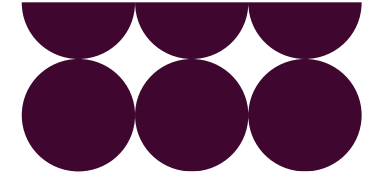


Beyond 2030 Update Investor Annex

August 2026



Purpose of this annex

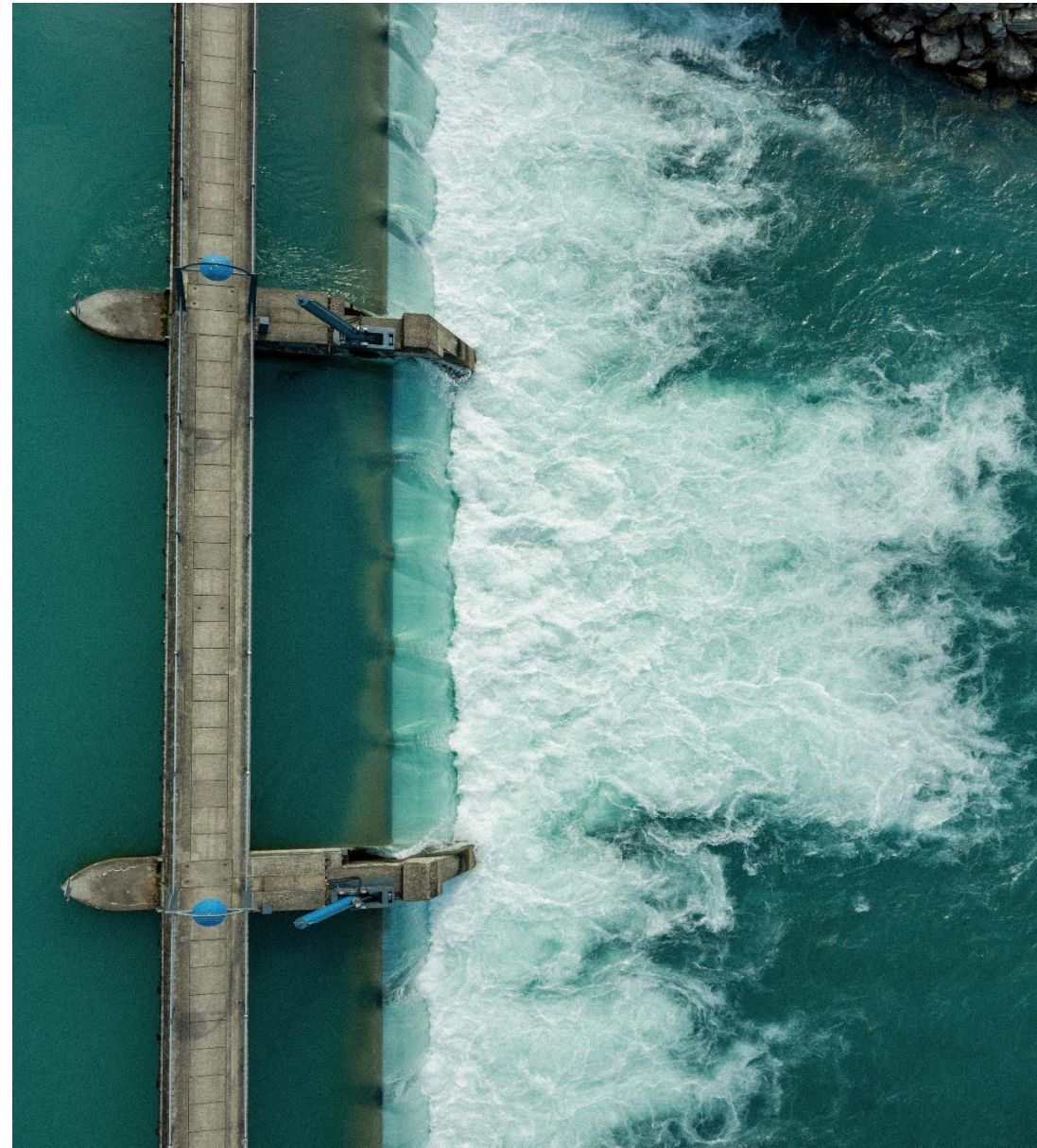
This annex is intended to help investors understand the relevance of the Beyond 2030: Electricity Transmission Update. It accompanies the [main report](#) and supporting publications, drawing on the same published analysis.

