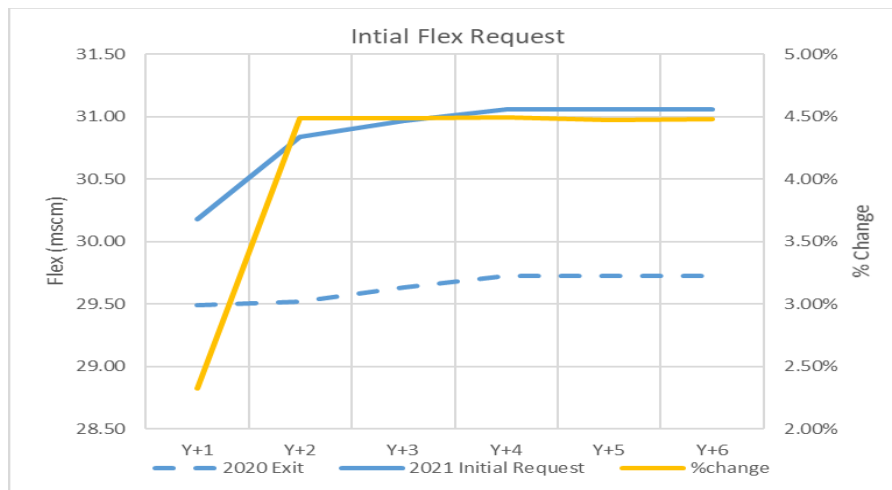


Figure 3 This year's Exit (Flex) booking, comparing what was initially requested with last year's final allocation

All flex in the Northeast and Northern LDZs was allocated

Revised Flex capacity was allocated as in Northwest, West midlands, East midlands, East Anglia, North London, and Southwest LDZ. Changes were made during the readjustment period. This included moving Flex to less constrained areas, and agreeing efficient reallocation of Flex and AOP changes. Figure 4 below shows the final amount of Flex that was released, compared to last year.

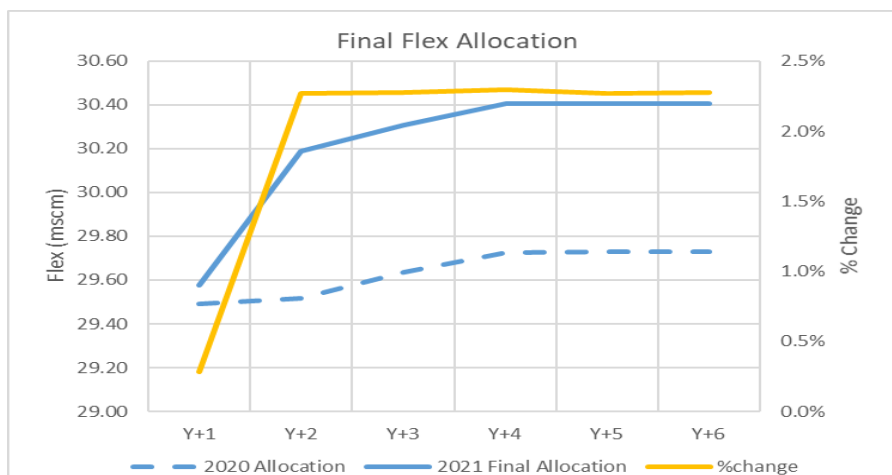


Figure 4 Final Exit (Flex) allocation, compared last year's

For additional information, see Section 5 which discusses specific GDN's flex allocations, while appendix D tabulates details of Flex requests and decisions for each offtake.

4.4 AOP Allocation

AOPs represent the minimum pressure limit which NGGT is obliged to make available at each GDN offtake. There are two parts of the AOP, 06:00 AOP and at 22:00 AOP, also sometimes referred to start of day (SOD) and end of day (EOD), respectively. GDNs can request an increase, or can reduce at their discretion, either or both of these.

There were a significant number of AOP increase requests, mainly for the EOD pressure. Some requests were agreed as requested. Some of the requests were agreed after adjustment, following collaborative working with GDNs.

At other offtakes, following assessment, AOP increases could not be accommodated due to constrained nature of the locations, the affect of agreeing pressure changes on Entry or Exit capability or the ability of the network to provide the required levels of Flex.

Figure 5 below shows an overview of the final pressure changes at various locations on the network. Section 5 discusses AOP request for specific GDN, while appendix E tabulates details of pressure requests respective decision for the entire system.

