

THE ENERGY GEESKS

Maxine Frerk
Roger Hey
Steven Steer
Eric Brown
Laura Sandys

Dear Ofgem colleagues,

As the self-styled "Energy Geeks", we are a group of independent energy experts who have come together to look at ways to totally decarbonise the energy system as quickly and effectively as possible. Our initial report, *'Delivering Customer, Cost, Carbon and Connections Dividends'*, highlighted the waste in the system and where there are immediate and systemic efficiencies that can be realised.

Given that several of our recommendations would require Ofgem action through the ED3 price control, we have taken an active interest in the ED3 process, including responding to the Framework consultation, and are pleased to see that a few of our key messages have been picked up in the SSMC. We have summarised our key messages in relation to the SSMC below and attach responses to the detailed consultation questions where we have relevant expertise.

Our key messages in relation to the SSMC are:

1. **Voltage:** This is a theme that we have pressed hard over the last year, including through a Utility Week / SSEN roundtable that built on the recommendations of our original report. We called our campaign "**Volts going to waste**" and framed voltage optimisation as a "**Triple Play**" of benefits for bills, flexibility, and connections. We are delighted that Ofgem has recognised the importance of this technical issue and for the first time will require DNOs to produce a strategy on voltage management (one of our core asks). We strongly support Ofgem's positioning of "Voltage Optimisation" as another core, incentivised DSO objective, with our "Triple Play" benefits explicitly referenced as the justification.
2. **Losses:** Again, we are pleased that Ofgem has acknowledged the importance of losses as a system cost - and its welcome inclusion as a DSO responsibility reinforces that message. While we fully agree that there are trade-offs that have to be made, we would argue that the framing as "losses optimisation" sends the wrong signal. It is never the case that one *wants* higher losses - it is simply a price that one might have to pay (as indeed is the case with interruptions where costs and the need for outages all have to be balanced). As Ofgem develops its thinking, it is vital that it provides a clear incentive for DNOs to better understand and manage losses, within an engineering design CBA framework that values their whole system impacts.
3. **Unlooping:** This has been one of our more recent areas of focus. We called the voluntary, postcode-lottery approach to fixing looped electricity supplies a "**Hidden Handbrake on Net Zero**" and demanded a mandated, national programme. We are delighted that Ofgem has recognised the importance of a proactive approach, but a 'strategy' alone is not enough. To prevent a postcode lottery, this must be backed by **Guaranteed Standards of Performance (GSoPs)** to give customers a right to a timely LCT connection.

4. **Flexibility:** We are pleased that Ofgem has clarified its position on the use of flexibility by DSOs, setting out a range of important use cases (while confirming that it should not be used as an alternative to long-term reinforcement which is still needed). However, we remain concerned that at a strategic level, for example in the Clean Flexibility Roadmap, the way forward for DSO flex and how it works alongside wholesale market flex is still not clear. In particular, the concept of "**diversity**" of load is an important one in local network planning and one which is put at risk by retail tariffs which trigger all EVs to start charging at a particular point (an issue we have seen in Scotland with storage heating and the removal of RTS meters). This should be highlighted as an issue for DSOs to work on in ED3. We are also concerned that the focus remains on domestic consumer flexibility. I&C loads can be of particular value to DSOs as they are a significant load in a particular geography rather than a nationally dispersed aggregation of smaller domestic loads. We urge that Ofgem and NESO understand and engage much more with the I&C sector and design markets around their potential - which we believe is much more substantial than either party currently appreciates.
5. **Innovation:** While we welcome the intent behind the funding arrangements, we have concerns regarding the execution. We strongly believe that the current model allows DNOs to act as **gatekeepers** to innovation, effectively blocking disruptive third-party solutions that challenge their business models. To ensure proven innovations are swiftly rolled out, we call for a "**Direct Entry**" route for third parties and independent governance to ensure the supply chain is not locked out.
6. **Digitalisation:** The digital journey has lost its way; it is currently fragmented by function rather than guided by outcomes or the customer journey. DNOs must move beyond static, pre-set parameters and use data to deliver real-time visibility and dynamic network operation. This is essential to lower barriers for coordination and deliver the capacity needed for Net Zero. Ofgem must set clear expectations and strictly monitor compliance with Data Best Practice. Crucially, we caution against building closed 'platforms' rather than open 'protocols'. We call on Ofgem and DESNZ to mandate a '**Digital Spine**', a binding '**Highway Code**' for interoperability. Furthermore, AI must be elevated from a simple forecasting tool to a driver of real-time dynamic network operation.
7. **Local co-ordination:** We are keen to see further thinking on the DNOs' role in **energy efficiency**, noting our recommendation that for every £10 spent on energy supply, £1 should go to energy efficiency. While it may not be right for this to be a core DNO role, we can see scope for a stronger role for DNOs in co-ordination of local area upgrades (spanning reinforcement and unlooping in coordination with local authorities and their local area energy plans). We would like to see a role for DNOs supporting the **smart meter rollout** at a local level as a part of that (and have separately advocated for a task and finish group to carry out a review for DESNZ about how to accelerate the final stages of the rollout including through a local area-based focus).