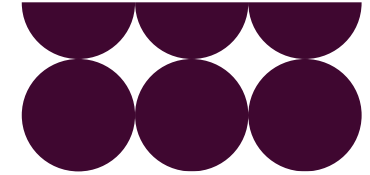
It brings together the elements of the Beyond 2030 Update most relevant to investors, providing additional context on scale, timing and drivers of future transmission reinforcement identified through NESO's published analysis. This annex should be read alongside the [Beyond 2030 Update](#) and supporting materials. It does not alter or add to the recommendations set out in the published report.

It is intended for investors across the transmission value chain, including network owners and their capital providers, prospective competition participants, the supply chain, and project developers. It is not intended to provide a comprehensive assessment of all transmission investment requirements, including asset replacement, asset health programmes or connection-specific infrastructure.

As the independent system operator, funding decisions rest with Ofgem, delivery with Transmission Owners and successful competition participants, and capital allocation with investors.

Our role is to make the information we hold available clearly and transparently to those making those decisions.





Executive summary

Great Britain's electricity system is changing as demand rises, generation patterns evolve and the need for a secure, affordable and resilient electricity system grows.

The opportunity

The Beyond 2030 Update reconfirms the overall need for investment in the transmission network set out in Beyond 2030 (2024). It recommends that 43 transmission projects progress for further development through future regulatory, planning and delivery processes. These recommendations do not represent funding approvals, planning consent or final delivery decisions. They provide an evidence-led view of what is ready to progress in the near term and what requires further consideration through future planning processes.

The recommended network design is expected to deliver between £58 billion and £82 billion in net system benefits by reducing network constraints, enabling lower-cost generation and supporting a more efficient electricity system. These benefits support affordability for consumers, strengthen energy security and help enable future economic growth.

The Update also reinforces the importance of timely delivery. Delaying the recommended network design by one, two or three years could increase net transmission costs by up to £7.5 billion, £15.4 billion and £24.8 billion respectively. The cost of delay ultimately falls on consumers and the wider economy through higher system costs and increased inefficiency.

For investors, the Beyond 2030 Update provides greater visibility of future network requirements and the factors likely to shape future investment decisions. While delivery risks remain, particularly around planning, consenting and supply chains, the Update provides greater clarity on where reinforcements may be required to support affordability, energy security and economic growth over the coming decades.

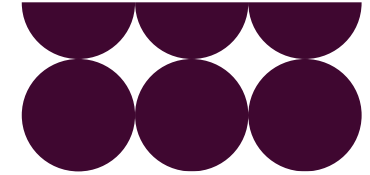
Enduring investment drivers in the Beyond 2030 update

This June 2026 Update reassessed the 2024 recommendations against the latest Future Energy Scenarios (FES), the Clean Power 2030 Action Plan, Connections Reform outcomes, and updated evidence from Transmission Owners.

The analysis reinforces the need for transmission investment and shows that the underlying drivers of network need remain evident across a wide range of future pathways. These include:

- Enduring generation-to-demand imbalances
- increasing north-south power transfer requirements
- growing offshore and low carbon generation
- increasing overall electricity demand
- wider economic and industrial electrification.

These factors remain present across all future scenarios assessed. For long-term capital providers, this increases confidence that transmission infrastructure will remain an essential component of Great Britain's future energy system over investment horizons extending well beyond 2030.

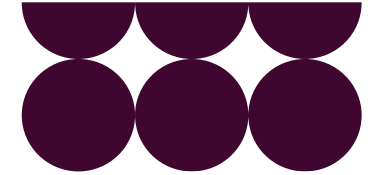


Key investor takeaways

Beyond 2030 Update sets out key investor messages on the scale of future network investment and its role in supporting affordability, energy security, economic growth and a resilient electricity system.



**In the report, net transmission benefits are presented in 2025 prices.*



Case for Investment

The case for investment in Great Britain's transmission network is increasingly being driven by structural trends that are common across all credible futures for the electricity system. In all pathways, more electricity will need to be generated, transported and consumed across a broader and more complex system. This provides investor confidence that a substantial proportion of future transmission investment is underpinned by enduring system needs.

Structural Demand Growth

GB's electricity system is undergoing a structural transformation. Electrification of heat, transport and industry is expected to increase electricity demand over the coming decades, while the projected growth in data centres and other large-scale digital infrastructure is creating demand for new electricity connections.

