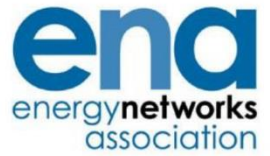


The Voice of the Networks



Energy Networks Association

**Open Networks Project
Workstream 2, Product 2 &
Product 3**

**Application
Interactivity &
Connection Queue
Management**

**Consultation
Document**

July 2019

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1 Introduction

1.1 The ENA and Open Networks Project

Launched in January 2017, ENA's Open Networks Project is laying the foundations for a smart energy grid in Great Britain and informing future developments in Ireland and Northern Ireland. It is a key initiative to deliver Government policy set out in Ofgem's and BEIS' Smart Systems and Flexibility Plan, the Government's Industrial Strategy and the Clean Growth Plan.

The Open Networks Project has introduced real momentum into the development work required to enable GB's energy networks to:

- facilitate our customers' transition to a low-carbon future, including the electrification of heat and transport;
- address the challenges arising from the continued uptake of local generation;
- evolve to be market enablers for a whole range of new smart energy technologies;
- reduce costs to customers by contracting for flexibility services alongside investment in traditional and innovative network solutions, and
- play a key role in delivering overall lowest whole system energy system costs for customers.

In order to facilitate open debate and discussion across the industry, all outputs from the project are being published on ENA's website alongside annual reports that summarise progress and achievements.

1.2 Purpose of this consultation

The purpose of this consultation is to seek views from stakeholders on a 'minded to' policy standard to be applied across all GB network companies to deal with the following issues:

- Application interactivity
- Connection queue management

It is intended that the outcome of this consultation will be used to develop an implementation plan for both policy frameworks at the end of 2019. This will include an assessment of implementation cost/benefit as well as identifying any necessary licence or industry code modifications.

1.3 Summary of 'minded to' positions developed for this consultation

Application interactivity

This consultation describes a 'minded to' position to move to a 'conditional' interactivity process, similar to that currently used by UKPN, but modified to improve how unsuccessful customers are treated. This common process will be used by all Transmission and Distribution Network Operators, all of whom will need to change existing interactivity processes.

Connection queue management

This consultation sets out a policy framework to be adopted across transmission and distribution networks, enabling network companies to intervene in the connection queue to free up capacity where customers have delayed against agreed milestones.

Ultimately this would require delayed customers to move down the connection queue with revised costs and securities, while customers that are ready to connect earlier would be able to progress (also benefiting from a revised cost and security position). Customers that have been queue managed and continue to delay against milestones could then be subject to termination.

Responding to action 1.6 of Ofgem's and BEIS' Smart System and Flexibility Plan we have also set out a minded to position on the treatment of flexibility in the connection queue.

This sets out that where flexibility providers can free up capacity by accelerating up the connection queue they should be allowed to do so. Queue management rules would then be used to determine who the available capacity would be offered to. These proposals provide rules in principle for the management of flexibility in the connection queue. Subsequent to this consultation, should the approach be supported then required technical standards, commercial or contractual arrangements to encourage and facilitate this behaviour are out-with the scope of this work product. Any further development or implementation activities will be considered as part of the 2020 workplan for the Open Networks Project.

1.4 How to engage and respond

This consultation sets out the policy framework that network companies are minded to adopt, unless feedback from industry dictates otherwise. We welcome feedback on all aspects of the consultation; in particular we would encourage responses to the following questions:

Q1. Do you agree with the 'conditional' interactivity solution being proposed as the preferred solution? If not, what reasons do you have for preferring a different solution?

Q2. Do you agree with the proposal to form the connection queue (subject to interactivity) based on the date that the customer accepts the connection offer? If you do not agree, please provide justification in your response

Q3. Do you agree with the preferred queue management milestones, timescales and evidence requirements? Are there any projects where you think milestones should not be applied? Please provide justification

Q4. Do you agree with the preferred approach to providing 'tolerance'?

In particular, we would welcome your views on the following;

I. The concept of tolerance and cumulative delay

<p>II. The timescales set out in table 1 that will be used to determine projects that are 'at risk'</p> <p>III. The timescales set out in table 2 that will be used to determine if a project is subject to termination.</p>
<p>Q5. We would welcome your views on the preferred approach to queue management rules illustrated in the examples provided.</p> <p>Specifically;</p> <ul style="list-style-type: none"> a) Do you agree with the position that where a project moves to the bottom of the queue, milestones will be updated to reflect the new connection date, whereas any cumulative delay accrued from the date of offer acceptance will be carried over? b) Do you agree with the position that a project would be required to reduce capacity if the capacity available is less than the capacity of that project?
<p>Q6. Do you agree with the preferred approach to the treatment of flexibility in a connection queue? Please provide justification, if you do not agree.</p>

This consultation will be open for eight weeks and closes on 25 September 2019. Please send your responses to the consultation by email to opennetworks@energynetworks.org

While the consultation is open, you are invited to join a public webinar on the 7 August 2019. Further details on this event and any subsequent engagement opportunities will be provided on ENA's website and communicated to stakeholders on the project's mailing list. You can sign up for this mailing list or ask questions by emailing the address above.

All consultation responses are intended to be published on ENA's website, therefore if your response is confidential and not for publication, please clearly notify us. Or, if elements of your organisation's response are confidential then please provide us with a full version for consideration and a non-confidential version for publication.

2 Application interactivity

2.1 Overview of application interactivity and background

In November 2018, ENA (through Open Networks Workstream 2) launched the 'Interactivity and Queue Management' consultation on preferred approaches to application interactivity and connection queue management¹. The consultation closed in February 2019 and the views expressed in that consultation have informed the further development work on application interactivity in the first half of 2019.

Application interactivity is the situation where network companies receive two or more connection applications that will make use of the same part of the existing or future network and where not all the applicants can be connected without a material impact on the connection offers made in respect of such other applications, such as incurring additional reinforcement. The resulting connection offers are referred to as interactive connection offers. Interactivity can be in relation to a number of different aspects, including network capacity (such as circuit ratings and switchgear fault level capability), point of connection, application of constraints (such as those managed by an active network management scheme), etc.

The responses from the November 2018 consultation were not conclusive in defining a preferred approach to interactivity. Different respondents found pros and cons with all the various interactivity processes currently used across each of the network companies. However, the one common theme was that respondents would prefer to have a consistent approach to interactivity across all networks. As such, the work undertaken on interactivity processes in Open Networks Workstream 2 (under Product 3) in the first half of 2019 has been to compare and develop options and to propose a common solution, as described below.

2.2 Options comparison

There are currently two main application interactivity processes used across network companies, namely the 'moratorium process' (used by most network companies, although with significant variation between them) and the 'conditional process' currently used by UKPN. A third process, suggested in the responses to the November 2018 consultation, has been developed this year, referred to as the 'cumulative process'. A brief outline of these processes is as follows:

- 'Moratorium' process. Customers receive a 'good news first' offer, which assumes that no other live offers have been accepted. Offers are issued based on available capacity at the time, i.e. capacity which has not yet been contracted. Offers are not interactive until the number of offers issued exceeds the available capacity. Once the requested capacity exceeds the available capacity/infrastructure, all offers on the same part of the network become interactive. As such, not all offers can be accepted. At this time, all customers impacted are informed and are given a moratorium period (typically 5 or 10 days) to consider their options and to accept their offer. Acceptances are then assessed after the moratorium period, with customers either being successful or unsuccessful. If customers are unsuccessful in the interactivity, they can reapply and

¹ <http://www.energynetworks.org/electricity/futures/open-networks-project/open-networks-project-stakeholder-engagement/public-consultations.html>

keep their relative position in any new interactivity queue. As a modification to the existing moratorium processes, the process that has been considered for this consultation assumes that the moratorium period will not be extended for new offers issued during the moratorium.

- 'Conditional' process (used by UKPN). Customers are notified about likely interactivity shortly after the network company receives the application which triggers interactivity. Customers receive a 'good news first' offer, which assumes that no other live offers have been accepted. When interactivity is triggered, the customer first in the interactivity queue receives an 'unconditional' offer and so can accept their offer regardless of the outcome of any of the other offers. All other customers receive a 'conditional' offer, such that their ability to accept is dependent on one or more earlier offers not being accepted. All interactive offers have a 30 day acceptance period during which customers can consider their options and accept their offers, until all available capacity is utilised. Any customers accepting their offers after this point are therefore unsuccessful. If customers are unsuccessful in the interactivity, they can reapply and join the back of the queue. The modified process proposed in this consultation includes the ability for unsuccessful customers to maintain their position in the queue for any subsequent interactivity, as they would under the moratorium process.
- 'Cumulative' process (new). This process does not consider the available capacity (i.e. not yet contracted). Instead, all offers are issued on the basis that every previous offer has been accepted (and so offers are cumulative in their impact on the network). This cumulative effect means that customers receive a 'bad news first' offer, with potentially large reinforcement requirements and costs. If earlier customers choose not to accept their offers, then the offers for later customers will be studied again and re-issued to reflect reduced reinforcement requirements.