More generally, and looking beyond the detail of SSMC, we see three critical architectural gaps. First, the proposed 'Advisory Panel' for interoperability is insufficient; **a forum is not an architect**. We need a single body with the authority to establish the rules of the game and set binding technical standards to prevent fragmentation. Second, the 'Elephant in the Room' regarding flexibility is the **broken retail market**. Without a Smarter Retail Model that fixes the 'Front Door', the flexibility markets envisioned in ED3 will remain inaccessible to the vast majority of assets. Finally, we urge Ofgem to work with DESNZ and the NESO to resolve the overlap and underlap of roles and

responsibilities in the system. Without clarity, the destination will elude us and cost much more time and money than needed.

We hope these comments are helpful and would be happy to discuss our thinking further as Ofgem develop their proposals.

Yours faithfully,

Eric Brown
Maxine Frerk
Roger Hey
Laura Sandys
Steven Steer

Answers to selected consultation questions

Investing for the Energy Transition

Q6. Do you agree that LV network reinforcement and unlooping of legacy service connections are suitable areas for a programmatic, area-based approach in ED3? Why or why not?

Q7. What are your views on the need for national consistency in the delivery of proactive unlooping programmes?

We strongly agree. The current approach to unlooping is a "**postcode lottery**" that acts as a hidden handbrake on Net Zero. Leaving this to a reactive, customer-initiated process creates unacceptable delays and costs for those trying to decarbonise heat and transport.

A programmatic, area-based approach is the only viable solution to deliver economies of scale and fairness. However, a "strategy" alone is insufficient. To ensure this is delivered, Ofgem must mandate national consistency backed by **Guaranteed Standards of Performance (GSoPs)**. Customers should have a right to a connection capable of supporting LCTs within a defined timeframe; without binding standards, DNOs may deprioritise this difficult work in favour of easier wins.

Incentives for smaller connections

Q21. Do you agree the incentive should be reward and penalty (as per the RIIO-ED2 minor connections incentive)? Why?

We **disagree** with the proposal to apply a Reward/Penalty mechanism to LCT enabling works (such as unlooping and fuse upgrades).

Access to the grid for Low Carbon Technologies should be treated as a basic standard of service, not an "optional extra" that attracts a financial reward. Customers have already paid for the network capability; they should not pay a premium (via rewards) for the DNO to rectify legacy constraints like looped services.

We argue that these activities must be backed by **Guaranteed Standards of Performance (GSoPs)**. If a DNO prevents a customer from decarbonising their home due to a legacy network constraint, the DNO should face a direct penalty (compensation to the customer). A "Reward" mechanism risks DNOs gaming the baseline to get paid for work they should be doing anyway.

Q22. Do you think any LCT connection incentive should be for domestic, non-domestic, or both? Why?

It must apply to **both**. The climate does not distinguish between a heat pump in a home and a heat pump in a small business.

Excluding non-domestic customers creates an artificial friction for SMEs trying to decarbonise. At the Low Voltage level, the technical challenges (and the DNO administrative processes) are largely identical. Creating a two-tier system adds unnecessary regulatory complexity and leaves SMEs behind.

Q23. Notwithstanding the proposals we have set out under 'Redefining Connections Types', do you have alternative proposals for what DNOs need to do to speed up connection times for LCTs, and what incentives (other than those we have discussed in this chapter), obligations and/or funding may be required to support this?

The most effective way to speed up connection times is to remove the need for a "connection process" entirely through **Proactive Investment** and the **deployment of proven innovation**.

- **Proactive vs Reactive:** The fastest connection is one where the work (unlooping) was done last year as part of a programmatic rollout. Relying on incentives for reactive work guarantees delays.
- **Auto-Design & Data:** DNOs should be required to use smart meter data and digital network models to **auto-approve** LCT notifications (Connect & Notify). Manual assessment of fuse ratings or looping status in 2028 is an unacceptable inefficiency.
- **Smart Interim Solutions:** Where physical works are required, DNOs must use smart solutions to get customers connected *immediately* while they wait for the upgrade. Numerous innovation trials have proven that technologies (such as smart load management devices or temporary flexible connection agreements) allow LCTs to operate safely on constrained networks. Telling a customer they cannot have a Heat Pump for months because of a fuse upgrade is a failure to deploy proven innovation into Business as Usual (BAU).

Incentive for Larger Connections

Q26. Do you think we should financially incentivise the TTC metric in order to accelerate connections and achieve the right outcomes? Are there other changes we should consider? How would any change sit alongside the current incentives?

Yes, we support a financial incentive on Time to Connect (TTC), but it must be accompanied by a shift in *how* DNOs deliver speed.

TTC improvements should not just come from administrative efficiency; they should come from deploying **Active Network Management (ANM) for Demand**. Technology exists today to connect large industrial and commercial loads immediately on a flexible basis, rather than making them wait years for firm reinforcement.

Q28. Do you agree that we should not pursue the options we have set out that we would not consider further, ie incentivising flexibility and the SO:TO incentive? Why?

We **strongly disagree** with the decision to discard incentives for flexibility in connections. Ofgem argues (Para 4.73) that flexibility might be "prioritised at the expense of network build." This is a failure of incentive design, not a failure of the technology.

ANM is a proven, Business as Usual (BAU) technology, yet it is currently reserved almost exclusively for generation. There is no technical reason why it cannot be applied to large Demand customers to bridge the gap between "need" and "reinforcement."

