

Decision on accelerating onshore electricity transmission investment

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This document sets out our decision on accelerating onshore electricity transmission investment. It includes our decisions to streamline the regulatory approval and funding process, to exempt certain large, strategic onshore transmission projects from competition, and to introduce a new output delivery incentive.

In particular, it sets out our decisions on the specific points we sought views from respondents in our August 2022 consultation.

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Executive Summary

The Government's Energy Security Strategy (ESS) set out a series of steps to accelerate our transition away from reliance on expensive and environmentally harmful fossil fuels. The invasion of Ukraine highlights that this transition is now not just a matter of meeting Great Britain's Net Zero (NZ) targets, but also highlights the need to reduce our reliance on gas from a security of supply perspective. The ESS set out ambitious targets to promote energy security, including connection of up to 50GW of offshore wind capacity by 2030, however the existing onshore transmission network cannot currently support this substantial growth in renewable electricity generation.

Our existing Large Onshore Transmission Investment (LOTI) framework¹ continues to play an important role in facilitating critical investment in the onshore transmission network, whilst ensuring only the efficient costs of this investment are passed on to consumers. However, given the scale and pace of the required investment, we have looked at how our regulatory framework can be adjusted to support strategic onshore electricity transmission (ET) projects being expedited to deliver the Government's 2030 ambitions.

In August 2022 we proposed a package of measures aiming to facilitate accelerated delivery by the Transmission Owners (TOs).² We have taken stakeholder feedback into consideration and have decided to implement a new Accelerated Strategic Transmission Investment (ASTI) regulatory framework to fund the large strategic onshore transmission projects required to deliver the Government's 2030 ambitions.

This document details our decision to streamline the regulatory approval and funding process by reducing the number of regulatory assessment stages and allowing the TOs earlier access to project funding in order to accelerate the delivery of ASTI projects. We have also decided to exempt from competition the projects that the TOs' delivery plans consider are deliverable by 2030, with the incumbent TOs responsible for the delivery of all projects currently included in the list of ASTI projects.³ Our decision on competition exemptions allows for a programmatic delivery of the projects required to deliver the Government's 2030 ambitions. However, we also need to ensure that consumers benefit from this approach and as consumers will not enjoy the benefits of competition, we have introduced a strong incentive that rewards/penalises the TOs for early/late delivery

¹ As set out in special condition 13.3 of the Electricity Transmission Licences

² [Consultation on accelerating onshore electricity transmission investment | Ofgem](#)

³ When we refer to "the list of ASTI projects" this refers to the current list of projects in scope for the ASTI framework. These projects are listed in Appendix 1 as "in scope" for ASTI.

respectively. Our updated analysis suggests that, if all ASTI projects are delivered by their optimal delivery dates, we expect consumers will see a net benefit of up to £2.1bn⁴ in terms of reduced constraint costs and carbon savings. However, this consumer benefit is contingent upon timely project delivery.

We consider that the new ASTI framework strikes the appropriate balance between accelerating delivery of strategic onshore transmission projects and protecting consumers. The framework will allow the TOs to implement their delivery plans without delay, is flexible and capable of managing future uncertainty, and provides a regulatory platform that we believe can best facilitate the delivery of the Government's 2030 NZ ambitions.

Delivering the Government's ambitions will require a step-change in the way large onshore transmission projects are delivered with an unprecedented level of network infrastructure required up to 2030. The ASTI framework will initially apply to around £20bn of onshore transmission network investment with potential for further investment in the future as we seek to decarbonise the energy sector and pivot away from reliance on fossil fuels. The ASTI framework represents a significant shift in the way large projects are identified, assessed, and funded. Alongside the Offshore Transmission Network Review⁵ (OTNR) publication, and the ESO's Holistic Network Design (HND)⁶, ASTI should be seen as part of a departure from traditional incremental network build towards a more co-ordinated, top-down network planning approach. We consider that this new approach can better deliver the required network upgrades on a more programmatic basis.

We are under no illusions about the scale of the challenge ahead in terms of delivering the required investment by 2030. The changes to the regulatory framework detailed in this decision document alone will not be sufficient to ensure the connection of the offshore generation to the electricity network by 2030 without adjustments to both the current planning regime and the TOs delivery models. A multi-party approach between Governments, the TOs and Ofgem is required, and we are confident that we can work together to deliver a greener and more energy-secure future at the lowest possible cost for Great Britain's energy consumers.

⁴ This figure is our estimated net "central" outcome. Appendix 2 provides detail on how this figure was calculated.

⁵ [Offshore transmission network review - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/consultations/offshore-transmission-network-review)

⁶ [A Holistic Network Design for Offshore Wind | National Grid ESO](https://www.nationalgrid.com/uk/energy-secure/a-holistic-network-design-for-offshore-wind)

1. Introduction

Context and related publications

1.1. This document sets out our decision to implement a framework to accelerate strategic onshore transmission investment. We sought stakeholder's views through a consultation document we published in August 2022. Stakeholders' responses and further stakeholder engagement have informed our final decision.

1.2. The main documents relating to this area of work are:

- [Consultation on accelerating onshore electricity transmission investment](#)⁷: our August 2022 consultation that precedes this Decision.
- [Government's Energy Security Strategy \(ESS\)](#)⁸: this document set out ambitious targets for low carbon generation to accelerate the shift away from fossil fuels to promote energy security, while meeting NZ targets.
- [Electricity networks strategic framework \(ENSF\)](#)⁹: joint Department for Business, Energy and Industrial Strategy (BEIS) and Ofgem publication setting out the actions government and Ofgem are taking to ensure the electricity network can act as an enabler of a secure, resilient and NZ energy system.
- [Holistic Network Design](#)¹⁰ (HND) and [Network Options Assessment Refresh](#)¹¹ (NOA Refresh): National Grid Electricity System Operator's (ESO) findings on network upgrades needed to meet Government's ambition to connect up to 50GW of offshore wind generation by 2030.
- [Offshore Transmission Network Review: Decision on asset classification](#)¹²: Decision on the classification¹³ of the assets included in the HND.

⁷ [Consultation on accelerating onshore electricity transmission investment | Ofgem](#)

⁸ [British energy security strategy - GOV.UK \(www.gov.uk\)](#)

⁹ <https://www.gov.uk/government/publications/electricity-networks-strategic-framework>

¹⁰ [Holistic Network Design](#)

¹¹ [Network Options Assessment Refresh](#)

¹² [Offshore Transmission Network Review: Decision on asset classification | Ofgem](#)

¹³ The process distinguished between 'onshore' to be delivered by Transmission Owners, and 'offshore' projects to be delivered through the [Offshore Electricity Transmission](#) (OFTO) regime

Our decision-making process

1.3. In August 2022 we published a consultation document detailing our proposals on how we could accelerate strategic onshore transmission investment. We received 36 responses from a range of stakeholders and have engaged with stakeholders since then to get a better understanding of their views.

1.4. We have published the non-confidential responses we received on our website, alongside this document.

Your feedback

1.1. We are happy to receive any feedback about this document, and would welcome your answers to these questions:

1. Do you have any comments about the overall quality of this document?
2. Do you have any comments about its tone and content?
3. Was it easy to read and understand? Or could it have been better written?
4. Are its conclusions balanced?
5. Did it make reasoned recommendations?
6. Any further comments?

Please send any general feedback comments to stakeholders@ofgem.gov.uk

2. Why are we changing the regulatory framework?

Section summary

We set out the background for why we are making changes to support the accelerated delivery of onshore electricity network infrastructure and the challenges in delivering an accelerated programme of work. We also summarise our decision regarding the new ASTI framework.

Background

2.1. In April 2022, the Government published its ESS¹⁴ which set out the ambition to connect up to 50GW of offshore wind generation to the electricity network by 2030.

2.2. The ESO was tasked with identifying the network upgrades that would be needed to meet the Government's 2030 ambitions. This request resulted in the ESO publishing the HND¹⁵ and NOA Refresh¹⁶ in July 2022, which set out the required offshore and onshore network reinforcements to allow for the compliant connection, under Security and Quality of Supply Standard (SQSS),¹⁷ of the offshore generation. Successful delivery of these projects will allow the bulk transfer of energy from sources of renewable generation off the British coast to the locations of energy demand, typically in southern England.

2.3. Delivering the Government's ambitions will bring significant benefits to the British energy system in terms of its overall resilience, security of supply and decarbonisation of the sector. However, there are also significant potential consequences if the required onshore transmission upgrades are not delivered by 2030, including capacity not being able to be connected in a full and safe manner, increased constraints, and constraint costs that are ultimately passed on to consumers' energy bills.

The challenge – connecting up to 50GW of offshore wind generation by 2030

¹⁴ [British energy security strategy - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/consultations/british-energy-security-strategy)

¹⁵ [The Pathway to 2030 Holistic Network Design | National Grid ESO](https://www.nationalgrideso.com/document/262981/download)

¹⁶ <https://www.nationalgrideso.com/document/262981/download>

¹⁷ <https://www.nationalgrideso.com/industry-information/codes/security-and-quality-supply-standards>

2.4. Delivering the required levels of investment by 2030 represents a significant and unprecedented challenge for Great Britain and meeting the Government's ambitions will require the collective efforts of the TOs and their supply chains, Ofgem and the Westminster and Scottish Governments, with all parties having a critical role to play.

2.5. Currently, large onshore transmission projects typically take around 11-13 years from identification of project need to project completion under the Large Onshore Transmission Investment (LOTI)¹⁸ regulatory framework. Whilst it may offer heightened regulatory scrutiny and consequential consumer protection on a project-by-project basis, assessing large transmission projects under this framework is unlikely to afford the necessary pace to deliver the Government's 2030 ambitions, and limits the scope for the required investment to be considered and delivered in a programmatic fashion. Accordingly, a new regulatory framework is required that can accelerate the regulatory process and provide the platform from which the TOs can implement their project delivery plans.

2.6. The TOs have highlighted that one of the barriers to expediting delivery of large infrastructure projects is the current planning and consenting regimes in each of England, Wales and Scotland. Reforms to these regimes are likely to be essential to the delivery of the full range of onshore transmission network upgrades required by 2030. In the ENSF, the Government set out a series of actions to support this in England and Wales, including the review of the energy National Policy Statement¹⁹ to support rapid infrastructure delivery, as well as the review of the planning consent process through the Government's National Infrastructure Planning Reform Programme. The latter is proposed to include a fast-track process for those projects which meet eligibility criteria.

Our consultation

2.7. In August 2022 we consulted on how Ofgem can support the accelerated delivery of the strategic electricity transmission network upgrades needed to meet the Government's 2030 offshore wind generation ambitions. Our initial analysis suggested that the quantifiable consumer benefit of accelerating delivery of onshore transmission infrastructure and delivering the Government's ambitions was between £1.7bn - £3.1bn²⁰, with additional unquantified benefits in terms of the contribution towards NZ, enhanced security of supply and improved system resilience.

¹⁸ [Large Onshore Transmission Investments \(LOTI\) Re-opener Guidance | Ofgem](#)

¹⁹ [National Policy Statements for energy infrastructure - GOV.UK \(www.gov.uk\)](#)

²⁰ Against a counterfactual of delivering projects by their current Earliest-In-Service Dates (EISDs) without acceleration

2.8. The consultation included our proposals to streamline the current regulatory approval and funding process for large electricity transmission projects and exempt certain strategic projects from competition, as well as measures to protect consumers against additional risks that changing the process brings.

2.9. Consultation respondents were overall supportive of the intention of the proposed changes. The key point raised in response was that timely delivery of the required investment should be the key priority for the regulatory arrangements. To this end, respondents were supportive of exempting projects from competition and streamlining the regulatory approval process where this facilitates timely delivery.

Our Decision

2.10. We have decided to introduce a new regulatory approval and funding framework for onshore transmission projects required to deliver the Government’s 2030 NZ ambitions, which will be known as ASTI projects, and will apply to an initial 26 projects. We have also decided that we will provide pre-construction funding (PCF) to develop eight additional HND-facilitating projects ahead of deciding whether to include them within the ASTI regime when the projects are further developed (see chapter 3 for details).

2.11. We confirm that each of the 26 projects included in the ASTI framework will be exempt from consideration for delivery via a competition model. With regards to the 8 projects where we have decided to initially only provide PCF, we have not exempted these projects presently from competition. When the TOs are able to provide an estimated delivery date we will consider whether it is in the interest of consumers to do so (see chapter 4 for details).

2.12. In chapter 5 we set out the funding arrangements and process that will be followed to set the PCF and early construction funding arrangements for ASTI projects. We also set out how the assessment process will work.

2.13. We have decided to introduce a new Output Delivery Incentive (ODI) that rewards/penalises the TOs for delivery against target delivery dates, and will also make use of Price Control Deliverables (PCD) and Licence Obligations (LO) to ensure consumers are adequately protected. As explained in chapter 7, following consideration of consultation responses we have made a number of adjustments to the ODI proposed in August.

Table 1: ASTI Decision Summary

	Decision	Ref
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Scope	<ul style="list-style-type: none"> • ASTI framework will apply to an initial 26 projects • We will provide pre-construction funding for an additional 8 projects and make decision on inclusion within ASTI once projects further developed 	Ch 3
Competition exemptions	<ul style="list-style-type: none"> • We are exempting all 26 projects within the ASTI framework from competition and confirming incumbent TOs as delivery bodies • We will make a decision on exempting additional 8 projects once they have been sufficiently developed 	Ch 4
Assessment and funding process	<ul style="list-style-type: none"> • We are streamlining the regulatory process and reducing the number of regulatory assessment stage gates • We are providing pre-construction and early-construction funding ahead of planning application submission • We will undertake a full project assessment after submission of a planning application 	Ch 5
Cost Benefit Analysis (CBA)	<ul style="list-style-type: none"> • Our updated CBA suggests that, if all projects are delivered by their optimal delivery dates, there is a net consumer benefit of up to £2.1bn. We consider that this is a conservative estimate of the benefits given the wider strategic benefits that accelerated decarbonisation unlocks. 	Ch 6
Consumer protection measures	<ul style="list-style-type: none"> • We are introducing a timely delivery incentive with rewards/penalties for early/late delivery against a target date, with rewards/penalties based on forecast constraint costs • We are applying a Price Control Deliverable and licence obligation to deliver all ASTI outputs 	Ch 7
Financeability	<ul style="list-style-type: none"> • We confirm our view that ASTI investments during the RIIO-2 period are financeable. We will keep financeability under review and undertake an 'in the round' assessment of financeability as part of the next price control review. 	Ch 8

3. Scope of the accelerated delivery framework

Section summary

We set out the strategic onshore transmission projects that will be in scope of the accelerated delivery framework in order to support the Government's 2030 ambitions.

Background

3.1. In our consultation we defined 'strategic onshore ET projects' as 'projects that are identified by the ESO in its NOA Refresh as being needed by 2030 to connect the 50GW of offshore wind generation that are required to meet the Government's 2030 NZ ambitions (and is modelled in the HND)'.

Consultation position

3.2. In our consultation we proposed that the accelerated delivery framework will apply to strategic onshore transmission projects that:

- Meet the definition of a LOTI as set out in Special Licence Condition 1.1 (Interpretations and definitions), Part B of the TOs' electricity transmission licence: *"LOTI means the assets constituting an investment in the Transmission System, which investment:*
(a) is expected to cost £100m or more of capital expenditure; and
*(b) is, in whole or in part, load-related."*²¹
- Needs to be operational by 2030 to meet the Government's ambition to connect 50GW offshore wind generation; and
- There is clear evidence that the expected consumer benefits of applying the accelerated delivery framework to the project exceeds the expected consumer detriment.

3.3. We refer to these requirements as the "ASTI criteria" throughout this decision document.

²¹ Transmission System has the meaning given to that term by section 4(4) of the Electricity Act 1989.

3.4. Our assessment of the NOA Refresh using these criteria provisionally identified 26 strategic ET projects that we included on our initially proposed list of ASTI projects²², with estimated costs of £19.8bn.

3.5. We proposed that any additional projects that are identified in the future that meet the above criteria would also be considered for inclusion within the scope of the accelerated delivery framework.

3.6. For projects that are expected to cost under £100m we proposed that these would continue to be assessed and funded under the Medium Sized Investment Project (MSIP) mechanism and would not be considered within scope of the ASTI framework. We also proposed that projects that are not required to deliver the Government's 2030 ambitions would be out of scope.

Summary of consultation responses

3.7. Seven stakeholders agreed with the proposed criteria to identify ASTI projects and a further eight were generally supportive, while five respondents disagreed with the proposed approach.

3.8. Respondents encouraged Ofgem to ensure the new framework does not disadvantage projects that are not required to deliver the Government's 2030 ambitions, while some respondents, including a TO, stated that the third criterion (see paragraph 3.2 above) was too onerous and should be refined.

3.9. A number of stakeholders, particularly generators, suggested that the £100m threshold was arbitrary and too high, and further challenged the identification of projects through the HND and NOA Refresh, proposing that all infrastructure projects should be accelerated through the ASTI framework.

3.10. Two TOs agreed with the initially proposed list of ASTI projects, while one TO proposed that an additional three projects should be included. A significant number of local stakeholders stated that the Western Isles (Arnish-Beaully) High Voltage Direct Current (HVDC) link (included in the HND but not in the NOA Refresh) should be within scope of the ASTI framework.

²² The initially proposed list of ASTI projects refers to the 26 projects we set out in our consultation as being in scope for the ASTI framework.

3.11. The ESO responded that the accelerated framework should apply to some offshore-located assets within the HND if they are classified as onshore in the future. It also noted that without acceleration of 10 projects with a current Earliest-in-Service Date (EISD) of post-2030 the network may not be SQSS compliant.²³

Decision

3.12. We have decided to apply the ASTI framework to an initial 26 projects (worth £19.8bn) that we are satisfied meet the criteria set out in paragraph 3.2 above. To note, this is a different list of projects than the 26 we originally consulted on, as explained below – see Appendix 1 for the list of ASTI projects.

3.13. As per our consultation position, we will keep the list of ASTI projects under review and are open to including additional projects within the ASTI scope providing they meet the ASTI Criteria set out in paragraph 3.2 above.