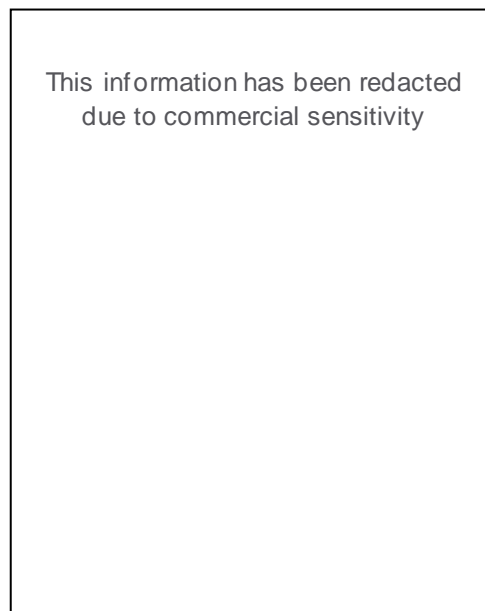


Figure 5 – AOP agreed changes

5 Capacity and Pressure Allocation for each Distribution Networks

5.1 Northern Gas Networks

Northern Gas Networks (NGN) owns two LDZs, Northern (NO) and Northeast (NE). Both are located in a region where pipeline and compression assets provide significant Entry and transit flow capability.

5.1.1 Flat Capacity

There was no change in total LDZ capacity request in the NE LDZ as can be seen in table 6. However, there was a mixture of increases and decreases at individual offtakes within the LDZ (see Appendix C). The trend was similar at offtake level for NO LDZ, resulting in very small increase in the first gas year, and small decreases in the following gas years.

All Flat capacity increases at offtakes were within baseline and were allocated.

This information has been redacted due to commercial sensitivity

Table 6 Northeast and Northern LDZs Flat capacity booking

5.1.2 Flex Capacity

There was an overall increase in Flex requested in both LDZs (see Appendix D). Table 7 highlights the changes to Flex in NGN LDZs.

All Flex capacity changes at offtakes were allocated in both LDZs.

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This information has been redacted due to commercial sensitivity

Figure 7 NGN Flex changes

5.1.3 Assured Offtake Pressure

There was only one offtake, where an AOP was submitted for reduction. All capacity here was also reduced to zero.

5.2 SGN

SGN owns three LDZs, Scotland (SC), Southeast (SE), and Southern (SO). There is some interaction between SE and SO.

5.2.1 Flat Capacity

There was a general reduction in total LDZ Flat capacity requirements in SC and SO LDZs, as shown in table 8, resulting from a combination of increases and decreases at individual offtakes (see appendix C). There was no change in SE LDZ.

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Table 7 Scotland, Southeast and Southern LDZs Flat capacity booking

Two offtakes in SC had capacity requests above baseline (refer to section 4.1.1), which were allocated as non-obligated capacity.

5.2.2 Flex Capacity

There were no changes to Flex bookings in all the three LDZs.

5.2.3 Assured Offtake Pressure

There were no changes to AOP bookings in the three LDZs.

5.3 Wales and West Utilities

Wales and West Utilities owns three LDZs, Wales North (WN), Wales South (WS), and Southwest (SW). WS and SW are located in a region influenced by LNG supplies at Milford Haven. The SW LDZ is also the extremity of the network without local Entry supply, and thus a constrained area.

5.3.1 Flat Capacity

There was a slight increase in Flat capacity in SW LDZ in the first year, and a substantial decrease in WS across all years, as shown in Table 9 below (see appendix C for specific offtake changes).

All the Flat capacity changes were allocated.

This information has been redacted due to commercial sensitivity

Table 8 Southwest, Wales North and Wales South LDZs Flat capacity booking

5.3.2 Flex Capacity

There was an overall slight increase in Flex capacity in SW LDZ across all years (see appendix D), and a substantial decrease in WS in the first year. Table 10 highlights the changes to Flex in WWU's LDZs, as discussed in this section.

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This information has been redacted due to commercial sensitivity

Table 9 WWU Flex changes

Not all requested Flex increases in the SW LDZ could be accommodated. Flex was allocated at two offtakes in the LDZ, (see Table 10). At one offtake, the request was small enough that it did not influence within day pressure variation. The allocation of additional flex at one offtake reflected capacity reduction at another offtake.

Other Flex increases in SW LDZ were not allocated due to the uncertainty in Milford Haven inputs. During network analysis, a SW sensitivity scenario showed strong influence of Milford Haven's level of supplies in meeting high SW demand. As Exit (Flex) bookings apply under all supply and demand patterns, NGGT could not allocate the flex requirement. As per the Exit Capacity Release Methodology Statement "NTS Exit (Flexibility) Capacity will be rejected where it: requires reinforcement of the NTS; leads to an increase in costs or could reasonably be considered to lead to a conflict with the safe operation of the network".

