

eSmart Networks Response to:
**Ofgem's Open letter on regulatory arrangements for
independent distribution network operators 19th
October 2023**



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1) Introduction

1.1) Who Are We?

eSmart Networks Limited (eSN) is a leading provider of smart grid infrastructure and large grid connections across the UK. We combine expert grid connection consultancy with a NERS accredited ICP design and delivery service ranging from LV through to 132kV.

1.2) Our Eco System

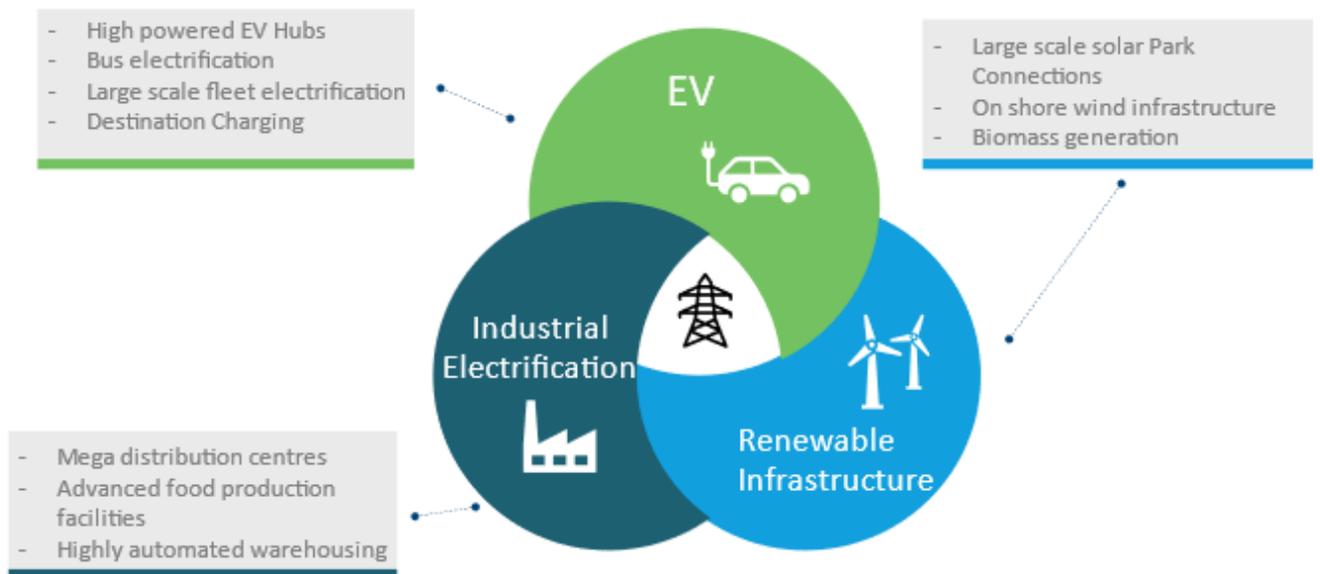


Figure 1 - eSmart Networks Projects Overview

eSN provides grid infrastructure & services for public electric vehicle (EV) charging, industrial electrification and renewable energy connections. The business was created to respond to the UK's need for charging infrastructure as the transition from internal combustion engines to EVs gathers pace and has since broadened its services to provide grid connection solutions and renewable energy infrastructure. Of particular value to customers is eSN capacity to manage the grid connection process – effectively removing the monopoly Distribution Network Operator (DNO) from the process, greatly reducing project timescales.

The highly technical skills and specialised electrical accreditations allow eSN to offer customers a complete package of services which spans grid constraint solutions, grid connections and the onsite specialised civil and electrical installations as detailed below:

- Analysis of DNO networks in advance of Point of Connection (POC) applications
- Grid Due Diligence
- Self-determination of POC
- Harmonic, flicker, earthing, protection studies required by the DNO
- Live Low Voltage connections



- Commercial Low Voltage, High Voltage and Extra High Voltage connections
- Full turnkey design, build & commission

This unique approach provides an end-to-end service from Concept to Go Live which is highly valued by the customer base as outlined in figure 2.

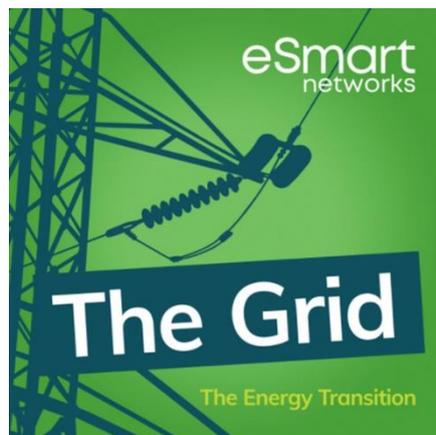


Figure 2 - Concept to 'Go Live'.

1.3) Knowledge Sharing

Given the increasingly central role that our electricity networks have in our transition to net zero; in order to help share our knowledge of the grid and the challenges faced on our transition, eSmart Networks hosts and produces a podcast to help inform stakeholders.