To address Ofgem's concern about under-investment, the regulatory framework should mandate that **Demand ANM is accompanied by curtailment compensation**. If a business connects early via ANM, and the DNO has to curtail them, the DNO should pay for that interruption. This creates the perfect incentive:

- The customer gets connected immediately.
- The DNO is financially motivated to deliver the reinforcement quickly to stop paying compensation.
- The risk of "flexibility replacing investment" is eliminated because high curtailment becomes more expensive than building the grid.

Q29. Notwithstanding the proposals we have set out under 'Redefining Connection Types', do you have alternative proposals for how to incentivise timely connections and improve the quality of service for larger connections?

We propose a **"Connect Now, Firm Later"** standard for large demand connections.

Waiting years for a firm connection is economically damaging for UK plc. DNOs should be required to offer an immediate flexible connection (via ANM) alongside a firm date for reinforcement.

As outlined in our response to Q28, this must be paired with a compensation mechanism. If the grid is truly "efficiently sized," curtailment events should be rare, meaning the cost to the DNO is low. If curtailment is frequent, it signals a failure to deliver the upgraded grid ahead of need, and the DNO should compensate the customer for that failure. This turns the connection queue from a waiting room into a dynamic management challenge that DNOs are capable of solving.

Energy efficiency

Q41. Do you have any views on our proposal for DNOs to play a bigger role in the delivery of energy efficiency and low carbon measures?

Energy efficiency has been neglected by policy and regulation and can seem to be an afterthought rather than integral to the whole system design. While there is a big investment and deployment challenge to build the decarbonised energy system, financially there are some real gains to be made by embedding efficiency into the policy framework as a strategic part of the transition.

Reflecting this, one of our original recommendations was that for every £10 spent on energy supply, £1 should go to energy efficiency. While this does not immediately suggest a role for DNOs, we would encourage Ofgem to ensure that DNOs are at least looking at options where improved energy efficiency might mitigate the need for network reinforcement.

Under Condition 31E of their licences DNOs *"must coordinate and direct the flow of electricity onto and over its Distribution System in an efficient, economic and coordinated manner. This includes.... promoting the uptake of measures to improve Energy Efficiency, where such services cost-effectively alleviate the need to upgrade or replace electricity capacity and support the efficient and secure operation of the Distribution System. This may include procuring Energy Efficiency Services, where it is economic and efficient to do so."* To date Ofgem has focussed solely on the flexibility services aspect of this licence condition in terms of reporting etc. This blindspot should be addressed.

Even if DNOs cannot fund the full costs of energy efficiency through this route, a contribution alongside other funding sources may be sufficient to fund valuable action.

We also recognise the important potential role that DNOs could play in local co-ordination as they work with local authorities and other to develop local area energy plans and to support what seems to be a direction of travel towards a more place based approach to the transition.

As a part of any enhanced co-ordination role for the DNOs in this area we would encourage Ofgem to include smart metering where there is a strong case for a more area based approach to the final stages of the rollout. We have called for a task and finish group to support DESNZ in looking at what more can be done to accelerate the rollout in support of CP2030.

Data and Digitalisation

Q51. Do you agree with our proposed approach on all five themes? Why?

We agree with the themes in principle but **strongly disagree with the proposed execution and level of ambition.**

- **AI is a Game Changer, not just a Tool:** The consultation treats AI as an incremental addition to be used "ethically." It fails to recognise that AI fundamentally changes the physics of network management. Complex optimisation of the power system configuration in real-time, previously deemed impossible due to computational constraint, is now achievable. DNOs should be using AI not just for forecasting, but for dynamic, automated network reconfiguration to squeeze maximum capacity out of existing assets before building new ones.
- **The "Closed Shop" of Operational Technology (OT):** To unlock this AI potential, DNOs must break open their Operational Technology silos. Currently, DNOs are too closed to start-ups and non-incumbent suppliers. They default to legacy contracts with large incumbents, shutting out agile tech companies that offer superior, specific solutions for optimisation and control. Value will be lost for consumers unless DNOs embrace an agile supply chain. We need a regulatory push that forces DNOs to open their OT interfaces to third-party innovators, rather than keeping the "control room" as a walled garden.
- **Protocols, Not Platforms:** We remain concerned that the current plans risk building "platforms" (monolithic systems) rather than "protocols." We advocate for a "**Digital Spine**" approach. Just as the internet relies on TCP/IP, the energy system needs a common, open protocol for secure data exchange. This is the only way to allow the agile start-ups mentioned above to "plug and play" their solutions, creating a thriving ecosystem of optimisation tools rather than a series of disconnected, DNO-owned platforms.

Q52. Do you agree with the need and role of the independent expert panel on interoperability? Why?

We **disagree** that an "advisory only" panel is sufficient. Interoperability is the bedrock of a smart, flexible system, and history shows that advisory bodies in this sector often become "talking shops" that delay critical decisions.

A forum is not an architect. To prevent fragmentation, we need a single, empowered **System Architect** with the "teeth" to make binding decisions on technical standards and interoperability. Relying on consensus and advice will be too slow to meet the 2030 targets.

Q53. Do you agree that DSAPs should include outcome-linked digital spend? Why?

We agree. AI is a deflationary technology; it can solve problems orders of magnitude faster and cheaper than legacy IT integration.