In order to try and decide between these options the working group has undertaken development work on all three processes to address shortcomings in the existing 'moratorium' and 'conditional' processes (as referred to above), and to create the outline of the 'cumulative' process. Following this development work, the working group has completed a comparison of all three options. The comparison included practical considerations regarding consistent implementation for DNOs and benefits for customers. Appendix 2 contains the options comparison table.

As a result of the comparison, the modified 'conditional' interactivity process emerged as the preferred solution likely to best suit customers and for ease of common implementation. It provides marginal benefits to customers over a modified 'moratorium' process, through providing a longer time to accept and a lower risk of extended interactivity. The 'cumulative' process is very different from the other solutions and the group felt that it should be presented as an alternative. However, as it has not been tested at scale and could potentially deter customers from accepting, it is not the preferred process. Both the 'conditional' and 'cumulative' processes have been set out in more detail in sections 2.3 and 2.4, with the consultation question for respondents below.

Q1. Do you agree with the 'conditional' interactivity solution being proposed as the preferred solution?

If not, what reasons do you have for preferring a different solution?

2.3 Preferred common interactivity solution (the 'conditional' process)

The following diagram shows the general steps in the 'conditional' process, and in this example case there is only sufficient network capacity for one customer to accept their offer. Customer 1, who has an unconditional offer, chooses to accept their offer. The modification of this process over the existing one used by UKPN, is that unsuccessful customers are able to keep their place in the queue (i.e. keep their original application date). This is shown on the right of the diagram.

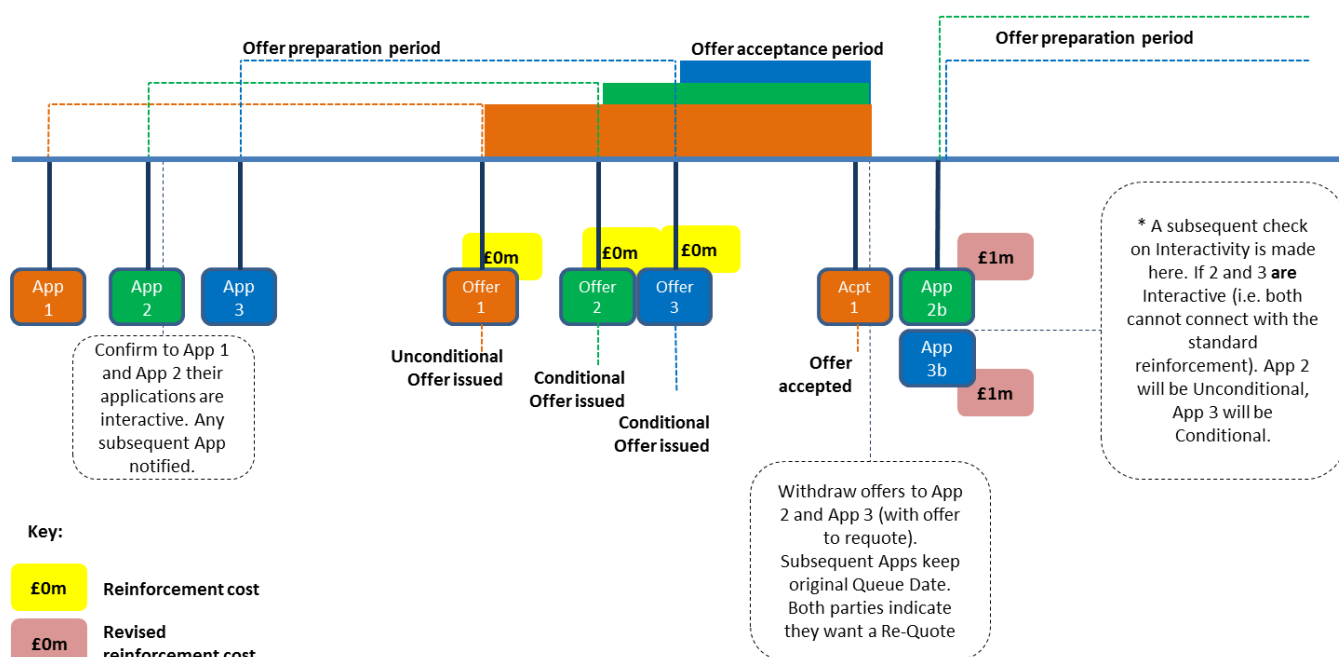


Figure A – the 'conditional' process

The diagram below shows what happens when not all customers accept their offers.

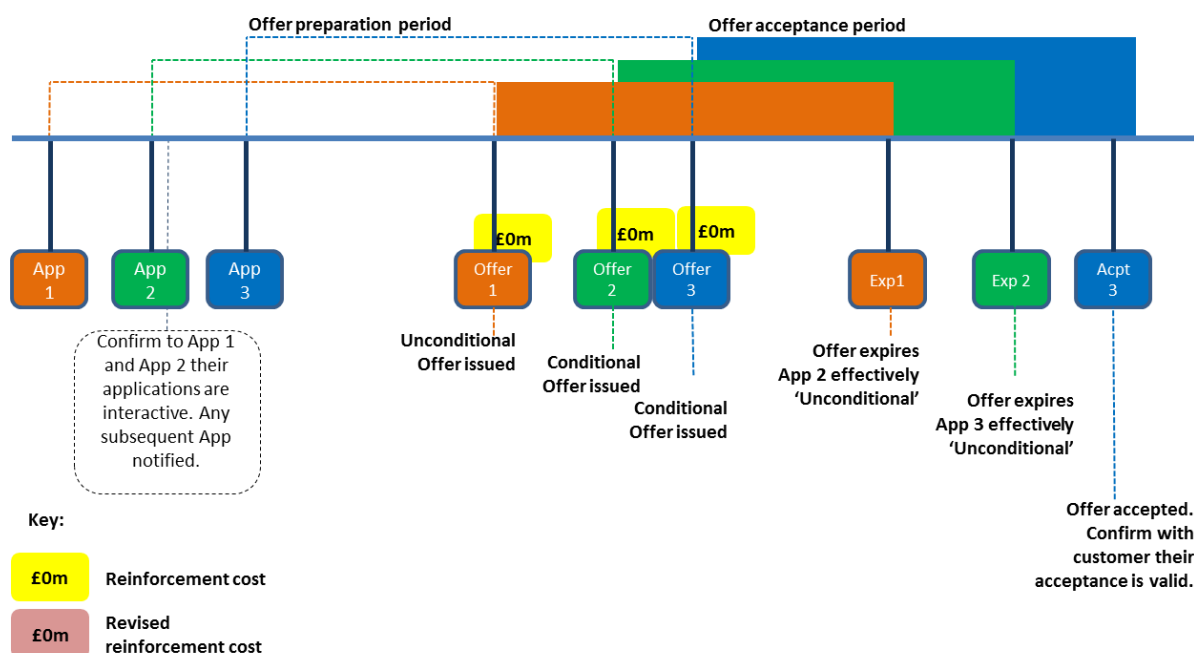


Figure B – the 'conditional' process, not all customers accept their offers

There are other scenarios which have been included in Appendix 3.

2.4 Alternative common interactivity solution (the 'cumulative' process)

The following diagram shows the general steps in the 'cumulative' process, and in this example case there is only sufficient network capacity for one customer to have an offer without reinforcement. In this example, all customers choose to accept their offers.