<https://esmartnetworks.co.uk/the-grid-podcast/>





2) Our Response to Ofgem's letter

2.1) Introduction

As a NERS accredited ICP and Grid Consultancy service, we have significant experience in conceptualising, designing and building DNO & IDNO networks. We have developed many solutions for a wide range of energy transition projects, many of which have only been possible through the benefits that IDNO's can provide.

Current IDNO adopted projects in development, design and/or build include connections to:

- EV charging hubs & Industrial/Commercial electrification connections at 11kV & LV,
- EV/HGV charging & Industrial/Commercial electrification at 33kV,
- Renewable/BESS connections at 33kV, 66kV & 132kV and;
- a connection between the transmission system and large industrial customers with electrified loads.

To summarise quite simply, many of these projects may not be viable without the ability to deploy an IDNO solution and associated benefits (which we outline later in this document).

Whilst we welcome Ofgem's stated objectives, in particular around giving customers better clarity on longer term costs (where we believe the same objective should equally apply to DNO EDCM charges which lack transparency and long term certainty), we cannot stress enough how Ofgem's announcement to review the current arrangements creates major uncertainty across the significant number of net-zero enabling projects being actively developed, designed and built in GB today. Many projects, not just our own, will be at the point of significant financial commitment. Given the average project lifecycle for a 33kV or 132kV grid connection is typically in the region of 3-5 years from concept to go live (considering how some equipment, such as 132/33kV transformers, now can have lead times of 2 years), this uncertainty could significantly hinder development in the short and medium term potentially stalling electrification projects at a time they should be accelerated to help meet our 2030 targets

Therefore, we would request that the first objective of any review is that it is completed in an expeditious manner.

Secondly, we would request that Ofgem urgently issues clarification to give certainty to any projects that have progressed and made significant financial commitments (for example; where expensive, long lead IDNO spec equipment has been ordered).

2.2) Our interpretation of Ofgem's key concerns

In this section we have summarised the apparent key areas of concern laid out in Ofgem's letter. We have then provided an initial summary of our views on these concerns.

- a) Providing cost clarity and certainty to customers into the long term on EHV IDNO connections and preventing associated 'undue risk' to customers
- b) Ensuring IDNO solutions are 'economic and efficient as other options' which does not 'give rise to higher overall system costs'
- c) Ensuring 'Fair recovery of shared network costs'

On concerns a) and c), we would note that our understanding of EDCM connection charging methodologies that are used by IDNOs, and have been approved by OFGEM in their respective



connection charging statements, typically mirror as many elements of the local DNO's charges as possible. i.e. where DNO O&M rates are calculated from the host DNO to be replicated in a 'cost-plus' methodology or DNO CDCM rates are used to calculate rates for an 'extended CDCM methodology'. We also note that IDNO's exist within a competitive environment, which naturally self-regulates charges, which is significantly different to the monopoly position of a DNO. In many ways, IDNO's operating under a cost-plus EDCM methodology creates a market similar to that of OFTO's.

We would therefore ask that Ofgem expand on their concerns around IDNO's EDCM methodologies and also compare the perceived uncertainty from IDNO methodologies with that of DNO's to help inform stakeholders such as ourselves and others to input on any review.

On concern b), we believe that IDNO solutions tend to be the overall most effective and efficient network development solution. We therefore would not share this concern for reasons set out in the following sections of this paper.

2.3) Q1: What do you consider to be the pros/cons of IDNOs connecting EHV customers embedded within distribution networks?

We have summarised below a list of benefits that can be obtained through use of an IDNO solution on an EHV connection. We note that not every project will be able to access every benefit listed, nor will every IDNO provide every benefit listed in line with the nature of a competitive market, but we have specific examples of how each of these benefits have been critical to different projects

EHV IDNO Benefits Summary:

- Reduced Land-take (and subsequent environmental benefit)
 - Examples: many EV forecourts, I&C and BESS developments on brownfield sites are restricted by space. IDNO's can facilitate a much-reduced spatial footprint for 33kV and 132kV substations by deploying technical policies which allow greater sharing of common assets with customers. In some instances, this has been critical to the viability of many of these projects.
- Adopting otherwise private networks, reducing customer's asset liability and safety responsibilities for HV and EHV networks
 - Examples: many private clients may not have the skills or resource to cost effectively manage a private 33kV or 132kV network, where the host DNO would not adopt or provide a point of supply at a lower voltage in a sensible and cost-effective way due their own restrictive technical capabilities
 - This allows for licenced distribution networks to be developed where they would not otherwise exist and reduces the amount of new un-regulated private networks.
- Technical standards and specification certainty:
 - Technical standards and specification certainty is a huge benefit. We have encountered significant technical standards and specification ambiguity and uncertainty with DNO's when designing EHV and 132kV DNO connections. Where DNO policy and technical standards have either been unclear or have been changed throughout the project design process to be more onerous for our clients. This has led to unforeseen cost increases and project delays. Where an IDNO solution is possible, greater certainty is typically provided on technical standards which greatly reduces this risk and impact on projects.
- Technical standards and specification flexibility:



- IDNO's will typically align their standards to ENA standards where different DNO's each have a much narrower and restrictive set of bespoke standards. This can have various benefits such as IDNO adopted connections have accessibility to wider ranges of acceptable equipment which allows for more competitive procurement and/or shorter lead times. It also allows unforeseen project specific risks to be dealt with faster and typically at lower cost. Overall, this can result in more project certainty, reduced timescale risk, and overall lower cost to connect.
- Long lead procurement advantages
 - Some DNO's have limited providers of some EHV equipment which can mean significantly longer lead times. For example, we recently had an issue on a DNO EHV connection that we were contestably building where the single DNO approved supplier lead times jumped from 3 months to over a year, putting an entire solar project in jeopardy. Had this have been an IDNO connection, several other ENA approved suppliers could have been approved for use within days and an alternate part sourced within weeks.
- Provision of service levels better than the DNO
 - A competitive environment encourages competition for IDNO's to provide a better level of service to clients, whether pre or post energisation.
 - E.g., this could include pre-energisation services such as faster equipment approvals and design approvals, assistance in developing concept and detailed designs and assistance in progressing legal consents. It could also include post-energisation services such as operational services levels that are better than regulated minimum standards or tailored to a specific clients need and costed in a competitive environment
- Asset Value payments to reduce capital cost of connection.
 - The competitive market on asset value payments naturally promotes efficiencies and value for money for customers.
- We would note generally, that a competitive environment creates all of the other general advantages of competition that Ofgem will be familiar of and have a duty to promote.
- EDCM Cost-Plus methodologies from IDNO's can give customers greater long-term visibility and certainty of network costs that the DNO, alongside all of the competitive advantages from an IDNO.

2.4) Q2. What do you consider to be the pros/cons of IDNOs connecting directly to the transmission network?

We would refer to all of the benefits above in our response to question 1, and would add the following potential benefits for transmission connections:

- More efficient development of new Distribution-Transmission Interface Network Nodes
 - Ofgem has alluded that IDNO-Transmission connections are not as 'shareable' as DNO-Transmission connections. However, we note that without an IDNO in many customer driven scenarios, the alternative will be an unregulated privately owned network consisting of transmission and EHV voltages.
 - Where a customer approaches a DNO for a customer driven Distribution-Transmission solution, we have a significant number of examples where DNO's have



been extremely slow to even initiate engagement with National Grid for upstream transmission works (taking years to even obtain a viable offer from National Grid) followed by an extremely opaque, slow and inefficient process to manage upstream transmission works with National Grid after an offer has been agreed. Where IDNO's exist in a competitive and customer focused environment, they can facilitate a much more customer focused and efficient approach to liaising with National Grid as well as providing much more transparency for the customer.

- We believe the overall result of having an open market for IDNO solutions that involve an interface or connection with the transmission system means that otherwise private Transmission & EHV Distribution infrastructure can be developed as licenced Transmission and Distribution Infrastructure which should be an overall benefit to the wider customer base. In addition, these types of development can be enabled in a much more efficient way for large customers, with better visibility on connection timescales and risks, which gives much greater certainty to project investors.
- Stepping down transmission intake voltages for customers:
 - Many private clients may not have the skills or resource to cost effectively manage a private transmission voltage intake from the transmission operator. Having an IDNO to act as a technically competent network operator to allow the voltage to be stepped down to a manageable level for the client can be a significant benefit to some customers and their projects. This also benefits the wider customer base as it means that more licenced distribution network is being established, rather than privately owned networks.
- Willingness to obtain P2 derogations where appropriate (e.g. BESS connections):
 - It is a point of debate across the industry as to whether P2 should be modified to exclude BESS connections. We believe that this should be done. In the interim, we would note that IDNO's have been willing (where DNO's have not) to obtain derogations from Ofgem to allow this and facilitate much more cost-effective shared connections to BESS projects. We believe this aligns with efficient and effective network development principles.
- Allow sharing of large and costly transmission network connection between projects and/or developers in a well-managed and coordinated manner
- An IDNO may offer to project manage the TSO and TNO connection process to progress the relevant transmission works faster than would otherwise be the case if left between the customer and TSO.

2.5) Summary

We note that the benefits listed in this response are only based on our experience of developing, designing and implementing IDNO solutions in our capacity as a Grid Consultant and/or Independent Connections Provider. This list of benefits is therefore not exhaustive.

As noted previously, eSmart networks welcome Ofgem's interest in this area and would welcome engagement with Ofgem in this area of regulation and are willing to support any review process. **We would again reiterate the urgent requirement to provide certainty for the vast array of energy transition projects which are currently at various stages of significant financial commitment based on IDNO solutions across development, design, long lead procurement, construction and commissioning.**