Taking liquified natural gas supplies into consideration, it was deemed appropriate to keep the level of flex close to current levels, thus maintaining the current level of risk in the region.

However, it should be noted that under the majority of likely scenarios flex requirements would be met in the SW.

Some of the offtakes for which flex capacity has not been allocated are pressure controlled single source offtakes, NGGT is aware that the GDN's do not have control of the flow rates at those offtakes, this will therefore be considered in future analysis.

5.3.3 Assured Offtake Pressure (AOP)

There were no request for AOP increases from WWU. However, there were some reductions⁶ in AOP WS LDZ, as shown table 10.

⁶ The reductions were in response to some the AOP reduction requests submitted to WWU as part of the existing UNC process.

This information has been redacted due to commercial sensitivity

Table 10 Pressure reductions WS offtakes

5.4 Cadent Gas Requests

Cadent Gas has five LDZs East Anglia (EA), East Midlands (EM), North Thames (NT), Northwest (NW), and West Midlands (WM).

5.4.1 Flat Capacity

All LDZs had increases in total Flat capacity, across all years, as shown in table 11, resulting from a combination of increases and decreases at individual offtakes (see appendix C).

All Flat capacity requests were accepted. This includes some which were above baseline, of these some were allocated as non-obligated capacity, and some will be allocated through substitution (refer to section 4.1.1). This information has been redacted due to commercial sensitivity

This information has been redacted due to commercial sensitivity

Table 11 East Anglia, East Midlands, North Thames (North London), Northwest, and West Midlands LDZs Flat capacity bookings

5.4.2 Flex Capacity

There was an overall increase in Flex capacity requests in all Cadent's LDZs across all years (see appendix D). Table 12 highlights the changes to Flex in Cadent's LDZs, as discussed in this section.

In the East Anglia (EA) LDZ, at two offtakes, Flex was allocated as requested. At one offtake, following discussions with Cadent, the requested increase was transferred to another offtake which, being closer to a supply point. The end of day AOP was also increased at one of the offtakes.

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This information has been redacted due to commercial sensitivity

Table 12 Cadent Flex changes

Not all requested Flex could be accommodated as initially requested.

AOP and Flex balancing was carried out in the East Midlands and West Midlands LDZs, to minimise the impact of allocations on constraining points. This involved reducing Flex at two offtakes to facilitate an AOP increase at one of the offtakes (see section 5.1.4.3).

At one offtake a Flex increase was allocated for the first gas year only, as a result of the reduction in Flat capacity in that year, at another offtake in WWU's Wales South (WS) LDZ for the same year.

5.4.3 Assured Offtake Pressure

Table 14 summarises AOP pressure increase requests and final agreements.

The agreed AOPs were mainly as a result of detailed discussion between the GDNs and NGGT. These included:

- Increase in AOP to allow DN linepack where an increase in Flex could not be accommodated.
- Reduction in AOP at one offtake to relieve a constraint and facilitate an increase at another.
- Reduction in SOD in to enable an increase in EOD.

AOP increase could not be accommodated at one offtake, as the offtake can be on the suction of the a compressor. Thus, a high AOP can limit the capability of the compressor, and the ability to meet Exit obligations in this configuration.

At an offtake, AOP increase could not be accommodated, as this may limit zone 7 (south east) entry⁷ capability.

⁷ At peak demand levels it is likely that a higher Pressure would be available. A GDN can request higher pressures on the day. The low pressure to facilitate high Isle of Grain is likely to be needed at lower demand levels, however an AOP applies to every day of the year.

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Table 13 AOP Changes in Cadent LDZs

6 Capacity Allocation for Direct Connects

There was a general reduction in Exit Capacity request from power stations and industrials, i.e. directly connected (DC) load. With only a minor increase at one DC Exit user. All the Flat capacity request were allocated. Although 2021 saw a significant reduction in Direct Connect bookings, the availability of capacity, up to baseline, in shorter time frames means that these bookings may not be reflective of gas usage under high demand conditions.