3.14. By including projects within the list of ASTI projects, we are accepting the needs case for these projects in terms of the technical capabilities reflected in the HND/NOA Refresh. This does not mean that the projects within ASTI may not evolve and change as they progress through the planning process and more detailed design. We will assess the detailed project design choices when the projects have been further developed and we will undertake a full Project Assessment (PA) following TOs’ request for full project costs (see Chapter 5 for details of the new assessment process). Where the further development of the project, for example, as a result of changes through the planning process, has a significant impact on the design of a project and therefore means that the delivery dates are no longer achievable, we will consider whether to update delivery dates for the purposes of the ASTI ODI for these projects.

Table 2: List of ASTI projects

Project	Description	TO	Optimal Date
AENC	New 400kv double circuit north E.Anglia	NGET	2030
ATNC	New 400kv double circuit south E.Anglia	NGET	2030
OPN2	New 400kv double circuit Norton-Osbaldwick	NGET	2027
GWNC	New 400kv double circuit Humber-Lincolnshire	NGET	2030
CGNC	New 400kv double circuit Creyke Beck-Humber	NGET	2030
EDEU	400kv upgrade Brinsworth-Chesterfield-High Marnam	NGET	2028

²³ These are the ten projects included in Table 5 of the consultation document.

EDN2	New 400kv double circuit Chesterfield-Ratcliffe-on-Saur	NGET	2030
BTNO	New 400kv double circuit Bramford-Twinstead	NGET	2028
PTC1	Cable replacement Pentir-Trawsfynydd	NGET	2028
PTNO	North Wales reinforcement	NGET	2029
TKRE	Grain-Tilbury-Kingsnorth upgrade	NGET	2028
HWUP	Uprate Hackney, Tottenham & Waltham Cross	NGET	2027
SCD1	Suffolk-Kent offshore HVDC link	NGET	2030
BLN4	Beaully-Loch Buidhe 400kv reinforcement	SSE	2030
SLU4	Loch Buidhe-Spittal 400kv reinforcement	SSE	2030
BBNC	New 400kv double circuit Bealy-Blackhillock	SSE	2030
BPNC	New 400kv double circuit Blackhillock-Peterhead	SSE	2030
BDUP	Beaully-Denny 400kv uprating	SSE	2030
TKUP	East Coast onshore 400kv Phase 2 reinforcement	SSE/SPT	2030
PSDC	Spittal-Peterhead HVDC reinforcement	SSE	2030
E4D3	Peterhead-Drax HVDC	SSE/NGET	2029
E4L5	Peterhead-south Humber HVDC	SSE/NGET	2030
W.Isles	Arnish-Beaully HVDC	SSE	2030
DWNO	Denny-Wishaw 400kv reinforcement	SPT	2028
E2DC	Torness-Hawthorn Pit HVDC	SPT/NGET	2027
TGDC	East Scotland-south Humber HVDC	SPT/NGET	2030

Rationale for our decision

Additional projects

3.15. There were two onshore projects (Western Isles 1.8GW transmission link (Arnish-Beaully) & the Beaully-Denny Upgrade project (BDUP)) included in the HND that we did not feature in the analysis used in our consultation. The Western Isles link was not included as it was not included in the NOA Refresh, which meant that we had insufficient information regarding optionality, delivery dates, project deliverability, constraint cost, impact of delay or suitability for competitive tendering. BDUP was not included because it received a “Hold” signal in the NOA refresh, suggesting that its delivery did not need to be accelerated. Since the consultation we have engaged extensively with Scottish Hydro Electric Transmission Plc (SHET), the ESO and wider stakeholders to better understand these projects. We are now satisfied that they meet the ASTI criteria and we have decided to include them within the list of ASTI projects.

Projects excluded from the initially proposed list of ASTI projects

3.16. Following assessment of the consultation responses and the project delivery plans the TOs’ submitted to us in September, there are two HND projects (LRN4 and PSNC, see Appendix 1) we consulted on including within the initially proposed list of ASTI projects that, even if applying an accelerated delivery framework, NGET does not consider it

possible to deliver by 2030. The purpose of introducing the ASTI framework is to facilitate project delivery by 2030 and our CBA (see chapter 6) is predicated upon projects being delivered by then. Without NGET being able to commit to delivering these two projects by 2030 and not knowing when they could potentially be delivered, we cannot satisfy the final ASTI criterion that '*clear evidence that the expected consumer benefits of applying the accelerated delivery framework to the project exceeds the expected consumer detriment*'. As such, we are not including these projects within the list of ASTI projects. In addition, without a well-considered delivery plan from the TOs, it is not possible to include these projects within the ODI, which is an integral part of the overall ASTI framework.

3.17. It is important to note that this decision does not reflect that these projects are not of critical importance. We will allow PCF for National Grid Electricity Transmission Plc (NGET) to further develop these projects and avoid delays. Once NGET has been able to sufficiently develop these projects, or alternatives that deliver an equivalent system benefit, and submitted a detailed delivery plan, we will consider whether to include them within the list of ASTI projects following assessment of NGET's proposals.

Asset classification

3.18. In October, as part of the OTNR workstream we published our decision on HND asset classification.²⁴ This process identified six projects that are included in the HND but were not included in the NOA refresh as TO-delivered projects. The ESO developed these options as part of the offshore design for the HND and they were subsequently classified as onshore transmission due to their function in providing boundary reinforcement. At the time of our consultation, it was uncertain which of these projects would be determined to be onshore transmission rather than offshore transmission. For this reason, these six projects did not feature in our consultation CBA and so we did not consult on including within the ASTI framework.

3.19. The asset classification process concluded that projects that do not meet the legal definition of 'offshore' as set out in sections 6C and 64 of the Electricity Act 1989 are considered 'onshore' and it is therefore the responsibility of the TOs to deliver these projects. These projects are still at a very early stage of the development and the TOs are not yet able to commit to delivering them by 2030.

²⁴ [Offshore Transmission Network Review: Decision on asset classification | Ofgem](#)

Table 3: Asset classification projects

Project	Description	TO	Optimal Date
AC1	R4_2 to Lincolnshire	NGET	2030
AC2	R4_1 to R4_2	NGET	2030
AC3	Fetteresso to SW_E1a	SHET	2030
AC4	SW_E1a to R4_1	SHET & NGET	2030
AC5	Hunterston to T-point	SPT	2030
AC6	Pentir to T-point	SPT & NGET	2030

3.20. As per the two NGET projects in paragraph 3.16 above, we cannot yet satisfy the final ASTI criteria that there is clear consumer benefit by applying the ASTI framework as, until we know whether and when these projects can be delivered, we cannot rule out consumer benefit from competitive tendering. Therefore, we are not including these projects within the initial list of ASTI projects. We will allow PCF for the TOs to further develop these projects and will consider whether to include in the list of ASTI projects later following assessment of updated delivery plans. By providing PCF to allow the projects to progress, we can ensure that the delivery of these projects is not delayed by pre-construction works being unable to commence.

Project Aquila

3.21. SHET’s delivery plan and consultation response included a proposal to fund Project Aquila – a direct current switching station allowing for multi-vendor HVDC interoperability at Peterhead and approved by BEIS as part of its Pathfinder²⁵ work – through the ASTI framework. We have assessed SHET’s initial proposal and support development of the project. While we consider that Project Aquila could result in considerable consumer benefit if successfully delivered, it does not meet the first or second ASTI criteria, which include being load-related and required by 2030 to deliver the HND, and therefore we are not including it within the initial ASTI scope.

3.22. We will continue to engage with SHET regarding Project Aquila and are open to receiving a funding request for this project through the RIIO-2 Net Zero re-opener mechanism.²⁶ The Net Zero re-opener is Ofgem-triggered only and we will consider

²⁵ [Ministerial letter regarding SSEN / HVDC Centre’s proposal for Project Aquila \(publishing.service.gov.uk\)](https://publishing.service.gov.uk)

²⁶ Net Zero Re-opener, Special Condition 3.6 in Electricity Transmission licence

triggering it following assessment of SHET's updated delivery plan, which we expect to receive in late December 2022.

Consideration of stakeholder responses

3.23. We disagree with the view that the £100m threshold for ASTI projects is either too high or arbitrary and are maintaining our consultation position. This is the materiality threshold decided for RIIO-ET2 for LOTI to distinguish between large and smaller onshore projects with separate funding mechanisms, specifically the MSIP re-opener. The introduction of the ASTI framework intends to accelerate delivery of large onshore transmission projects that would otherwise take longer to deliver under the LOTI regime; we see no compelling reason though to depart from our general assumptions under LOTI around what constitutes a 'large' project and have had no indication that smaller projects cannot be delivered in accordance with HND timescales under existing regulatory mechanisms.

3.24. We consider that sub-£100m projects can be assessed and funded through the MSIP mechanisms without causing any delays to delivery. Currently the MSIP re-opener only has a single annual re-opener window which we acknowledge may not provide the necessary flexibility to accelerate projects if TOs have to wait for the window to open until they are able to make an application. Therefore, we intend to modify the Electricity transmission licence (Special Condition 3.14) to increase the frequency of re-opener windows and will consult on licence modifications in early 2023.

3.25. We considered consultation responses that suggested that we refine the third ASTI criterion that there is clear evidence that the expected consumer benefits of applying the accelerated delivery framework to the project exceeds the expected consumer detriment. Ofgem's principal objective (as defined in s.3A of the Electricity Act 1989) in carrying out its functions is to protect the interests of existing and future consumers in relation to electricity conveyed by distribution or transmission systems. It would be entirely contrary to that principal objective if consideration of consumer benefit was not considered as part of the ASTI framework. We will therefore continue to apply the third criterion as consulted on.

3.26. Some stakeholders were concerned that introducing the ASTI framework could create a "two-tier" regulatory system where non-ASTI work gets deprioritised. However, we consider that there are adequate regulatory mechanisms already in the licence (for example PCDs) to ensure that this does not happen and that all projects, ASTI or otherwise, are delivered in a timely manner by their optimal delivery dates, with enforcement options available should this not materialise in practice.

3.27. We disagree with the view that the ASTI framework should be applied to all large onshore transmission projects, not just those included in the HND. The rationale for introducing the ASTI framework is to accelerate project delivery. Where delivering at pace is not the only driver, we consider that on balance the LOTI framework provides more protection to consumers than the ASTI framework and better serves the consumer risk-profile as consumers are not exposed to additional costs should a project not obtain planning permission. It also allows for projects to be delivered via models of competition, which we consider is in the long-term interest of consumers. If we are satisfied that future projects can be delivered by their optimal delivery dates under LOTI (or by competitive tendering) then we see no compelling justification to apply the ASTI framework to these projects.

4. Competition exemptions for strategic projects

Section summary

We set out our Decision on exempting strategic transmission projects from delivery through a competitive tendering model.

Background

4.1. Competition in delivery of onshore ET infrastructure is a key component of the RIIO-ET2 framework and at RIIO-ET2 Final Determinations we confirmed our intention to consider competition for qualifying, large ET infrastructure projects.²⁷

4.2. Changes to primary legislation to enable the competitive tendering to third parties for qualifying ET infrastructure projects were recently introduced by Government as part of its Energy Security Bill.²⁸ While this legislation is expected to be in place from 2023, given the need for subsequent regulatory arrangements to allow onshore competitive tenders to be run we do not anticipate that competitions in networks will be able to commence before the end of 2024.

4.3. The TOs have stated that the introduction of competition could lengthen the existing timelines for delivering new onshore ET projects due to (i) the time taken to run a competitive tender and (ii) not having confidence to procure early and invest in early construction works (see Chapter 4 in the consultation document for further details).

4.4. We do not consider that there is any evidence to suggest that third-party delivery of strategic projects through onshore competition would take any longer to deliver than TO delivery. However, we do recognise that ahead of the implementation of the relevant legislation and regulatory arrangements, there may be projects where uncertainty around whether the TO will deliver the project could cause delays. In order to meet the Government's 2030 ambitions, TOs will need to start engaging with the supply chain and progress pre-construction and construction work on ASTI projects as soon as possible. It is likely that this engagement will need to start before the enabling legislation and regulatory arrangements are likely to be in place to allow for an onshore competition to be run.

²⁷ [RIIO-2 Final Determinations for Transmission and Gas Distribution network companies and the Electricity System Operator | Ofgem](#)

²⁸ <https://www.gov.uk/government/collections/energy-security-bill>

4.5. For this reason, the Government (as part of the ESS and ENSF) asked us to consider exempting from competition all (or some) of the strategic onshore ET projects identified as critical to meet its 2030 ambitions, where this is in the interest of consumers.

Consultation position

4.6. In our consultation we set out our approach to exempting strategic projects from competition, categorising the 26 projects on initially proposed list of ASTI projects as:

- Projects that the ESO does not consider likely to meet the criteria for competition²⁹ (5 projects, worth £0.7bn)³⁰
- Projects we consider are unlikely to be delivered through competition without the risk of delays (5 projects, worth £4.1bn)³¹
- Projects the ESO has identified as needing to be delivered before the current EISD and by 2030 (10 projects, worth £10.6bn)³²
- Projects with 2030 EISDs (6 projects, worth £4.3bn) where a better understanding of the relevant probability of delivery by the 2030 EISD is needed before we can decide if it is appropriate to exempt from consideration for competition³³

4.7. We also stated that we did not yet have ESO data identifying the benefit associated with each individual project. Therefore, our minded-to position to exempt projects from competition would be contingent on confirmation through additional analysis that each project is likely to deliver benefits that offset the cost to consumers of foregoing the expected benefits that would be achieved through competition.

4.8. We consulted on two options for exempting competition:

- **Option 1:** Exempt all 26 projects from consideration for competition, subject to the additional network studies referenced in paragraph 6.30 of the consultation.

²⁹ Criteria is that projects must be new, high-value (£100m+) and separable

³⁰ DWNO, EDEU, HWUP, PTNO, TKRE – see appendix 1 for project details

³¹ BTNO, E2DC, E4D3, OPN2, PTC1 – See Appendix 1 for project details

³² BLN4, BPNC, CGNC, E4LF, EDN2, GWNC, LRN4, PSNC, TGDC, TKUP – see Appendix 1 for project details

³³ AENC, ATNC, BBNC, PSDC, SCD1, SLU4 – See Appendix 1 for project details

- **Option 2:** Exempt 20 of the 26 projects, subject to the additional network studies referenced in paragraph 6.30 of the consultation. Under this option, only the six projects with a 2030 EISD (and that meet the competition criteria) would be considered for potential delivery via competition.

4.9. We stated that our minded-to position was Option 2. However, we noted in the consultation TO concerns that not exempting these projects from competition could maintain uncertainty around whether they will deliver the project, meaning they will not be able to mobilise supply chains and invest in early construction works. As such, we stated we would be open to exempting all 26 projects included in the scope of consultation from competition if the TOs can demonstrate doing so is in consumers' interests.

Summary of consultation responses

4.10. The majority of respondents (23 out of 36), including all TOs, agreed with the proposal to exempt projects from competition where it is in consumers' interests to do so.

4.11. The TOs highlighted concern that uncertainty around the timing of competition legislation being introduced and the capacity of the ESO to run multiple tenders would impact the ability of third parties to deliver projects by 2030. TOs, and a number of suppliers, also stated that to deliver projects by 2030 they will need to engage supply chains and secure cable manufacturing slots early and therefore need certainty around who will ultimately be the responsible delivery body for all projects before investing.

4.12. Many respondents, including consumer groups, were supportive of the principle of competition generally but favour exemptions where they support the accelerated delivery of strategic projects.

4.13. Ten respondents, including all TOs, preferred exempting projects in line with Option 1 (see paragraph 4.8 above). Four respondents preferred Option 2, and one Offshore Transmission Owner (OFTO) proposed that all ASTI projects should be eligible for Late Competition. One Distribution Network Operator (DNO) disagreed with both options and argued that an assessment should be made on a project-by-project basis instead of blanket exemptions.

Decision

4.14. We have decided to exempt all but two projects (PSNC & LRN4) from the initially proposed list of 26 projects in our consultation, along with an additional two projects (Western Isles link & BDUP, see Appendix 1) which were proposed following the consultation.

4.15. We have decided to defer the decision on whether to exempt the asset classification projects (see Appendix 1) until the TOs have developed sufficiently detailed delivery plans for them, with target delivery dates that can be incorporated into the ASTI ODI.

Rationale for our decision

4.16. We continue to consider that once early and late competition models have been implemented and integrated into the network planning process, projects can be delivered through competition models on time whilst driving significant savings for consumers.

4.17. We do however acknowledge that the current uncertainty around the exact timing of the enabling legislation and the finalisation of competition models remains, and this has the potential to cause project delays. This is because without sufficient certainty as to whether the TOs will be the delivery body, they will be unlikely to make the upfront financial commitments needed to allow for accelerated project delivery. In many cases, we agree with TOs that providing competition exemptions as part of ASTI will better enable them to mobilise their supply chains and procure long lead items such as HVDC cable, in what is currently a constrained and highly competitive market due to the scale of investment under ASTI and increased global demand.

4.18. There were some concerns raised in responses around whether exemptions should be made for all projects, and uncertainty around whether competition would cause delays. We have reviewed the delivery plans for each project individually when considering exemption from competition. We have also looked at constraint impacts along with other risk factors such as uncertainty around competition legislation, and wider benefits of achieving the ambition of ASTI (further detail chapter 6 CBA methodology) when coming to our decision to exempt these projects from competition.

4.19. We agree with the ESO that there are certain projects with EISDs of 2030 or earlier with delivery timelines that would suggest in principle could be competitively tendered without causing delay. However, other factors (as listed below) have tipped our decision in favour of competition exemption as we consider this poses less risk to late delivery than not exempting them.

4.20. Specifically, we considered the following factors to determine whether it was necessary to exempt projects in order to achieve the benefits outlined in our CBA:

- Whether projects meet the competition criteria³⁴.
- Whether competition legislation will likely be in place in time to enable competitions for the projects without causing delay compared to their EISD. We have centred this assessment around those projects in the TO delivery plans where our assessment indicates that construction contracts will need to be in place ahead of the earliest date at which a late competition for delivery would be able to be run.
- The level of Uncertainty around how many projects the ESO will have the capacity to tender within the required timeframe.
- The risk of global supply chain issues: items such as HVDC cable are in very high demand globally as countries push for energy security and renewables. There is a risk of delays if items such as these are not procured early and if supply chains are not mobilised early (which competition exemptions would allow for).