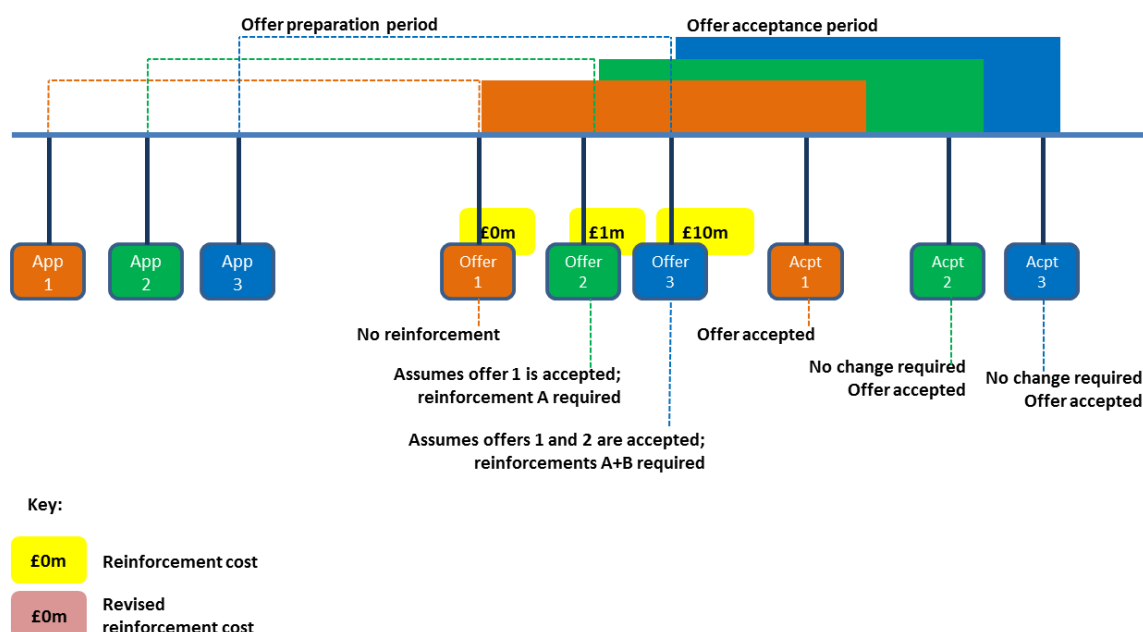


Figure C – the 'cumulative' process, all customers accept their offers

In the diagram below, customer 1 accepts their offer, so no change is required for offers 2 and 3 at that point. However, customer 2 lets their offer expire, which reduces the reinforcement requirement for customer 3. A revised offer is issued for customer 3. The proposal is that a customer's offer will only be re-issued once during the offer period, once the outcome of the customer directly ahead of them is known.

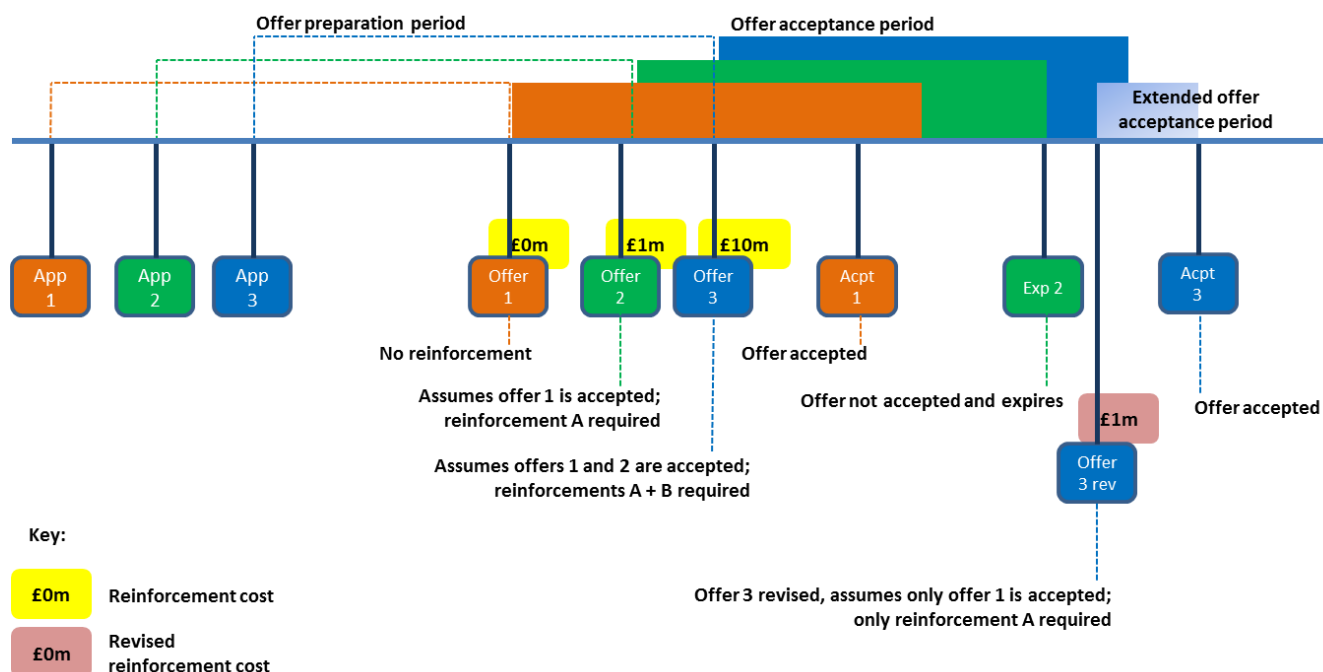


Figure D – the 'cumulative' process, customer 2 does not accept their offer

There are other scenarios which have been included in Appendix 3.

2.5 Next steps

After this consultation, the responses will be considered during September and October 2019. If there is sufficient agreement on the preferred 'conditional' interactivity process in section 2.3 above, then all network companies will be expected to implement this agreed process. A detailed process document will be developed in order to help facilitate this change.

The Open Networks Workstream 2 Product 3 will continue to develop other aspects of interactivity during 2019, such as interactivity between transmission and distribution customers, and between customers on distribution networks and IDNOs.

3 Connection Queue Management

3.1 Overview of queue management

Queue management is not a new concept for electricity networks. This is the process by which network companies manage contracted connections against limited capacity. To date this has largely relied on a 'first to contract, first to connect' principle.

However, as the customer base across transmission and distribution has evolved with growth in renewable generators and the introduction of new technologies, there is some concern that the existing framework no longer delivers the best outcome for network companies and their customers.

Queue management is intended to build on existing principles with a policy framework that enables network companies to move projects down the connection queue if they are not progressing as planned and progress projects up the queue where capacity is available.

There are two critical components to queue management policy as follows:

1. **Milestones:** these are used to form the benchmark by which network companies and their customers can measure and track the progress of a project towards a contracted connection date. Used on their own, milestones are a blunt form of queue management where if a customer fails to meet an agreed milestone its contract is terminated and the capacity is made available to other projects.
2. **Tolerance:** This mechanism is designed to strike an appropriate balance between giving customers an opportunity to 'get back on track' where milestones have been missed, while giving network companies the opportunity to intervene to change the order of the connection queue, or to terminate contracts.

The following sets out the preferred approach to the above principles and queue management rules developed under the Open Networks Workstream 2 Product 2.

3.2 Forming a Queue

The first to contract, first to connect principle is illustrated in table 1 below.

- Projects A - D are placed into a queue as a result of the application process. This means that capacity is allocated to them based on the date that they accept their connection offer.
- Projects E – H require reinforcement to the network and are only able to connect once this is complete in 2026
- These projects are therefore allocated a position in the queue as soon as they accept their connection offer.
- If any projects were interactive, their place in the connection queue would be allocated based on the outcome of the interactivity process outlined in [section 2](#).

No Reinforcement			
Acceptance date	Project Name	Capacity	Connection Date
Jan 19	A	50	2022
Feb 19	B	10	2022
March	C	30	2022
April	D	20	2022
Reinforcement			
May 19	E	30	2026
June 19	F	50	2026
July 19	G	10	2026
August 19	H	10	2026

Figure 1 First to contract, first to connect principle

3.2.1 Issues with existing policy

Under current arrangements, projects that sit ahead of any required reinforcement (Projects A- D) can create issues where they choose to delay their connection date or if they aren't progressing as planned. This can lead to delays and extra costs for subsequent customers if the capacity is deemed to being held for the project that is earlier in the queue. This document seeks to find a balanced approach that balances the impact on the two projects and allows connections to overall be made more quickly.

Challenges with the 'first to contract, first to connect' principle most commonly occur within the proportion of the queue that sits behind a reinforcement (Projects E – H).

For example, if either Project A or C in Figure 1 did not progress then Project E could progress earlier and without reinforcement. Currently this could only happen if either Project A or C cancelled or were terminated by the network company; without this, Project E is delayed until the reinforcement work are completed and the network company may have completed some reinforcement that is not required, which is inefficient overall.

There may be legitimate reasons for customers moving connection dates. However, under the existing arrangements there is no real mechanism for network companies to intervene where a customer continually delays.

Connection Queue Management policy is designed to address these issues.

Q2. Do you agree with the proposal to form the connection queue based on the date that the customer accepts the connection offer? please provide justification

3.3 Milestones

As stated in the November 2018 consultation, milestones act as the foundation to robust queue management policy and are used to measure the progress of a contracted customer to meet its connection date.

Agreed Milestones will be placed in customers' connection contracts to reflect the key stages of project development (from planning to construction). This allows customers and network companies to have better visibility of project progression and identify risks where projects delay against defined milestones.