These changes imply not just higher volumes of electricity, but different power flows across the transmission network. The existing network has supported significant system change and continues to operate securely. However, it was designed around a different generation mix and pattern of demand. As renewable generation grows and demand becomes more dynamic, further reinforcement and reconfiguration will be required to move power efficiently across Great Britain, reduce constraints and maintain a reliable, clean and affordable electricity system.



Electrified Heat

Heat pumps and building electrification



EV Transport

Rapid EV adoption and charging demand



Data Centres

Rising digital infrastructure and AI demand

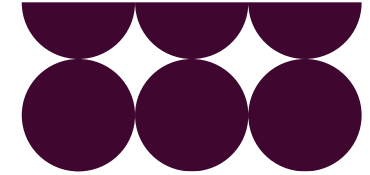


Industry

Industrial electrification and hydrogen

>30%

Electricity demand is expected to grow by more than 30% by the mid-2030s compared to today



Renewable Generation Growth

The future generation mix is expected to become increasingly dominated by low-carbon resources. Much of this future generation is in areas with the strongest renewable resource, particularly offshore wind developments around Scotland and the eastern and western coastlines. This creates an increasing need for north-south and east-west power transfers across the transmission network.

At the same time, the geography of generation has shifted from centrally located fossil fuel generation to a more dispersed fleet of renewable generation, including significant volumes in Scotland, offshore wind zones and coastal locations that are often remote from where power is consumed.

Geographic Mismatch

The location of future generation and future demand do not naturally align. Generation growth is concentrated in areas with the strongest renewable resources. Demand remains concentrated around major industrial, commercial and population centres. This mismatch drives enduring transmission need regardless of the precise future energy pathway.

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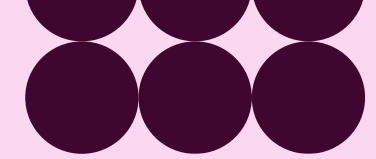
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Cost Of Inaction

The Beyond 2030 Update demonstrates that delaying transmission investment has significant economic consequences. Network constraints increase consumer costs, reduce efficient utilisation of generation assets and limit the ability of the system to operate at lowest overall cost.



NESO estimates that delaying the recommended network design by one, two or three years would increase net transmission costs by up to £7.5bn, £15.4bn & £24.8bn respectively.

For investors, this reinforces the importance of timely delivery for strategically important reinforcements. The quantified delay costs illustrate the potential scale of additional balancing costs and consumer impacts that could arise if delivery is delayed.

Economic Value of Reinforcement

The Beyond 2030 Update reconfirms that the overall need for investment in the transmission network set out in Beyond 2030 (2024) remains broadly unchanged. It recommends delivery of 43 network projects with an estimated present value cost of around £33bn. These recommendations have been selected through a process that balances system need, consumer value, deliverability and wider impacts.



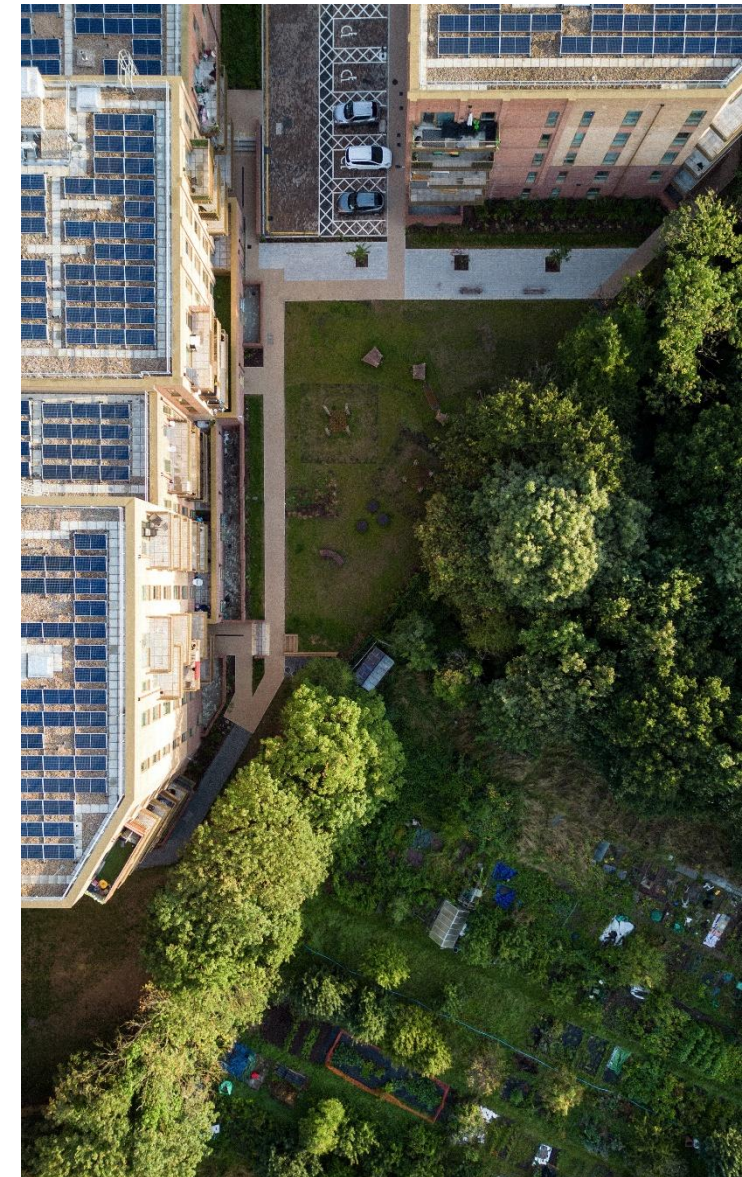
Beyond 2030 Update through the lens of investor priorities

