Constraints Collaboration Project webinar – 4 July 2025

Q&A pack

The following questions were submitted by the stakeholders working with NESO on Friday 4th July, as part of NESO's latest quarterly update on our ongoing Constraints Collaboration Project.

NESO responses shown here were given prior to the REMA decision on 9th July. Where appropriate we have updated these responses to reflect the REMA decision.

With the REMA decision to discount zonal pricing, we will be reviewing the CCP options that are being taken forward, to assess whether there is potential impact and if changes are required.

Questions	Answers
I understand that the decision on zonal pricing will be made by Government this summer. What will be the impacts on this [*removed*] CC project if Zonal to be implemented or not?	The outcome of REMA clearly will have an impact on our constraint management plans but we won't know that until after government has made a decision. [Note: A decision has now been announced and is available here: Review of electricity market arrangements (REMA): Summer update, 2025 (accessible webpage) - GOV.UK] With regards to the boundary flow smoothing project specifically, the project is looking at more technical services that will be used by our control room directly to help with headroom management. We will have to do a full impact assessment of any potential market reform, but we will do this once we've ascertained if this a beneficial approach or not as part of the innovation project.
Presumably you're evaluating the smoothing potential of algorithms using a simulation environment. Are you using a DC approximation to AC flow or are you using a full AC simulation to test algorithms?	We're using historical data to consider whether if smoothing service was in place would this have enabled more power flow through transmission boundaries without exceeding constraint limits. The additional power that can flow through the boundaries allows us to estimate the network cost savings through reductions in curtailment and redispatch.
Are you already engaging with industry for the tech characterisation? Can you share the briefing pack now?	This webinar is the initiation of the engagement. Please get in touch with box.market.dev@neso.energy to participate and the briefing packs for interviews will be sent out next week in advance of interviews starting.
Are you suggesting that you will be able to predict the pattern of boundary constraint that needs smoothing, and what sort of speed of demand response are you looking at, as I assume this will be faster than general constraint management that could be offered by electrolysers (I realise you said you were looking at existing generation) hence the different AC product?	The service is intended to operate whenever constraint actions are being taken by the control room. Constraint predictions are published a day in advance so there will be a reasonable estimation of when the service will operate. Some algorithms do require a prediction of future power flows so we may need to predict the volatility in future power flows. I can't comment on exactly what the demand response speed will need to be as this will come from our algorithm exploration that's ongoing, but it will need to be reasonably quickly to be able to mitigate constraint limit exceedances.

Thanks for the cumulative savings but is that increase from higher volume of constraints saved or higher value of energy prices which went up during the same period following Russian invasion of Ukraine (for e.g.?)	The savings are based on comparing the cost we incur in paying generators to be arm for the intertrip versus the costs that would have been incurred to curtail the same amount of MWh in the BM. The higher energy costs in 2022 due to the Ukraine war will have influenced the savings. Over 50% of volume armed so far on B6 was in 2022 alone which contributed to the high savings in the first year of the service.
Could you consider intertrip that takes load (not generation) off the system rather than generation or that causes BESS to generate instantly to reduce transfer across the constraint boundary?	Disconnecting load (or increasing generation) would solve an import constraint. We do not have many import constraints on the system and so are focussing on the expensive export boundaries.
How many MW have you already deloaded as part of the CMIS? Just trying to understand the average £ saving per MW deloaded	To date, no units have been deloaded or tripped off the network as part of the CMIS services. The chart presented, showed the savings based on costs we incurred on arming units to a scheme, rather than when they are tripped off. Data on I/T arming events and costs are published at [Constraint Management Intertrip Arming 2024-2025 | National Energy System Operator](#)
For intertrip, what steps are NESO taking to ensure that existing and future intertrip schemes and delivery will work for flexible assets? BESS can provide free arming, therefore always at benefit to the consumer	In the conversations with the TOs we are exploring possible solutions that allow MW to be removed from the network but remain connected to provide voltage/stability services etc. Additionally, we are looking at the possibility of intertrip schemes only sending a trip/deload signal to a storage asset when it is exporting and not importing.
What was the reason for having the 10s de-load time for the EC5 service if it's too slow when the B6 one is sub-second?	The EC5 intertrip is an existing scheme that has been in place for some time and was built to have 10 second de-load capability. In developing the EC5 Enduring service, NESO have worked with NGET to develop a new scheme that has much faster – 200ms – trip speed to provide the capability required. This is due to be in place from the middle of 2026. NESO decided to run an interim tender on the existing scheme to unlock savings prior to the enduring service going live.