DNO's have broadly adopted the milestones developed by the ENA DER Steering Group and these are used to form the basis of this queue management approach with the addition of a new milestone (Project Commitment).

This new milestone will provide confidence to the network companies that a connection project is progressing towards its contracted connection date and ensures that there are milestones across all stages of the project development pathway – planning, financing and construction.

Milestones are intended to be challenging but realistic, with an expectation that customers will have undertaken some relevant project development activity before accepting a connection offer.

The complete details of the ENA milestones are available here

<http://www.energynetworks.org/assets/files/news/publications/Reports/ENA%20Milestones%20best%20Practice%20Guide.pdf>

3.3.1 Evidence & Timescales

Each Milestone will have associated timescales evidence requirements as set out in table 1 below.

Once a connection offer is accepted it will be the customers' responsibility to provide the evidence necessary to demonstrate it has met the milestone requirements.

While these principles could apply to all projects, it is proposed that due to the relatively small number of projects that require Development Consent Orders (DCO), timescales for these projects will be agreed on a case by case basis with the relevant network company.

Table 1 Milestone timescales and evidence

		Existing DER milestone	
		DNO specific milestone	
		New milestone proposed	
Number	Milestone	Timescale	Evidence
1.	Initiated statutory consents including planning Permission	<p>No EIA - 2 Months from Offer acceptance</p> <p>EIA – Engage third parties within 2 months</p> <p>Confirmation of application submission within 14 months of acceptance</p>	<p>No EIA – planning application</p> <p>EIA – written confirmation and cost commitment to engaging third parties to undertake EIA works followed by confirmation of application submission</p>
2.	Secured statutory consents including Planning Permission	<p>12 months from Offer acceptance (Non EIA)</p> <p>24 months from offer acceptance (EIA)</p> <p>DCO projects to be considered on a case by case basis (maximum 36 months)</p> <p>Where evidence can be provided that an extended timescale is required this will be considered by the relevant network company</p>	<p>Planning decision notice issued to applicant and decision recorded on the public register</p>
3.	Land Rights	2 Months from acceptance date	<p>Customer can provide paperwork to demonstrate that it:</p> <p>(i) is an owner or lessee of the land on which the station is situated; or</p> <p>(ii) has entered into an agreement to lease the land</p>

			<p>on which the station is situated; or</p> <p>(iii) has an option to purchase or to lease the land on which the station is situated; or</p> <p>(iv) has entered into an exclusivity agreement in relation to the</p>
4.*	TSO Interface*	<p>All within timescale of relevant TSO processes, in accordance with its governance process, notwithstanding any reasonable negotiations which may be ongoing between TSO and DNO or TSO and customer (which may require extensions of time).</p> <p>As set out in Appendix 1</p>	As set out Appendix 1
5.*	Contestable Design Works Submission*	To be agreed with the customer, normally working back from connection date but generally no earlier than the date of planning consent.	Complete design submission
6.	Construction plan submission (Previously called 'commence and progress works' under ENA DER milestones)	Within 6 Months of granting planning permission	<p>Present to the network company for agreement, the customer's programme of works (and/or ICP programme of works) that demonstrates how they will be ready for the agreed connection date</p> <p>This must include a fixed date for Project Construction</p>
7.	Project Commitment	<p>To be agreed with the network company:</p> <ul style="list-style-type: none"> Where the Project Construction Milestone (Milestone 8) is more than 12 months after the date the construction plan is submitted, the date for milestone 7 submission 	<p>One of:</p> <ul style="list-style-type: none"> i) Binding contract for main plant equipment, ii) Staged Payment made to DNO

		<p>will be set at a date that is half way between milestone 6 and milestone 8.</p> <ul style="list-style-type: none"> If there is less than 12 months between the date that the construction plan is provided and the date that construction begins, then it may not be necessary to include milestone 7 (to be agreed with network company) <p>Further details set out in Appendix 4.</p>	<p>iii) Board paper</p> <p>iv) Evidencing FID</p> <p>Subsidy award</p>
8.	Project Construction		As set out in the construction plan agreed with the network company e.g. G59 certificate.

3.3.2 Timescales

The diagrams below demonstrate how the timescales for each milestone are set for both EIA and non-EIA projects.

Milestones 4 and 5 are agreed on a case by case basis and have not been included in the diagrams below.

The following milestones are measured from the date that you accept your connection offer, or 'Offer Acceptance' (OA), for both EIA and Non-EIA projects:

- Initiate planning permission
- Secure planning permission
- Land rights

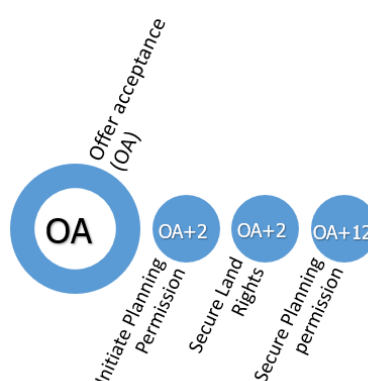


Figure 2 Non-EIA project timescales

Where projects do require an EIA – the initiate planning milestone is split in to two stages:

- Stage 1 – provide evidence that you have engaged consultants to undertake the necessary studies
- Stage 2 – provide evidence that you have submitted a planning application for determination by the relevant authority

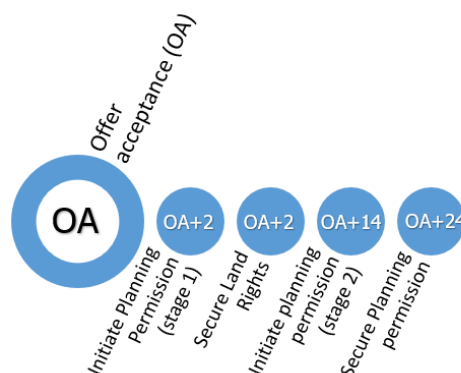


Figure 3 EIA project timescales

The next milestone 'construction plan submission' is measured from the date that the developer secures planning permission (PP) for both EIA and non-EIA projects.

This milestone requires the developer to provide the network company with a construction plan with a 'project construction' (PC) date which is then used to calculate the timeframe for achieving the project commitment milestone.

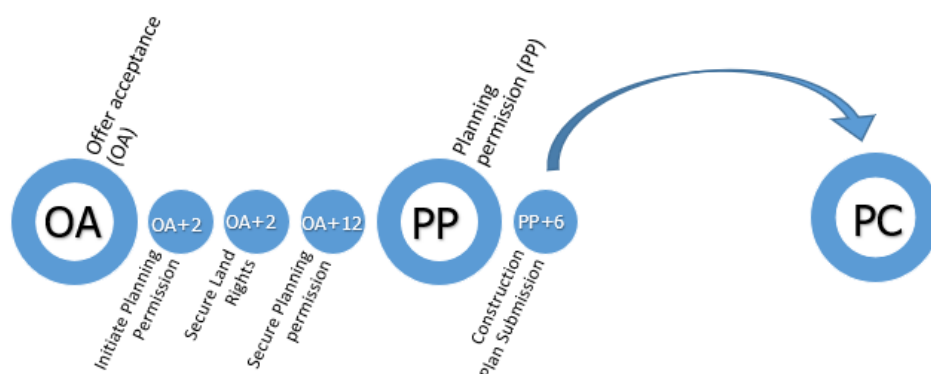


Figure 4 Non-EIA project timescales

The final milestone will be set at a date that is half way between the date of construction plan submission and project construction date provided.