The mechanism must ensure this "**AI Efficiency Dividend**" flows to consumers, rather than allowing DNOs to retain excessive outperformance against bloated legacy baselines.

Linking spend to outcomes is critical to break the cycle of funding monolithic "bloatware" from incumbents. The framework must be agile enough to allow DNOs to pivot to emerging, low-cost AI solutions mid-period, rather than locking them into obsolete technical plans.

Innovation

Q54. Do you agree that we should maintain the current NIA Eligibility Criteria? Why?

Q55. Do you agree with our suggested approach for assessing and setting NIA? Why?

We have significant concerns regarding the governance of NIA. Currently, **DNOs act as the gatekeepers** to innovation funding. This creates a structural bias where solutions that challenge "custom and practice" or disrupt DNO business models are blocked at the entry stage.

To resolve this, we propose:

- **Direct Entry:** There must be a direct entry route to SIF and NIA for third parties, independent of DNO sponsorship.
- **Independent Governance:** DNOs should be required to appoint an **Independent Panel** to review and approve *all* proposals. Crucially, the DNO's own internal projects must go through this same independent scrutiny to ensure a level playing field.

Q56. Do you have examples of projects that weren't able to deploy in RIIO-ED2 due to the lack of funding, or that you anticipate wouldn't be able to deploy in ED3 without the extension of the Deployment Fund to cover DNOs in ED3?

The issue is not just funding; it is **access**. The administration of NIA and SIF heavily favours large consultancies that can absorb high administrative overheads and manage the cashflow gaps inherent in the process.

This structure effectively **locks out start-ups and growth SMEs**, who often hold the most disruptive technology but cannot carry the financial burden of the regulatory process. ED3 mechanisms must be agile enough to support the SME supply chain, or we will simply fund more reports from the same incumbents.

Q57. Do you perceive a lack of coordination and direction as an issue for the deployment of innovation in the ED sector, and do you think a similar intervention to the TID is needed to resolve this?

Yes. A major barrier to rollout is the time horizon of the price control. To drive genuine transformation, the financial benefits of rolling out an innovation must be retained by DNOs **for longer than the current price control period**.

If an innovation delivers savings in Year 5 of ED3, the current framework often incentivises the DNO to stick to the legacy approach rather than disrupt operations for a benefit they will immediately lose in the ED4 baseline reset. Long-term value capture is essential.

Q58. Do you agree that further incentivisation is needed within the price control for innovation that doesn't primarily benefit networks? Do you have evidence to support this?

To frame this in terms of incentives for innovation feels wrong. If there are important outcomes that we want the networks to deliver then they should be incentivised to do that. Very little beyond cost saving directly benefits the DNO but where there are incentives to improve performance DNOs will look to do this through innovation where appropriate. The availability of innovation funding gives the DNOs an opportunity to explore other areas as well – and subsequently to make the case for rollout funding.

Q59. Do you have any feedback on what kind of mechanism would best provide this incentive, while ensuring that networks are only rewarded for actual delivery of consumer or system benefit?

We propose a **"Use it or Pay for it"** mechanism to tackle **"Pilotitis."** Project reporting needs to be drastically improved to clearly quantify the benefit potential of rollout. If a solution is proven successful in a trial, but the DNO chooses *not* to deploy it (defaulting back to legacy methods), the

cost of the trial should be **retrospectively funded by shareholders, not customers**. Consumers should not be asked to fund R&D that gathers dust on a shelf. If the innovation works, deploy it. If you don't deploy it, you pay for the trial.

DSO network planning

Q60. Do you agree with our proposed scope for the DSO's role in network planning for ED3, including leading long-term integrated development planning and enhancing forecasting? How should DSOs ensure that future iterations of these plans align with emerging strategic inputs such as the Regional Energy Strategic Plan (RESP) and Strategic Spatial Energy Plan (SSEP) when they become available?

Q61. How should DSOs best coordinate with other parties (eg NESO, local authorities, iDNOs, gas networks) to deliver whole-system outcomes through network planning? Are there specific governance or data-sharing arrangements that should be strengthened?

Q62. What additional data, digital tools, or visibility improvements are needed to enable DSOs to deliver proactive, spatially targeted network planning in ED3? Please provide examples of gaps or best practices.

Q63. How should DSOs incorporate flexibility services and connection process improvements into their network planning approach to ensure timely, efficient, and predictable connections? Should this be incentivised, and if so, how?

We broadly agree with the scope but **fundamentally disagree with the proposed execution**. The current approach feels like an incremental evolution of ED2, whereas the technology landscape demands a revolution.

- **The Disruptive Potential of AI:** The consultation treats planning as a static, human-led exercise assisted by data. This ignores the disruptive potential of AI to revolutionise network operation. Real-time, complex optimisation of power system configuration is no longer impossible. DSOs must move away from "Static Headroom" planning (building for the worst-case winter peak) towards "**Dynamic Envelope**" management. AI tools should be used to reconfigure the network in real-time, squeezing maximum capacity from existing assets. ED3 allowances must drive the adoption of these agile tools, rather than just funding more copper and concrete based on static forecasts.
- **The "Highway Code" of Energy:** Coordination between DSOs, NESO, and local actors is currently fragmented because we lack a common set of rules. We need a "**Highway Code**" for Energy, a unified set of protocols for data exchange and interoperability. Crucially, this cannot be left to an "Advisory Panel" or voluntary collaboration. We need a **System Architect** (a body with authority, not just influence) to set and enforce these rules. Without a "Highway Code," digital coordination will remain a series of bespoke, expensive integration projects that fail to scale.
- **Customer-Centric, Not System-Centric:** Planning methodologies remain too "System-Centric," viewing customers merely as load profiles to be managed or constrained. ED3 planning must be **Customer-Centric**. The grid exists to facilitate the customer's transition to Net Zero (heat, mobility, industry). Planning assumptions should start with the customer's need for unconstrained access, using Smart Solutions to deliver that access immediately, rather than forcing customers to wait for the "perfect" reinforced network.

