Why Microgrids Can't Afford To Stay Micro.

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Electricity connections. Simplified.

Content.



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Co-Location – why now

- Increased demand for connections and capacity
  - renewable generation & net-zero, electrification of heat & transport, Data Centre & Other demands
- Saturation of the existing networks across voltage tiers, both for demand & generation
- Meshed, interconnected system means symbiotic relationship between distribution & Transmission systems
- Traditional approach to reinforcement and network expansion result in longer delays to connection
- **Energy costs continue to increase despite higher saturation of renewable energy**

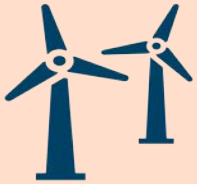
Thinking differently – why microgrids can’t afford to be micro anymore

- Development sites of all sizes are seeing longer delays to connect, and higher energy prices when they do
- Many Generation & BESS developers who have planning, Gate 2 offers with </~2030 dates for +300MW have added ‘final demand’ to their connection
- Approach socialises the grid connection between generation and large demand - no need to wait for NGET to build out new GSPs or provide multiple bays per connection
- The solution is equally applicable for distribution level connections and already in pre-delivery at 132kV & 33kV for sites of up to 200MW
- Co-location provides direct access to intermittent renewable as well as non-intermittent generation
- Meaning an equitable exchange of cheap green electrons directly into the new network
- This approach *reduces* the impact on the existing networks, which should *reduce* costs to UKPLC


How can developers overcome increasingly complex grid and infrastructure challenges?

Considerations

1. Energy Generation



2. Energy Storage



3. Resilience and security



4. Grid Flexibility



5. Commercial Strategy



6. Sustainability Goals



7. Digital Infrastructure



Example 1: Three Maids Hill.



The challenge
Deliver the power infrastructure for a 44-bay ultra-rapid EV charging hub, balancing significant charging demand with available grid capacity while integrating on-site solar generation and battery storage.

Our solution
Eclipse was appointed as the IDNO, adopting the innovative 2 MVA grid connection alongside working with the ICP to deliver a flexible, cost-effective connection

The result
Co-located with an 870-panel solar farm and 4MWh of battery storage.

The largest and most advanced EV charging superhub on the UK road network

Example 2: BESS & Solar.

The challenge
Co-located 50MW BESS and 50MW Solar.

Our solution
Eclipse undertook design assurance work, developed policy with the local DNO to secure customer savings and better engineering solutions, and supported the client through the G99 process.

The result
Stopped a 9-month delay, saved 10km of cable route through an HDD (horizontal directional drilling) operation, and saved £5m in capex through asset value contributions and engineering solutions.



Example 3: Carpenters Yard.



The challenge

Deliver the power infrastructure for a revolutionary 113-home sustainable housing development. The project needed to combine grid power, solar generation, battery storage, heat pumps and EV charging in a way that was technically workable, commercially viable and resilient enough to support the UK's largest Octopus Zero Bills community.

Our solution

Eclipse designed, delivered, adopted and now manages a behind-the-meter microgrid which brings together a distribution substation, local renewable generation and a community-owned BESS, supported by active real-time optimisation to balance consumption against self-generation and storage.

The result

Carpenters Yard has been energised as the UK's largest microgrid project and the UK's first microgrid community with no home energy bills.

Example 4 - Colt Data Centre Campus

The challenge

A sustainable, hyperscale site not only required power supply security, but also the expansion potential necessary to support future growth.

Our solution

Eclipse Power was chosen for our extensive EHV experience, deep technical understanding of National Grid processes, and our commitment to working transparently with all stakeholders to deliver an optimized commercial model.

The result

Energisation for the site is scheduled for 2028
Major investment with data halls across five floors and 250MW of power through a resilient network infrastructure provided by Eclipse that is designed to last a minimum of forty years