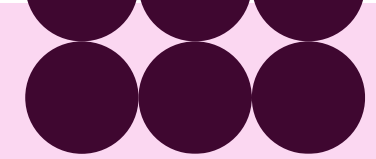
Our engagement with investors consistently highlights six recurring priorities when making capital deployment decisions: clear system need, pipeline visibility, certainty of opportunity, balanced risk allocation, revenue predictability, regulatory stability.

The Beyond 2030 Update strengthens the first three of these factors by providing greater visibility of future transmission need and a clearer articulation of where investment may emerge.

The table below sets out how it achieves this.

Investor Priority	What the Beyond 2030 Update Delivers
1. Clear System Need	Projects required across all four FES scenarios provide investors with greater confidence that the underlying need for transmission reinforcement is likely to endure across a range of future pathways.
2. Pipeline Visibility	43 recommended projects with regional specificity, indicative CAPEX ranges, delivery windows, and what projects are open for competition, provide clarity of where transmission investment requirements have been identified beyond 2030.
3. Confidence in System Need	Projects identified across all four FES scenarios address needs that persist across a wider range of system outcomes, while projects appearing in fewer pathways are generally more dependent on specific assumptions regarding future demand and generation.





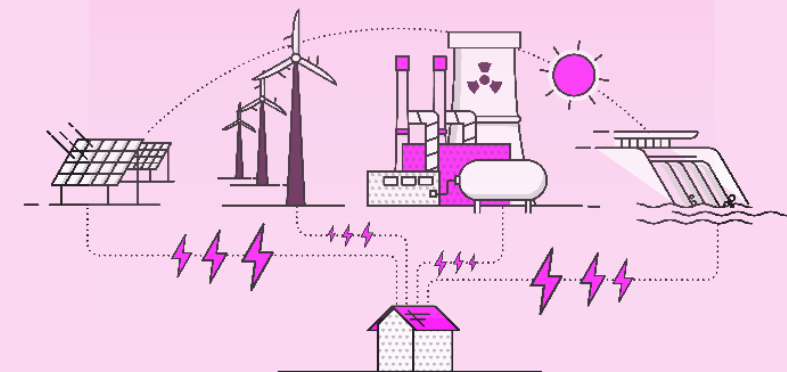
Balanced risk allocation, revenue predictability, and regulatory stability.

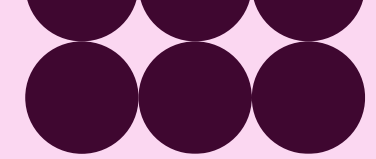
The wider policy and regulatory environment are evolving to support accelerated network delivery. The Beyond 2030 Update highlights the importance of coordinated action across industry, government and Ofgem, particularly on planning, consenting and timely funding decisions.

- **Clean Power 2030** provides the near-term policy anchor for accelerated transmission investment, while the longer-term need is driven by rising demand, changing generation patterns, and the transition to a decarbonised electricity system.
- **Connections** Reform has improved the evidence base used for network planning by providing a more realistic view of which projects are likely to progress. However, the Beyond 2030 Update is focused on wider transmission reinforcement needs. It does not decide which individual projects connect to the network or replace connection-specific enabling works.
- **Reformed National Pricing** package retains the single national wholesale price in GB and introduces a series of reforms to market arrangements to help to deliver more efficient, secure, and affordable clean power. It improves siting signals, system operation and action to reduce constraint costs.
- **The Planning and Infrastructure Act 2025** Planning reform is intended to accelerate consenting and remove barriers to timely infrastructure delivery.
- **The Advanced Procurement Mechanism** allows Transmission Owners to secure long-lead equipment ahead of full project approval, helping to mitigate certain supply chain risks.