4.21. We also agree with the view that due to interlinkages in project delivery, tendering some projects may increase the risk of delays to the group as certain factors such as outage periods need to be coordinated.

Rationale for not exempting projects that face delivery plan uncertainty.

4.22. There are some projects that have not yet been developed enough that we can make assumptions as to whether consumers would benefit from them being exempted from competition. Specifically, the two projects PSNC and LRN4, which NGET has informed us it cannot commit to delivering by 2030. These projects are expected to undergo considerable revisions to the optioneering and routing before a delivery plan can be formulated.

4.23. There are also the 6 projects recently identified in Ofgem's asset classification exercise³⁵, which are in very early stages of conceptualisation, and as such have considerable uncertainties around design and delivery.

4.24. Until the design uncertainties of PSNC, LRN4 and the 6 additional projects are addressed, these projects will not be included in the list of ASTI projects and we will only

³⁴ Projects eligible for competition must be new, separable, and high value (over £100m)

³⁵ [Offshore Transmission Network Review: Decision on asset classification | Ofgem](#)

consider including them, and whether to exempt these projects from competition, once we received robust delivery plans for them.

Why we are exempting the other 8 post-2030 projects - Net consumer benefit of acceleration outweighs competition benefit.

4.25. We have decided to exempt the remaining 8 out of the 10 projects (all other than PSNC and LRN4) with EISDs later than 2030. TOs have provided delivery plans that provide for accelerated delivery to the year 2030. Changes to the regulatory process and competition exemption are key factors in them achieving these accelerated dates. We consider that not exempting these projects would lead to uncertainties around delivery and would risk causing delays. Our CBA analysis of accelerating these projects to 2030 as per table 7 in Chapter 6, which uses constraint data provided by the ESO, shows a clear net benefit of accelerating these projects. This is based on our consideration that competing the projects would not achieve the same level of acceleration.

Why we are exempting the 6 projects we said were under consideration in the consultation - EISDs of 2030.

4.26. We have decided to exempt from competition the 6 projects we proposed not to exempt in our consultation, as per Option 2 in paragraph 4.8 above. Although the outcome of the constraint impact versus competition savings CBA only marginally supports competition exemption for these projects there are other factors we have considered. We have reviewed the delivery plans for each of these projects to consider the likelihood that they could be competed without causing risk to late delivery. Due to uncertainty around when competition enabling legislation will be passed, how many projects the ESO will be able to compete initially, and exactly how early engagement with contractors will need to be to ensure timely delivery, we consider that TO delivery presents less risk than the alternative for these projects. Additional impacts of achieving 2030 targets (as mentioned in paragraphs 6.15-6.20) supported our decision to exempt from competition in order to increase the chance of 2030 delivery.

Why we are exempting the 10 pre-2030 projects

4.27. We have decided to exempt 10 projects with an EISD before 2030 from competition. This is because these projects either do not meet the criteria for competition or need to start construction sooner than our current expectation for when competition legislation would be on the statute books to allow.

Why we are exempting Western Isles and BDUP

4.28. We have decided to exempt an additional two projects that were proposed by respondents to our consultation: the Arnish to Beaulieu 1.8GW HVDC link (Western Isles link) and upgrading the Beaulieu to Denny 275 kV circuit to 400 kV (BDUP), which will be delivered by SHET.

4.29. We are exempting the Western Isles link for two key reasons. Firstly, assessment of the accelerated delivery would suggest that TO delivery presents less risk to timely delivery than the counterfactual option of waiting for competition legislation. Secondly, the Western Isles link is a prerequisite for the HND and so is expected to connect a significant amount of offshore wind, any delay to this link would mean a notable amount of the 50GW offshore wind generation target would not be able to safely connect. Unlike other projects that were not identified in our August consultation, SHE-T have prepared a detailed delivery plan for delivery in 2030. We consider it appropriate therefore exempt it from competition to allow its delivery to be accelerated.

4.30. The Beaulieu-Denny upgrade project (BDUP) was not included in the 26 initially proposed projects in our consultation due to it receiving a "Hold" signal in the NOA Refresh³⁶. Since publication TOs have demonstrated the requirement for them to have upfront certainty on this project. The primary requirement being the interlinkages between delivering this project and others in close geographical proximity. By having assurance that it will be responsible for delivering projects, SHET will be able to reduce the risk of delay by procuring long lead items and coordinate outage periods and other delivery aspects with the other projects in the same region.

Table 4: A list of all projects confirmed as exempted from competition.

Projects Exempted from Competition				
AENC	BTNO	EDEU	PTC1	TKUP Western Isles link
ATNC	CGNC	EDN2	PTNO	
BBNC	DWNO	GWNC	SCD1	
BDUP	E2DC	HWUP	SLU4	
BLN4	E4D3	OPN2	TGDC	
BPNC	E4L5	PSDC	TKRE	

³⁶ NOA Refresh: [download \(nationalgrideso.com\)](http://nationalgrideso.com)

5. Changes to our assessment and funding process to support accelerated investment delivery

Section summary

We set out our Decision on streamlining the project approval and funding processes in support of accelerating network delivery.

Background

5.1. Under the current LOTI framework³⁷, for each eligible project the TOs submit an Initial Needs Case (INC) for Ofgem assessment ahead of seeking planning consent³⁸. Once all material planning consents have been secured, TOs then seek approval of a Final Needs Case (FNC) before then applying for a PA Direction. The focus of our assessment at this stage will be an assessment of the proposed costs and delivery plan. This process restricts the TOs' ability to access project funding until after planning consents have been secured.

5.2. PCF may be provided for LOTI projects and full project funding is only allowed at the PA stage. The time from the submission of the INC to the assessment of costs can take up to 5 years.

5.3. In our consultation, we stated that we consider the LOTI process could be shortened by accepting the need for strategic projects without the requirement for the TOs to submit an INC and FNC, and by providing early certainty of project funding before the detailed project design is known and planning consents has been secured.

5.4. We also identified additional risks to consumers from changing the regulatory approval process to support accelerated delivery, specifically that (i) providing early funding certainty could expose consumers to abandoned costs on projects that then fail to secure planning consents, and (ii) funding projects when project drivers, scope, design and costs are less certain potentially exposes consumers to inefficient and excessive costs.

5.5. While acknowledging that modifying the regulatory approval process creates additional risk for consumers, our initial analysis suggested that the potential consumer detriment is likely to be outweighed by the potential benefits in terms of reduced constraint

³⁷ Special Condition 3.3 ([LOTI Re-opener Guidance](#))

³⁸ Unless we have relieved the TO of the requirement to submit an INC

costs through accelerated delivery. As such, our consultation stated our openness to changing the current regulatory process to facilitate delivery of the Government's 2030 ambitions.

Consultation position

5.6. We consulted on a funding model toolkit with four potential approaches that would apply to all strategic projects that meet the qualifying criteria for inclusion within our accelerated delivery framework:

- **Approach 1:** Early acceptance of strategic project need on a programmatic basis for all qualifying projects (without endorsing particular design choices or costs), with acceptance of project need providing an early signal for the TOs to proceed with pre-construction work for these projects.
- **Approach 2:** Approval of allowances for qualifying projects in stages: one stage for early construction funding in advance of any planning permission, and a second stage for a full project cost assessment after planning permission is granted. We stated that for the first stage, where it was in consumers' interests to do so, we could group projects to increase the speed in decision-making and minimise the regulatory burden. For the second stage we stated an expectation that the full cost assessment would be consistent with the current project assessment phase of the LOTI process.
- **Approach 3:** Early (pre-planning) approval of full project costs for qualifying projects, subject to a review after planning permission if material changes in project scope or costs.
- **Approach 4:** Pass through of full project costs for qualifying projects, subject to a cap.

5.7. We consulted on a minded-to position of a combination of Approach 1 and Approach 2. We also stated that due to the higher risk to consumers associated with Approaches 3 and 4, were we to adopt either of these we would expect much stronger consumer protection measures to be put in place.

5.8. Regarding the TOs' project submissions, we proposed that where evidence from competitive tenders is not available, we may be open to considering alternative sources of evidence if that evidence is sufficiently robust (i.e. to support the setting of allowances). We requested that the TOs put forward proposals for the information they are able to

provide, which we would then intend to review and issue targeted guidance on our expectations.

Summary of consultation responses

5.9. The vast majority of respondents (25 out of 36), including all TOs, agreed that without upfront certainty the TOs will face significant difficulties mobilising the supply chain. A number of respondents, particularly suppliers, highlighted the current constraints in the supply chain due to increased global demand, particularly for HVDC cable.

5.10. A number of suppliers responded that without early and firm commitments from the TOs they will not be able to build the required capacity and resources to deliver by 2030 and proposed a collaborative TO-supplier approach to deliver the required work on a programmatic basis.

5.11. One OFTO stated that there is insufficient evidence regarding difficulties TOs would face mobilising supply chains and sought more clarity on exactly how the proposed arrangements would benefit consumers while a generator responded that not enough analysis had yet been carried out to reach a view.

5.12. Most stakeholders who responded agreed that streamlining the regulatory process is in the consumer interest and were supportive of our proposals, with a general view that the impact of project delay is likely to far outweigh any additional cost impacts.

5.13. A local stakeholder group expressed support for the proposals provided local communities are not disadvantaged, while a supplier responded that acceleration would also require streamlining of contractual processes and a standardised approach to project design and delivery.

5.14. There were mixed views from stakeholders regarding our proposed options for streamlining the regulatory process, with twenty respondents expressing at least one preference. Stakeholders identified advantages and disadvantages for each option, however there was general support for our preferred approach that would give early acceptance of project need in principle and take a staged approach to project funding.

5.15. Option 1 was preferred by 12 respondents and Option 2 by 15, with the TOs proposing a mix of these options. Option 3 was preferred by 6 respondents, and Option 4 preferred by 4. Two stakeholders proposed that a programmatic approach should be considered for funding and approving a portfolio of projects rather than doing so on a project-by-project basis.

Decision

5.16. We have decided to streamline the regulatory approval and funding process by implementing a hybrid model that incorporates elements of Approaches 1, 2 and 3 in paragraph 5.6, as summarised in Table 5 below.

Table 5: ASTI funding and approval process

	Funding	Assessment	Output	Re-opener submission window
Pre-construction	2.5%	None	Submit planning application	Any time
Early construction	Up to 20%	Light-touch assessment of reasonableness of proposed activities. No cost assessment, which will be undertaken on a full project (excluding pre-construction) at the next stage	None	2023, 2024, Ofgem-triggered re-opener
Full project allowance	100%	Full project and cost assessment	Deliver project	After planning application submitted

5.17. We accept there is a strong case, in the case of ASTI projects, for deviating from the current LOTI process in order to meet the Government’s 2030 ambitions. We recognise that the TOs may need to change their delivery models and incur some early construction costs ahead of receiving planning permission in order to meet target delivery dates. We think that the new ASTI approval and funding model can support the TOs by accelerating the regulatory funding and approval processes, while still ensuring consumers are protected by robust cost assessment and clear output deliverables.

5.18. We have decided to create a pre-construction cost funding provision within the ASTI framework of 2.5% of the total forecast totex for ASTI projects, excluding any project for which pre-construction funding has been provided through alternative price control mechanisms. The TOs would be able to use this funding for qualifying pre-construction activities with a new PCD output to submit a complete planning application. Where additional pre-construction works are required, for example to deliver the asset classification projects and LRN4/PSNC, or where efficient pre-construction costs are expected to be materially in excess of 2.5% of forecast totex across the ASTI programme for each licensee, there will be a re-opener mechanism that would allow adjustments to allowances as appropriate.

5.19. TOs will be able to access early-construction funding of up to 20% of forecast totex across the ASTI programme to allow certain pre-agreed activities to be undertaken ahead of planning permission where TOs can demonstrate that it is reasonable to undertake these activities early in order to meet target delivery dates. However, totex allowances for efficient costs covering full project costs (excluding pre-construction costs) will be determined following a full cost assessment after planning applications have been submitted. There will be a re-opener mechanism to allow adjustments to be made to these allowances following material changes to project scope/costs.

Rationale for our decision

5.20. Our principal objective is to protect the interests of current and future consumers. Given the consumer benefits that are likely to result from accelerating the delivery of ASTI project, we consider that this model strikes the appropriate balance between providing funding certainty, flexibility, accelerating delivery and resource requirement, and this streamlined approach provides a regulatory platform that can facilitate the TOs to deliver the Government's 2030 ambitions.

Pre-construction funding (PCF)

5.21. We recognise that many of the ASTI projects³⁹ are at an early stage of development and TOs will need early access to PCF in order to accelerate them. We will provide PCF for the TOs' portfolio of ASTI projects set at 2.5% of current forecasts of total project costs.⁴⁰ We think 2.5% is an appropriate level given the TOs' historical outturn pre-construction costs for delivering large transmission projects.⁴¹

5.22. We have decided that the PCF under the ASTI framework would be available to fund qualifying pre-construction works. We see no compelling justification to move away from the list of activities that currently qualify for PCF under the LOTI framework. We consider that setting an upfront level of funding across their portfolio of projects that is consistent with previous performance is a sensible means of avoiding a protracted assessment process across a large number of projects whilst ensuring that consumers are not exposed to unnecessary levels of funding being provided upfront.

³⁹ Throughout this document "the ASTI projects" refers to the list of ASTI projects - the projects in scope for the ASTI framework. These are listed in table 2.

⁴⁰ Excluding projects for which PCF has been, or will be, provided under the LOTI process.

⁴¹ [RIIO-ET2 Draft Determinations](#), Table 19

5.23. The TOs are allowed to substitute PCF allowances between ASTI projects, excluding projects for which funding has been, or will be, provided through the LOTI process. This reflects the programmatic nature of the TOs' delivery plans and allows maximum flexibility and reduces the likelihood that TOs will need to trigger a re-opener and request additional allowances (see paragraph 5.26 below).

5.24. PCF allowances will be treated as Use-It-Or-Lose-It (UIOLI) allowances with funding linked to a PCD output to submit a suitable planning application. Any unspent allowances will be returned to consumers in full. We think this approach, rather than allowing PCF as Totex subject to the Totex Incentive Mechanism (TIM), better reflects the nature of the accelerated delivery approach. It is of critical importance that TOs invest sufficiently in their pre-construction activities to submit high quality planning applications that minimise the risk that planning does not get approved. Whilst we endeavour to incentivise efficient expenditure wherever possible through the TIM, the TOs' primary focus should be on acquiring planning permission rather than on an efficiency incentive, and we consider a UIOLI approach with a re-opener mechanism best supports the ambition of high-quality and robust planning applications. This reduces the risk that projects are delayed due to planning reasons, and reduces the risk that early construction expenditure incurred ahead of planning permission is not wasted, at potentially significant cost to consumers.

5.25. We also considered assessing the TOs specific requests for PCF based on their delivery plans and setting efficient costs following a cost assessment. However, this approach would take considerable time before we could reach a decision and considerable resource to assess funding requests across such a large range of projects, which we do not consider consistent with the general approach of streamlining and accelerating the regulatory process. Our decision to set allowances as a proportion of estimated total project costs means we do not need to undertake an assessment of efficient pre-construction costs and TOs can immediately start investing in the development of ASTI projects.

5.26. We will include a PCF re-opener mechanism so the TOs can apply for additional funds if material⁴² costs in excess of allowances across the ASTI programme have been, or are expected to be, incurred delivering the PCD outputs. We will also make provision for an Ofgem-triggered re-opener for exceptional circumstances where TOs need to apply for funding outside of the re-opener windows in order for projects not to incur delays in

⁴² The materiality threshold is 0.5% of average annual base revenue for each TO, as set out in Special Condition 1.1 (Part B: Definitions) of the licence

delivery. Full details of this mechanism will be included in the ASTI Governance document, to be consulted on in 2023.

5.27. Some projects in the list of ASTI projects have already received PCF under LOTI in RIIO-ET2. Projects that have already received PCF under LOTI are not eligible for additional PCF under ASTI and no further PCF allowances will be provided through the ASTI framework. Substitution of allowances is permitted only between projects that have not yet received PCF under LOTI. With regards to projects that received PCF funding through LOTI, the conditions attached to their PCF still applies. We consider this appropriate as the LOTI PCF allowances were set following a cost assessment by Ofgem and we consider the allowances already provided to be the efficient cost of delivering the PCF output.

Early construction funding (ECF)

5.28. We will provide the TOs with ECF to fund early construction activities required to accelerate delivery of ASTI projects ahead of receiving planning permission, up to 20% of the forecast total project value. In principle, eligible early construction activities could include:

- Strategic land purchases
- Early enabling works
- Early procurement commitments
- Other activities approved in advance by Ofgem

5.29. These activities are typically classed as construction activities, as they relate to delivering the projects. They differ from pre-construction activities, which are the activities required to secure planning consent for a project.

5.30. We have assessed the TOs' delivery plans and while we have a good understanding of the type of activities requiring early construction expenditure, there remains a lot of uncertainty around costs until the TOs have further engaged with the supply market. We need to balance the provision of ECF to accelerate delivery with the consumer exposure to abandoned costs should projects not end up obtaining planning permission. We consider that limiting expenditure to 20% of project value before obtaining planning permission

strikes the right balance, and this threshold is consistent with the estimated early construction costs provided by the TOs in October 2022.⁴³

5.31. Our aim is that TOs will be able to apply for ECF in two re-opener windows, one in summer 2023 and the second in summer 2024,⁴⁴ and there will be provision for an Ofgem-triggered re-opener should allowances need to be adjusted in exceptional circumstances outside of these windows. We consider two re-opener windows strikes the appropriate balance between flexibility for TOs to apply for funding as projects develop with the ability of Ofgem to effectively resource assessment of the submissions.

5.32. As part of these reopener mechanisms, we will undertake a relatively high-level assessment of whether the early construction activities that the TOs propose to incur expenditure on are reasonable. We will not undertake a detailed cost assessment at this stage and we will not form a view on whether the proposed expenditure is efficient. We will undertake a full cost assessment including early construction costs at the project assessment stage.

5.33. Through ECF reopeners, we will seek to provide the TOs with the ECF they request (up to 20% of total project value) provided the need for the activities proposed are accepted by us. This ECF funding should be seen as an 'advance' to accelerate project delivery ahead of the full PA under ASTI where we will set efficient costs allowance for the project (see below). The efficient costs allowance following the PA will then take precedence over any ECF provided in the RIIO-2 Price Control Financial Model (PCFM) (see paragraph 5.39 below).