Where the time between submitting the construction plan and project construction is less than 12 months, this milestone may not be required (details set out in appendix 4)

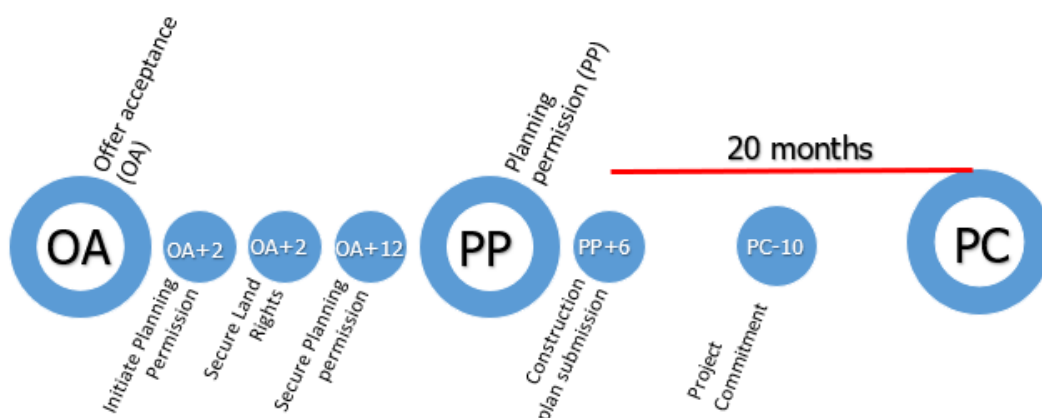


Figure 5 Non-EIA project timescales

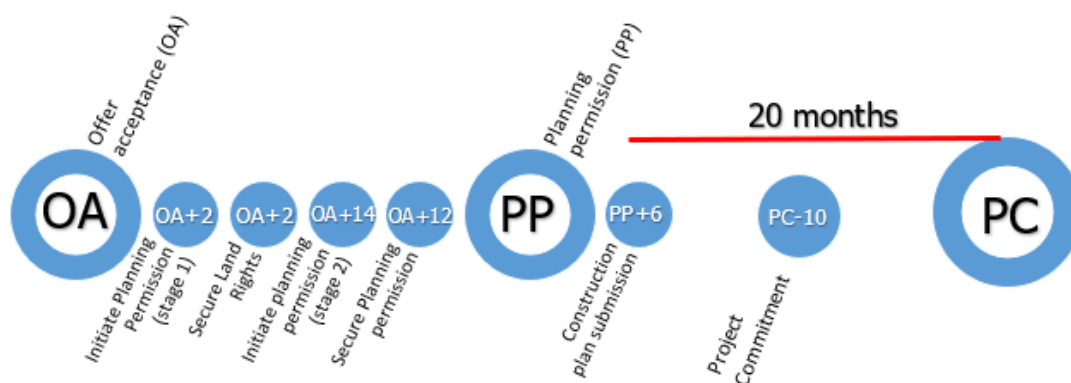


Figure 6 EIA project timescales

Q3. Do you agree with the preferred queue management milestones, timescales and evidence requirements? Are there any projects where you think milestones should not be applied?

Please provide justification.

3.4 Tolerance

The tolerance proposal has been developed to allow customers to manage reasonable delays without risk of immediately losing their place in the connection queue. This is in recognition of the fact that all projects can be subject to delays that are out with the control of the developer.

Applied on their own, milestones provide network companies with a binary choice of terminating the project or allowing it to continue. Terminating a project that has not met one milestone could be considered an unreasonable approach and some network companies have been reluctant to take such action. On the other hand, taking no action can disadvantage other projects that are willing and able to progress. The tolerance proposal has been developed to create a middle ground where there are some consequences for projects that are not progressing but they are not as extreme as being terminated. The tolerance proposal uses the concept of 'cumulative delay' which effectively provides a degree of float in the project timeline. Projects are classified with one of three different statuses depending on the extent of the cumulative delay:

- 'work in progress' – the project can proceed without any intervention
- 'at risk' – the project's position in the queue can be changed
- 'termination' – the network company is able to terminate the contract

The proposed timescales for the different thresholds are shown in table 2 below. The voltage level refers to the voltage of connection to the network company's existing assets.

It is important to note that where customers use a modification application to push connection dates back –a delay will be accrued from the original connection date to the new requested date and will be included in the calculation of cumulative delay.

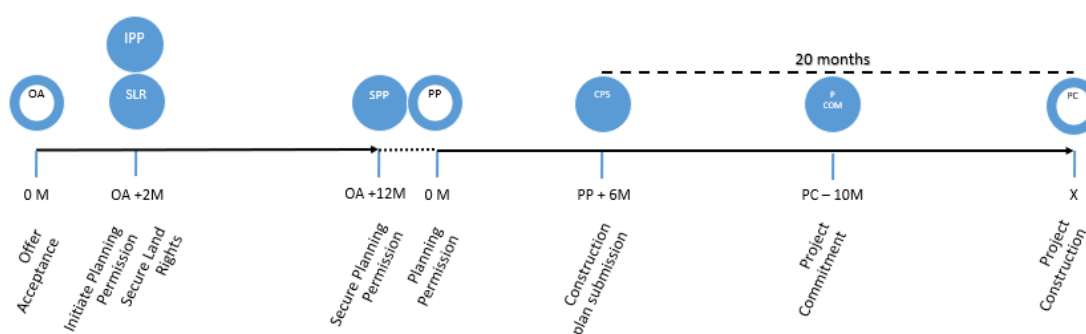
Definition	LV & HV	EHV & 132kV	275kV, 400kV and Offshore 132kV
Work in Progress	3 months or less	6 Months or less	12 months or less
At Risk	Greater than 3 months	Greater than 6 months	Greater than 12 months
Termination	Greater than 6 months	Greater than 12 months	Greater than 24 months

Table 2 Tolerance timescales

3.4.1 Cumulative delay

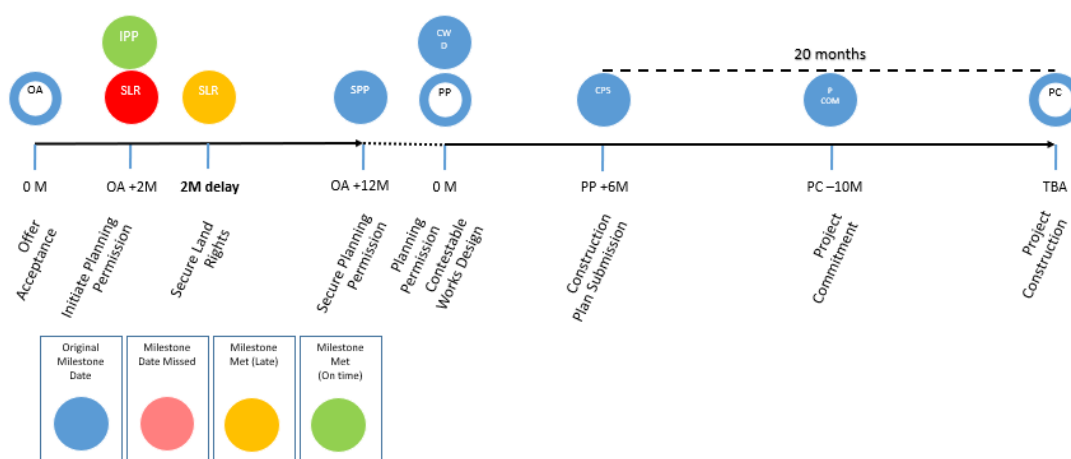
The following example sets out how a cumulative delay is measured.

- In the example below the Project Milestones are agreed as follows;



3.4.1.1 Cumulative delay 1

In this example the 'Initiate Planning Permission' milestone has been completed on time and shown as 'green' in the diagram below. However, there is a two month delay in 'Securing Land Rights'; the original milestone date is shown 'red' in the diagram below and the actual date it was completed is shown as 'amber'. At the point that Securing Land Rights Milestone is met, there is a Total Cumulative Delay of two months.

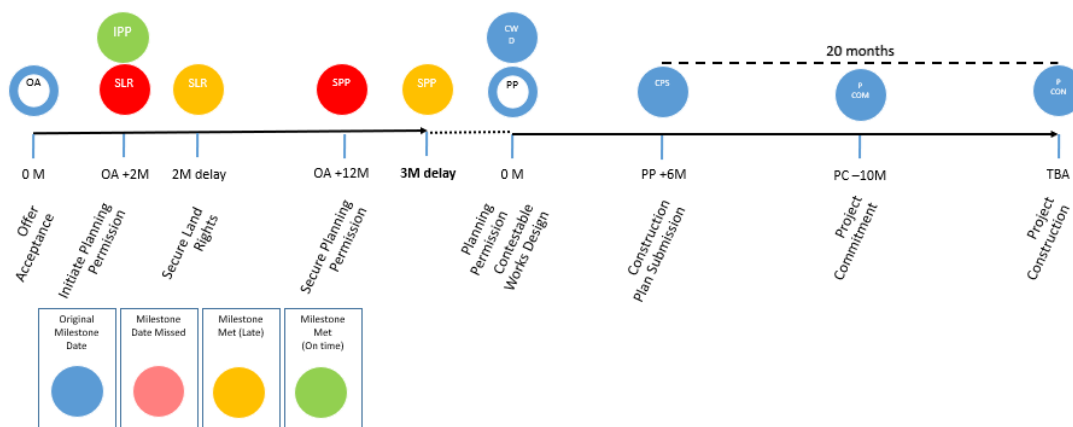


In this example there would be no action as a result of the delay as this would be considered as 'work in progress' under all categories.

Connection point	Project Status
LV & HV	Work in progress
EHV & 132kV	Work in progress
275kV, 400kV and Offshore 132kV	Work in progress

3.4.1.2 Cumulative delay 2

In this example there is an additional delay in the project and the Securing Planning Permission milestone is not met (shown 'red'). At the point that Securing Planning Permission Milestone is met, three months in this example, there is then a Total Cumulative Delay of five months.