Capital is already moving across the value chain.

Transmission Owners have raised primary equity at scale to fund network investment. Transactions in regulated networks, offshore generation, and onshore renewables have continued through 2025 and 2026. This is despite a materially higher rate environment than the comparable deals that preceded them.





Regional Investment Themes

The Beyond 2030 recommendations consistently identify five regions of strategic investment importance. These are the regions where network reinforcement, generation growth, demand expansion and supply chain capability are most likely to cluster over the programme's delivery horizon. Together these regions illustrate how transmission infrastructure supports a secure, affordable and resilient electricity system, while enabling wider economic growth across Great Britain.

North Scotland

North Scotland is a strategically important region for future electricity generation. The scale of renewable generation forecasted cannot be transported south through existing routes at adequate scale. An onshore high-capacity corridor is confirmed as needed across all four FES pathways, with optimal delivery clustering between 2034 and 2038.

Beyond 2030 also identified up to 10 GW of flexible demand, including hydrogen electrolyzers, data centres and industrial processes, that could be co-located with renewable generation in North Scotland and Shetland. This has the potential to support regional economic opportunities while reducing pressure on the wider network.

~£5bn

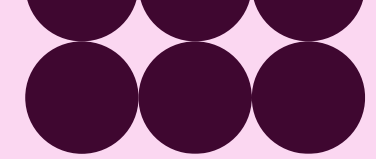
Potential savings in avoided network costs through demand co-location in North Scotland and Shetland

Humber and Lincolnshire

The region is an important junction between offshore generation and major demand centres across GB. The region emerges as a key convergence point, where power routed around constrained parts of the onshore network reconnects into the wider transmission system. The Eastern Green Link projects land in this area, reinforcing its importance within the future electricity network. This makes it both a major infrastructure delivery location and a strategic industrial and demand growth corridor.

North East England

The update highlights the North East and Yorkshire as key regions for the next phase of offshore wind development and supporting transmission infrastructure. Future seabed leasing activity identified by The Crown Estate, combined with recommended transmission reinforcement, is expected to increase the network's ability to accommodate future generation growth and support wider economic opportunities associated with offshore wind deployment.



This reflects a common feature of energy infrastructure development: transmission investment often precedes generation deployment, positioning the North East and Yorkshire as strategic growth corridors for the UK's next wave of offshore wind expansion.

North Wales and the Midlands

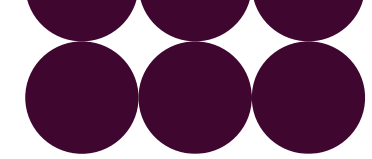
The investment case for North Wales is currently driven by offshore wind and the west coast HVDC link, but the region's generation mix is broadening. The recommended reinforcements particularly UWNC and WCD4 are designed to move power from North Wales into the West Midlands and south, supporting growing north-to-south transfer requirements. The network investment here is required across all four Future Energy Scenarios.

Celtic Sea and South West

The Celtic Sea represents one of the UK's most significant emerging renewable energy opportunities. The Crown Estate has awarded seabed rights for up to 4.5GW of offshore wind, with further leasing expected over time. While the North Sea has attracted substantial investment over the past decade, the Celtic Sea remains at an earlier stage of development, with supporting transmission infrastructure now beginning to take shape.

The reinforcements recommended in the South West establish the foundations for future growth alongside Hinkley Point C and expanding solar generation.

Region	Number of recommended projects	Indicative capital concentration	Key investor signals
North Scotland	10	>£10bn	Generation growth
Humber and Lincolnshire	7	£500m- £5bn	Eastern corridor landing point
North East England (excluding Humber projects)	7	£2.5bn- £10bn	Offshore wind expansion
North Wales and Midlands	9	£2.5bn- £10bn	West coast corridor
Celtic Sea and South West	10	£1bn- £5bn	Emerging offshore wind



Routes to Capital Deployment

The identified transmission investment requirement of around £89 billion beyond 2030 may be progressed through a range of delivery and financing routes, subject to Ofgem funding decisions, detailed design, competition decisions, planning and consenting. These routes differ in their regulatory treatment, delivery responsibilities and risk allocation, and will be shaped by future policy, regulatory and project-specific decisions.