Early-construction funding re-opener

5.34. Due to the current market volatility and uncertainty around what sort of supply chain commitments TOs will be required to make in order to deliver the ASTI projects by 2030, we have decided to include an Ofgem-triggered re-opener for ECF to potentially adjust allowances in excess of 20% of project value in exceptional circumstances where the TOs can demonstrate that:

- The expenditure is justified and necessary in order to accelerate project delivery

⁴³ £3.1-3.7bn (2021/22 prices) - Via Supplementary Question (SQ) responses, October 2022

⁴⁴ Exact windows to be confirmed following licence drafting engagement

- Not investing will increase risk of project delay
- We are satisfied that the benefit of providing additional allowances outweighs the increased risk to consumers should the project not ultimately secure planning permission.

5.35. We will include further details of this re-opener mechanism in the ASTI Governance document, which we intend to consult on as an Associated Document to the licence in 2023.

Full project assessment (PA)

5.36. We will undertake a full PA under ASTI as we do under LOTI, (which in respect of LOTI, is set out in RIIO-ET2 Final Determinations).⁴⁵

5.37. We have decided not to restrict the timing of potential funding requests, beyond PCF and ECF requests, and so will not implement specific assessment windows into the ASTI licence arrangements. Instead, we expect TOs to submit requests for full project funding any time after the relevant planning application has been submitted. We expect the TOs to keep Ofgem updated with their planned submission timings through the re-opener pipeline process.⁴⁶

5.38. We aim to take as flexible an approach as possible to our cost assessment process and aim to reduce the time it takes for a PA from the current 6-12 months under LOTI to 6-9 months under ASTI and will endeavour to publish a decision on full project allowances on each ASTI project within 6 months of a project receiving planning permission. However, we are mindful that cumulatively, based on the 26 projects currently in the ASTI scope, a 6- to 9-month individual assessment of each project would require a significant level of level of specialist resource and projects will likely all require a full assessment within a relatively compressed timeframe. Therefore, we will continue to work with TOs to consider our approach to cost assessment and ensure that we are able to robustly assess the full scope of ASTI projects, within as limited a time period as possible, without causing any regulatory delay to project delivery (see paragraph 5.45 below). TOs have suggested a range of approaches to address this difficulty; from the joint development of an upfront benchmarking model to provide upfront comfort on costs, to the real-time review of

⁴⁵ [RIIO-2 Final Determinations – ET Annex Page 71](#)

⁴⁶ [RIIO-2 Indicative Re-opener application assessment process version 1 \(ofgem.gov.uk\)](#), paragraph 1.6

procurement activities. We intend to implement a cost assessment process via the ASTI licence condition that allows us to implement a toolkit approach to our cost assessment, which allows us to use a range of cost assessment approaches, including, where suitable the approaches suggested by the TOs.

5.39. For the purposes of the PCFM, ECF allowances will be over-written by final project allowances following completion of the PA. This will be done during the Annual Iteration Process (AIP) that immediately follows the PA. For the avoidance of doubt, as part of the PA, we will not challenge the *need for* any of the early construction activities that we had already approved as part of the ECF reopener process. However, we will undertake an assessment of efficient costs for those activities as part of the PA and allowances would reflect our assessment of efficient costs rather than actual incurred expenditure.

5.40. We acknowledge that there is a balance to be achieved between the amount of regulatory scrutiny that we can apply to (i) assessment of detailed project design choices and costs; and (ii) the requirement to accelerate delivery of the ASTI projects. We consider that our approach is designed to strike the correct balance given the potentially large consumer detriment project delay could cause in terms of increased constraint costs and the assurance we are able to take from undertaking a full PA ahead of allowing full project costs.

Cost and Output Adjusting Event (COAE) re-opener

5.41. We are introducing a COAE re-opener mechanism to potentially adjust outputs, target dates and allowances should there be material changes to the output that is required to be delivered, or where efficient outturn costs deviate +/- 10% from provided allowances. This is similar to the existing COAE mechanism under LOTI; however, we have decided to reduce the materiality threshold from 20% to 10%. We think that this better reflects the volume and materiality of work being delivered under ASTI and provides better protection to both TOs and consumers against systematic over- or under-spends or post-planning approval changes to a project's scope. We will provide additional details around the process for this re-opener in the ASTI Governance document, to be published in 2023.

Consideration of stakeholder responses

5.42. We considered the proposal to retain the option for project delivery through a late competition model however we do not consider this compatible with accelerating delivery of strategic projects. Under a late competition model, TOs develop the projects until planning

has been approved and a Competitively Appointed Transmission Owner (CATO)⁴⁷ would then be responsible for the build, delivery and operation of the assets. Due to known supply chain constraints, we do not consider it possible to delay all construction work and run a tender until only after planning has been secured and still deliver the ASTI projects by their optimal delivery dates.

5.43. We note stakeholder comments around taking a programmatic approach to project approval and funding. We recognise that there could be benefits in doing this and a programmatic approach may reflect the more collaborative TO-supplier delivery models the TOs have proposed in their delivery plans. However, we also need to be sure that consumers are protected by only funding the efficient cost of delivering the ASTI projects, and due to significant current uncertainty around final project costs and the detailed project design we believe it is necessary to include an opportunity for us to fully assess costs for ASTI projects once the detailed design is known. We consider that the ASTI process strikes the right balance between more programmatic delivery and consumer protection by providing a substitutable PCF allowance on a programmatic basis ahead of a specific PA once the projects are sufficiently developed.

5.44. We acknowledge the concerns of local stakeholders that streamlining the regulatory process could disadvantage local communities and potentially affect the public consultation process. However, we do not believe the changes we are making will have an impact in this regard. Our decision allows TOs earlier access to project funding, but any regulatory decisions on outputs and allowances will still follow the same statutory consultation process. For projects subject to the ASTI framework, we expect TOs to fully consult with local stakeholders throughout the optioneering process and ensure any planning consultations give due consideration to the views of all stakeholders as required under the Planning Act 2008 and other relevant legislation such as that for Environmental Impact Assessment.

Cost assessment approach

5.45. In August 2019 we published our RIIO-2 tools for cost assessment consultation,⁴⁸ setting out the tools and techniques we intended to apply in setting the RIIO-2 price controls for the electricity transmission networks. When assessing costs for ASTI projects we intend to utilise the range of cost assessment tools available to us. However, we

⁴⁷ [Quick Guide to the CATO Regime - November 2016 | Ofgem](#)

⁴⁸ [RIIO-2 tools for cost assessment consultation | Ofgem](#)

recognise that the unprecedented scale of projects requiring assessment within a limited time period means we may need to consider novel approaches to our cost assessment.

5.46. We are aware that constraints in the supply chain could mean that suppliers of key long lead time assets may need to be engaged and contracted earlier in the process than has typically been the case, and suppliers may not be willing to hold prices for the duration of a traditional cost assessment. Changes to the TOs' delivery models and the requirement for earlier supply chain commitments mean they require earlier certainty around how we intend to assess costs and set allowances for ASTI projects before they undertake procurement activities.

5.47. We are open to working with the TOs to develop new cost assessment approaches, including new benchmarking models that can be added to our existing cost assessment toolkit and which may help us reach a view on allowances more quickly and mechanistically than under our existing cost assessment approaches. Given the unprecedented scale of the required cost assessments over the coming years we consider there is merit in developing a model that can reduce the resource burden of simultaneously assessing multiple projects and efficiently manage the risks associated with cost uncertainty. However, until these models have been devised, built and tested we cannot say to what extent they can be used to set project allowances and how much weight should be given to them relative to other cost assessment techniques. We will continue to engage with the TOs and will provide further details of our cost assessment approach for ASTI projects in the ASTI Governance document, to be published in 2023.

Non-tendered costs

5.48. Following assessment of consultation responses, we have decided to maintain our consultation position with regards to non-tendered costs. We consider that evidence from competitive tenders is a valuable source of information when setting efficient allowances. In cases where this information is not available, we are open to considering alternative sources of evidence if that evidence is sufficiently robust (i.e. to support the setting of allowances).

6. Updated Cost Benefit Analysis

Section summary

We set out the methodology that we have followed to quantify the costs and benefits associated with the changes to our regulatory framework and competition exemption, to support accelerated investment in strategic onshore ET projects. Applying the methodology, we identify the net benefits to consumers we expect our changes to bring.

Background

6.1. The projects that are included within the ASTI framework include a number of projects that the ESO has identified as needing to be delivered earlier than the TO's view of the appropriate EISD, alongside other projects that the ESO identified as needing to be delivered on, or slightly after the TO EISD.

6.2. The CBA in our consultation focused on the constraint cost benefits of accelerating projects with EISDs beyond 2030 and ensuring timely delivery of the remaining projects. The CBA also made assumptions around additional costs and risks to consumers that could arise under the ASTI framework. These additional costs relate to the potential consumer detriment of missing out on the savings that competition could deliver on these projects, the risks associated with making changes to the regulatory assessment process, and an increase in abandoned costs due to more upfront funding (ECF) being provided before planning and consenting have been approved.

6.3. The CBA in our consultation indicated that as long as TOs were able to commit to meeting the required delivery dates, there was a strong case for developing the ASTI framework and applying competition exemptions for the projects in question.

6.4. In this Chapter our updated CBA has followed the same methodology and approach, but uses updated data on project delivery, costs, and constraint impacts. This updated CBA includes the updates we have made in light of consideration of respondents to our consultation who felt that our CBA did not capture the full range of wider benefits that ASTI can unlock. Specifically, the updated CBA includes a quantitative estimation of the benefit of accelerated carbon emission reduction that implementing ASTI is expected to deliver.

6.5. The updated assumptions, project data, and additional inclusion of a valuation of lower carbon generation, alongside the qualitative benefits indicate that there remains a very clear consumer interest in proceeding with the ASTI changes outlined in this document. The central assumptions used in this CBA suggest a net benefit to consumers of

£2.1bn assuming that the projects are delivered on time. This CBA is intended to be cautious in its approach to stress test the clear benefits of acceleration against a plausible but unlikely level of detriment. We have included a range of sensitivities in Appendix 2, which all indicate that there should be net benefits to implementing the ASTI framework.

6.6. This Chapter provides the information on the consultation responses we received, and how we formed our thinking since our minded to position.

Summary of consultation responses

6.7. Stakeholders were generally supportive of the findings of our CBA but highlighted a number of methodological issues that they disagreed with. A common response was that due to our focus on constraint cost benefits, the overall benefit case for introducing the ASTI framework was likely to be understated due to additional, unquantified benefits that timely project delivery can unlock. Stakeholders proposed a number of additional factors to include in the CBA, including carbon emission reduction, contracts for difference costs, displacement of expensive gas generation and broader environmental benefits.

6.8. While agreeing with the overall conclusion of the CBA, TOs stated that our view on capex savings from competition was too optimistic while our view of abandoned costs was too pessimistic. Some respondents stated that not exempting projects from competition would lead to delays that should be factored into the CBA and also argued that introducing competition would increase financing costs.

6.9. Four respondents raised concerns around the impact of planning reform and business and property prices in the CBA and stated that our assumptions on the likelihood of projects being cancelled are too conservative. Three respondents stated that the merits of the CBA methodology were unclear, that more plausible scenarios should be tested based on the key dependencies identified in the consultation, and that Ofgem overlooked potential increase in costs due to delivery through a concentrated number of organisations. One stakeholder expressed concerns that the impact of 50GW of offshore generation not being delivered had not been considered in our analysis.

Consideration of stakeholder responses

6.10. In terms of the suggestion that competition would increase financing costs, we have seen no evidence to support this view and so have not factored this into our updated CBA. In fact, given the scale of investment needed in the next few years, there is reason to consider that there may be additional consumer benefits in a range of parties other than TOs sharing the costs associated with the financing of such a scale of investment.

6.11. We acknowledge that planning reforms are likely to be vital for the acceleration of these projects. In a number of the delivery plans, TOs have identified an expedited planning process as a key determining factor in whether the optimal date for delivering the projects is achievable. As mentioned in paragraph 2.6, Government has set out its intentions to carry out these necessary reforms. One stakeholder proposed that Ofgem take into account consideration of business and property prices; however, these aspects fall outside the scope of this consultation, as such we have not looked to quantify any such impact. As referenced in paragraph 6.24, we have updated our assumption on project abandonment costs in-line with the relevant details within the TO September delivery plans.

6.12. We have tested a broader range of scenarios in our updated analysis (see below); our analysis now uses a range of 8 to 11 projects assumed competed under the counterfactual. These projects tested are the ones we consider most likely suitable for competition under the counterfactual. This is likely to be higher than the number of projects the ESO could feasibly run competitions for in the run up to 2030 but provides assurance that the benefit case we have calculated for ASTI is suitably robust. This conservative approach has been adopted to consider some of the harder to quantify factors raised by respondents.

6.13. In the ESO's HND report⁴⁹ it states that when compared to an optimised radial design, the HND is expected to lead to overall net consumer savings of approximately £5.5bn. This saving comes from an overall reduction in constraint costs, despite the HND having greater capital costs than the radial design. This figure is predicated on the HND being delivered by 2030, which we have established is not possible until the projects included within the ASTI framework are delivered. Therefore, by implementing the ASTI changes, we will be facilitating the HND benefits of up to £5.5bn.

6.14. This benefit is based upon the whole HND being in place, consequently it is impossible to say with any level of accuracy, exactly how much of it would be lost if any individual project were to be delivered late. As such, we have not looked to quantify this in our CBA; however, we do consider it a very significant and likely additional consumer benefit and supporting argument for implementing the ASTI changes.

Updated CBA

⁴⁹ [A Holistic Network Design for Offshore Wind | National Grid ESO](#)

Quantitative, Qualitative & additional factors considered

CO₂ and Constraint Impact

6.15. In our consultation we asked the ESO to provide us with constraint impact data for the acceleration and delay of the proposed ASTI projects. This data includes a forecast change in the megatons of carbon produced and uses the traded price of carbon to quantify the equivalent cost to consumer associated with this.

6.16. The ESO was able to provide us with CO₂ impacts for the delay / acceleration of many, but not all, of the projects in the time available due to the complexity of the modelling involved. Our analysis focuses on two groups of projects: those with EISDs of 2030 or earlier and those with EISDs later than 2030 that need to be accelerated. We received CO₂ impacts of accelerating the latter group and calculated carbon values for the Mt of CO₂ saved.

6.17. To improve our updated CBA, we have substituted the traded price of carbon for the Government's carbon value range for these projects. This carbon value range represents an estimation on the broader social and environmental costs of emitting carbon and therefore better reflects the true value to consumers of reduced carbon producing generation.⁵⁰

6.18. Reducing CO₂ output from electricity generation, alongside lowering consumer bills are the key drivers for implementing the decisions laid out in this document. As such, we consider including Government carbon values rather than traded carbon prices in our constraint impact analysis to be a better measurement of the impact of ASTI.

By incorporating the Government's carbon values in our analysis, we have identified an additional benefit (approximately £1.3bn⁵¹) of bringing forward the projects with post-2030 EISDs to 2030, in addition to the constraint savings.

Lower Cost Generation and Increased Energy Security

⁵⁰ [Valuation of greenhouse gas emissions: for policy appraisal and evaluation - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/674242/valuation-of-greenhouse-gas-emissions-for-policy-appraisal-and-evaluation-2020.pdf)
Carbon values represent a monetary value that society places on one tonne of carbon dioxide equivalent (£/tCO₂e). They differ from carbon prices, which represent the observed price of carbon in a relevant market.

⁵¹ This has been calculated using the "Central Series" value from the year 2030 from the Government's Carbon Values. [Valuation of greenhouse gas emissions: for policy appraisal and evaluation - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/674242/valuation-of-greenhouse-gas-emissions-for-policy-appraisal-and-evaluation-2020.pdf)

6.19. By enabling the connection of up to 50GW of offshore electricity sooner than would otherwise have happened, ASTI should unlock potential for much lower cost electricity generation in GB. The current gas crisis, and an increasing cost to carbon-intensive energy generation, would suggest that moving towards a higher proportion of renewable energy on our grid would reduce the cost of energy for consumers. There is also the significant added benefit of increasing national energy security if we can move away from imports such as gas. Due to the unpredictable nature of gas prices, and the complexity of the many generation contracts in existence, we have not sought to quantify the impact that the ASTI framework may have on energy prices, or energy security. We do however consider these to be critical additional benefits to factor in when making our decision to implement the ASTI changes.

Other qualitative benefits

6.20. We consider that the majority of the additional benefits referenced by respondents were captured within the CBA in our consultation, either in a qualitative manner, or within the underlying ESO NOA Refresh CBA that identified the required investments in the first place. The range of other factors referenced by respondents to the consultation remain difficult to quantify accurately and reliably. We have therefore considered these qualitatively, particularly as a number of them are partially, or fully incorporated into the underlying ESO analysis within the NOA Refresh.

ODI Impact

6.21. The ODI mechanism, covered in chapter 7, provides rewards to TOs for timely delivery of projects and penalties for late delivery. We have not specifically included potential outcomes from ODI rewards or penalties across the portfolio of projects in our CBA, although we have considered overall upside / downside to consumers when determining the parameters of the ODI. The total rewards to all TOs if all projects subject to ODI are delivered on time is £558m. This would be a cost to consumers but is comfortably offset by the constraint and carbon benefits seen under the three scenarios tested in this CBA.

Updates to our assumptions

6.22. This CBA follows the same methodology as the CBA from our consultation, but with additional factors considered and updates to our input assumptions. It also includes the most up-to-date data on estimated project costs, delivery timeframes and constraint impacts on acceleration and delay.

Constraint Impact Data

6.23. A key difference is that this CBA now uses actual forecast constraint data for all projects⁵², whereas in our consultation we had used an assumption of 35-40% of project value to estimate constraint impact for projects that we did not have the data for. The new data suggests a lower value for constraint impact as a proportion of project value compared to our original information.

Project Abandonment Losses (ECF)

6.24. Under the LOTI process TOs do not typically get construction funding until planning and consenting has been agreed for the project; ECF is a unique feature (and risk) of the ASTI process. Both LOTI and ASTI provide PCF, which is at risk equally under both processes. For PCF under ASTI, we are using the same baseline amount as per the RII02 price control (2.5% of project cost).