Data Centre
Sector

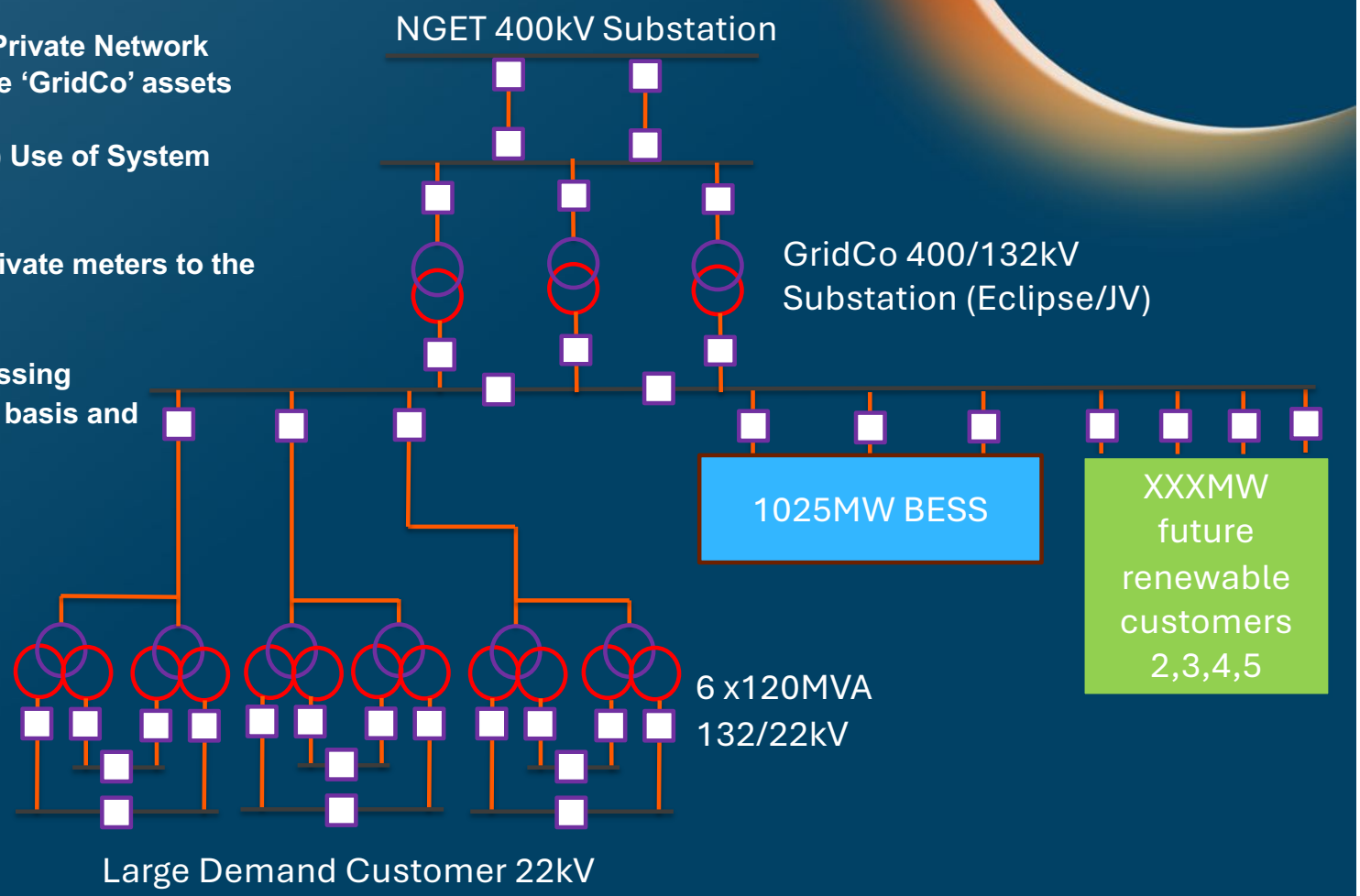
West London
Location

250MW
Power

132kV / 66kV
Dual Circuit Connection

Example 5 – Transmission LEN

- GridCo operates as a Licence Exempt Private Network Operator (LENO) owns and operates the ‘GridCo’ assets
- GridCo calculates Private Network (PN) Use of System (UoS) charges for the PN connection(s)
- GridCo installs COP Compliant HHM private meters to the downstream embedded connections
- GridCo bills individual connections, passing through TNUoS/BSUoS on a socialised basis and adds the PN UoS charges.
- Generation/BESS can still interact with wider markets in addition to offering Demand users direct PPAs
- Eclipse provide reputable, market facing O&M/AM services for the network on an enduring basis