Route 1: Regulated Network Investment

For investors accessing transmission exposure through TO equity or debt, RIIO-T3 final determinations set the return parameters through 2031. The allowed return on capital is materially higher than under RIIO-T2, reflecting the changed interest rate environment and the need to attract international capital at the scale the programme requires.

Company	Allowed Return on Capital (CPIH-real)
National Grid ET	4.46%
SP Transmission	4.58%
Scottish Hydro Electric (SHET)	4.67%

Allowed return on equity across electricity transmission sits at 5.70%*. Under the current cost-sharing framework, electricity transmission companies bear a lower proportion of cost overruns than under RIIO-T2, with companies typically exposed to 0–25% of overspend compared with 33–

49% previously. This reduces direct company exposure to cost overruns on large and complex capital projects.

In parallel, Ofgem has introduced the Advanced Procurement Mechanism (APM) alongside the RIIO-T3 framework, allowing Transmission Owners to secure long-lead equipment such as cables, switchgear and transformers, several years ahead of full project approval. This significantly reduces supply chain and delivery risk by ensuring critical components are available when projects reach execution, rather than being exposed to global manufacturing bottlenecks.

This is complemented by the Transmission Owners' evolving supply chain frameworks, which are increasingly structured around longer-term programmatic engagement with key suppliers rather than project-by-project procurement.

These measures can help support delivery by aligning procurement timelines with system need and securing access to constrained supply chain capacity at an earlier stage. This can improve confidence that projects are able to progress through development and delivery as planned. For investors, the measures help address some of the supply chain and execution challenges associated with large-scale transmission infrastructure.

*(CPIH-real, post-tax)



Route 2: Competitive Delivery

Historically, new onshore transmission infrastructure has been delivered exclusively by incumbent Transmission Owners under the RIIO framework. Looking ahead, the scale and pace of future build-out are unprecedented. In response, government and Ofgem have confirmed the role of competitive delivery models to work alongside TOs. This approach is designed to complement the proven capability of incumbents, expand overall delivery capacity, and ensure the system has the flexibility and resilience needed to meet future requirements.

Through Early Competition, under the Competitively Appointed Transmission Owner (CATO) framework, competitively selected parties are licensed to design, build, finance, and operate defined transmission assets, receiving a long-term, inflation-linked, availability-based revenue stream. Assets remain part of the national transmission system under regulatory oversight, but delivery and operational responsibility sit with the competitively appointed entity rather than the incumbent TO.

As part of the recent Beyond 2030 Update publication, NESO set out which reinforcement options meet the separability criteria and therefore might be considered for Early Competition. This forms the longlist which is set out below. Further appraisal will be carried out to determine the pipeline of projects that will be put forward to Ofgem for approval to enter the CATO tender process.

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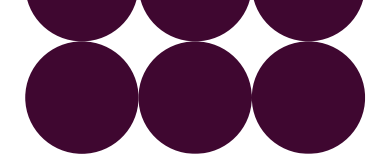
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Competitive Delivery: Investment Pipeline Longlist

18 Projects shown have been assessed as eligible for Early Competition, but this does not guarantee they will proceed via a competitive process. 10 of the projects are required in all four Future Energy Scenarios.

Project	Strategic Need (Required in FES)	Indicative CAPEX (£) cost band	TO probable delivery date
 HGNC – Harburn to Gala North 400kV reinforcement	● ● ● ●	£100m – £500m	2035
 LRN7 – South Lincolnshire to East Leicestershire reinforcement	● ● ● ●	£500m – £1.5bn	2035
 ESC3 – West Yorkshire substation & power flow control devices	● ● ● ●	£100m – £500m	2036
 CMN3/4 – Scotland to North West England reinforcement	● ● ● ●	£500m – £1.5bn	2038
 FSU1 – Harker to Stella West 275kV to 400kV upgrade	● ● ● ●	£500m – £1.5bn	2038
 MWNC/1 – West Midlands to South West England reinforcement	● ● ● ●	£1.5bn – £2.5bn	2040
 WCD4 – Ayrshire to North Wales 2GW HVDC link	● ● ● ●	> £2.5bn	2041
 WMU3 – West Midlands substation & circuit reconfigurations	● ● ● ●	£500m – £1.5bn	2042
 SENS – New 400kV substation in South West	● ● ● ●	£100m – £500m	2043
 UWNC – North Wales to West Midlands reinforcement	● ● ● ●	£500m – £1.5bn	2044
 EGL5 – North East Scotland to Lincolnshire HVDC link	● ● ● ●	> £2.5bn	2037
 NHNC – North East Scotland to central belt reinforcement	● ● ● ●	> £2.5bn	2038
 TWNC/1 – Wymondley to Waltham Cross & Warley upgrades	● ● ● ●	£500m – £1.5bn	2040
 EGL6 – North East Scotland to South East England HVDC link	● ● ● ●	> £2.5bn	2045
 WCN2 – Ayrshire to North West England onshore reinforcement	● ● ● ●	£500m – £1.5bn	2039
 MRU3 – Mersey Ring Upgrade Stage 1 (275kV to 400kV)	● ● ● ●	£500m – £1.5bn	2039
 CLN2/4 – North West England to Lancashire (direct or via coast)	● ● ● ●	£1.5bn – £2.5bn	2042
 MRU2 – Mersey Ring Upgrade Stage 2 (275kV to 400kV)	● ● ● ●	£500m – £1.5bn	2043