6.25. Following receipt of updated delivery plans, we have updated our assumption on potential project abandonment losses. Our consultation made an assumption that 5%⁵³ of ECF may be at risk and that 10%⁵⁴ of projects would be abandoned (meaning 0.5% of construction would be lost in total). New delivery plans from the TOs following market engagement suggests that they may need to incur up to approximately 15-20% of project costs upfront as ECF in order to secure cable slots and other long lead procurement items. Therefore, we have updated our assumption for project abandonment to 15-20% of project value and maintain the pessimistic assumption of 10% of projects being abandoned (1.5 - 2% total).

6.26. This has been applied to all 26 projects in the list of ASTI projects. Applied across this portfolio of projects means that ~£300-400m is assumed to be lost due to abandoned projects. It is important to note that we view this as a very pessimistic scenario but have applied to this CBA as means of a stress-testing the benefits case of ASTI. This amount has been netted off against the assumed benefits of ASTI.

⁵² Other than the Western Isles Link for which we do not have constraint impact data available because it is not included in the NOA Refresh as the project does not provide boundary reinforcement

⁵³ Early review of project cost profiles suggested approximately 5% would be needed at an early stage. More detailed project plans from TOs suggests this figure is closer to 15-20% of project value.

⁵⁴ This is a pessimistic view of project abandonment included within this CBA as a means of stress-testing the benefits case for ASTI.

Changes to the regulatory assessment process

6.27. In our consultation CBA we set out that a more streamlined regulatory assessment process may lead to a reduction in savings achieved through the new cost assessment process compared to that achieved under the Strategic Wider Works programme⁵⁵. Within our analysis, this reduction was applied to all projects assumed *not competed* under the counterfactual (as competed projects do not also undergo a cost assessment, therefore would not see a reduction in cost assessment savings). The projects that this reduction was applied to are listed in columns "Could Not Compete" and "Do not meet criteria / already exempt" in Table 6. Our assumption around this figure remains the same⁵⁶ but applies to a different number of projects due to our changed assumptions of which projects could be competed. This value is now £385m and has been netted off against the assumed benefits of ASTI.

Competition

6.28. The assumptions we are using for the expected savings competition could deliver per project remains the same as our consultation position: 10-15% of project value⁵⁷. We are maintaining this assumption as there has been no alternative evidence provided to suggest an alternative range would be more appropriate. Our overall estimation of total loss of competition benefit has changed. This is because, since the consultation, we have been able to consider the assumptions within the TO delivery plans in order to determine a more robust and realistic view of the projects that may be theoretically capable of delivery via competition.

Projects that need to have their delivery date brought forward to 2030

Calculating Acceleration impact

6.29. On timing of delivery, we are maintaining our consultation assumption that all the projects with EISDs later than 2030 are delivered on time for the purposes of our CBA.

⁵⁵ [472 Strategic Wider Works factsheet english web.pdf \(ofgem.gov.uk\)](#)

⁵⁶ Our consultation assumed that our current cost assessment process reduces project costs by 7.6% compared to initial project costs requested by TOs, and that under our new cost assessment this may be reduced by 2.5-3% of project costs.

⁵⁷ Project Value is net of 2.5% of total costs, assumed to be spent on project planning by TOs ahead of the competition.

6.30. We have worked alongside TOs and ESO to model the benefit of bringing these projects forward. Full detailed studies of each of the ten projects were required to fully quantify the benefit of bringing each project forward to 2030. This required TOs to model what the network capability (i.e. increased capacity to transport electricity) would be over the ten-year period from 2030 - 2040 with these projects being delivered by 2030 compared to the originally expected dates between 2031 and 2037. The ESO then used this data to model the future dispatch of generation and network flows across the network in each of these two scenarios.

6.31. Not all the projects could have their acceleration modelled on an individual basis due to their reliance on other projects being delivered alongside them to ensure a stable network. Also, the impact (benefit & disbenefit) of PSNC and LRN4 has been removed from this CBA as without a detailed robust delivery plan, we cannot assume that these projects are deliverable by 2030 and as such are not yet confirmed as falling within the ASTI framework.

6.32. The ESO has calculated the benefit of accelerating the 8 projects in scope for acceleration as a group, with all of them being brought forward to a 2030 delivery. The value of the 8 projects accelerated as a group, without carbon values substituted for carbon prices, is estimated to be £1.4bn⁵⁸.

Assumptions around competition savings

6.33. For the purposes of our CBA, we have assessed which of these projects we consider could theoretically be competed under the counterfactual (although we have decided to exempt them all from competition for the reasons outlined in chapter 4). There remains some level of uncertainty around exact timings of projects and legislation, and so have considered two scenarios, with the scenario with 11 projects representing a particularly high number of potential tenders ahead of 2030. The intention of this exercise is to assess what we see as a high, but feasible downside to exempting projects from competition. This is to give comfort that we have been conservative in our assumptions to progress with the ASTI changes.

6.34. Having reviewed the delivery plans of these projects, it is not feasible that a competition model can deliver any of these projects by 2030. However, we consider that it

⁵⁸ The ESO calculated the benefit of these 8 projects + LRN4, which came to £1.9bn. We have since removed the individual benefit of accelerating LRN4 (3 times the annual constraint impact for this project totalling £513m) as the TO has told us this project cannot be delivered by 2030.

is theoretically possible that 5 of the 8 projects could be subject to late competition and meet the EISD, but not the optimal delivery date. This is because we anticipate that in the counterfactual construction would start late enough that competition enabling legislation may be in place to compete them. We are attributing the disbenefit (£316m⁵⁹) of not competing these 5 projects (worth £2.66bn) in our CBA.

Western Isles Link

6.35. The Arnish to Beaully 1.8GW HVDC link (Western Isles link) has been included in the list of ASTI projects following our consultation. This impact of this project needs to be considered in addition to the other 8 accelerated projects mentioned above. Unfortunately, it has not been possible for the ESO and TOs to model constraint impacts for the Western Isles Link in time for this decision.

6.36. Measuring the impact of not building the Western Isles link is a complicated task, as it will be enabling the connection of 1674 MW of wind farms, both offshore and onshore, to the grid. These wind farms cannot be constrained until connected, so any constraint value would not be an appropriate figure to consider when assessing the impact of delivering this project. The ESO has identified this link as an essential element of their HND. Delaying this link would mean a significant amount of the 50GW offshore wind generation will not be able to connect to the grid by 2030. Resultantly, this would mean consumers lose a huge quantity of low-cost, low-carbon generation. It would also impact on increasing national energy security and sending clear positive signals to renewable energy investors in GB.

Projects that can already be delivered by or before 2030

Quantifying the cost & likelihood of delay

6.37. As per our CBA methodology in the consultation document, we are looking to quantify the benefit of ensuring that these projects are not delivered late. We are changing our assumption of how many of these projects would be delivered late in the counterfactual. We agree with many of our respondents' views that there are significant global market demands for labour and ET components, as well as this being an

⁵⁹ We have used the central value from our range of assumed competition benefits, 12.5%. This was applied to total capex remaining after removing 2.5% of project value which we would assume is spent on planning.

unprecedented number of projects needed to be delivered by TOs. We consider these factors pose an increasing risk to late delivery of projects in the counterfactual.

6.38. In our consultation CBA we assumed that half of these projects would be delivered 6 months late in the counterfactual (and that ASTI changes would avoid these delays and associated costs). Following engagement with the ESO, we now consider 12 months to be a more appropriate assumption to use for the purposes of our CBA. 6-month delays are highly unlikely due to the availability of outage windows, which are typically only available in the summer period, meaning if they are missed TOs will likely have to wait until the following summer.

6.39. We have used updated delay regret cost information calculated by the ESO for the “Leading the Way+” Future Energy Scenario (FES)⁶⁰ 2021 scenario (LW21+) which underpinned the June 2022 NOA refresh report. The delay regret cost for each project is the additional NPV (net present value) cost to consumers of delaying a project by one year compared to its EISD.

Assumptions around competition savings

6.40. We have considered 17 projects (including the addition of BDUP following our consultation) costing £10.4bn with EISDs of 2030 or earlier for this updated CBA. We have determined which of these projects could theoretically be competed under the counterfactual in order to calculate consumer outcome for our CBA.

6.41. There are 8 projects (£4.6bn) that either do not meet the criteria for competition or have already been exempted from competition as they are already progressing to construction under the LOTI process.

6.42. A further 6 projects (£4.1bn) we consider would not be competed under the counterfactual. This is because, due to uncertainties around competition legislation timing, we do not consider that it would be feasible for these projects to be delivered via a competition model and meet the TO EISDs. Delivery later than the EISDs would therefore lead to additional constraints and therefore additional costs to consumers that would likely

⁶⁰ FES are used by the ESO to estimate future generation and demand on the electricity system. The ESO uses the FES to determine which projects are needed and when they need to be delivered by. [Future Energy Scenarios 2022 | National Grid ESO](#)

diminish or offset the efficiency savings that our analysis assumes competition will deliver (other factors considered in paragraphs 6.15 - 6.20).

6.43. For the remaining 3 projects (£1.7bn) of these 17 that we consider could be competed under the counterfactual without significant risk of causing delays to delivery, we have assumed a loss from not competing these 3 projects (£202m⁶¹), along with the 5 post-2030 projects mentioned in paragraph 6.34.

Categorisation of projects for the CBA

Table 6: Categorisation of projects for the CBA

	Projects with EISDs 2030 or earlier			Projects that need to be accelerated to 2030		
	Do not meet criteria / already exempt	Could Not Compete	Could Compete	Could Not Compete	Could Compete	Excluded from list of ASTI projects
	BDUP	BTNO	AENC	BLN4	BPNC	PSNC
	DWNO	OPN2	ATNC	E4L5	CGNC	LRN4
	E2DC	PSDC	BBNC	TGDC	EDN2	
	E4D3	PTC1		Western Isles*	GWNC	
	EDEU	SCD1			TKUP	
	HWUP	SLU4				
	PTNO					
	TKRE					
Sum of Capex	£4626m	£4076m	£1702m	£6693m	£2657m	£3575m

*We have not included a constraint impact benefit for Western Isles link from our CBA as a result of constraint data not being available at the time of publishing. However, we have included it in the calculations of disbenefits. The Western Isles project is discussed further in paragraph 6.35.

Indicative benefits of implementing the proposed accelerated delivery framework

Table 7: Benefits and Disbenefits of Implementing ASTI (Central Scenario)

	Projects with EISDs 2030 or earlier	Projects that need to be accelerated to 2030

⁶¹ We have used the central value from our range of assumed competition benefits, 12.5%. This was applied to total capex remaining after removing 2.5% of project value which we would assume is spent on planning.

	Do not meet criteria / already exempt	Could Not Compete	Could Compete	Could Not Compete	Could Compete	Excluded from ASTI
Sum of Capex	4,626	4,076	1,702	5,023	4,327	3,575
Loss of competition savings	0	0	-202	0	-514	N/A
Project abandonment costs (ECF)	-182		-164		N/A	
Project assessment loss	-239	0	-138	0	N/A	
Constraint savings	1,006		2,508		N/A	
Net outcome	382		1,692		N/A	
Sum	2,074				N/A	

6.44. Table 7: **Benefits and Disbenefits of Implementing ASTI (Central Scenario)** depicts how we have applied our assumptions of benefits or disbenefits to each group of projects under consideration for ASTI. It is important to note that the constraint savings for “Projects with EISDs 2030 or earlier” do not include the government’s carbon values estimations due to time limitations for modelling. Even without including the carbon values for these projects there is still a clear benefits case for ASTI under all three scenarios, as shown in Table 8. The benefits case would be even larger if it included these values, rather than the ESO’s estimation on the traded price of carbon as it does for these projects in the CBA. Waiting for the data on carbon for all of the ASTI projects would have strengthened our analysis further. However, given the need for acceleration and the challenge face, waiting for this information could have led to a delay in our decision, which could have had knock-on effects on project delivery. As such, we considered it appropriate to progress this decision without this additional information (which would have only strengthened our benefits case).

6.45. Table 7 shows our central assumption on all factors. Other scenarios have been tested and are included in Table 8, and further sensitivities can be found in Appendix 2. This central view shows significant consumer benefits from implementing the ASTI changes but makes assumptions around timely project completion as a result of these changes. These benefits have been considered alongside the other significant, harder to quantify benefits mentioned earlier in this chapter when making our decision to implement the changes outlined in this document.

Table 8: Summary of Best, Central and Worst-case Scenarios

	Scenario		
	Worst	Central	Best
Loss of competition savings	-1,122	-716	-414
Project abandonment costs (ECF)	-395	-346	-296
Project assessment loss	-462	-377	-385
Constraint savings	2,865	3514	4,162
Net Outcome	886	2,074	3,066

6.46. Table Shows that under all of our tested scenarios there is a clear benefits case for consumers to implementing the ASTI measures. Further detail explaining the specific assumptions are found in Appendix 2.

7. Consumer protection measures

Section summary

We set out the measures we will introduce to protect consumers from the exposure to potential additional risk resulting from our modification of the current transmission investment process.

Background

7.1. Our consultation detailed the concerns we have that making changes to the LOTI framework and exempting projects from competition could lead to additional risk and costs to consumers. For example, being exposed to abandoned costs on projects that do not achieve planning permission, reducing the number of regulatory assessment stages, and not benefiting from the efficiencies we have observed through competitive tendering in other parts of the GB energy system.

7.2. Whilst we consider that accelerating delivery of strategic projects may lead to net consumer benefits, as demonstrated in our CBA, these benefits are contingent upon the ASTI projects being delivered by their optimal delivery date. We need to ensure that, if these benefits are not realised and the projects are not delivered on time, that consumers are adequately protected given the risks highlighted above.

Consultation position

7.3. In our consultation we proposed a range of consumer protection measures that could be applied depending on the level of consumer risk in our approach to approving and funding strategic projects.

Accelerated delivery Output Delivery Incentive (ODI)

7.4. We proposed the creation of a new accelerated delivery ODI with the project's optimal delivery date, as determined by the ESO's NOA Refresh analysis, as the target delivery date, with rewards/penalties for early/late delivery against the target.

7.5. We proposed to apply automatic penalties if a project is not delivered by its delivery deadline and automatic rewards if a project is delivered early, unless the penalty or reward is disappplied under the circumstances detailed below.

7.6. We proposed that the penalty and reward rate would be set on a project-specific basis in advance and would be determined as a proportion of the estimated consumer

detriment from delivering late and estimated benefit from delivering earlier than the delivery deadline. We set out our view that the penalty and reward should be set and applied as a daily rate.

7.7. We proposed setting the penalty and reward at 50% of the estimated detriment or benefit (based on estimated constraint costs), with a cap on both rewards and penalties under the mechanism to 15% of the estimated value of the project.

7.8. We proposed to include a mechanism to allow the TOs to apply for any penalties under the ODI to be disapplied (for a limited period) if they were to provide clear justification that delay is caused (or is expected to be caused) by factors outside of their control and the TOs have taken reasonable steps to mitigate the risk of delay occurring.

7.9. We proposed that the TOs will not be eligible for rewards under this mechanism if a project is delayed for any reason, and that the TOs should not be eligible for rewards if a project is delivered early due to circumstances outside their reasonable control.

Licence obligations / PCDs

7.10. We proposed to link price control allowances to clearly specified outputs (including delivery dates) in the relevant TO's licence and set all outputs under the revised framework as LOs.

7.11. We also consulted on whether the use of PCDs concurrently with LOs could provide an efficient means of allowance adjustments while protecting consumers against the risk of non-delivery.

Reduced incentive rates under the Totex Incentive Mechanism (TIM)

7.12. We proposed setting a lower incentive rate under the TIM mechanism in situations where we consider there could be material risk to consumers in providing earlier funding certainty for strategic projects due to greater uncertainty about efficient costs.

7.13. We proposed to do this following a case-by-case assessment of the quality of cost evidence available to use at the time of setting allowances for particular activities (e.g. pre-construction) or entire projects. We proposed determining the appropriate level of the incentive rate in light of this assessment, where the lower our confidence in the quality of information, the lower we set the incentive rate (subject to lower limit of 15%).

Ongoing monitoring and reporting obligations

7.14. We proposed that the TOs submit annual reports to Ofgem setting out the delivery status and forward-looking outlook for all projects included within the framework.

7.15. We also proposed to amend the Electricity Transmission Regulatory Instructions and Guidance (RIGs) framework to require the TOs to submit accurate data on costs incurred at the project level for each qualifying project.

Re-openers to adjust outputs and allowances

7.16. We proposed to put in place a reopener mechanism that would allow outputs and price control allowances to be adjusted (upwards or downwards) if required. We stated our view that the reopener would be based on the Cost and Output Adjustment Event (COAE) mechanism included in the current LOTI process, with targeted changes where necessary to take account of the particular circumstances of the proposed accelerated delivery framework (see paragraph 5.41).

Ex post efficiency review

7.17. We proposed that where there is particularly high consumer risk, we would retain the ability to undertake an ex post review of expenditure incurred by the TOs and look to claw back allowances if we were to find that inefficient behaviour by the TOs led to consumers facing higher costs. This could be in circumstances where:

- TOs face relatively weak incentives to keep costs under control, [and/or]
- There is a relatively low level of upfront regulatory scrutiny of cost submissions, or where the quality of information available is such that we are unable to effectively scrutinise those cost submissions

7.18. We proposed that we would not seek to clawback any expenditure that was efficiently incurred based on information that the TOs could reasonably have taken into account at the time and would not deem expenditure to be inefficient solely with the benefit of hindsight.

Summary of consultation responses

7.19. Overall, respondents were in favour of introducing additional measures to protect consumers and a key theme was that the consumer protection measures should be proportionate and fairly balanced between risk and reward. However, there were mixed views on the specific measures that we proposed. Nine stakeholders supported the measures as proposed, while two disagreed and one agreed with an ex post efficiency

review. Respondents showed general support for a re-opener for COAEs, one respondent was concerned about the danger of penalising TOs across multiple mechanisms, and there were mixed views regarding the strength and application of the proposed ODI.

7.20. TOs had strong views on the proposed design of the ODI. They argued that since the scope for projects being delayed is greater than the scope for them being delivered early, the use of the ESO's delivery dates in the incentive would create an asymmetrical TO risk. In their view this would create an unfair company downside financial exposure that could only be acceptable if combined with a suitable adjustment to the allowed return under the price control. TOs and other respondents also raised concerns that penalties for any failure to reach the ESO's optimal dates would potentially incentivise TOs to seek to use the exceptional events mechanism to excuse delays and pass on risks to contractors, rather than incentivise accelerated delivery.