Flexibility

Q64. Do you agree that changes are required to the CEM tool to implement our proposed approach in ED3? Are any other changes needed?

Q65. How can we best ensure that flexible connections aren't deployed at the expense of network reinforcement?

Q66. How can we best ensure that DER/CER are not prevented from accessing wider flexibility markets due to the use of ANM or lack of NESO-DSO coordination?

While ANM and coordination are technical barriers, the **"Elephant in the Room"** preventing DER/CER access is the **broken retail market**.

A smart grid cannot succeed without a fundamental re-architecting of the retail interface. Currently, the lack of a **Smarter Retail Model** prevents consumers and aggregators from easily stacking value or accessing markets. We need a model that provides a stable, simple foundation for customers (the "basic kWh") while allowing Energy Service Companies (ESCOs) to compete to provide heat, mobility, and flexibility services.

Ofgem's silence on retail reform in this consultation is a critical omission. Without fixing the "Front Door," the flexibility markets envisioned in ED3 will remain inaccessible to the vast majority of assets.

Q67. Are further incentives required to incentive and encourage the use of flexibility in line with our approach for ED3?

Yes, specifically to unlock the **"Forgotten Sector": Industry**.

Current flexibility markets designed by DSOs and NESO systematically ignore Industrial & Commercial (I&C) customers. Gigawatts of potential flexible load are being lost because products are designed for DNO convenience, not industrial operational reality.

- **Design for Industry:** DSOs must co-design products that fit around industrial processes (e.g., thermal inertia, pumping schedules) rather than forcing factories to fit rigid DNO templates.
- **The Value of Scale:** A single I&C site offers the impact of thousands of aggregated homes with greater reliability. This is the "low hanging fruit" of the transition; ignoring it forces unnecessary network build.
- **Investment Certainty:** Industry operates on 10+ year investment cycles. DSOs must offer **long-term flexibility contracts** to justify the automation investment required for industry to participate, rather than relying on low-value, short-term tenders.

Voltage management

Q68. Do you agree with the proposed voltage management responsibilities, for DSOs? Are there any aspects you disagree with, or any additional responsibilities we should consider?

We strongly agree. For too long, DNOs have treated voltage merely as a compliance boundary (keeping it within statutory limits) rather than a variable to be optimized for consumer benefit.

We advocate for the **"Voltage Optimisation Triple Play"** as a core DSO responsibility in ED3. Active voltage management delivers three simultaneous benefits:

- **Reduced Bills:** Lowering average voltage reduces energy consumption (via Conservation Voltage Reduction) with no impact on consumer lifestyle.

- **Flexibility:** Managing voltage provides immediate demand response capacity (as proven by the CLASS project).
- **Connections:** Dynamic voltage management resolves the high-voltage constraints that currently cause EV chargers and solar inverters to trip, unlocking latent capacity for connections.

We are pleased to see Ofgem referencing the success of trials like **CLASS** (Electricity North West) and **BEET** (Northern Powergrid). The responsibility in ED3 must be to move these from "award-winning pilots" to **Business as Usual (BAU)** rollout across all licence areas.

Q69. In your view what would be appropriate metrics or KPIs by which the success of delivery of these responsibilities could be measured? For each of these metrics or KPIs, should this target be codified in a licence condition or otherwise incentivised?

Current metrics only measure *compliance* (excursions outside statutory limits). ED3 needs metrics that measure *optimisation*.

We propose a reporting metric on "**Average Delivered Voltage**". Currently, most UK homes receive ~243V, far higher than the 230V nominal standard. DSOs should be incentivised to lower this average closer to 230V, reducing unnecessary energy waste.

However, this must be balanced to ensure customers at the end of the feeder do not drop below limits. Therefore, a secondary KPI should be "**LCT Headroom Released**," quantifying the additional connection capacity created specifically through voltage management interventions.

Q70. How can we support DSOs in getting access to useful 3rd party voltage data from assets such as EV chargers?

DSOs are currently "**flying blind**" on the Low Voltage network. It is unacceptable that millions of smart meters and other smart appliances are measuring voltage constantly, yet DSOs often rely on expensive, temporary loggers to diagnose faults.

Ofgem must mandate a **data-sharing protocol** where Charge Point Operators and Suppliers share voltage excursion data with DSOs. Whilst this is a commercial negotiation on cost; it is also a safety and operability requirement. If an EV charger or heat-pump trips due to high grid voltage, the DSO needs to know immediately to fix the constraint, and their customer should be compensated.

Q71. Do you support our proposal to include the reduction of reactive power injection on the transmission from distribution networks? Are there additional implications of this on the operation of distribution networks we should consider?