Apart from BESS, what types of customers do you think will want to sign up to Demand for Constraints? And are you considering the duration limits on most demand actions?	We've been in touch with a wide variety of potential flexibility service providers over the past year, including electrolyser developers, industrial demand (for example distillery, electric arc furnace, manufacture), heat networks and aggregators. We are aware that the demand might not be permanently able to increase but all demand turn up at the time of constraints is a good thing. Exact limitations on duration will be considered in detail design development. If you are interested to be part of the Demand for Constraints Expert Group, please drop us an email at box.market.dev@neso.energy
What is the timeline for your DfC 3 proposals, it's not clear? Your CBA states savings from 2028 so is the plan to get contracts to start then or earlier (2026, 2027?)	With the Clean Power 2030 target in mind, we want to try and get the scheme set up as quickly as possible. We intend to introduce a T-2 DFC contract, so we are aiming for delivery in 2028. On that basis, we will be trying to tender in 2026, however we cannot guarantee the exact timeline now.
Could you summarise the re-framing of Demand for Constraints again please? And is there a reason for the re-framing? Do you have a preferred contract term in mind?	Our aim is to align the work underway in the Constraints Collaboration Project with broader, strategic objectives set by NESO and the UK government. With the Clean Power 30 target in mind, it's important to identify mechanisms that unlock the level of flexibility required to meet these goals. The re-framing of Demand for Constraints highlights the need for large and flexible demand, which is unlikely to come forward without clear incentives that provide both locational and investment signals.
Can you break down the slide next time to show the contribution from the 2 (volume of constraints and avoided cost due to energy prices) thanks!	Yes, we will look at doing this next time around
Re Boundary Flow Smoothing algorithm evaluation. If I'm understanding you correctly, the use of historical data assumes that the boundary flow smoothing mechanism deployed won't itself influence any power quality factors (voltage magnitude, reactive power fractions, harmonics). Is that a reasonable assumption?	Yes, for now, we are not considering these other power quality factors. If this phase of the project is successful then we will investigate interactions with other fast acting services as well as harmonics etc.

What is the main driver behind B6 arming events? High wind in Scotland during large percentage of demand in England being met by off-grid solar? Or are there other key factors at play such as international intertrip contracts?	High wind in Scotland combined with circuit outages.
Has NESO considered the potential use of quadrature booster to manage power flow as part of an intertrip scheme?	We use Quad Boosters in various 'pinch points' on the system to optimise flows pre and post fault, they are not combined with automated I/T schemes, they are a tool used by the Control Engineers. We also have static synchronous series compensator technology at certain points on the system to assist with managing power flow magnitude and direction.
Why is the DfC service only open to new assets rather than also existing assets/BMUs?	The aim of Demand for Constraints is to incentivise more flexible demand in constrained areas. Existing assets/BMUs can already provide flexibility via the Balancing Mechanism (BM) but there are some potential demand projects that could develop more flexible assets but cannot establish a business case using the BM as the basis for new investment.
Do you have any rough idea of the level of payments per MW/year for DfC availability?	We will determine the level of availability payments in the detailed design phase. In the meantime, you can review our Cost Benefit Analysis here - it has assumed that a demand user would receive an annual payment of £30k/MW for every year that they are available (This figure for illustrative purposes only and is based on feedback received by NESO during the consultation. It does not indicate a formal or firm commitment for future commercial opportunities from the NESO).
So, you are looking for DfC contracts to start delivering in 2028. Ok but while you say you want these DfCs to deliver asap, a t-2 next year for 2028 is perhaps not that quick? Especially as we've been developing these for the last 2 years. Is there a way to expedite it and bring it forward say a year early (£c.300m saving for consumers?)	Thank you for your suggestion - we are actively exploring ways to expedite the delivery timeline for Demand for Constraints. We recognise the significant work already undertaken over the past one and a half year and understand the interest in bringing delivery forward. However, accelerating the timeline would also require firm commitments from industry to ensure that new, flexible assets can reliably come online earlier than currently planned.
CMIS: Does this require a connection to Optel, and is it open to participation by any type of generation?	Participation in CMIS is open to all forms to technology that are connected in the locations that would be assist in alleviating boundary constraints. In the tenders to date, these have been transmission connected assets as they are more effective in impacting boundary flows.

	Contracted sites may be required to ensure have relevant communication equipment installed to connect to the intertrip scheme to receive trip/de-load signals as well as to provide real-time metering. Additional parameters such as Physical Notifications will be required by NESO to inform how to utilise the service.
Are NESO engaging with DESNZ hydrogen teams on DfC around the pending decision on hydrogen transmission blending?	We are engaging with the DESNZ hydrogen teams across the entire NESO organisation – not just within the Constraints Collaboration Project (CCP) team. As part of our role, we are convening the Gas Advisory Council, which brings together gas industry stakeholders to identify and work through key challenges facing the gas sector. Blending has been identified by the group as a potential topic for further focus for this forum.
Will the packs be available only to those participating in interviews or more widely?	We can circulate the boundary flow smoothing pack to the wider audience.
Is there any interest in DfC from modern AI data centres? Assume they would need quite a high utilisation payment to reduce their tokens/MW output that is very lucrative.	Yes, we have received interest from data centres. Currently, most data centres are unable to flex their demand, and our analysis shows that incorporating their baseload demand tends to increase wholesale electricity prices. However, the ongoing AI boom is driving significant growth in the data centre market across Great Britain. Hyperscale data centres, in particular, may be well-positioned to participate in DfC, given their substantial electrical loads and some degree of locational flexibility. That said, incentivising these facilities to locate behind network constraints—such as in Scotland—would require further investment in fibre connectivity infrastructure to support their operations.