



Potential to apply a technology lens to Connections Reform

September 2024

Agenda

	Topic	Timing
1	Clean Power by 2030 update	10.00 – 10.25
2	Current Connections Reform Proposals and Methodologies	10.25 – 10.55
3	Break	10.55 – 11.10
4	Factors to consider in the context of Clean Power 2030 and SSEP	11.10 – 12.30
5	Financial instruments	12.30 – 12.45
6	Lunch	12.45 – 13.15



ESO advice to Government on how to achieve Clean Power 2030

Advising on clean power by 2030

UK Government:

Set up Mission Control for clean power and asked the ESO to provide independent advice on a clean power pathway to 2030.

Our objective:

Provide independent advice on how the UK can achieve a system powered by clean power by 2030.

Outputs:

Advice in the form of a **practical** plan to deliver a clean, secure, operable electricity system by 2030 including:

Sensible 2030 **supply mixes** for 'Clean Power'

Analysis of the **networks, connections** and network **operability** needs

Demonstrating the **costs and benefits**.

Identifying where **policy, market** and **regulatory** changes are likely to be needed



Approaching this analysis

Key **considerations** factored into our analysis

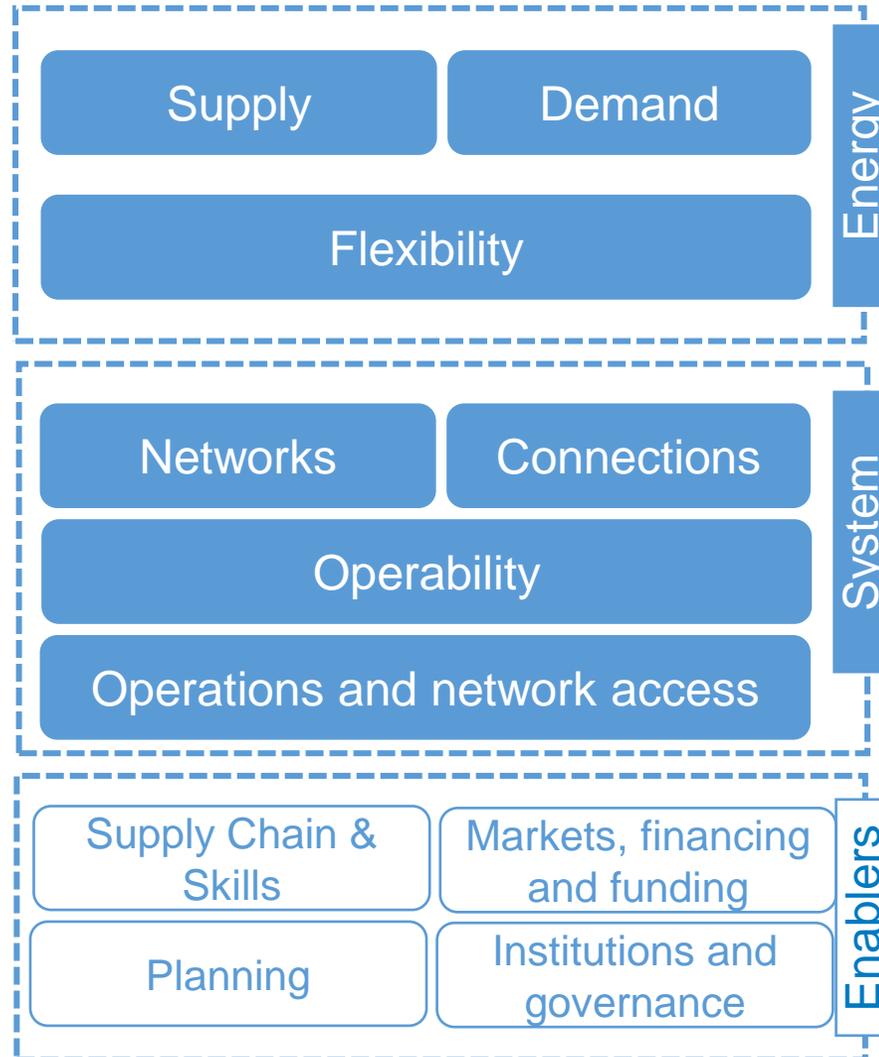
Current baseline

Technology potential

Locational considerations

Project feasibility

Key **analysis strands**



Key **prisms** we have and are considering analysis strands through

Emissions & Environment

Consumers & Communities

Energy Security

Whole Energy & Beyond 2030

Further considerations

Engagement approach

Building on the extensive stakeholder engagement already undertaken by our Future Energy Scenarios and Network planning teams, there are multiple ways in which the ESO's clean power team are engaging with stakeholders as we formulate this advice.

Strategic stakeholder engagement

Forum engagement

Approach: ESO has stood up two stakeholder forums: Industry forum and Societal Delivery forum, they will be utilised to share analysis, listen to external views and discuss any operational impediments

- For the industry forum we have taken an approach that at the exception of the Transmission Owners, we will be seeking engagement with membership bodies for a fairer, wider representation.
- For societal delivery forum will represent consumers, policy makers, environmental stakeholders, Local government and planning specialists.

Bilateral and grouped discussions

Approach: ESO are engaging with critical delivery partners throughout the programme, this included DESNZ, Ofgem and network companies. We are hosting bilaterals and grouped decisions with key market participants and experts.

- So far, we have had over 50 bilaterals with market participants regarding this advice.
- If you wish to engage with ESO clean power team, please get in contact.