Yes. The distribution network should not be a burden on the transmission system. Managing reactive power at the distribution level is more efficient than forcing the ESO to contract expensive balancing services to manage high voltage on the transmission grid. This is a clear Whole System efficiency win.

Q72. For each of the options outlined for Providing Flexibility what are the advantages and disadvantages, and which would be your preferred option, including any that we have not considered?

We support **Option 4** (A combination of Option 3 with either Option 1 or 2).

We should not limit the ambition here. Voltage management is a "Swiss Army Knife" for the grid. It should be used to lower peak demand every day (Option 3 - reducing consumer bills) *and* be available to the NESO for emergency response or balancing (Option 1).

The technology (such as tap-staggering or advanced voltage control) often delivers these capabilities simultaneously. Restricting the DSO to only one use case leaves value on the table.

Q73. Do you have any comments on the proposal for the creation of a new incentive for the provision of flexibility through demand reduction?

We strongly support this. Flexibility via voltage reduction is arguably the lowest-cost, lowest-carbon flexibility available to the system. It requires no consumer behaviour change and utilizes assets (transformers) that are already paid for.

An incentive is required because, under the current Totex framework, a DNO may perceive little internal benefit in operating their assets more dynamically to help the NESO. The incentive must be strong enough to overcome the cultural inertia of "fit and forget" engineering.

Q74. Do you support the requirement for a published voltage management strategy from each DSO, with an annual reporting requirement?

Yes. This strategy must be robustly challenged by the **Independent Stakeholder Group**.

The strategy must explain why, if a DNO is not rolling out proven solutions like CLASS or BEET, they believe their customers should pay higher bills than necessary. "**Pilotitis**" is no longer an excuse; the engineering science on voltage optimization is settled. The strategy must move to implementation.

Losses

Q75. Do you agree with the proposed working-level definition of loss optimisation as a cost-based, system-wide approach to managing distribution losses?

Q76. Do you support Ofgem's focus on loss optimisation over loss reduction in ED3? Why?

We are concerned that Ofgem is creating a **false dichotomy** in its presentation of the two approaches (loss reduction or optimisation).

It is clearly correct that networks need to trade-off the benefits of lower losses against a range of other factors. However, unlike with voltage where the objective is a level that is not too high and not too low, there is no scenario in which *higher losses* are *per se* a good thing.

The need for trade-offs applies across multiple areas of the price control. For example, under IIS we expect networks to trade-off the costs of reducing interruptions against the need for outages to deliver reinforcement. Yet no-one talks about "optimising interruptions."

In our view, the framing of SLC49 for losses to be kept "**as low as reasonably practicable**" is correct and must be maintained. We agree with Ofgem that a wide range of factors need to be taken into account by DSOs in doing this, but the outcome should be that losses are reduced compared to what they otherwise would have been.

At one level this may just be a small issue of semantics (and we would prefer "loss management" to "loss optimisation" for the reasons set out above). However, we have a real concern that as drafted this ends up being put into the too complicated box. Ofgem does helpfully acknowledge the importance of losses in terms of system costs and must ensure that focus remains as it develops the next level of detail around the ED3 package.

Q77. How should we embed loss optimisation into ED3 and what are some of the challenges with this?

The first step is to ensure that the Plans the networks put forward include ambitious proposals for how they will take a more proactive approach to loss management in ED3. Ofgem should make clear that the quality of the losses strategies will be assessed as part of the Business Plan Incentive.

Within this, probably two of the biggest challenges are around the granular measurement of losses (to aid understanding of where and when are they happening) and then the valuation framework (how to capture the full long term system costs in terms of increased generation and transmission capacity that will be needed as a result of higher losses at peak times).

As Ofgem highlights, the increased levels of monitoring on the distribution networks combined with advances in AI and machine learning should enable the networks to get a much better handle on when and where losses are occurring on their networks. In January 2014 Imperial College (Goran Strbac) and Sohn Associates published the findings of a substantial innovation / research project carried out by for UKPN and WPD as was. This is still seen as the seminal work on understanding losses – including where and when they arise - but with a large number of recommendations for further work that have not been taken forward. Given also the very different landscape now in terms of the energy mix, the commitment to net zero and the rollout of LCTs, this all points to the need for further significant work in this area.

On the valuation framework it is not clear if this is for the networks or Ofgem to drive forward (given Ofgem provides the CBA template that networks must use for investment appraisal).

Moreover the two points are linked in that we need to start looking at the level of losses at peak time rather than just annual losses (some losses matter more than others!). As we have flagged, the level of losses increases with the square of current so the proportion of losses at peak time will likely be markedly higher than the 5-8% average for the year.

Ofgem talks about the level of losses increasing in absolute terms as demand increases. This misses the point that it is not a linear relationship – the level of losses will also increase as a proportion.

Unless the networks can get a better understanding of where and when losses occur, enabling a focus on peak losses (which will be the highest cost and most carbon intensive) – then no real progress can be made on managing / optimising them.

Q78. What mechanisms should be used to monitor and assess DNOs' impact on network losses, and how can loss optimisation be embedded into planning, operational, and investment decisions under ED3?

DNOs should continue to report on overall levels of losses until improved metrics are developed. In addition they should be reporting on actions taken as part of DSO reporting.