Region

 Scotland
  North West, North East & Yorkshire
  Wales & Midlands
  Central England, East, London & South

Strategic Need (Required in Future Energy Scenarios)

● ● ● ● 4 scenarios
  3 scenarios
  2 scenarios
  1 scenario



Understanding the markets appetite for project types

Over the past year, we have been actively engaging with the investor, developer and supply chain community. We have engaged over 50 market players across the full value chain to understand:

- Investor capability and appetite across different project types.
- Cost drivers and delivery assumptions that influence project viability and attractiveness.

Several recurring themes were highlighted through conversations. The market indicated that the most attractive projects for competition are ones that:

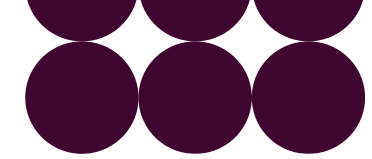
- Demonstrate a clear and enduring system need, with strong alignment to NESO's network planning objectives and a well-defined strategic rationale.
- Have a clearly defined scope and contestable boundary, allowing bidders to understand exactly what is being delivered and where responsibilities begin and end.

- Have a realistic and credible route to consent, supported by identifiable planning pathways, manageable environmental impacts and achievable timelines.
- Are of sufficient scale to justify significant investment and bid costs, whilst avoiding complexity that creates disproportionate development and delivery risk.
- Can reach financial close and construction commencement within an achievable timeframe, with a clear pathway through development, consenting and procurement stages.

As NESO work towards generating the pipeline of projects to recommend to Ofgem for approval, we will ensure these factors are embedded into the project appraisal process. Alignment with investor needs will be key in creating a healthy Early Competition project pipeline that drives consumer value.

Near-term activities

Project Identification and appraisal work is ongoing, with the aim of announcing projects selected for Early Competition in late 2026, early 2027. Post announcement, the timeline for the first project tender will be published. Once projects have been approved, NESO will be actively engaging with the market to help prepare for the upcoming tender.



Route 3: Supply Chain

The Beyond 2030 Update recommendations imply significant future demand for HVDC technologies, cable manufacturing, converter stations, transformers and specialist engineering capability. Supply chain capacity is therefore an important delivery dependency and a potential area of wider market activity alongside the network itself.

The supply chain volumes set out below each carry different lead times and different capacity constraints. Delivery requirements are concentrated in the mid-to-late 2030s, creating potential for significant overlap in procurement activity across multiple projects.

Through market engagement, we have been told that some of the most critical supply chains are already constrained at a global level, with developers across Europe, North America and Asia competing for limited HVDC cable manufacturing capacity and specialist marine installation vessels.

GB's requirements will therefore enter an already stretched global order book. Early engagement with suppliers, particularly for long-lead items, is an important programme risk management measure that can help reduce delivery uncertainty and protect project schedules.

Supply chain category	Indicative volume	Window (supply chain engagement)
HVDC subsea cable	3 links: ~1,500 – 4,500km in bipole configuration	~2029–2041
HVDC converter stations	~7 stations (two per link)	~2030–2041
Substations and switchgear	~10–11 substation sites; ~20–40 supergrid transformers	~2028–2038
Power flow control equipment	~10–15 phase-shifting transformers across 7 power flow control schemes	~2028–2038
New overhead lines	11 circuits; ~1,000–2,000 km of new or rebuilt route. Plus reconductoring and uprating works across 17 additional transmission options	Now–2039



Investor signals

While the Beyond 2030 Update provides greater visibility of underlying network need, investors should recognise that future planning processes will continue to influence project timing, delivery pathways and investment sequencing. Important future signals for investors will come from planning, regulatory and market engagement processes over the next two to five years.