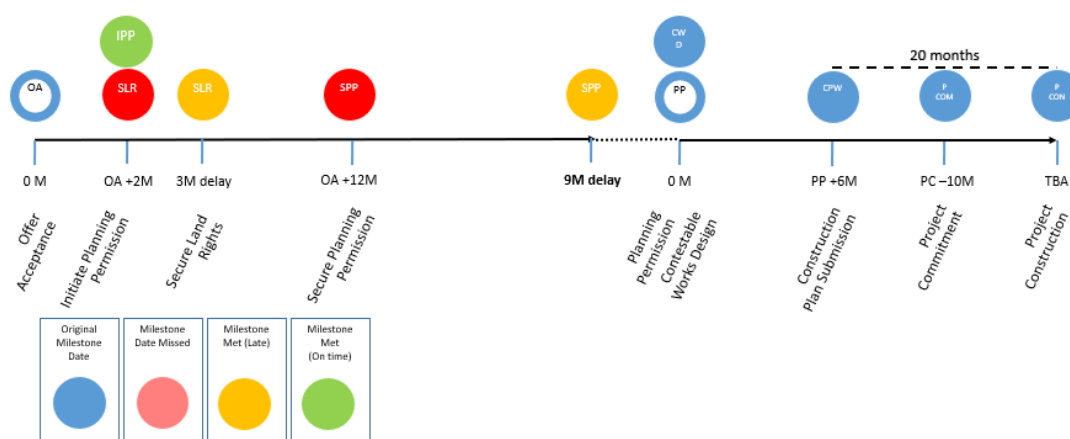
If this was LV / HV the project would be 'At Risk', but would be 'work in progress' for other network categories.

Connection point	Project Status
LV & HV	At Risk
EHV & 132kV	Work in progress
275kV, 400kV and Offshore 132kV	Work in progress

3.4.1.3 Cumulative delay 3

In this example, the project below experiences a delay of three months against the Securing Land Rights Milestone and a further delay of nine months against the Securing Planning Permission Milestone. In this example there is then a cumulative delay of 12 months.

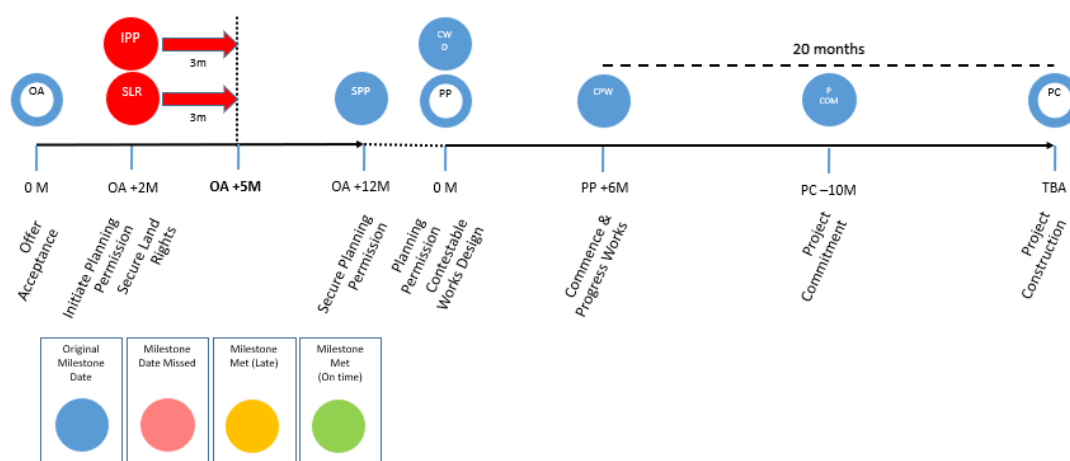
Assuming that this is a Transmission contracted project, it will be considered 'At Risk' of Queue Management from the point that Planning Permission was met.



Connection point	Project Status
LV & HV	Termination
EHV & 132kV	Termination
275kV, 400kV and Offshore 132kV	At Risk

3.4.1.4 Cumulative delay 4

In the event that a delay impacts both the Initiating Planning Permission **and** Securing Land Rights milestones the delay is compounded. At the point when both Milestones are overdue by three months then the Cumulative Delay at that point would be 6 months.



This puts an LV / HV Project at risk of termination and larger projects 'At Risk' and subject to Queue Management.

Connection point	Project Status
LV & HV	Termination
EHV & 132kV	At Risk
275kV, 400kV and Offshore 132kV	Work in progress

Q4. Do you agree with the preferred approach to providing 'tolerance', We would welcome your views on the following

- I. **Concept of tolerance and cumulative delay**
- II. **The timescales set out in table 1 that will be used to determine projects that are 'at risk'**
- III. **The timescales set out in table 2 that will be used to determine if a project is subject to termination.**

3.4.2 Consequences of queue management

As described earlier the intention of this policy is that there are some consequences for slow moving projects but that they are less than the project being terminated in the first instance. The consequences can take the form of enforced delays (where the network company needs to complete works prior to the connection) and additional costs (in the form of reinforcement costs or increased securities and liabilities).

Overall the impact of queue management would be that 'Work in Progress' projects would be given the opportunity to obtain an earlier connection date with lower costs (at Distribution) or potential liability and security (at Transmission) if another project became 'At Risk' - contracts for each of the projects would be updated to show the works and costs (or liability and security) appropriate or their new place in the connection queue as a result of queue management. This provides a further incentive on projects to meet their contracted milestones and ensures more effective use of available capacity if projects do not do so when compared to the status quo.

In the event a project was to be queue managed, the project being moved backwards in the queue would move behind the reinforcement(s) and so would then become dependent upon additional reinforcement for connection. This would include becoming liable for any capital payments at Distribution (or User Commitment at Transmission) in respect of those additional works. The project moving forward in the queue would in turn cease to be dependent on the reinforcement work(s) and would no longer need to make payments towards that scheme (at Distribution) or be liable for and secure that scheme (at Transmission) as they would no longer be dependent upon that reinforcement work(s) for their connection.

With regard to Transmission projects which are queue managed and have previously elected to 'fix' their attributable liability in accordance with CUSC Section 15 (see Appendix 5) then it would be appropriate for the project moving forwards in the queue to be given the opportunity to unfix (i.e. so that their liability and resulting security no longer includes the works which are no longer required for their connection). It would also be appropriate for the project being

moved backwards in the queue to incur 'compulsory unfixing' so that they then become liable for their share of the additional reinforcement works required for their connection (i.e. so they do not continue to benefit from the certainty provided by their fixed profile in the event they have not complied with their contracted milestones within a reasonable tolerance).

It is acknowledged that the above (if supported by stakeholders) would still require a formal CUSC Modification Proposal to implement through codification and it will be further considered as part of our implementation planning in future.

With regard to Distribution projects which are queue managed in respect of their reinforcement works which are no longer required for their connection (due to being advanced in the connection queue) then the project moving back in the queue would be liable for their contribution to the reinforcement and therefore may be liable for additional charges. For those projects moving up the queue, they may have the opportunity to reduce the level of charges associated with reinforcement. However, the detail of this will be developed further following the outcome of the consultation.

3.5 Putting Queue Management into practice

The following examples demonstrate how a project would be managed in the connection queue where it is deemed 'At Risk'.

3.5.1 Example 1: Simple queue management scenario

In the example below projects A – D would have accepted their connection offer for a connection in 2022 in the order 1 – 4.

Projects E – H would like to connect in 2022 but due to the need for reinforcement are unable to connect until 2024. These projects have accepted their connection offers in the order 5 – 8 based on their acceptance date.

No reinforcement					
Order	Project Name	Capacity	Connection Date	Cumulative Delay	QM Status
1	A	50	2020	13 months	At risk
2	B	10	2022	2 months	Work in progress
3	C	30	2021	0 months	Work in progress
4	D	10	2023	0 months	Work in progress

Reinforcement required					
Order	Project Name	Capacity	Connection Date	Cumulative Delay	QM Status
5	E	50	2024 (2022)	0 months	Work in progress
6	F	30	2024 (2022)	1 month	Work in progress
7	G	10	2024 (2022)	3 months	Work in progress
8	H	10	2024 (2022)	0 months	Work in progress

Project A has incurred a cumulative delay of 13 months and is considered 'at risk' therefore triggering the queue management process.

The network company will look at the next projects in the queue (B, C and D) which are all still on track and will remain ahead on the connection queue.

Project E would be offered the ability to connect earlier with revised costs and securities.