Basic trade-offs around, for example, the incremental cost of low loss equipment should be **bread and butter** to the DNOs (subject to having a clear view of the long term system costs of losses rather than simply the energy / carbon cost as now).

In many cases the investment decision will be around the incremental costs and benefits of taking a low loss approach to investments that are primarily about replacing aging assets or reinforcement. Rather than assessing these incremental investments individually it could be simpler to mandate (eg through engineering standards) minimum sizes for cables and transformers to future proof capacity and ensure they remain efficient from a losses perspective.

Other operational trade-offs with, for example, voltage will be more complex – but a key part of the DSO role is to understand and manage these complex trade-offs.

One example is **phase imbalance** which is a big contributor to losses but where the DNOs continue to have limited visibility. Fitting substation monitors to some sites will help, but we think DNOs should also be making use of 3rd party data, for example from EV charger and PV providers. Use of third party data is currently excluded from the DSO ODI on network visibility and could help in a number of areas.

There are also links to thinking around the role of local energy. In its CP2030 Action Plan, DESNZ flagged the value of local energy in helping reduce losses. While this makes perfect sense it has never been quantified (and hence local energy projects can't benefit financially from sharing in those benefits). A better understanding of the drivers of losses at the local level could support this key strand of government policy and the Local Power Plan.

Q79. Do you believe there is a case for introducing financial or discretionary incentives to encourage active loss optimisation by DSOs? If so, what form should these incentives take (eg direct financial, reputational, discretionary rewards), and what risks or complexities should be considered?

Ultimately we would be keen to see the reintroduction of a full financial incentive for losses which would help ensure that DNOs make the right trade-offs in terms of the impact on losses when making investment and operational decisions. We note that in other countries DNOs "own" losses (ie to have to pay for the cost of lost energy which is then subject to the same price control incentives in terms of benchmarking and efficiency as any other cost category). A review of the recent CEER report on losses suggests that the UK is lagging behind other countries on performance on losses – perhaps linked to this difference in incentives. Ofgem should signal the reintroduction of a full financial incentive as a clear ambition for ED4.

However, we recognise the challenges with measurement which realistically precludes a full financial incentive for ED3. Nonetheless we see it as critical that the DNOs have some skin in the game in relation to losses, which have not been given the attention they need in ED2. Reputational incentives have proven wholly ineffective in this area. It is therefore vital that there is some form of financial reward based on performance on understanding, measuring and managing losses and knowledge sharing (with some standard metrics on the level of losses and actions taken as context for the assessment).

This could either take the form of a stand alone discretionary reward or – probably more realistically – be a part of the overall DSO incentive (which would also avoid siloed incentives which militate against whole system thinking). If the latter it is important that losses are given due prominence within the broader incentive.

It is important that the design of the incentive does not discourage knowledge sharing between the DNOs – hence our proposal for knowledge sharing to be a criteria.

Q80. Are there additional strategic or policy measures you believe should be considered in ED3 to manage losses?

We see innovation as important in unlocking benefits in this area but are happy the ED3 innovation framework can support that.

We have expressed concern separately about the very limited interest shown by NESO in this area. As a minimum NESO should understand what future (peak) losses are projected to be to inform its own system planning. Having NESO take an active interest would further help in ensuring DSO focus.

DSO incentive framework

Q81. Do you agree that the proposed aims for the DSO incentive framework appropriately reflect the core functional areas for ED3 (flexibility services, network planning, voltage and loss management)? Are there any additional priority areas that should be included, and how should these be measured?

The aims do not immediately speak to what is required on voltage and losses - Ofgem might usefully look again at them through this lens.

Q82. How should the incentive framework evolve to reflect the DSO's more proactive role in network planning, operational use of flexibility, flexibility market development, and whole-system coordination?

The incentive framework must undergo a fundamental pivot: it must transition from rewarding **Asset Deployment** (building infrastructure) to rewarding **Asset Utilisation** (optimising flows).

Currently, the regulatory gravity pulls DNOs toward capital-heavy solutions. To reflect the DSO role, the framework must evolve in four specific ways:

- **Network Planning – From "Static Headroom" to "Capacity Efficiency":**
We must move away from planning incentives based on the accuracy of static forecasts. Instead, DNOs should be incentivised on a "**Capacity Efficiency**" metric. If a DNO can demonstrate that they have used AI, data, and flexibility to safely run a transformer at 110% of its nameplate rating during peak times (the "**Dynamic Envelope**" approach we outlined in Q60) rather than reinforcing it immediately, they should retain a significant share of that Totex saving. The incentive must value the *avoidance* of build through intelligence as highly as the build itself.
- **Operational use of flexibility – The "Curtailed Liability" Shift:**
As detailed in our response to Q28, the most powerful driver for operational flexibility is not a "reward" but a commercial reality. The framework should evolve to include **Curtailed Compensation** for demand customers and **Partial Powercut penalties** (see Q100). When a DNO faces a financial cost for failing to flow power, they will naturally maximise the operational use of flexibility (including the "**Voltage Optimisation Triple Play**") to mitigate that risk. The incentive evolves by making flexibility a core operational necessity, not a "nice to have" trial.
- **Flexibility Market Development – Measuring Liquidity, not just Volume:**
The framework must stop rewarding DSOs simply for "spending money on flex." A DSO could spend millions on a single contract with a large generator, but that does not build a healthy market. The incentive must evolve to measure **Market Health** (as per our "Market Health Metrics" in Q84). We propose specific Key Performance Indicators (KPIs) for:
 - **Liquidity:** The volume of secondary trading and the number of unique participants.
 - **Access:** The reduction in time/cost for a new provider to register (enabled by the **Digital Spine**).
 - **Standardisation:** Strict penalties for DSOs that deviate from standard products or use proprietary APIs that lock out aggregators.
- **Whole-System Coordination – Shared Savings Mechanisms:**
Coordination is currently limited by split incentives. The framework should introduce **Whole-System Shared Savings**. For example, if a DSO manages Reactive Power locally (see Q71) which