These milestones will help shape the scale, timing and delivery pathways for individual projects within the Beyond 2030 Update programme.

Milestone / Signal	Investor Relevance
Strategic Spatial Energy Plan (SSEP)	Will provide additional clarity around long-term generation and network geography, informing future project prioritisation and sequencing.
Future CSNP and Beyond 2030 updates	Will inform future project prioritisation and sequencing as network needs evolve and new evidence becomes available.
Ofgem investment decisions	Will shape future delivery frameworks, funding approvals, and investment routes for individual projects within the programme.
Transmission competition developments (CATO)	First project announcement expected late 2026 / early 2027. Post-announcement, the tender timeline will be published. NESO will actively engage with the market ahead of and during the tender process.
Planning and consenting milestones	Will provide stronger signals around project delivery timing and maturity, particularly for the onshore spine and new onshore routes where consenting exposure remains.
Supply chain capacity signals	HVDC cable manufacturing and specialist marine installation vessel availability will materially influence programme timing.



Context and related publication

[Beyond 2030 – Electricity Transmission Update](#)

[Beyond 2030 – Electricity Transmission Update: Technical report](#)

[Beyond 2030 – Electricity Transmission Update: Stakeholder Engagement & Feedback Report](#)

[Beyond 2030 – Electricity Transmission Update – Data workbook](#)

[Beyond 2030: a National Blueprint for a Decarbonised Electricity System in Great Britain](#)

[Beyond 2030: Celtic Sea](#)

[Beyond 2030: INTOG \(Innovation and Targeted Oil and Gas\)](#)

[Future Energy Scenarios \(FES\) 2025: Pathways to Net Zero](#)

[Electricity Ten Year Statement \(ETYS 2025\)](#)

[Connection Reform](#)

[Electricity Transmission Design Principles: The Principles](#)

[Ofgem RIIO-3 Final Determinations – Finance Annex](#)

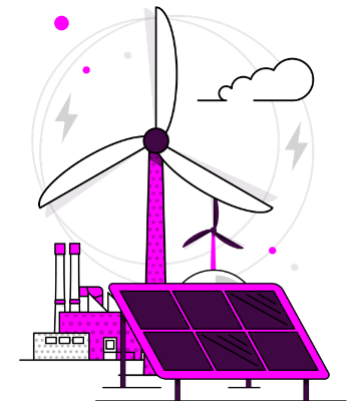
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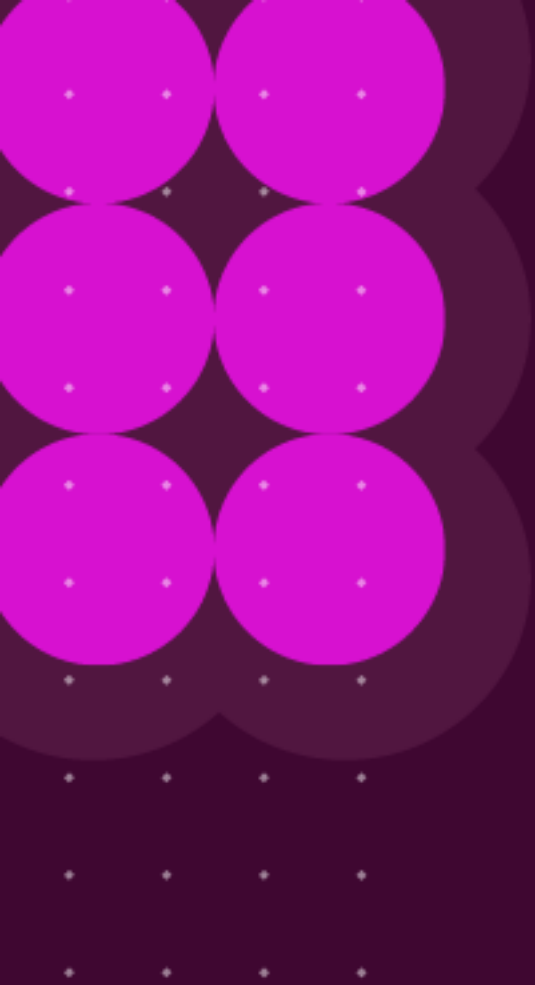
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Continuing the conversation

We want to continue to progress our conversation with you.

If there are topics where deeper discussion would be helpful, please let us know.

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