Project E accepts this offer and the queue is reordered as follows:

No reinforcement					
Order	Project Name	Capacity	Connection Date	Cumulative Delay	QM Status
1	A	50	2020	10 months	At risk
2	B	10	2022	2 months	Work in progress
3	C	30	2021	0 months	Work in progress
4	D	10	2023	0 months	Work in progress
Reinforcement required					
Order	Project Name	Capacity	Connection Date	Cumulative Delay	QM Status
5	E	50	2024	0 months	Work in progress
6	F	30	2024	1 month	Work in progress
7	G	10	2024	3 months	Work in progress
8	H	10	2024	0 months	Work in progress



Project A will move to the bottom of the reinforcement queue – this is in recognition of the fact that the other projects in the queue F and G have remained on track and if any additional capacity were to free up at the front of the queue they would be given first opportunity to accept.

Project A would be given a nominal acceptance date after Project H to cater for situations where there are further acceptances and join the queue later.

This project also picks up the additional costs and securities associated with the connection. The cumulative delay remains with the project and the milestones will be updated to reflect its new connection date.

Projects B-D will move up the queue to take the place of project A.

Project E will move to the bottom of the queue that sits ahead of the reinforcement requirement with lower costs and securities.

No reinforcement					
Order	Project Name	Capacity	Connection Date	Cumulative delay	QM Status
1	B	10	2022	2 months	Work in progress
2	C	30	2022	0 months	Work in progress
3	D	10	2021	0 months	Work in progress
4	E	50	2022	0 months	Work in progress

Reinforcement required					
Order	Project Name	Capacity	Connection Date	Cumulative delay	QM status
5	H	10	2024	0 months	Work in progress
6	F	30	2024	1 month	Work in progress
7	G	10	2024	3 months	Work in progress
8	A	30	2024	13 months	At risk

Project E is able to connect earlier and without the need for reinforcement.

Project A moves to the space created by project H and is subject to reinforcement. while relevant milestones will be updated to reflect the new connection date, the cumulative delay that lead to this project being classified as 'at risk' is carried over. This means that if project A were to continue to delay against milestones for a further 11 months, it could be subject to contract termination.

3.5.2 Example 2: Managing available capacity

Project A has incurred a cumulative delay of 13 months and is considered 'at risk', Projects B, C and D are all still on track and will remain ahead on the connection queue.

Project E would like to connect earlier and move up the queue but only 30 MW is available.

No reinforcement					
Order	Project Name	Capacity	Connection Date	Cumulative Delay	QM Status
1	A	30	2020	13 months	At risk
2	B	10	2022	2 months	Work in progress
3	C	30	2021	0 months	Work in progress
4	D	10	2023	0 months	Work in progress

Reinforcement required					
Order	Project Name	Capacity	Connection Date	Cumulative Delay	QM Status
5	E	50	2024	0 months	Work in progress
6	F	30	2024	1 month	Work in progress
7	G	10	2024	3 months	Work in progress
8	H	10	2024	0 months	Work in progress

Project E is offered the available capacity, although it would need to reduce its capacity to 30 MW. In this example Project E rejects this offer.

Project F is then offered the opportunity and accepts the available capacity.

No reinforcement					
Order	Project Name	Capacity	Connection Date	Cumulative Delay	QM Status
1	B	10	2022	2 months	Work in Progress
2	C	30	2022	0 months	Work in progress
3	D	10	2022	0 months	Work in progress
4	F	30	2022	1 months	Work in progress

Reinforcement required					
Order	Project Name	Capacity	Connection Date	Cumulative Delay	QM Status
5	E	50	2024	0 months	Work in progress
6	G	10	2024	3 month	Work in progress
7	H	10	2024	0 months	Work in progress
8	A	30	2024	13 months	At Risk

Q5. We would welcome your views on the preferred approach to queue management rules illustrated in the examples above.

Specifically

- a) Do you agree with the position that where a project moves to the bottom of the queue, milestones will be updated to reflect the new connection date, whereas any cumulative delay accrued from the date of offer acceptance will be carried over?**
- b) Do you agree with the position that a project would be required to reduce capacity if the capacity available is less than the capacity of your project?**

3.5.3 Example 3: Treatment of Flexibility

In these proposals, ENA Open Networks is taking forward an action from the Smart System and Flexibility Plan to consider treatment of storage/ flexibility providers in a connection queue..

"We expect network operators and industry to continue to improve network connections for storage – in particular, acting now to clarify the connection process (including for domestic and collocated storage), increasing transparency about where to connect, and implementing better queue management." Action 1.6 [Upgrading our energy system, Smart System and Flexibility Plan](#)

The following example sets out how the process of queue management could treat such users. This is a recommendation on the principles to be developed further if supported by respondents to this consultation. It does not consider the market mechanisms required to drive this behaviour in an economic and efficient manner – this is out with the scope of this product.

Projects A – D have accepted offers for connection ahead of the need for reinforcement (in order 1 – 4).

Project E & G would like to connect in 2022 but reinforcement is required, Project F (Flexibility) has applied for a connection in 2024.

No reinforcement					
Order	Project Name	Capacity	Connection Date	Cumulative Delay	QM Status
1	A	50	2020	3 months	Work in progress
2	B	10	2022	2 months	Work in progress
3	C	30	2021	0 months	Work in progress
4	D	10	2023	0 months	Work in progress
Reinforcement required					
5	E	50	2024 (2022)	0 months	Work in progress
6	F (Flexibility)	30	2024 (2022)	0 months	Work in progress
7	G	30	2024 (2022)	0 months	Work in progress

Project F is offered and accepts the option to connect earlier to relieve/ delay the need for the required reinforcement. The network company would need to satisfy itself that Project F will positively benefit the constraint on this section of network before it is given the opportunity to advance. This could take the form of a specific contract with the network to alleviate that specific constraint; general intention to operate in flexibility markets would not be sufficient evidence.

Projects E and G can now be offered earlier connection dates and the queue management rules apply for the 30 MW of capacity that is available.

Project E would need to reduce the capacity of their project if they were to accept, and so rejects the offer of early connection. Project G is next in line and accepts the offer of early connection.

No reinforcement					
Order	Project Name	Capacity	Connection Date	Cumulative Delay	QM Status
1	A	50	2020	3 months	Work in progress
2	B	10	2022	2 months	Work in progress
3	C	30	2021	0 months	Work in progress
4	D	10	2023	0 months	Work in progress
5	F	30	2022	0 months	Work in progress
6	G	30	2022	0 months	Work in progress
Reinforcement required					
7	E	50	2024	0 months	Work in progress

Q6. Do you agree with the preferred approach to the treatment of flexibility in a connection queue? Please provide justification, if you do not agree.

4 How to engage with the consultation

This consultation closes on 25 September 2019. If you would like to respond to the questions asked in this consultation, please send your responses to opennetworks@energynetworks.org.

We intend to publish all responses on the ENA website, therefore if your response is confidential and not for publication, please clearly notify us or if elements are confidential, please provide us with a full version for consideration and a non-confidential version for publication.

All are welcome to respond. Feedback on this paper is welcomed from all stakeholders, including (but not exclusively): network users, energy market participants; network operators, independent distribution network operators, aggregators, suppliers, DER, consumers, community energy schemes, new and existing business models and technologies.

A summary of the questions asked in this document is below:

Q1. Do you agree with the 'conditional' interactivity solution being proposed? If not, what reasons do you have for preferring a different solution?

Q2. Do you agree with the proposal to form the connection queue based on the date that the customer accepts the connection offer? If you do not agree, please provide justification in your response

Q3. Do you agree with the preferred queue management milestones, timescales and evidence requirements? Are there any projects where you don't think milestones should be applied?

please provide justification in your response

Q4. Do you agree with the preferred approach to providing 'tolerance'?

In particular, we would welcome your views on the following;

- I.** Concept of tolerance and cumulative delay
- II.** The timescales set out in table 1 that will be used to determine projects that are 'at risk'
- III.** The timescales set out in table 2 that will be used to determine if a project is subject to termination.

Q5. We would welcome your views on the preferred approach to queue management rules illustrated in the examples provided.

Specifically;

- a)** Do you agree with the position that where a project moves to the bottom of the queue, milestones will be updated to reflect the new connection date, whereas any cumulative delay accrued from the date of offer acceptance will be carried over
- b)** Do you agree with the position that a project would be required to reduce capacity if the capacity available is less than the capacity of your project

Q6. Do you agree with the preferred approach to the treatment of flexibility in a connection queue? Please provide justification, if you do not agree.