7.21. One TO raised concern that if the ODI is implemented as proposed, project caps for some projects could be hit very quickly, which means that any incentive to accelerate delivery would be short-lived.

7.22. TOs also argued that the proposed ODI penalty of 50% of the constraint impact of delays relative to the ESO's optimal dates, and the 15% of project value, represented an unacceptably severe potential financial penalty. These arguments focused on the potential downside penalty which could, in certain years, potentially wipe out TOs entire allowed equity return under the RIIO framework. They also argued that it was inappropriate to hold TOs to account for future constraints, which are a result of wider network planning processes and changes in Government policy.

Decision

ASTI ODI

7.23. We will implement a financial ODI to ensure that TOs are incentivised to deliver ASTI projects on time. Since the CBA outcome explained in Chapter 6 is predicated on the timely delivery of these projects to meet the Government's 2030 ambitions, we consider the ASTI ODI to be an integral element of the ASTI framework. As detailed in Table 9, and explained below, we have made adjustments to the design and calibration of the ODI in light of consultation responses and the additional ESO analysis provided on constraint impacts of delays to projects in September.

Table 9: Overview of the ASTI ODI

Feature	Position for consultation	Decision
Basis for setting ODI rates	Reward and penalty rates for each project will be set based on 50% of the forecast constraint cost impact of a one-year delay	Daily reward and penalty rates for each project will be set at 30% of the forecast constraint cost impact of a one-year delay divided by 365
Target delivery dates	The year in which the ESO has required the project to be delivered	31 st of December of the year in which the ESO has required the project to be delivered
Application of penalties under ODI	Where a project is not delivered by the target date, penalties at the relevant daily rate would apply from the day after the target date until the date of delivery	Where a project is not delivered by the target date, no penalties would apply for the first 12 months of the delay. Penalties at the relevant daily rate would apply from the first day after 12 months from the target date until the date of delivery.
Application of rewards under the ODI	Where a project is delivered earlier than the target date, rewards at the relevant daily rate would apply for each day between the date of delivery and the target date	Where a project is delivered earlier than 12 months after the target date, rewards at the daily rate would apply for each day between the date of delivery and the last day of the 12 th month after the target date
Aggregate project-level cap on rewards and penalties	Aggregate rewards and penalties for each project are capped at 15% of forecast totex for that project	Aggregate rewards and penalties for each project are capped at 10% of forecast totex for that project. In addition, daily rates are constrained so that: <ul style="list-style-type: none"> a. Rewards and penalties for each project in any 12-month period are capped at 5% of forecast totex. b. Rewards and penalties for each project in any 12-month period are subject to

		a minimum of 2% of forecast totex.
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ODI daily rates (reward/ penalty)

7.24. We confirm our view that the daily reward and penalty rates should primarily be based on a forecast of consumer detriment arising from a delay, and on a forecast of consumer benefits arising from acceleration. In our view, constraint costs are the best available valuation of the impact delays and acceleration to consumers. Setting the daily rates in advance allows TOs to appropriately build a calculation of potential exposure into how they arrange their delivery contracts and where appropriate, prioritise and manage risks across projects in line with the respective value to consumers.

7.25. In our consultation we said that we would set daily rates for rewards and penalties at 50% of forecast constraint costs of a one-year delay. In September we received updated estimates from the ESO on the impact of delays and acceleration of each project in the ASTI framework. Our analysis of this data showed that there are a number of projects (with relatively high constraint cost impacts) where the project-level cap on rewards and penalties would be met in a few months if we used 50% of constraint impacts to set the daily rates. This means that the incentive would be particularly short-lived for those projects with the greatest need for acceleration. For the ODI to be effective, it needs to be able to maintain its incentive properties for a reasonable duration.

7.26. We have therefore decided to reduce the proportion of the constraint impact of delay/ acceleration that TOs are exposed to from 50% to 30%. This allows the incentive to persist for longer than it would have done under our consultation position.

7.27. In relation to the aggregate project-level cap, we have considered consultation responses and further assessed the financial exposure to the TOs based on updated costs in the TO delivery plans submitted in September. We have decided to reduce the project-level cap from 15% to 10% of forecast totex for each project.

7.28. Across the £19.8bn of investment across the ASTI framework, we accept the TOs arguments that capping rewards and penalties at 15% of the value of each project has the potential to expose TOs to particularly levels of financial penalties relative to the other incentives within the RIIO-2 package. We are also mindful of the risk that implementing such a high-powered ODI could distort the wider incentives on TOs across the RIIO price control package. On balance we consider that setting the cap at 10% of forecast totex ensures strong financial incentives for timely delivery without exposing the TOs to excessive financial risk which could ultimately increase costs to consumers in the longer term.

7.29. We have also decided to cap daily rates for rewards and penalties for each project at 1/365 of 5% of the forecast totex for that project. This means that rewards and penalties would persist for at least 24 months, which we believe is an appropriate duration for the incentive to have effect.

7.30. At the same time, there are several projects with a relatively low or no forecast constraint cost impact. This does not necessarily mean that there is little consumer detriment from a delay to these projects, or that there is little value in accelerating them. The ESO's estimates of constraint cost impacts only captures part of this detriment and value. For example, there are some projects where the consequence of a delay to the delivery of that project is that offshore generation may not be offered a connection to the network by 2030. In that case, there would be no estimated constraint cost impacts, but the goal of enabling 50GW of offshore wind by 2030 would be put at risk to the detriment of consumers.

7.31. We think it is important that all ASTI projects are delivered on time, and we recognise the critical role that a strong financial incentive could play in achieving this. We will therefore constrain daily rates for rewards and penalties for each project so that they do not fall below 1/365 of 2% of forecast totex for that project.

Target delivery dates

7.32. We have decided to set the target delivery date as the 31st of December of the year in which the ESO has required the project to be delivered as set out in the HND. The choice of year is consistent with our view that the need for these projects is driven by the ESO's HND and the ambitions for new renewable generation to be connected by 2030 that it supports. The Government's ESS, the ESO's HND and the NOA do not specify the required delivery dates at a level of granularity that could inform our choice of date within the year. Given this uncertainty, we think it is prudent to set the target date as 31 December of the relevant year. We recognise that this provides the TOs with additional headroom than alternative approaches (e.g. using the mid-point of the year) might do.

7.33. Whilst we continue to view the ESO's required delivery dates as the appropriate target dates to use, we have decided to change the way in which rewards and penalties would be applied, compared to our consultation position. This is explained further below.

Application of rewards and penalties under the ODI

7.34. The TOs have said that our consultation position to use the ESO's required delivery dates as the reference point from which rewards for early delivery and penalties for late delivery would be applied creates an ODI that is asymmetric and biased towards penalties.

7.35. In our consultation, we recognised that while the proposed ODI is symmetric in principle, the impact of the ODI on the overall balance of risk will depend on how target dates are set. For instance, if the target is set such that the project is more likely to be late than early, a penalty is more likely than a reward for that project, creating the risk of asymmetric outcomes.

7.36. We would have been able to estimate the probability of delivery by the ESO's required dates if we had sufficient information on the probability of distribution of delivery dates for each project. We understand that the TOs do not currently have all the required information to allow us to do this. In the absence of this information, we have relied on a qualitative assessment of the extent to which our proposed approach to setting target dates creates asymmetric risk.

7.37. In our consultation, we had proposed that the target date for each project should be set to match the date by which the ESO has required the project to be delivered. Of the 26 projects that we have decided to include within the scope of the ASTI framework:

- For 13 projects, the ESO's required delivery dates match the relevant TO's earliest in service date (EISD);
- for 4 projects, the ESO's required delivery date is one year later than the relevant TO's EISD; and
- for the remaining 9 projects, the ESO's required delivery date is between one and two years earlier than the relevant TO's EISD.

7.38. The TOs have argued that the EISDs are not 'P50' dates (i.e. the date that has a 50% probability of being met), but rather they are stretching targets that have a lower probability of being met. However, the TOs have not provided sufficient evidence that supports this view.

7.39. We have some concerns about the TOs' view that the forecast probability of meeting the EISD is systematically lower than 50%. We note that the EISDs were produced by the TOs as part of the ESO's NOA process. The ESO's assessment assumes that projects are delivered by their EISDs, and the economic case for those projects might be weaker if this assumption is relaxed. We also note that the EISDs for the projects currently in scope were set before we started work on the ASTI framework – and therefore could not have accounted for the regulatory measures being put in place to support accelerated delivery.

7.40. We accept that the probability of delivery by the ESO's required delivery date is likely to be lower in the case of the 9 projects that are required by the ESO to be delivered earlier than the TOs' own EISDs. These projects account for approximately £9.3bn of the estimated total investment of £19.8bn needed to deliver the ASTI programme.

7.41. Furthermore, the TOs have provided some evidence that global supply chain constraints have increased since the EISDs were set. This means that there is a heightened risk of longer lead times for delivery of materials and equipment, which in turn increases the risk of delays relative to up front assumptions. We are also mindful of the fact that the ASTI programme involves delivering an unprecedented volume of projects at speed. This creates additional challenges in relation to procurement, project management, staffing and coordination with other TOs and stakeholders.

7.42. Taking these factors into account, we have decided that for each project, the 'ODI neutral date', i.e. the date that attracts neither penalties nor rewards would be set at exactly 12 months after the required delivery date.

- Penalties at the relevant daily rate would be applied for each day that the project is delayed beyond the ODI neutral date.
- Rewards at the relevant daily rate would be applied for each day by which the project has been delivered early relative to the ODI neutral date.

7.43. We consider that these changes, along with the other adjustments set out in this Chapter, sufficiently mitigates the risk that the ASTI ODI is asymmetric by design and systematically biased towards penalties. We think it is a strong incentive that rewards acceleration and penalises late delivery in a way that represents the appropriate balance between consumer protection and effective acceleration of key investment.

Treatment of penalties and rewards in allowed revenues

7.44. The current scope of the ASTI framework includes 26 projects that have target delivery dates between 2027 and 2030, with most due to be delivered by 31 December 2030. This clustering of target dates means that if multiple projects are delayed or delivered early, the aggregate impact on ODI penalties and rewards could be relatively high compared to the TOs' annual allowed revenues. This issue could be exacerbated if additional projects are added to the scope of the ASTI programme with similar delivery deadlines.

7.45. If rewards and penalties are fully reflected in allowed revenues in the year that they are incurred, there is the potential for excessive volatility and unpredictability in transmission charges to consumers and revenues to the TOs. To mitigate this risk, we intend to spread the recovery of rewards and penalties over time, for example through an adjustment to the Regulatory Asset Value (RAV).

Treatment of outliers

7.46. In the specific case of the Peterhead to Spital HVDC project (PSDC), the daily rate for penalties and rewards under our approach is more than twice as high as any other project in the ASTI programme. This reflects the circumstances of that project, with both relatively high costs and high constraint impacts.

7.47. While the high daily rate calculated under our approach reasonably indicates that the PSDC project is important, we do not believe that the financial incentive for that project should be more than two times that of the next highest project across all three TOs. Such a large difference between the ODI rates for PSDC and the remaining projects could potentially lead to undue management focus and resource being targeted at PSDC at the expense of other projects. We have therefore decided to set the daily rate for PSDC at the minimum level, i.e. 1/365 of 2% of forecast totex, which brings it in line with the project with the next highest daily rate.

No benefit to the TOs from delays

7.48. We do not consider that it is appropriate for TOs to benefit financially from a delay. If a project is delayed, we will re-profile totex allowances to match the profile of actual expenditure. Furthermore, we expect any payments or credits provided by a supplier or contractor to the TOs as a consequence of a delay (e.g. delay charges, penalties etc) that is in excess of the applicable ASTI ODI penalty in respect of the same project to be passed on to consumers.

Applicable daily rates for current ASTI projects

7.49. Table 10 below sets out the daily rates for rewards and penalties for each ASTI project under the approach set out above. These rates were calculated using forecast constraint cost impacts of a one-year delay provided by the ESO in September 2022, and forecast totex for each project provided by TOs. We intend to calculate daily rates for new projects added to the scope of the ASTI framework in the future using the same approach.

Table 10: Daily rates for rewards and penalties

Project	Description	TO	Target delivery date	ODI neutral date	Daily rate for penalties and rewards (£)
AENC	New 400kv double circuit north E.Anglia	NGET	31/12/2030	31/12/2031	Redacted
ATNC	New 400kv double circuit south E.Anglia	NGET	31/12/2030	31/12/2031	Redacted
OPN2	New 400kv double circuit Norton-Osbaldwick	NGET	31/12/2027	31/12/2028	Redacted
GWNC	New 400kv double circuit Humber-Lincolnshire	NGET	31/12/2030	31/12/2031	Redacted
CGNC	New 400kv double circuit Creyke Beck-Humber	NGET	31/12/2030	31/12/2031	Redacted
EDEU	400kv upgrade Brinsworth-Chesterfield-High Marnam	NGET	31/12/2028	31/12/2029	Redacted
EDN2	New 400kv double circuit Chesterfield-Ratcliffe-on-Saur	NGET	31/12/2030	31/12/2031	Redacted
BTNO	New 400kv double circuit Bramford-Twinstead	NGET	31/12/2028	31/12/2029	Redacted
PTC1	Cable replacement Pentir-Trawsfynydd	NGET	31/12/2028	31/12/2029	Redacted
PTNO	North Wales reinforcement	NGET	31/12/2029	31/12/2030	Redacted
TKRE	Grain-Tilbury-Kingsnorth upgrade	NGET	31/12/2028	31/12/2029	Redacted
HWUP	Uprate Hackney, Tottenham & Waltham Cross	NGET	31/12/2027	31/12/2028	Redacted
SCD1	Suffolk-Kent offshore HVDC link	NGET	31/12/2030	31/12/2031	Redacted
BLN4	Beaully-Loch Buidhe 400kv reinforcement	SSE	31/12/2030	31/12/2031	Redacted
SLU4	Loch Buidhe-Spittal 400kv reinforcement	SSE	31/12/2030	31/12/2031	Redacted
BBNC	New 400kv double circuit Bealy-Blackhillock	SSE	31/12/2030	31/12/2031	Redacted
BPNC	New 400kv double circuit Blackhillock-Peterhead	SSE	31/12/2030	31/12/2031	Redacted
BDUP	Beaully-Denny 400kv uprating	SSE	31/12/2030	31/12/2031	Redacted
TKUP	East Coast onshore 400kv Phase 2 reinforcement	SSE/SPT	31/12/2030	31/12/2031	Redacted
PSDC	Spittal-Peterhead HVDC reinforcement	SSE	31/12/2030	31/12/2031	Redacted
E4D3	Peterhead-Drax HVDC	SSE/NGET	31/12/2029	31/12/2030	Redacted
E4L5	Peterhead-south Humber HVDC	SSE/NGET	31/12/2030	31/12/2031	Redacted
W.Isles	Arnish-Beaully HVDC	SSE	31/12/2030	31/12/2031	Redacted
DWNO	Denny-Wishaw 400kv reinforcement	SPT	31/12/2028	31/12/2029	Redacted
E2DC	Torness-Hawthorn Pit HVDC	SPT/NGET	31/12/2027	31/12/2028	Redacted
TGDC	East Scotland-south Humber HVDC	SPT/NGET	31/12/2030	31/12/2031	Redacted

ODI penalty exemptions

7.50. We have decided to include a mechanism within the ASTI framework to allow the TOs to apply for a time-limited exemption from ASTI ODI penalties for project delays

caused by factors outside their reasonable control to the extent that they cannot be reasonably anticipated and mitigated through efficient management.

7.51. When considering an application for penalty exemptions, we will apply the following principles:

1. The TOs would be exempted from ASTI ODI penalties for the duration of delay that can reasonably be attributed to factors outside their reasonable control, adjusted for the impact of mitigating measures that a notionally efficient TO acting reasonably would have undertaken.
2. TOs' actions will be assessed against information that could reasonably have been known at the time of the action, rather than with the benefit of hindsight.
3. Penalty exemptions will only be made where delivery times have been materially impacted.

7.52. The nature of factors outside the TOs' reasonable control means that they may not be always knowable in advance, and as such it is not possible to create an exhaustive list of events that would qualify for penalty exemptions. However, the non-exhaustive list below includes potential events or circumstances that, providing they satisfy the principles set out in paragraph 7.51 above are met, we consider could result in a penalty exemption under the ODI (we will provide further details of exemption events and worked examples in the ASTI Governance document, to be consulted on in 2023):

- Delays in obtaining planning approval and consents
- Delays regarding seabed leasing
- War, hostilities, or terrorist events
- Extreme weather conditions (lower than 1 in 10 probability)
- Contractor/supplier/manufacturer insolvency
- Livestock epizootic
- Significant protestor action
- Legal challenge to procurement process by prospective contractor

- Unforeseeable changes in law, regulation, and international treaties applicable to the UK
- Availability of transmission system for Build, Testing and Outages (e.g. if ESO calls planned outage at short notice)
- Unforeseen ground or seabed conditions
- Unavailability of equipment globally in supply chain
- Unforeseen unexploded ordinance (UXO) mitigation
- Archaeological discoveries

7.53. We will set out the process for submitting penalty exemption claims fully in the ASTI Governance document next year following further engagement with the TOs in relation to the following initial plan:

- **Step 1:** TOs notify Ofgem within 45 days of a Delay Event
- **Step 2:** No later than 45 days after the cessation of a Delay Event, TOs submit an application for a penalty exemption, containing:
 - A) The nature of the Delay Event and why the TO considers it qualifies for a penalty exemption
 - B) The expected project delivery date taking into account the Delay Event and use of reasonable mitigation measures
 - C) The proportion of the delay reasonably attributable to the Delay Event.
- **Step 3:** Ofgem assesses the application and publishes a Decision, setting out:
 - A) Whether the conditions in paragraph 7.51 above have been met; and if yes,
 - B) The duration which ODI penalties will not accrue in the event of a delay to the project

7.54. A penalty exemption under this mechanism does not alter the target delivery date or the eligibility date for rewards under the ASTI ODI. The consumer benefit of accelerating

delivery of the ASTI projects is based on reduced constraint costs, enhanced security of supply and reduced carbon emissions. If the target or reward dates were to move in line with the duration of the penalty exemption and projects do not ultimately get accelerated, consumers would be liable to pay rewards in addition to funding the efficient cost of delivering the project, despite not receiving any of the benefits of accelerating ASTI projects. We do not consider this to be reasonable or appropriate, or in consumers' interests.