A scenic coastal landscape featuring a rocky shore, green hills with wildflowers, and a blue sky with a bright light streak. The text is overlaid on the left side of the image.

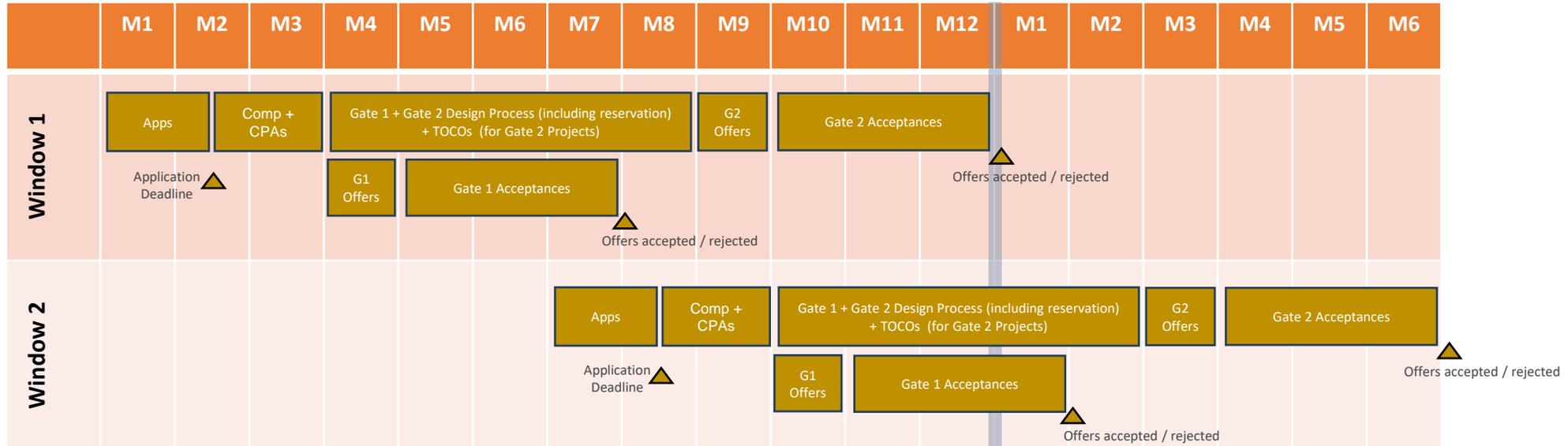
Current Connections Reform Proposals and Methodologies

What has changed since July?

- Code modification consultation responses
- Clean Power by 2030
- Connections Delivery Board steer



Overview of ESO proposed revised TMO4+ Process



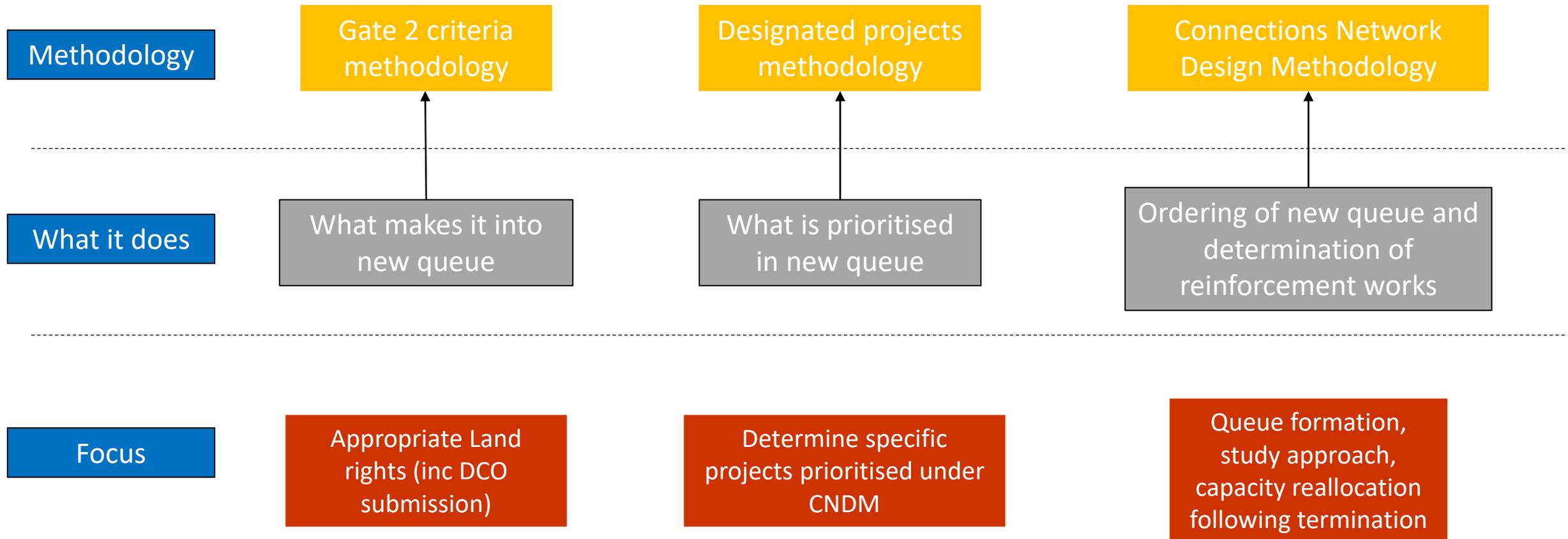
The Month of 'M1' Remains TBC

Key ESO proposed change examples:

- Twice a year combined Gate 1 and Gate 2 Process.
- Greater potential for us to reserve connection point/capacity for long-lead time projects submitting Gate 1 Applications.
- Descoping of DFTC (from CMP434/CMP435).
- Timescales from Gate 2 Offer acceptance to forward looking Queue Management milestone M1 (submit planning) extended.
- BEGA / BELLA Gate 2 Process – Generators apply outside application windows with the DNO/IDNO mod apps submitted in a Gate 2 window. (Large Embedded Generators who want a Gate 1 offer will need to apply in a Gate 1 application window.)
- Calls for a financial instrument – we are looking to raise a separate code modification.
- Scope of methodologies to be reviewed in light of potential alignment with CP2030.
- Timetable extended to accommodate potential alignment with CP2030.

Methodologies

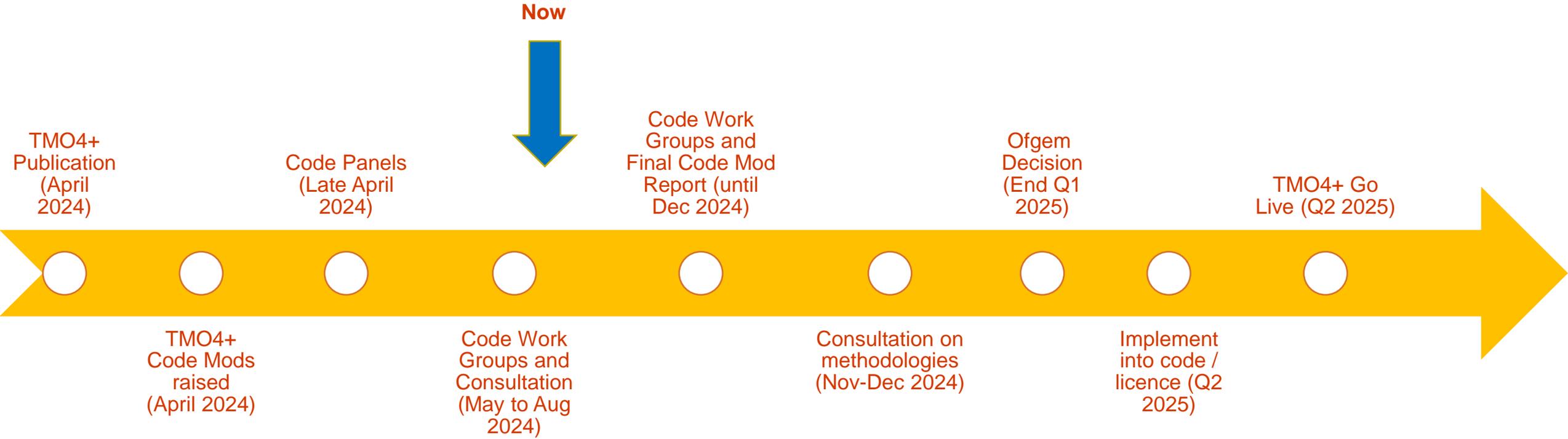
TMO4+ introduces methodologies that help operationalise the reformed connections process



This is what the methodologies look like under 'baseline' TMO4+

Methodology	Summary
Gate 2 Criteria	<p>Sets out the criteria that projects need to meet, and sets out the means by which projects will need to demonstrate that they have met these criteria, in order to be allocated a firm connection date and location in the new connections queue</p> <ul style="list-style-type: none">- These would be appropriate land rights (including DCO submission);
Designated projects	<p>Sets out the criteria and process that NESO will use to designate specific projects as:</p> <ul style="list-style-type: none">(i) critical to security of supply security(ii) critical to ensuring system operability(iii) materially reduce system constraints <p>Sets out at a high level how Designated projects can be prioritised in terms of capacity allocation during a Gate 2 process (i.e. as part of the CNDM)</p>
Connections Network Design	<p>Sets out how NESO works with TOs to assess Gate 1 and Gate 2 applications (under “Gate 2 to the Whole Queue” and on an enduring basis) that have met the relevant Gate 1 or Gate 2 criteria, in order to determine a connections offer, and in doing so:</p> <ul style="list-style-type: none">• Undertake a coordinated network design (for Gate 2 projects and Gate 1 Point of Connection and capacity reservations)• Provide an indicative location/date or reserve Point of Connection / capacity / date (as appropriate) (Gate 1).• Allocate capacity, determine queue order, determine transmission reinforcement works and connection dates (Gate 2) <p>Prioritisation will factor in: whether a project is designated; pre TMO4+ queue position; date at which project has met the Gate 2 criteria</p>

Implementation plan



Timeline for distribution customers is subject to approval of distribution code changes

Industry will have the opportunity to respond to the consultations on the methodologies

Integration between system planning is the direction

- Ofgem open letter May 2023 - signalled need for connections process to integrate with system planning.
- Ofgem Open letter May 2024 - the desired outcome of longer-term reform should be a connections process aligned with strategic network plans.
- The Strategic Spatial Energy Plan (SSEP) is the longer-term pathway for the future energy system. It remains the case that connections will need to align with SSEP pathway(s).
- Core message of the open letter we expect to publish today is that the Clean Power Mission and Clean Power Plan 2030 provide an opportunity and a need to accelerate strategic alignment with system planning.

Why accelerate alignment?