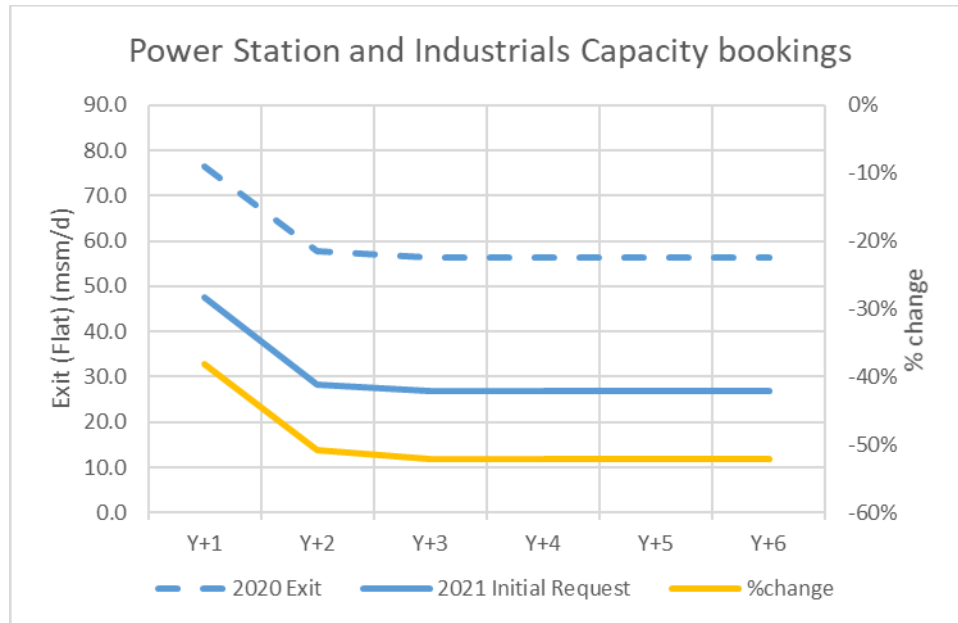


Figure 6 Total DC capacity booking trend

7 LDZ Offtake Flow Assumptions Development

Currently FES does not include LDZ flow scenarios down to individual offtake or Network Topology level as the source demand data is not specific enough. The current assumptions use GDN supplied offtake forecasts to create proportional split total LDZ FES flows to individual offtake flow. We are investigating better way of producing the flow at offtake level through the FES process which could be used in future Exit allocation cycles. Another option we are investigating involves expanding our statistical modelling method based on historical data (and known future developments) using a probabilistic supply and demand space approach. This could create forecasts for both a '1 in 20' level as well as a demand linked indication of local flows.

8 Appendices

Appendix A: Exit Capacity Applications Process

Users can request changes to their long term (Enduring) Exit Capacity through the long term Exit Capacity application window, as below.

All Users:-

- a. **Enduring Annual Exit (Flat) Capacity Decrease application:** - This allows a User to decrease their enduring capacity holdings from Year Y+1 (October following the July window). The application period for this process is 01 to 15 July.
- b. **Annual NTS (Flat) Exit Capacity application:** - This is for capacity covering the period Y+1 to Y+3. The capacity allocated as a result of this application window is not enduring and applies only for the relevant year. The application period for this application window is 01 to 31 July
- c. **Enduring Annual Exit (Flat) Capacity Increase application:** - This application window is for capacity covering the period Y+4 to Y+6. The capacity applied for in this application window is enduring capacity (i.e. applies for all future years from the first date for which capacity is requested), and is subject to User commitment (equivalent to the financial value of four years of capacity charges). The application period for this is 01 to 31 July.

GDN Users:-

Annual NTS (Flexibility) Exit Capacity :- GDN Users can apply for an increase or decrease in their NTS Exit (Flexibility) Capacity at NTS/LDZ offtakes for relevant gas year Y+1 up to gas year Y+6 (inclusive) by submitting an application during the application window period between 01 to 31 July. This is also the period when GDN Users request changes in Assured Offtake Pressure (AOP).

Users may apply for additional Enduring Annual NTS Exit (Flat) Capacity via either of two processes, which are detailed in the UNC (TPD Section B3.2). These processes allow application:

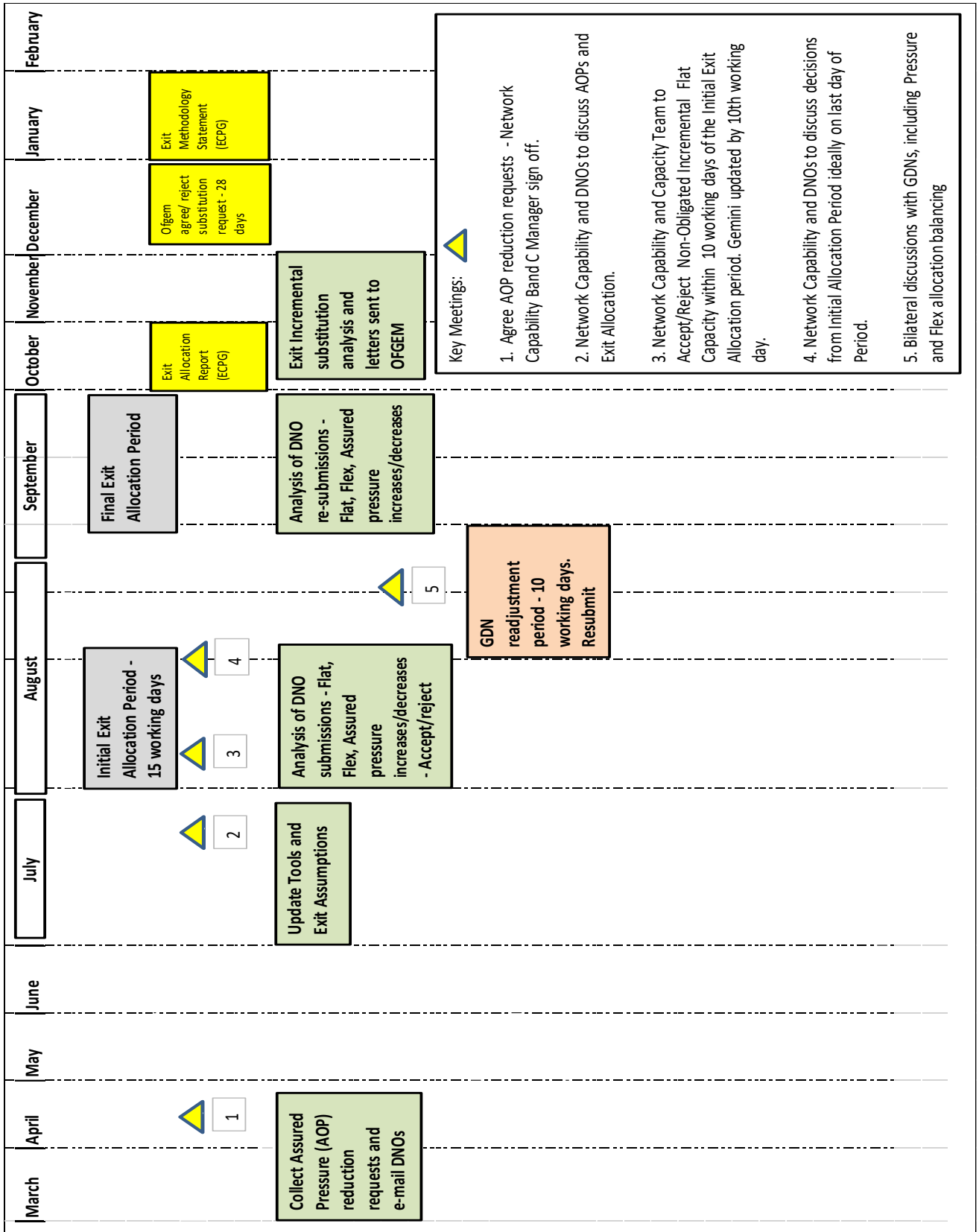
- a. Within the Annual Application Window – held in July of each year; and
- b. Outside of the Annual Application Window, permitted at any time from 1st October to 30th June in each Gas Year.

Exit (flat and Flex) Capacity Application Timeframe

NTS Exit (Flat and Flexibility) Capacity application windows close on 31st July. Requests for Exit (Flat and Flexibility) Capacity, received within the window, are processed as explained below:-

- a. **Exit Allocation Period – Initial:** This period starts from the 1st working day of August and lasts for 15 working days. During this period, the Gas Network Development Team, within National Grid Transmission, carry out network analysis to take into account; requested increases/decreases in Exit (Flat and Flex) Capacity, system constraints/availability, sensitivities scenarios, and future projects. Following the analysis, the decisions regarding the Exit Capacity requests are communicated to Users via uploading the allocated quantities to GEMINI and teleconferences with the GDN Users.
- b. **DN review period:** This period starts from the next working day following the expiry of the “exit allocation period – initial” and lasts for 10 working days. This is the opportunity for GDN Users to review the outcome of their requested Exit (Flex) Capacity especially where it was partly accepted and/or rejected. This is the opportunity for GDN Users to change or reallocate their Exit (Flex) Capacity requirements and resubmit their requests if needed.
- c. **Exit Allocation Period – Final:** This period starts from the next working day on the expiry of the DN review period and last until the end of September. In this period we reanalyse the updated/amended Exit Capacity applications submitted during DN review period.

Appendix B: Exit Timeline



Appendix C: Exit (Flat) Capacity Table (Distribution Networks)

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Appendix D: Exit (Flex) Capacity Table

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Appendix E: Assured Offtake Pressure Table

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