7.55. We are aware that some projects that may fall within the ASTI regime are already underway under the LOTI mechanism. There is therefore a possibility that a Delay Event could occur ahead of the implementation of the ASTI framework into the licence, meaning TOs may be unable to notify Ofgem within 45 days of a Delay Event occurring. Once the framework has been incorporated into the licence, for any potential Delay Events that occurred between publication of this Decision and the licence implementation, we will assess any submission from the TOs in accordance with paragraph 7.53 above; however, we will not enforce the requirement that Ofgem need to be notified within 45 days of the event occurring.

PCD and LO

7.56. We have decided that ASTI outputs will be both PCDs and LOs. TOs have expressed concern relating to multiple regulatory mechanisms being in place that could result in being penalised twice for the same activity. We disagree that this would be the case as PCDs and LOs have specific, and separate functions:

- A PCD can allow us to hold the TOs to account for delivering the specific output that it has been funded for, with provision to adjust allowances in the event of ultimately delivering an alternative or equivalent output to that which was funded. A PCD provides protection for consumers while also providing flexibility to the TOs to reflect the unprecedented scale and nature of delivering such a range of projects simultaneously. Under the PCD framework, if a TO does not deliver a PCD, full allowances that were provided can be recovered. However, we do not consider that returned allowances alone are a sufficient to address the consumer detriment from projects not being delivered given the constraint cost impact explained in Chapter 6.
- A LO obliges the TOs to deliver the ASTI projects in support of the Government's 2030 ambitions. Failure to meet a licence obligation would be considered a breach and Ofgem then has the discretion to use enforcement action against a TO, if appropriate.

7.57. We consider these to be separate mechanisms used for separate purposes, therefore we disagree that setting outputs as both PCDs and LOs means TOs are at risk of any 'double jeopardy' penalty for not delivering any ASTI output(s).

Ex post assessment

7.58. We do not see the need for an additional ex post efficiency assessment mechanism to be included within the ASTI framework over and above the provisions already included. Furthermore, the TOs are already under statutory and LOs to operate economically and efficiently and there are existing enforcement mechanisms available to us.

Totex Incentive Mechanism (TIM) sharing factor

7.59. We have decided to retain the ability to set a lower incentive rate under the TIM mechanism in situations where we consider there could be material risk to consumers in providing earlier funding certainty for strategic projects due to greater uncertainty about efficient costs.

7.60. Where appropriate, we will set a lower incentive rate following a case-by-case assessment of the quality of cost evidence available to use at the time of setting allowances. In determining the appropriate incentive rate, we will take account of our assessment of the quality of evidence provided or available to us, where the lower our confidence in the quality of information, the lower we set the incentive rate (subject to lower limit of 15%).

7.61. For the avoidance of doubt, the same lower incentive rate would apply to both under- and overspends against relevant allowances.

Ongoing reporting and monitoring

7.62. We will require the TOs to report progress of each ASTI project's delivery and updated outlook for delivery risk as part of its annual Regulatory Reporting Pack (RRP) submission. We will engage with the TOs and include our expectations for project reporting in the ASTI Governance document, which we will consult on in 2023. We will also make the necessary modifications to the Regulatory Instructions and Guidance (RIGs) as part of the next RIGs process in summer 2023.

Rationale for our decision

7.63. The over-arching theme from stakeholders was that we create an incentive and consumer protection framework that is proportionate, appropriately balances risk and reward, and protects both TOs and consumers.

7.64. We recognise the difficulty in creating an ex-ante framework that can meet stakeholders' expectations given the unprecedented nature of simultaneously delivering such a large quantity of onshore transmission projects and significant uncertainties around supply chain capacity and the ability to deliver by 2030. We consider the framework outlined above does strike an appropriate balance, whereby if the TOs can accelerate projects and consumers benefit from reduced constraint costs, the TOs will receive a proportionate share of that benefit. Likewise, if projects are delivered late and the benefit of accelerated delivery does not materialise, TOs are exposed to a proportionate share of that disbenefit.

8. Financeability and financial risk to the TOs

Section summary

We set out our view on the impact of our Decision on TO financeability and financial risk.

Background

8.1. In performing its duties, Ofgem must have regard to the need to secure that licence holders are able to finance the activities which are the subject of obligations on them. This section sets out our views on financeability and financial risk to the TOs arising from the ASTI framework.

Consultation position

8.2. In our consultation document, we said that our financeability assessment had focused on the RIIO-2 price control period which runs until 31 March 2026. We pointed to the fact that in our RIIO-2 Final Determinations, we expected significant new net zero investment to be funded through within-period uncertainty mechanisms (i.e. reopeners, UIOLI and volume drivers).

8.3. We said that as part of our RIIO-2 financeability assessment, we had considered scenarios with £8bn of additional investment during the RIIO-2 period across the transmission licensees and concluded that that the overall price control package was appropriately calibrated so that the notional efficient licensee can finance its activities and fund the necessary investments in networks. We noted that based on early figures provided to us by the ESO and TOs, the expected additional expenditure across the TOs on qualifying projects within the RIIO-2 period was within the range of scenarios tested.

8.4. We also highlighted that our RIIO-2 Final Determinations had set out the results of detailed analysis of financeability and financial risk for the TOs on a notional efficient operator basis. This included 'stress testing' the overall package by looking at a range of scenarios, including ones that involved significant downside outcomes, specifically Return On Regulated Equity (RORE) underperformance of 200 basis points and a 20% totex overspend. Following this analysis, we concluded that the downside scenarios tested did not raise material concerns about financeability.

8.5. We set out our view that, given the outcome of our RIIO-2 stress tests, the TOs are adequately remunerated within the RIIO-2 price control package to allow the investment

necessary to meet the government's 2030 ambitions to be financed efficiently. We also said that it was not possible to reach a definitive view at the consultation stage on whether the necessary investments would be financeable under future price controls beyond 1 April 2026. We said that we would take account of the need for these investments to be financeable when setting those controls.

8.6. We recognised that delivering unprecedented levels of investment in an expedited manner could lead to higher risk for the TOs, even if our proposed changes to the regulatory framework are not implemented. We said that the TOs may need to use innovative and non-standard contracting and delivery strategies, bringing higher risk of cost over-runs that are not fully recoverable from consumers. However, we also recognised that our proposed framework included measures that could mitigate this risk to the TOs.

8.7. We considered the impact of our proposed inclusion of an ex post review of efficiency as part of the overall framework, and set out our view that this mechanism on its own does not create the risk of an asymmetric downward adjustment to equity returns.

8.8. We then considered the impact of the proposed accelerated delivery ODI on the balance of risk to the TOs. We recognised that while our proposed design for this ODI is symmetric in principle, the impact of the ODI on the overall balance of risk in practice will depend on how the mechanism is calibrated and applied. We said that based on the information available to us at the time, it was not possible to reach a firm conclusion on the balance of risk, and that we would undertake further analysis before we reach our final decision on the calibration of the ODI.

8.9. We also considered the risk that the proposed framework could lead to unacceptably low equity returns under plausible circumstances. We noted that as far as the RIIO-2 price control period is concerned, we had not seen strong evidence to suggest that the introduction of our proposed framework would increase the risk of downside outcomes that would invalidate the results of our previous financeability analysis. In relation to future price control periods, we said that we would work with the TOs to better understand the risk and invited the TOs to provide relevant evidence to support our analysis.

Summary of consultation responses

8.10. All of the TOs, a supplier and an energy company raised concerns that our proposals could cause financeability issues given the scale, complexity and risk of the investment programme, with the TOs stating that Ofgem should undertake a full financeability assessment of the proposed investments and that any decisions on financeability measures should be taken in 2023 rather than at the next price control review.

8.11. All three TOs raised concerns that the proposed accelerated delivery ODI creates unacceptable levels of financial risk for the TOs. Specifically, the TOs said that:

- The proposed ODI target dates were challenging and there is no realistic prospect of early delivery rewards under the ODI. This means that the proposed ODI is asymmetrical and biased towards penalties.
- The proposed cap for rewards and penalties of 15% of forecast totex, and the proposed sharing factor for forecast constraint costs of 50% are both too high and would expose the TOs to excessive penalties if projects are delayed.

8.12. Most stakeholders offered no view on financeability issues, although seven were of the view that our proposals did not create any excessive financial risk.

Decision

8.13. We have a duty to have regard to the need to secure that licence holders are able to finance the activities which are the subject of obligations on them.

8.14. We use a financeability assessment as a last check that, when all the individual components of our decision are taken together (including totex, allowed return, notional gearing, depreciation and capitalisation), the notional efficient operator can generate cash flows sufficient to meet its financing needs.

8.15. The financeability assessment that we carried out as part of the RIIO-2 Final Determinations gives us confidence that the notional efficient TO is adequately remunerated under the RIIO-2 price control package to allow the investment necessary during the RIIO-2 period to deliver the ASTI programme. We discuss the rationale for this below.

8.16. We will continue to have regard to financeability, including at the point of the next price control review, which would take into account the investment needed to deliver the ASTI programme as determined at that time.

8.17. As set out in Chapter 7, we have decided to implement a timely delivery ODI that includes financial rewards and penalties to incentivise the TOs to deliver the ASTI programme on time. The ODI is calibrated so that the financial risk exposure to the TOs is expected to be significantly lower than the exposure under the ODI as proposed in our consultation document. We consider that the changes that we have made to the ODI, when

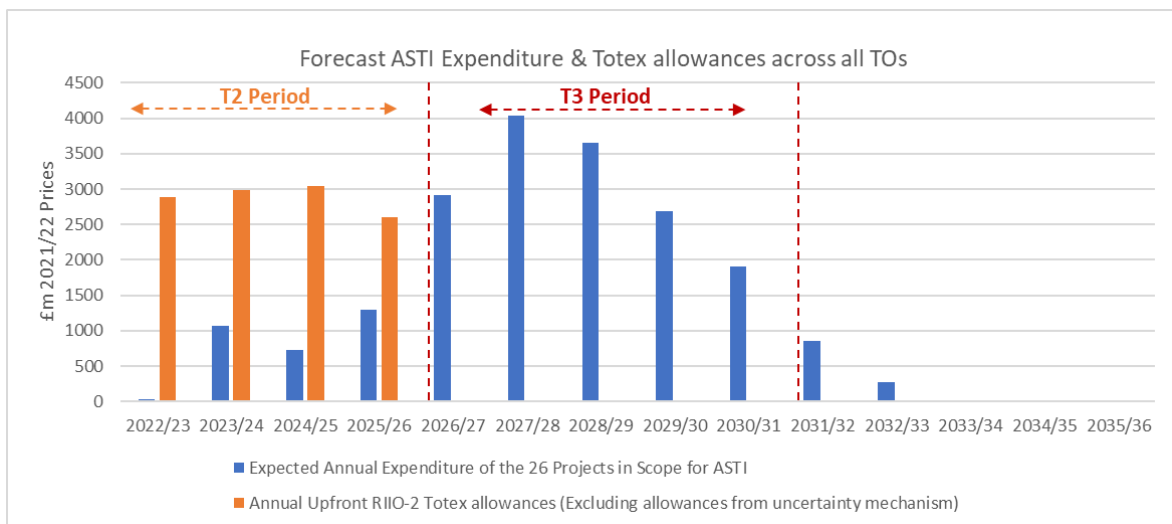
viewed in conjunction with the rest of the ASTI framework, are sufficient to address any concerns about financial risk exposure.

Rationale for our decision

Financeability of the ASTI programme

8.18. Following the publication of our consultation, we received initial delivery plans from all three TOs that provided updated views of the profile of planned expenditure on ASTI projects. These are set out in Figure 1 below, which sets out a comparison between the TOs’ latest forecasts of expenditure on the ASTI programme and ex ante totex allowances provided to the TOs as part of the RIIO-2 Final Determinations.

Figure 1: Comparison of updated forecast annual expenditure on ASTI projects and annual RIIO-2 upfront totex allowances for all TOs



8.19. The updated figures show that, across the TOs, the planned expenditure on ASTI projects (based on our final view of projects on the list of ASTI projects) during the RIIO-2 price control period (i.e. 2021/22 to 2025/26) is low relative to upfront Totex allowances provided as part of the RIIO-2 Final Determinations. The updated aggregate planned expenditure on ASTI projects in the RIIO-2 period is £3.1bn⁶², which is comfortably within the range of additional investment scenarios that were tested as part of the RIIO-2 and were considered financeable.⁶³

⁶² This figure does not include the relatively small amounts of historical expenditure reported by the TOs on projects that have now been brought within the scope of the ASTI framework.

⁶³ For the purposes of our RIIO-2 financeability assessment, we considered scenarios with £8bn of additional investment through uncertainty mechanisms across the transmission licensees.

8.20. Accordingly, we remain of the view that the investment required during the RIIO-2 period to deliver the ASTI programme is financeable. We do not consider that the information provided to us by TOs and other stakeholders supports a different conclusion.⁶⁴

8.21. In our consultation, we proposed to undertake a full assessment of the financeability of expected investment on the ASTI programme during future periods at the next price control review (i.e. the review covering the period from 2026/27 to 2030/31). In our view, this would allow a comprehensive and more robust assessment to be undertaken, taking account of all planned expenditure by the TOs and the design of the rest of the price control framework.

8.22. In their responses and in subsequent engagement, the TOs said that given the scale of investment needed to deliver the ASTI programme, there will be a need to raise significant amounts of new capital. It is possible that new debt would put downward pressure on credit metrics, particularly towards the end of the next price control period (if the financial parameters used in the RIIO-2 price control period were rolled forward).

8.23. The TOs said that Ofgem should undertake a financeability assessment of the ASTI programme in 2023, rather than at the next price control review which is expected to conclude in late 2025. They argued that waiting until 2025 would create uncertainty, which could have negative implications on perceptions of risk, which in turn could lead to higher financing costs.

8.24. Whilst we will continue to have regard to financeability, we consider there to be significant limitations to any forecast of credit metrics to the end of the next price control period made in advance of the price control review commencing. Apart from the challenges of forecasting the level of network expenditure needed or service levels in future price control periods, these forecasts are highly sensitive to assumptions about relevant regulatory finance parameters that are yet to be consulted upon and decided (e.g. notional gearing, depreciation and capitalisation rates, allowed cost of capital, etc).

8.25. These regulatory finance parameters, and other price control parameters such as totex allowances, ODIs and uncertainty mechanisms will be set as part of our next price control review. In doing so, as is the case with previous reviews, we will consider

⁶⁴ For instance, in its consultation response, NGET said "We agree that for the period considered, the RIIO-T2 arrangements were intended to ensure qualifying projects would be financeable. RIIO-T2 includes measures to support financeability, most notably the provision of 15% fast money on totex incurred through uncertainty mechanisms."

financeability, which would take into account the investment needed to deliver the ASTI programme as determined at that time. This would include the necessary modelling, assessments and other checks which we feel are necessary to satisfy ourselves that network companies are financeable on a notional basis, while also being informed by actual company positions and market data.

8.26. We will keep this position under review and will continue to have regard to financeability. If the TOs identify reasonable notional company financeability constraints ahead of the next price control review, we will consider whether these concerns need to be addressed then or whether they are better assessed 'in the round' at the relevant future price control in light of market conditions at that time. We note that this is in line with what we said in the RIIO-2 Final Determinations.⁶⁵

Financial risk exposure from the ASTI ODI

8.27. As set out in our consultation document, we carried out detailed analysis of the financial risk exposure of the TOs from the proposed ASTI ODI using updated information from the ESO and the TOs. Our analysis focused on two potential sources of financial risk exposure:

- The proposed ASTI ODI represents an asymmetric downside adjustment to the balance of overall financial risk to the TOs, causing the expected returns to equity for the licensee to be materially lower than the baseline returns assumed at the time of setting the RIIO-2 price control allowances.
- The proposed ASTI ODI creates the risk that, under plausible circumstances, financial adjustments under the proposed framework lead to unacceptably low equity returns (in RORE terms).

8.28. Details of our assessment of the balance of risk associated with the ASTI ODI are set out in Chapter 7. We think that the changes we have made since our consultation are sufficient to mitigate any risk of asymmetric outcomes and bias towards penalties.

Specifically:

- Penalties under the timely delivery ODI would only start to accrue from 12 months after the target delivery date. At the same time, TOs would earn

⁶⁵ See paragraph 5.42 [RIIO-2 Final Determinations – Finance Annex \(REVISED\) \(ofgem.gov.uk\)](#)

rewards for delivering earlier than 12 months after the target delivery date. This means that the TOs could earn a substantial reward for delivering projects by their target dates.

- The ASTI framework includes a mechanism to exempt TOs from ODI penalties for delays that are caused by factors outside their reasonable control. Because the scope of delays that are liable for penalties is limited to a subset of all delays, the probability of a penalty is lower than the probability of delayed delivery.

8.29. Separately, we considered whether the timely delivery ODI could lead to excessive downside outcomes in plausible circumstances. Any rewards or penalties under the ASTI ODI are only likely to be incurred during the next price control period. As with forecasts of credit metrics, there are limitations to our analysis of the impact of the ASTI ODI on TOs' returns:

- In the absence of data on the probability of timely delivery of individual projects, we were not able to analytically determine what might be a reasonable and plausible downside scenario to test. Given this, we considered the relatively extreme downside scenario where all projects are delivered two years (24 months) later than the target delivery dates, and no penalty exemptions are granted for any project.
- We have to make assumptions about the size of the RAV during the next price control period, which will be influenced by the overall expenditure requirements of the TOs and determinations that are yet to be made by Ofgem. We have used forecasts provided by the TOs in response to an information request, but these are subject to significant uncertainty.
- We have to make assumptions about the regulatory finance parameters that would apply (e.g. notional gearing, depreciation rates, capitalisation rates, allowed return, etc). For simplicity, we have assumed these to be the same as the RIIO-2 period.