- Proposed process architecture in TMO4+ provides a platform for alignment with system plans. It is right to consider whether that platform can be used to align with a Clean Power 2030 plan.
- A pipeline that is ready *and* needed (e.g. aligned with a system plan) provides a clearer signal for enabling infrastructure to transition GB to clean power and eventually net zero.
- Our expectation is that the benefit of prioritising projects that align with a system plan is faster connections for projects identified in the plan.

- Aligning with system plans will require licence changes. We expect licence conditions to provide for transparent methodologies on (i) the Gate 2 criteria (ii) NESO designation criteria and (iii) Connections Network design.
- We will consult on the policy and all proposed new and modified licence condition(s) and support development of these three methodologies.
- We expect new licence condition(s) will include a framework for NESO to formulate and maintain each methodology. We will embed a transparent and accountable process around methodologies, likely including an expectation for:
 - Objectives/scope set by Ofgem and Ofgem approval;
 - Consultation on the first version and future updates (minimum of 28 calendar days); and
 - NESO and Ofgem ability to trigger review and/or amendment (NESO required to provide justification to Ofgem).
 - Other expectations are set out in our open letter
- New NESO role makes designation based on system need an appropriate power. Transparency is important. We are considering safeguards needed to ensure a balance between statutory/public objectives, and the needs of industry.
- Our intention is to reach a final decision on the necessary changes to the codes and licences, including approval of any necessary methodology documents, by the end of Q1 2025



Factors to consider in the context of Clean Power 2030 and SSEP

Recap – last few months

- We issued a request for information (Rfi) in March to understand the likely impact of the current TMO4+ proposals, and specifically the proposed Gate 2 ‘readiness’ criterion on the current queue.
- We flagged at CDB in early August that:
 - there remains an ongoing need to review TMO4+ in the context of CAP action 3.6 (alignment with strategic planning), particularly given the new Government’s ambitions for Clean Power by 2030; and
 - based on the RFI responses, there is a risk that the capacity and distribution of project technologies in the new queue, as a result of TMO4+ as currently designed, may be skewed materially away from what might represent an optimal mix for 2030-2050.
- CDB provided a steer that the ESO should continue to work with Ofgem, Government and network companies to develop technology/technical options that could be delivered in TMO4+ timescales in order to address the above.
- Since CDB Government has commissioned the ESO provide advice to on how to deliver clean power by 2030 – including criteria that could inform connections reform.

Clean Power 2030 and Connections

- We are developing a number of potential options for how TMO4+ could operationalise Clean Power 2030 (and then align with SSEP1), ahead of making recommendations to CDB on 26/09.
 - TMO4+ process (as proposed through Code Modifications) and framework of Methodologies were designed with an eventual alignment with strategic planning as per CAP Action 3.6.
- Any changes to align with or operationalise Clean Power 2030 via the reformed connections process would:
 - be delivered through changes to the methodologies
 - current view is that no changes would be required to ESO's current code mod proposals
 - be implemented alongside the rest of the TMO4+ proposals
 - submitted to Ofgem for approval by end December 2024
 - Ofgem decision by end Q1 2025.

Creating a methodology for potential alignment with CP30 and SSEP1

Variable

Definition

- | | |
|---|---|
| ① Broad approach to determining “needed” project | How we define what a “needed” project is (e.g., aligned to CP30) |
| ② Time horizon for determining “needed” project | How different time horizons impact projects’ queue position |
| ③ Approach to deal with over supply | How to manage too much of a technology in the queue compared to what is ‘needed’ |
| ④ Approach to deal with under supply | How to manage too little of a technology in the queue compared to what is ‘needed’ |
| ⑤ Approach to deal with project attrition | How to manage rates of project attrition in the queue |
| ⑥ Optimal use of the network | Treatment of projects based on substation / bay utilisation efficiency |
| ⑦ Transition to SSEP1 | To what extent the queue may align with SSEP1 or potentially need to be reduced / reordered |

Form of prioritisation

Whether projects are kept at Gate 1 or can pass Gate 2 (but given a lower queue position)

Possible options under each variable?

Variable	Definition	Options				
1	Broad approach to determining “needed” project	How we define what a “needed” project is (e.g., aligned to CP30)	No determination of needed projects	CP30 determined	CP30 +	
2	Time horizon for determining “needed” project	How different time horizons impact projects’ queue position	2030	2035	2035+	
3	Approach to deal with over supply	How to manage too much of a technology in the queue compared to what is ‘needed’	No limits (status quo)	Limits to align with any existing government targets	Limits based on agreed plan (e.g., CP30 / SSEP)	
4	Approach to deal with under supply	How to manage too little of a technology in the queue compared to what is ‘needed’	No correction of under supply (status quo)	Substitution to meet under-supply (locational, voltage or technology)	Reserve bay and network capacity for underrepresented project type	
5	Approach to deal with project attrition	How to manage rates of project attrition in the queue	No upfront attrition built in	[10%] GB-wide upfront attrition built in	[10%] location-specific upfront attrition built in	
6	Optimal use of the network	Treatment of projects based on substation / bay utilisation efficiency	Any project can connect anywhere (status quo)	Allocate projects to either Transmission / Distribution based on project capacity	Allocate projects to specific voltage level based on project capacity	Allocate projects based on MW capacity
7	Transition to SSEP1	To what extent the queue may align with SSEP1 or potentially need to be reduced / reordered	No reduction or reordering as a result of SSEP1	Some limited reduction or reordering as a result of SSEP1 (eg pre planning consent)	No limits to reduction or reordering as a result of SSEP1	