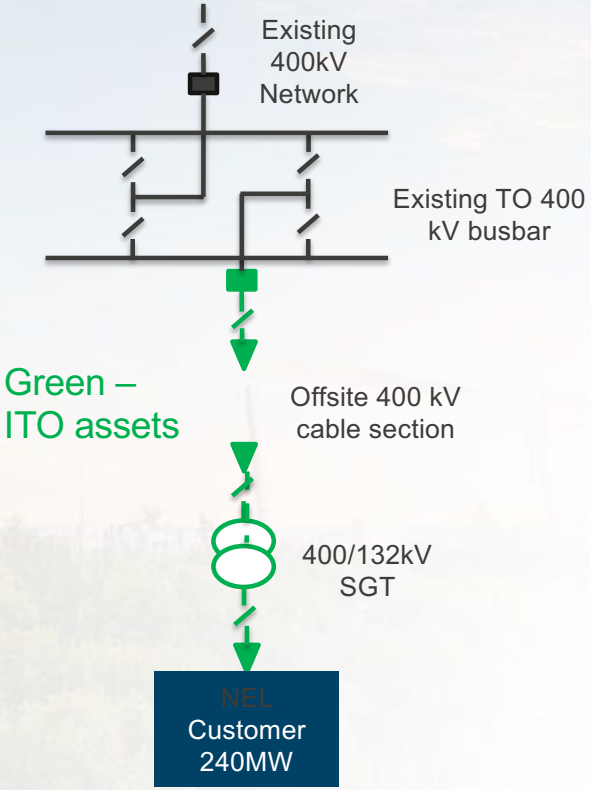


Value proposition for Independently delivered networks

- Reduced Time to Connect
- Funded network construction
- Access to cheaper energy
- Equivalent availability/security of supply
- Socialised operational expenditure
- Import/Export limitation can reduce the required capacity at the POC/PCC – the potential for further reduction in TTC & cost
- Provides access to ‘bridging’ power from local generation ahead of grid availability



Transmission capability: ITO - the next step for Independents.



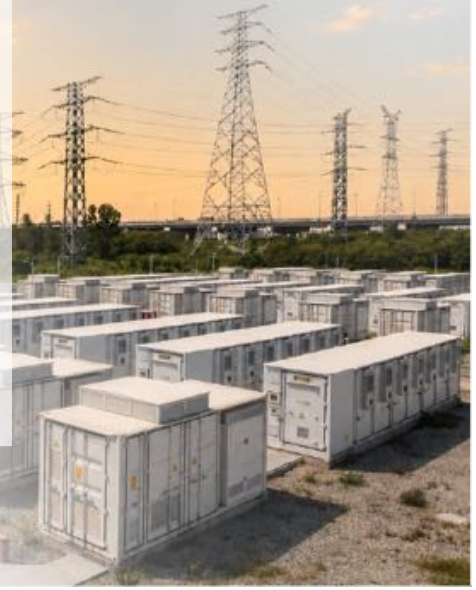
Built on proven delivery – including 9 projects connecting directly to the Transmission network

We're extending our capability into Transmission connections, building on real projects, trusted relationships and a track record of delivery.

Today any connection assets can be private and require the customer to come to the network

With an ITO Licensed transmission assets can extend to the customer site.

Taking the proven independent network model from distribution into transmission.



What could an ITO unlock for your project?

Faster grid access
Commercially focused delivery can help accelerate the last mile

Greater supply-chain choice
Competitive procurement and value engineering provide more options to address resource constraints

Flexible connection solutions
Greater flexibility around asset ownership, physical constraints, land and cable routes

Better project economics
Alternative ownership and funding models can reduce upfront and lifetime connection costs



Benefits of an integrated ITO + IDNO approach:

Up to 35%
CAPEX saving on grid build

>50%
Reduction in OH/Management fees vs TO

>20%
Lifetime OPEX reduction vs TO



Eclipse Power.

10 Years of Grid connections from concept to completion.

OFGEM licenced IDNO

An effective alternative to using the local DNO with significant benefits including AV payments

Expert Grid Consultancy

Providing support and advice early on, working with you to make it easier for you to connect to the grid

Private Networks & Microgrids

Bringing large power generation and demand together. Enabling local energy generation to be used where it's needed most. We design, build and operate a solution that enables an efficient, low-cost, reliable energy connection for your project.



Delivered by a team of highly experienced experts in the electricity connections industry and 100% backed and trusted by investors at Octopus Energy.

Grid Consultancy.

Delivered due diligence across grid portfolios worth over

£72 million

Negotiated over

£220 million

in security reductions across multiple customers

Negotiated security refunds where customers had paid more than required, totalling over

£120K

Accelerated grid connections by up to

12 months

Services Offered

Grid Connection Applications & Guidance

Owners Engineer

Pre-construction support

Advisory Services

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Private Network & Microgrid Specialists.

Delivered the UK's first Zero Bills microgrid community, connecting

113 energy-efficient homes

Developed a private network pipeline spanning data centres, BESS, renewables, ports, and wider commercial and industrial customers across GB and European markets

50+

microgrid and private network projects in the pipeline

Pipeline value exceeding

£1 billion



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IDNO

Independent Distribution Network Operator.

190+ clients

We have 190+ happy clients across all of our connection solutions.



IDNO

13,000+
registered MPANs energised

1,200+
live networks

1.4GW
of transmission connections directly to NESO

24,700+
MPANs in the pipeline

45 EHV
EHV substations live and in delivery

5.5GW+
live and secured network capacity

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Transmission

As a licensed IDNO, we can facilitate a new supply point for access to the transmission system. We will adopt the distribution system downstream of this.