removes a cost for the NESO, the regulatory framework should allow the DSO to capture a portion of that transmission-level saving. Similarly, coordination with Local Area Energy Plans (LAEPs) should be measured by the **acceleration of local heat/transport targets**, ensuring the DSO is an enabler, not a blocker, of local net zero ambitions.

Ultimately, the evolution must be away from the subjective "beauty parade" of the Performance Panel and toward **hard, outcome-based metrics** that prove the grid is being run harder, smarter, and more openly.

Q83. Are the current parameters (Stakeholder Satisfaction Survey and Performance Panel) an effective way of measuring DSO performance? How do you view the role of Regularly Reported Evidence (RRE) in complementing these assessments?

The Panel feels an effective way of judging performance on what are complex and nuanced issues. It is unclear how far the Panel makes use of the hard data from the RRP in judging performance – which they clearly should. While it may be hard to get robust metrics that could be used for a quantitative incentive, that data can still form part of the evidence considered in context by the Panel (and helps avoid it being a purely subjective exercise).

The Stakeholder Survey needs careful use noting that the DNOs choose which stakeholders to survey (and what information they are given). It is more relevant on topics like flexibility where their engagement is key than on, say, losses.

Q84. How can the DSO Incentive be designed to complement, and not duplicate, other mechanisms such as the Connections Incentive, BMCS and the Interruptions Incentive Scheme?

The design must include a mandatory "**Double-Reward Exclusion Step**" within the assessment process. Currently, DNOs present a holistic narrative to the Performance Panel. To prevent duplication, the incentive governance must structurally separate the **Outcome** (e.g., fewer power cuts) from the **Enabler** (e.g., a liquid flexibility market). We propose the incentive is designed with three specific mechanical filters:

- **Explicit Scope Exclusion:** The Governance Document must explicitly state that evidence of reliability improvements (CI/CML) or connection speed (TTC) is **inadmissible** for the DSO incentive, as these are already monetised via IIS and the Connections Incentive. The Panel should only assess the *method* used, not the *result* achieved.
- **The "Market Health" Metrics:** The DSO incentive design should shift away from operational outputs (which overlap with other incentives) and focus on **leading indicators of market health**. The mechanism should reward the *depth, liquidity, and transparency* of the flexibility market itself. For example, rewarding the volume of third-party capacity registered, the reduction in market entry barriers, or the interoperability of data.
- **A "Benefits Reconciliation" Statement:** DNOs should be required to submit a reconciliation statement showing where the financial benefit of a specific action has been claimed. If a flexibility action earned an IIS reward, it cannot earn a DSO reward.

This design ensures the DSO incentive complements the others by focusing on **building the market machinery**, while the existing incentives reward the **operational results**.

Reliability

Q98. What is the impact of short interruptions on consumers and are certain regions or customer groups more affected?

The definition of "interruption" must evolve for ED3. We are seeing the emergence of the "**Partial Powercut**" - where the lights stay on, but the essential service (heating or transport) is interrupted by the network.

This is driven by two factors:

- **Over-Voltage Trips:** As detailed in our "Volts Going to Waste" campaign, modern smart appliances (EV chargers, Heat Pumps, PV inverters) are sensitive. If grid voltage exceeds statutory limits (253V), they trip off to protect themselves. A customer wakes up to an uncharged car, not because of a blackout, but because of poor power quality.
- **Excessive Curtailment:** Customers on flexible connections or ANM schemes face "interruptions" to their export or import capacity.

The impact is disproportionately felt by "Net Zero Pioneers" - the very customers investing in the technology we need to decarbonise.

Q100. Do you agree that a formal mechanism should be introduced to recognise and address the experiences of customers significantly impacted by short interruptions?

Yes, but it must go further than just "short interruptions" (traditional transient faults). It must penalise **Partial Powercuts**.

Currently, a DNO is incentivised to avoid digging up the road (saving Totex). If the result is high voltage that trips out EV chargers, the DNO faces no penalty under IIS because the "supply" (technically) wasn't lost. This is a perverse incentive to run the network at the edge of technical limits at the consumer's expense.

We propose that **verified voltage-induced trips** and **excessive ANM curtailment** (beyond agreed caps) should be counted as fault events within the **IIS (Interruptions Incentive Scheme)** or a parallel reliability mechanism.

- If the network quality prevents a customer from using electricity for its intended purpose (charging/heating), that is a failure of reliability.
- This creates a financial driver for the DNO to fix the root cause, whether through Active Voltage Management (see our response to Q68) or strategic reinforcement.