Methodologies – potential scenarios

Two potential scenarios

1

New queue is formed of:

- i) 'ready' projects 'needed' by CP30
- ii) 'ready' NESO designated projects

2

New queue is formed of:

- i) 'ready' projects 'needed' by CP30
- ii) 'ready' NESO designated project
- iii) any other 'ready' projects

+

Other variables / lens

Allowance to account for attrition: eg 10% (for some technologies)

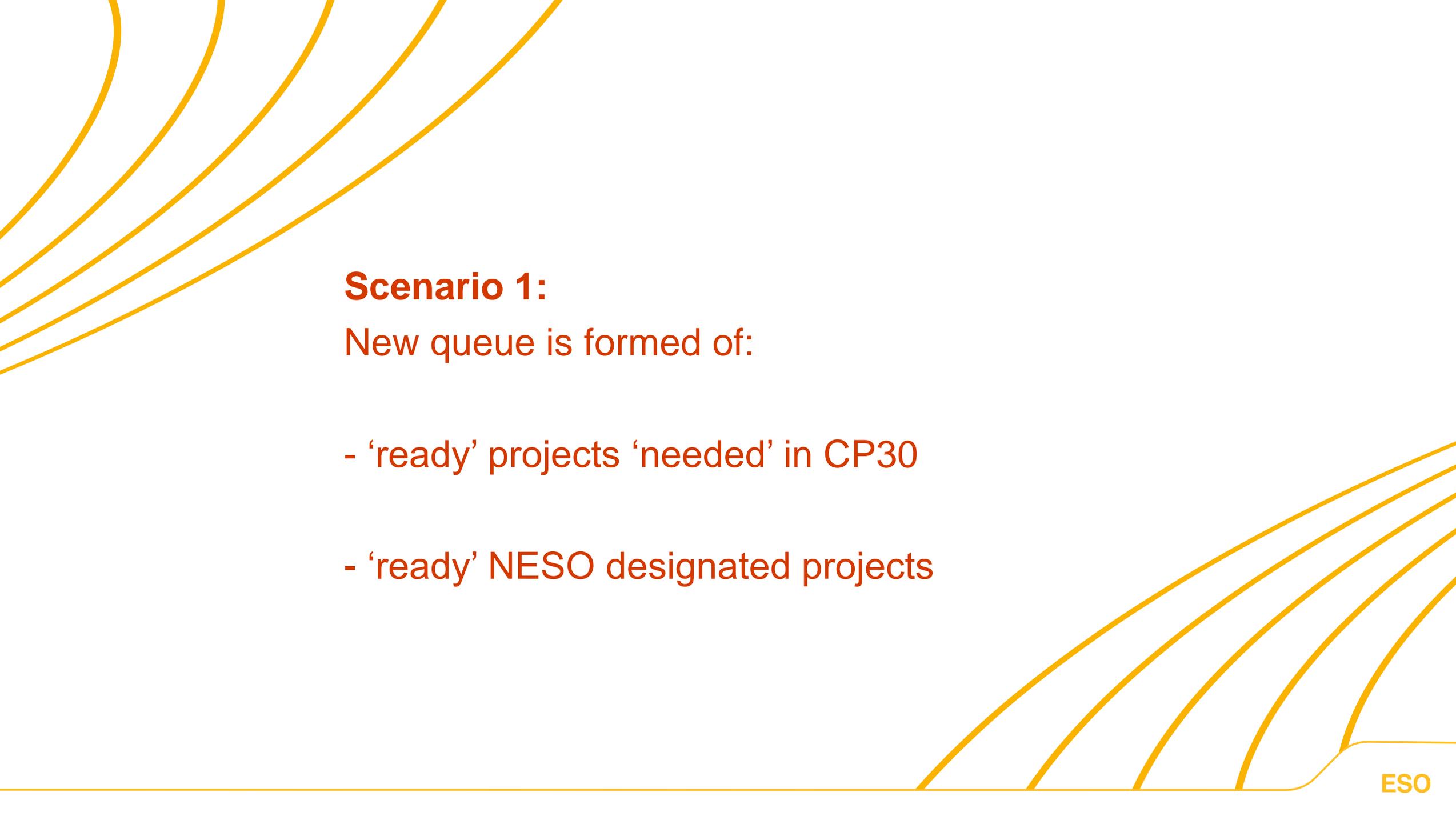
Efficiency of network utilisation (forward-looking only)

Level of locational specificity – fully aligned to CP30 or allow substitutions

What to do about projects not covered by CP30 (eg directly connected demand, new technologies)