8.30. Despite these limitations, we think the analysis has been a valuable input into our calibration of the ASTI ODI so that the ODI, under plausible circumstances, does not lead to unacceptably low equity returns (in RORE terms) but has sufficient incentive power. This is particularly important in the context where we are looking to set the daily rates for the ASTI ODI in advance at this time.

8.31. The results from our analysis are set out in the tables below.

Table 11: Analysis of the impact of ASTI ODI penalties in extreme cases (NGET)

NGET	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
ODI penalties if all projects are delayed by 2 years after target date (£m)	Redacted	Redacted	Redacted	Redacted	Redacted	Redacted
Forecast RAV (£m)	Redacted	Redacted	Redacted	Redacted	Redacted	Redacted
Implied regulatory equity at 55% notional gearing (£m)	Redacted	Redacted	Redacted	Redacted	Redacted	Redacted
Illustrative RORE impact of the penalty	0.00%	(0.16%)	(0.50%)	(0.19%)	(0.56%)	(1.14%)

Table 12: Analysis of the impact of ASTI ODI penalties in extreme cases (SSEN-T)

SSEN-T	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
ODI penalties if all projects are delayed by 2 years after target date (£m)	Redacted	Redacted	Redacted	Redacted	Redacted	Redacted
Forecast RAV (£m)	Redacted	Redacted	Redacted	Redacted	Redacted	Redacted
Implied regulatory equity at 55% notional gearing (£m)	Redacted	Redacted	Redacted	Redacted	Redacted	Redacted

Illustrative RORE impact of the penalty	0.00%	0.00%	0.00%	(0.10%)	(0.98%)	(2.05%)
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Table 13: Analysis of the impact of ASTI ODI penalties in extreme cases (SPT)

SPT	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
ODI penalties if all projects are delayed by 2 years after target date (£m)	Redacted	Redacted	Redacted	Redacted	Redacted	Redacted
Forecast RAV (£m)	Redacted	Redacted	Redacted	Redacted	Redacted	Redacted
Implied regulatory equity at 55% notional gearing (£m)	Redacted	Redacted	Redacted	Redacted	Redacted	Redacted
Illustrative RORE impact of the penalty	0.00%	(0.34%)	(0.98%)	(0.06%)	(0.27%)	(0.75%)

8.32. While sensitive to assumptions as set out above, the results of our analysis suggest that the ASTI ODI is very unlikely to lead to excessively low equity returns. The aggregate ODI penalties in the extreme downside scenario would be around 3% of ASTI totex for each TO, which is roughly equivalent to a totex overspend of 6%-10% at RIIO-2 totex incentive rates. The illustrative RORE impacts of those penalties for each TO are broadly consistent with the ranges modelled by us in recent price control decisions.⁶⁶

8.33. In any event, as set out earlier in this section, we will keep financeability under review and will undertake a full assessment of financeability and financial risk in the round at the next price control review.

⁶⁶ See, for example, Figure 3 of the Finance Annex to our Final Determinations for the RIIO-ED2 price control.

9. Conclusion and next steps

Section summary

We summarise our Decision and set out how we will take our work forward.

Decision summary

9.1. Our decision to introduce a new ASTI framework represents a step-change in the way that large onshore transmission projects required to deliver the Government's 2030 ambitions are assessed and funded.

9.2. We are confident that the ASTI framework can provide the regulatory platform required for the TOs to accelerate delivery of ASTI projects in accordance with their delivery plans and provide the best opportunity of delivering the portfolio of projects by 2030.

9.3. We are confident that our decision to streamline the regulatory process can ultimately reduce the time taken to deliver large onshore transmission projects. However, in order to further accelerate and deliver the ASTI projects by 2030 the TOs will need to implement an updated approach to their delivery models, and the current planning regime will need to be modified to reduce the length of time taken for planning permission and necessary consents to be obtained.

9.4. We believe our incentive and consumer protection framework incentivises the correct behaviours to drive accelerated delivery, while at the same time protecting consumers should projects not get delivered on time and the benefits of acceleration not being realised.

9.5. Delivering the full portfolio of ASTI projects by 2030 will require enhanced collaboration and engagement between Ofgem, the TOs and BEIS over the coming years. We look forward to working together to deliver a programme of investment that will contribute towards GB's NZ ambitions and decarbonisation of the energy sector, ensure security of supply, and improve the overall resilience of the electricity transmission network.

Next steps

9.6. We now need to implement the policy decisions set out in this document into the Electricity Transmission licence. We are engaging with the TOs and will establish a Licence

Drafting Working Group to progress development of the necessary licence condition(s). Our current intention is for a statutory consultation in Spring 2023 with a view to formally implementing the ASTI framework into the licence in Summer 2023.

9.7. We recognise that this means there will not be a mechanism in the licence to provide PCF or ECF for some time, whilst the TOs' delivery plans make provision for expenditure on ASTI projects from Q4 2022. We intend that the policy decisions contained in this document provide sufficient assurance for the TOs to begin work ahead of the licence conditions being in place.

9.8. We expect to receive updated project delivery plans from all TOs in December 2022, setting out their updated view on project delivery timelines and costs. We expect the TOs to flag to Ofgem in their delivery plans which projects they will require PCF and ECF for, and we will make allowance adjustments in due course in accordance with the policy set out in Chapter 5 above.

Appendix 1: ASTI projects

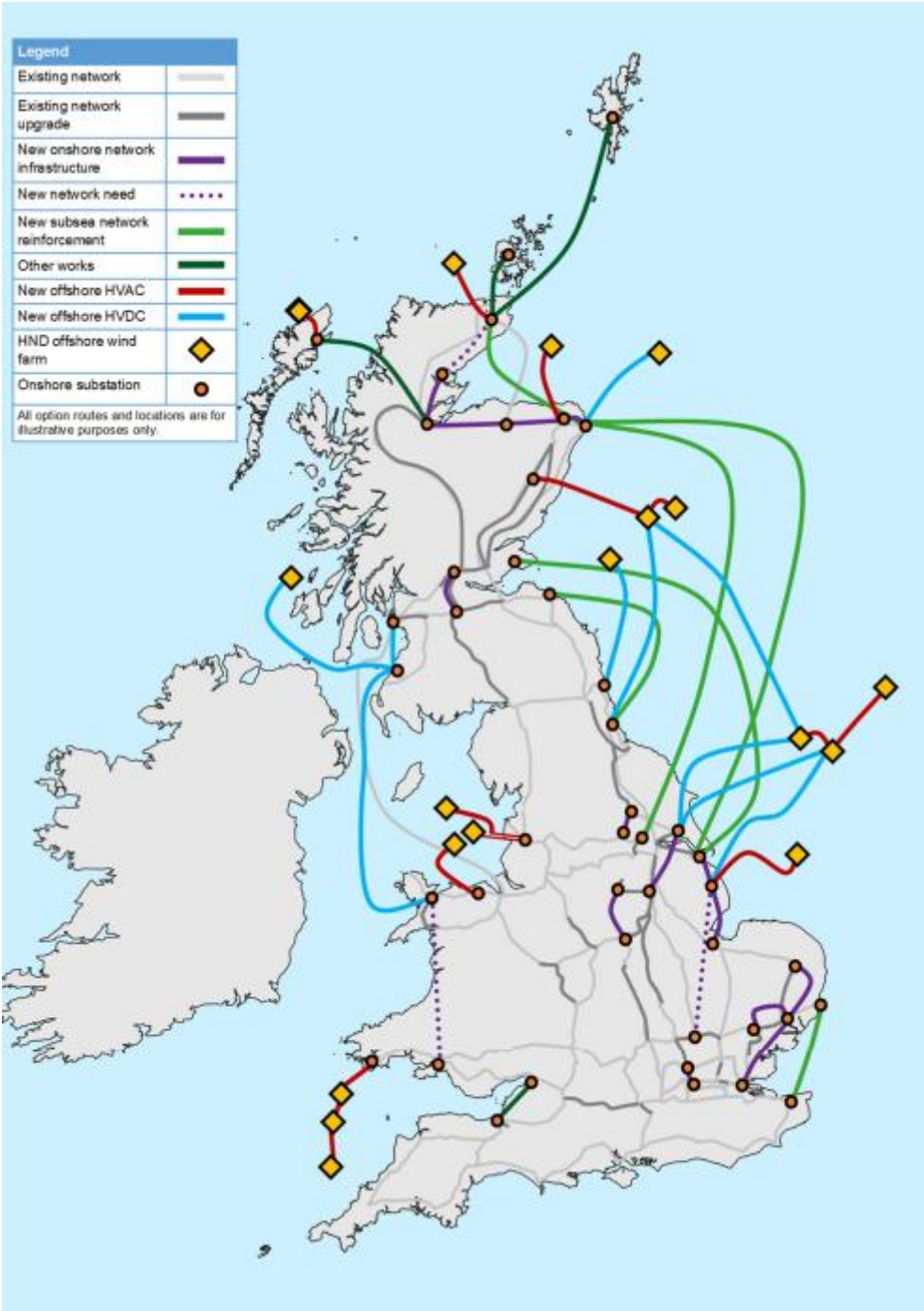
Summary of all projects considered under ASTI 1

Project	Description	TO	Optimal Date	Within ASTI scope	Comp exempt?
AENC	New 400kv double circuit north E.Anglia	NGET	2030	Yes	Yes
ATNC	New 400kv double circuit south E.Anglia	NGET	2030	Yes	Yes
OPN2	New 400kv double circuit Norton-Osbaldwick	NGET	2027	Yes	Yes
GWNC	New 400kv double circuit Humber-Lincolnshire	NGET	2030	Yes	Yes
CGNC	New 400kv double circuit Creyke Beck-Humber	NGET	2030	Yes	Yes
EDEU	400kv upgrade Brinsworth-Chesterfield-High Marnam	NGET	2028	Yes	Yes
EDN2	New 400kv double circuit Chesterfield-Ratcliffe-on-Saur	NGET	2030	Yes	Yes
BTNO	New 400kv double circuit Bramford-Twinstead	NGET	2028	Yes	Yes
PTC1	Cable replacement Pentir-Trawsfynydd	NGET	2028	Yes	Yes
PTNO	North Wales reinforcement	NGET	2029	Yes	Yes
TKRE	Grain-Tilbury-Kingsnorth upgrade	NGET	2028	Yes	Yes
HWUP	Uprate Hackney, Tottenham & Waltham Cross	NGET	2027	Yes	Yes
SCD1	Suffolk-Kent offshore HVDC link	NGET	2030	Yes	Yes
BLN4	Beaully-Loch Buidhe 400kv reinforcement	SSE	2030	Yes	Yes
SLU4	Loch Buidhe-Spittal 400kv reinforcement	SSE	2030	Yes	Yes
BBNC	New 400kv double circuit Bealy-Blackhillock	SSE	2030	Yes	Yes
BPNC	New 400kv double circuit Blackhillock-Peterhead	SSE	2030	Yes	Yes
BDUP	Beaully-Denny 400kv uprating	SSE	2030	Yes	Yes
TKUP	East Coast onshore 400kv Phase 2 reinforcement	SSE/SPT	2030	Yes	Yes
PSDC	Spittal-Peterhead HVDC reinforcement	SSE	2030	Yes	Yes
E4D3	Peterhead-Drax HVDC	SSE/NGET	2029	Yes	Yes
E4L5	Peterhead-south Humber HVDC	SSE/NGET	2030	Yes	Yes
W.Isles	Arnish-Beaully HVDC	SSE	2030	Yes	Yes
DWNO	Denny-Wishaw 400kv reinforcement	SPT	2028	Yes	Yes
E2DC	Torness-Hawthorn Pit HVDC	SPT/NGET	2027	Yes	Yes
TGDC	East Scotland-south Humber HVDC	SPT/NGET	2030	Yes	Yes
LRN4	New South Lincolnshire to Hertfordshire double circuit	NGET	2030	PCF Only	No
PSNC	New North Wales to South Wales double circuit	NGET	2030	PCF Only	No
Aquila	Direct Current Switching Station (DCSS) at Peterhead	SSE	2030*	No	No
Additional projects following Asset classification process					
AC1	R4_2 to Lincolnshire	TBC	2030*	PCF Only	No
AC2	R4_1 to R4_2	TBC	2030*	PCF Only	No
AC3	Fetteresso to SW_E1a	TBC	2030*	PCF Only	No
AC4	SW_E1a to R4_1	TBC	2030*	PCF Only	No
AC5	Hunterston to T-point	TBC	2030*	PCF Only	No
AC6	Pentir to T-point	TBC	2030*	PCF Only	No

*Aquila does not meet the criteria to be funded through ASTI, it will be assessed under the Net Zero reopener. AC1-AC6 projects are newly identified projects from the HND and very little is known about the delivery expectations for these projects. We therefore do not consider there is sufficient evidence to support the inclusion of these projects in the ASTI framework or exempt from competition at this point in time.

Orange cells in the column "Optimal Date" represent the optimal dates that are earlier than the EISDs originally provided by the TOs.

The Holistic Network Design



*Source: NGENO's [Holistic Network Design](#) (Page 32)

Appendix 2 – CBA Scenarios and Assumptions

Our CBA was based upon several assumptions of benefits and disbenefits of applying the ASTI measures. We looked at 3 Scenarios which tested the ranges of these assumptions, as well as further sensitivities within these. The assumptions included the following:

- I. Competition Savings of 10-15% of project value (minus 5% assumed spent pre-tender).
- II. Project abandonment costs – this is the assumption that 10% of projects are abandoned due to failure to obtain planning consents. We consider the ECF to be an additional risk here vs the counterfactual. Our assumption for ECF ranges from 15-20% of project value.
- III. Project Assessment Loss – this is a reduction in the amount of savings achieved via our Cost Assessment Process. We have used a range of 2.5-3% of project value.
- IV. Constraint savings – This is the ESO’s forecast for constraint impact, with the Government’s Carbon Values attributed to projects with EISDs beyond 2030. We made assumptions for all of our scenarios that 50% of projects with EISDs 2030 or earlier avoid 1 year of delay due to the ASTI measures, but the tables below include sensitivities around this.
- V. Number of projects competed under the counterfactual: We cannot be certain how many projects would feasibly be competed under the counterfactual. We have identified 8 we think are most likely, plus an additional 3 that may also possibly be competed. We have included a range of these in our three scenarios below.

Central Scenario

- Uses “Central Series” for the year 2030 from the Government’s Carbon Values to calculate CO₂ impact of accelerating post-2030 projects.
- Uses mid-points from the ranges outlined in I-V above.
- Assumes 8 Projects competed under the counterfactual, plus half of the capex of the additional 3 projects mentioned in Paragraph 0V.

Sensitivities for "Central Scenario"

Net outcome for all 26 projects in scope:
 9.5 Projects assumed competed under counterfactual.
 Does not include a constraint benefit for Western Isles Link.

	Delivery assumption											
	50% 1 year late			50% 9 months late			50% 6 months late			50% 3 months late		
Competition %	10%	12.5	15%	10%	12.5	15%	10%	12.5	15%	10%	12.5	15%
Competition loss	-573	-716	-859	-573	-716	-859	-573	-716	-859	-573	-716	-859
Constraint Saving	3514	3514	3514	3262	3262	3262	3011	3011	3011	2759	2759	2759
Project Assessment Loss	-377	-377	-377	-377	-377	-377	-377	-377	-377	-377	-377	-377
ECF loss	-346	-346	-346	-346	-346	-346	-346	-346	-346	-346	-346	-346
Net Outcome:	2218	2074	1931	1966	1823	1680	1715	1571	1428	1463	1320	1177
Project Assessment Loss	-2.75%		Number of projects abandoned:						10.0%			
Competition	10-15%		Cost spent pre-planning:						17.5%			

Worst Scenario

- Uses "Low Series" for the year 2030 from the Government's Carbon Values to calculate CO₂ impact of accelerating post-2030 projects.
- Uses lowest values from the ranges outlined in I-V above 0.
- Assumes 11 Projects competed under the counterfactual, (includes the additional 3 projects mentioned in Paragraph 0V)

Sensitivities for "Worst Scenario"

Net outcome for all 26 projects in scope:
 11 Projects assumed competed under counterfactual.
 Does not include a constraint benefit for Western Isles Link.

	Delivery assumption											
	50% 1 year late			50% 9 months late			50% 6 months late			50% 3 months late		
Competition %	10%	12.5	15%	10%	12.5	15%	10%	12.5	15%	10%	12.5	15%
Competition loss	-748	-935	-1122	-748	-935	-1122	-748	-935	-1122	-748	-935	-1122
Constraint Saving	2865	2865	2865	2614	2614	2614	2362	2362	2362	2111	2111	2111
Project Assessment Loss	-462	-462	-462	-462	-462	-462	-462	-462	-462	-462	-462	-462
ECF loss	-395	-395	-395	-395	-395	-395	-395	-395	-395	-395	-395	-395
Net Outcome:	1260	1073	886	1009	822	635	757	570	383	506	319	132
Project Assessment Loss	-3.0%		Number of projects abandoned:						10.0%			
Competition	10-15%		Cost spent pre-planning:						20.0%			

Best Scenario

- Uses "High Series" for the year 2030 from the Government's Carbon Values to calculate CO₂ impact of accelerating post-2030 projects.

- Uses highest values from the ranges outlined in I-V above 0.0
- Assumes 8 Projects competed under the counterfactual, (does **not** include the additional 3 projects mentioned in Paragraph 0V)

Sensitivities for "Best" Scenario

Net outcome for all 26 projects in scope:
 8 Projects assumed competed under counterfactual.
 Does not include a constraint benefit for Western Isles Link.

	Delivery assumption											
	50% 1 year late			50% 9 months late			50% 6 months late			50% 3 months late		
Competition %	10%	12.5	15%	10%	12.5	15%	10%	12.5	15%	10%	12.5	15%
Competition loss	-414	-518	-621	-414	-518	-621	-414	-518	-621	-414	-518	-621
Constraint Saving	4162	4162	4162	3910	3910	3910	3659	3659	3659	3407	3407	3407
Project Assessment Loss	-385	-385	-385	-385	-385	-385	-385	-385	-385	-385	-385	-385
ECF loss	-296	-296	-296	-296	-296	-296	-296	-296	-296	-296	-296	-296
Net Outcome:	3066	2963	2859	2815	2711	2608	2563	2460	2356	2312	2208	2105
Project Assessment Loss	-2.5%		Number of projects abandoned:						10.0%			
Competition	10-15%		Cost spent pre-planning:						15.0%			