Distribution

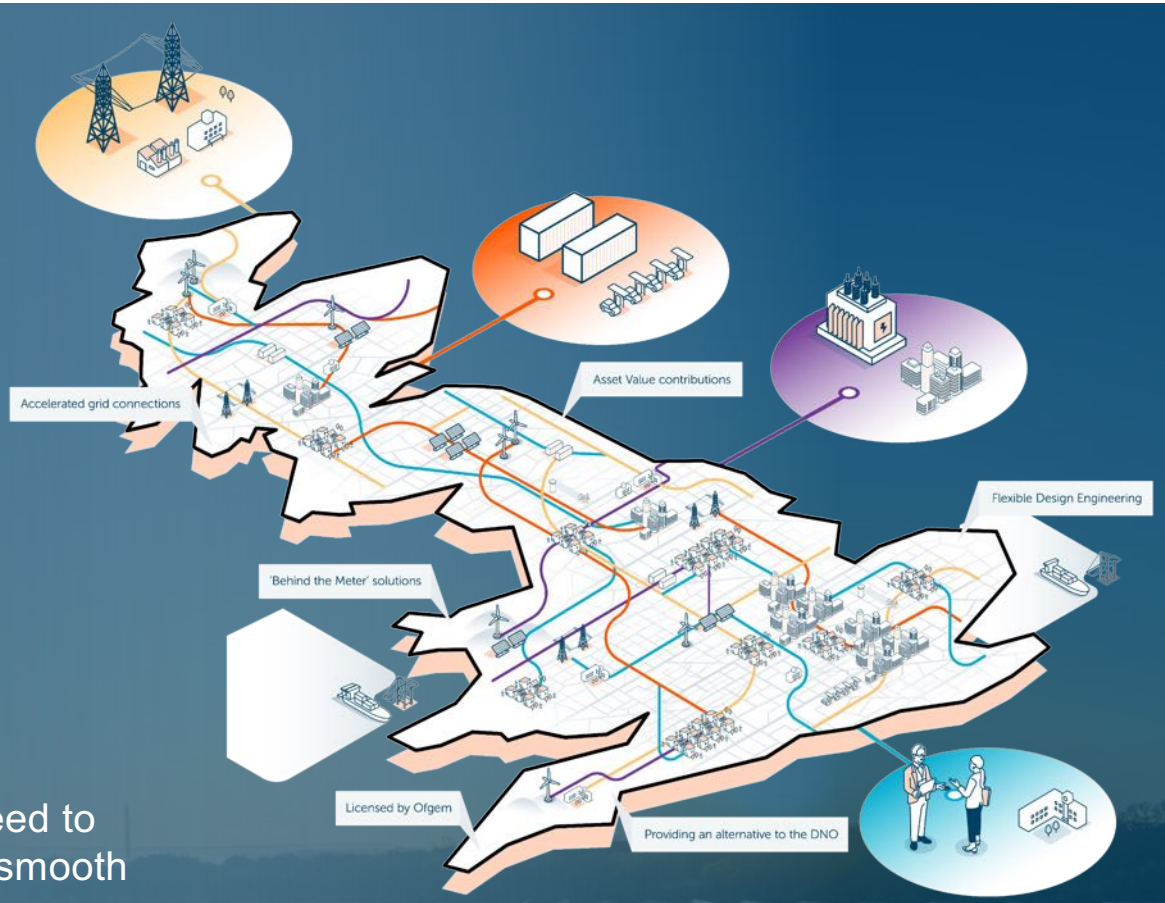
As a licensed IDNO, we can provide a more flexible & cost-effective engineering solution for your project.

Consultancy

All the expert advice & support you need to make the grid connection process as smooth as possible.

Private Networks & Microgrids

Self-contained networks at both T&D, utilising microgrid technology. Fast, low-cost, reliable localised energy.



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Deep relationships with Industry and Regulators for better network and customer outcomes.

- Industry top table influencing Grid Connection reform
- Working group members changing grid codes across Transmission & Distribution
- Successfully lobbying policy change to support customers (TIA 5MW outcome)
- Successfully shaped the debate with the Central Government on grid policies (Ofgem, DesNZ, DSIT)
- Direct relationships and contacts within Distribution Network Operators
- Direct relationships and contact to Execs in Transmission Operators
- Supporting & leading within Industry trade associations (INA & ENA)

ofgem

Department for Science, Innovation, & Technology

Department for Energy Security & Net Zero

ena energynetworks association

INA Independent Networks Association

Key Takeaways.

- The industry and economy are at a critical point.
- It’s proven that independents can have a huge impact when given the opportunity.
- We're ready to work with you and the industry to get rid of the bottlenecks.