Management of under-supply e.g., reserve bays

How to ensure an efficient transition to SSEP

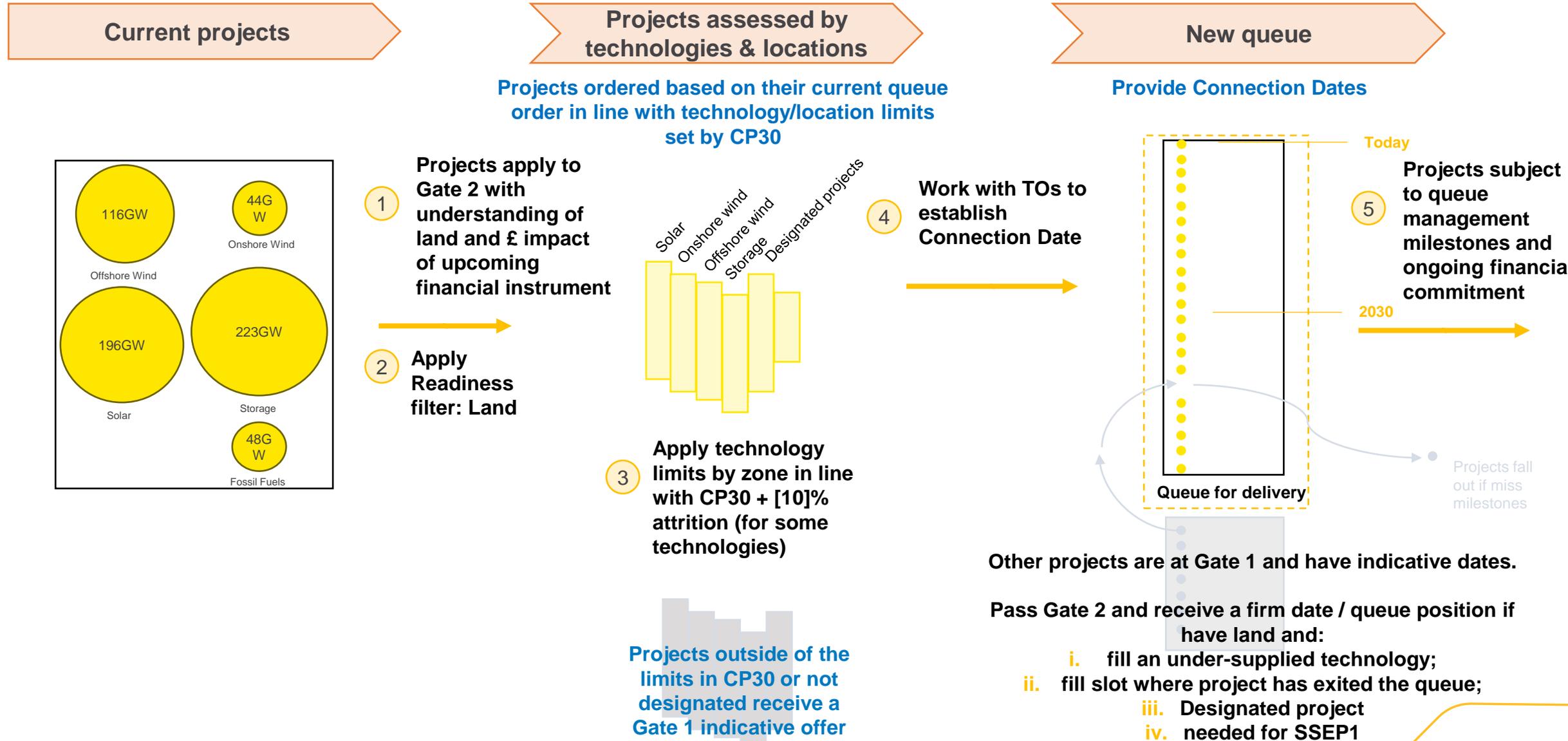


Scenario 1:

New queue is formed of:

- 'ready' projects 'needed' in CP30
- 'ready' NESO designated projects

Applying the scenario in practice (Gate 2 to the whole queue)



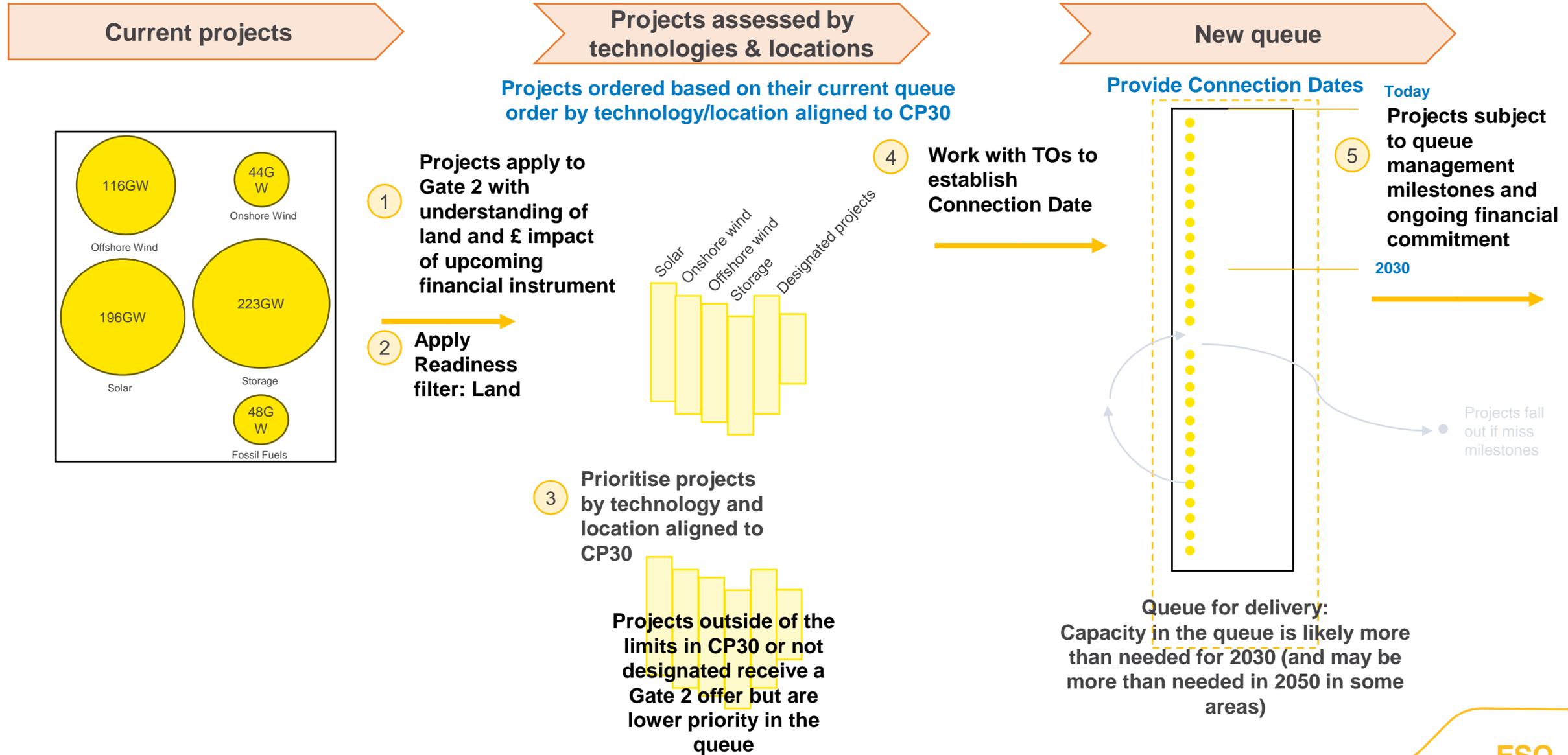


Scenario 2:

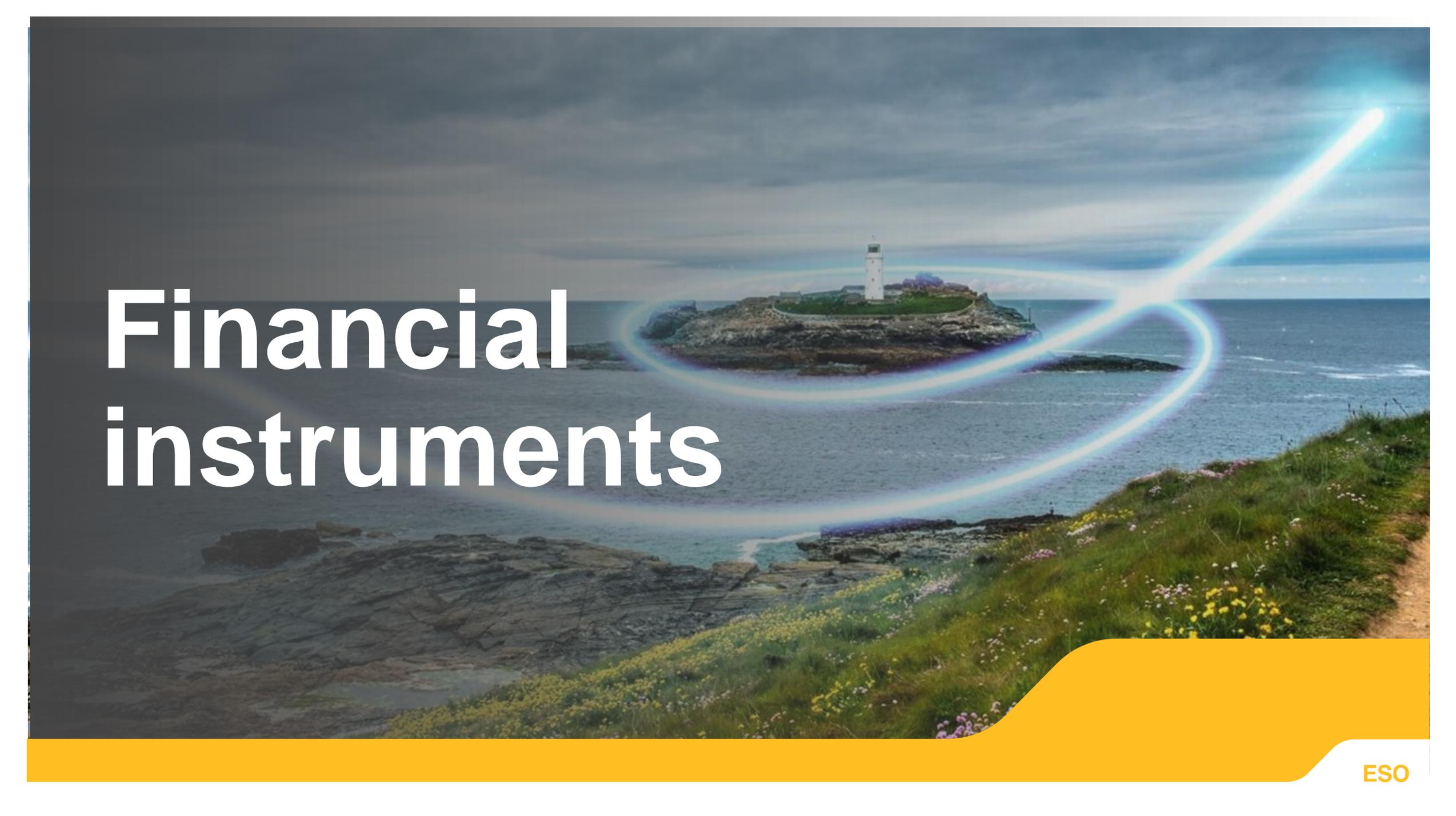
New queue is formed of:

- 'ready' projects 'needed' in CP30
- 'ready' NESO designated project
- any other 'ready' projects

Applying the scenario in practice (Gate 2 to the whole queue)



Financial instruments

A scenic coastal landscape featuring a lighthouse on a rocky island. The sky is overcast with grey clouds. A bright blue light beam originates from the top right corner and curves across the sky, intersecting with a glowing blue ring that encircles the lighthouse island. The foreground shows a grassy hillside with yellow and purple wildflowers overlooking the sea.

Financial Instrument

Rationale for Financial Instrument:

- Network Operators commit connection capacity – a scarce resource – to developers when they are provided with a place in the connections queue.
- ESO believes that developers should in-turn provide an appropriate financial commitment to that capacity.
- There have also been calls from some parts of industry for additional financial commitment.

Objective of the financial instrument:



Ensure that developers are financially committed to utilising their place in the connection queue.



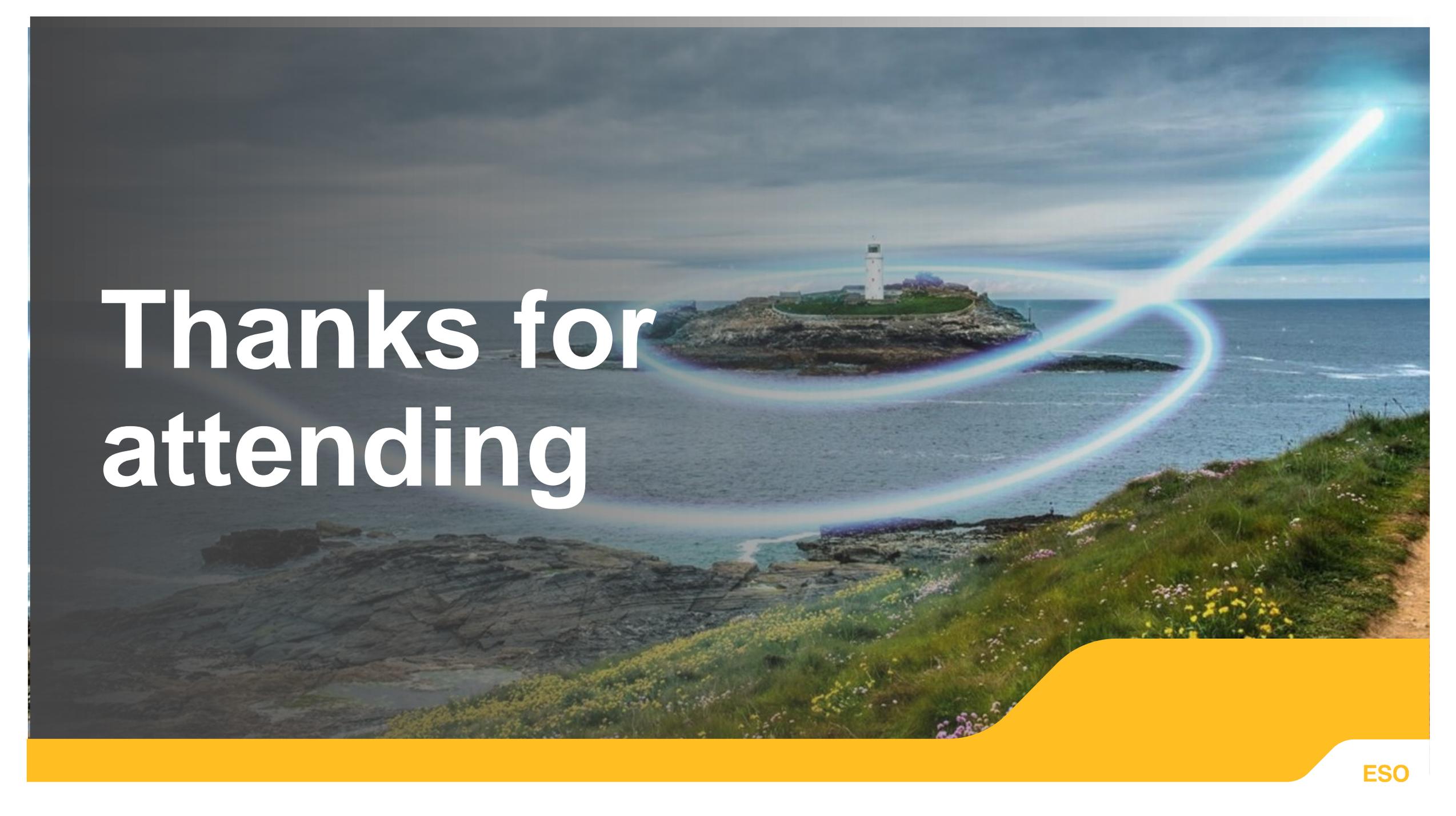
Remove perverse incentive for developers to remain in the queue unnecessarily.

Modification Scope:

- We are currently exploring mechanisms that would a) financially commit projects that have reached Gate 2 to stay in the queue; and b) discourage speculative projects from entering/remaining.
- Options could involve i) additional fees, charges, or securities; or ii) revisions to existing charges for projects in the queue. ESO will update once we have completed our options assessment.

Timeline:

- If a mod is raised, it will be part of a separate and complimentary code modification to the TMO4+ mods. The aim will be to implement it in parallel to CMP434 and CMP435, noting that detailed plans need to be developed.



**Thanks for
attending**