Next steps:

- Review consultation responses (Oct - Nov)
- Review of industry codes to identify any necessary changes for implementation (Sep – Dec)
- Response to consultation and roll-out plan published (Dec 19)

5 Glossary

Term	Definition
Workstream 1, Product 11	Facilitating Connections: Develop gap analysis and action plan for flexible resources in connection queues (including storage as per action 1.6 from the Smart Systems and Flexibility Plan) and publish to stakeholders.
Workstream 2, Product 2	Management of capacity
Workstream 2, Product 5	Good Practice Following Connection Applications: Review approaches for handling customer connections in the post-application phase and agree good practice.
BEGA	Bilateral Embedded Generation Agreement. A BEGA is an agreement type for embedded generators that require access to the transmission network. A BEGA will provide a generator with Transmission Entry Capacity (TEC) and allow it to operate in the balancing market.
BELLA	Bilateral Embedded Licence exemptible Large power station Agreement. BELLAs are an agreement type for generators that are classed as 'large' and are smaller than 100MW. For this reason it only applies in Scotland, because generators smaller than 100MW but greater than or equal to 50MW in England and Wales are 'medium'.
CUSC	Connection and Use of System Code. The CUSC is the contractual framework for connection to, and use of, the transmission system in Great Britain.
Customer	A person who is the owner or occupier of premises that are connected to the Distribution System or Transmission System.
Distribution Network Operator (DNO)	The person or legal entity named in Part 1 of the Distribution Licence and any permitted legal assigns or successors in title of the named party.
EIA	Environmental Impact Assessment
ENWL	Electricity North West Limited
IDNO	Independent Distribution Network Operator
Modification Application / Project Progression	Processes defined in CUSC for making applications to NG ESO
NGET	National Grid Electricity Transmission
NG ESO	National Grid Electricity System Operator. NG ESO is responsible for ensuring the stable and secure operation of the whole transmission system.
NPG	Northern Powergrid
SHET	Scottish Hydro Electric Transmission, part of SSEN
SPEN	Scottish Power Energy Networks
SSEN	Scottish and Southern Electricity Networks
Statement of Works (SoW)	Transmission Operators (TOs) are licensed to develop, operate and maintain the high voltage system within their own distinct onshore transmission areas.
UKPN	UK Power Networks
WPD	Western Power Distribution

Appendix 1 – Milestone 4 details

Evidence and timescale requirements for Milestone 4:

The following extract is taken from the ENA best practice guidance

<http://www.energynetworks.org/assets/files/news/publications/Reports/ENA%20Milestones%20best%20Practice%20Guide.pdf>

Milestone 4: TSO interface

Milestone 4	Detail	Evidence	Time period
TSO interface	<p>Some connection applications require interaction with the Transmission System Operator (TSO), either to ascertain if Transmission works or operational restrictions are required to make the connection, or to ascertain rights for use of the transmission system (which is obligatory for distributed generators above a certain size). Some of these processes are in the control of the customer and some of the DNO and TSO. In either case, where participation is obliged under the relevant industry code, the customer is required to initiate and continue to progress the relevant TSO process in good faith.</p> <p>The process by which relevant transmission works are normally established is the "Statement of Works" process, as detailed in connection and use of system code (CUSC) section 6.5. Further information is available on the TSO and DNO websites The DNO will clearly advise the customer whether Statement of Works (or equivalent replacement process) is required at the connection offer stage.</p> <p>In parallel, customers may enter into a bilateral agreement (BEGA¹⁰ or BELLA¹¹) with the TSO in parallel with their agreement to connect with the DNO. This would normally replace the Statement of Works process.</p> <p>For either process, as applicable, the customer will be required to undertake the following:</p>		All within timescale of relevant TSO processes , in accordance with its governance process, notwithstanding any reasonable negotiations which may be ongoing between TSO and DNO or TSO and customer (which may require extensions of time).

	<ul style="list-style-type: none"> initiate and continue process (including separate application to TSO, if relevant); 	Instruction for DNO / confirmation of receipt of application from TSO.	
	<ul style="list-style-type: none"> make payment(s) to DNO; 	DNO has received payment.	
	<ul style="list-style-type: none"> provide information as reasonably required; 	DNO/TSO has received information.	
	<ul style="list-style-type: none"> accept resulting contract offers and/or variations requested; and 	The signed contract.	
	<ul style="list-style-type: none"> maintain relevant financial securities. 	If not directly maintained with the DNO, then TSO confirmation that relevant securities have been placed.	

Appendix 2 – options comparison table

The table below is a comparison of the three interactivity options which have been considered. The newly developed cumulative process was not favoured, as the 'bad news first' approach has the potential to put customers off with high reinforcement costs upfront, and it also has the potential to cause considerable extra work for network companies. In the table below, high was good.

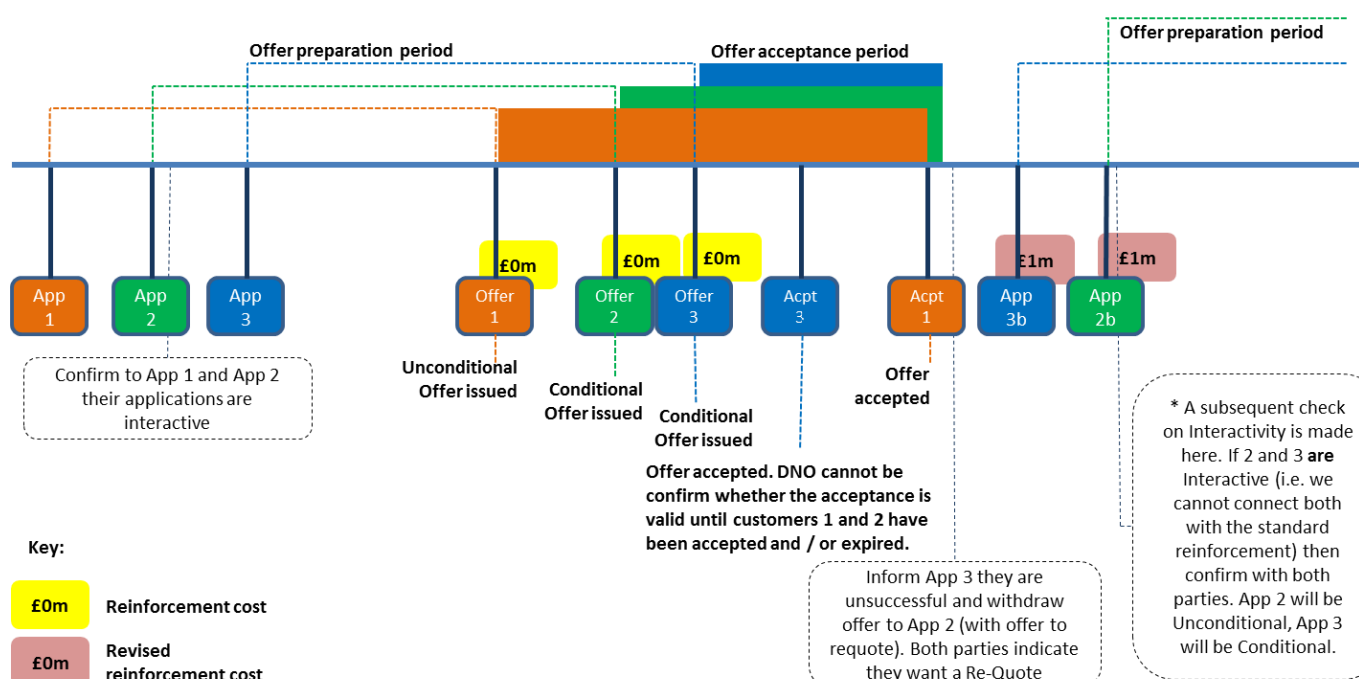
Criteria for assessment	1. Moratorium process (with no extension to queues)	2. Conditional (UKPN) process (modified to deal with unsuccessful customers)	3. Cumulative offers process (new)
Benefits to customers			
Speed of receiving clarity on offer	Medium	Medium	High / Low**
Transparency of queue	High	High	High
Keeping queue order	Medium	High	High
Offer validity with unsecured queue position*	Medium	Low	N/A
Time to accept with secured queue position, e.g. 10d moratorium vs 30d UKPN	Low	Medium	High
Benefits to network companies			
Ease of implementation	Medium	Medium	Low
Simplicity of administration, e.g. interactivity letters	Medium	Medium	High
Limits code changes	Medium	Medium	Low
Ease of coping with large numbers of applications	Medium	Medium	Medium
Ease of development for T-D interactivity	Medium	Medium	Medium
Minimises rework / unnecessary work	Medium	Medium	Low
<i>*At the end of a moratorium, if no one accepts, offers are still valid</i>			<i>**Depends on whether receiving bad news first is desirable</i>

Appendix 3 – additional diagrams for application interactivity processes

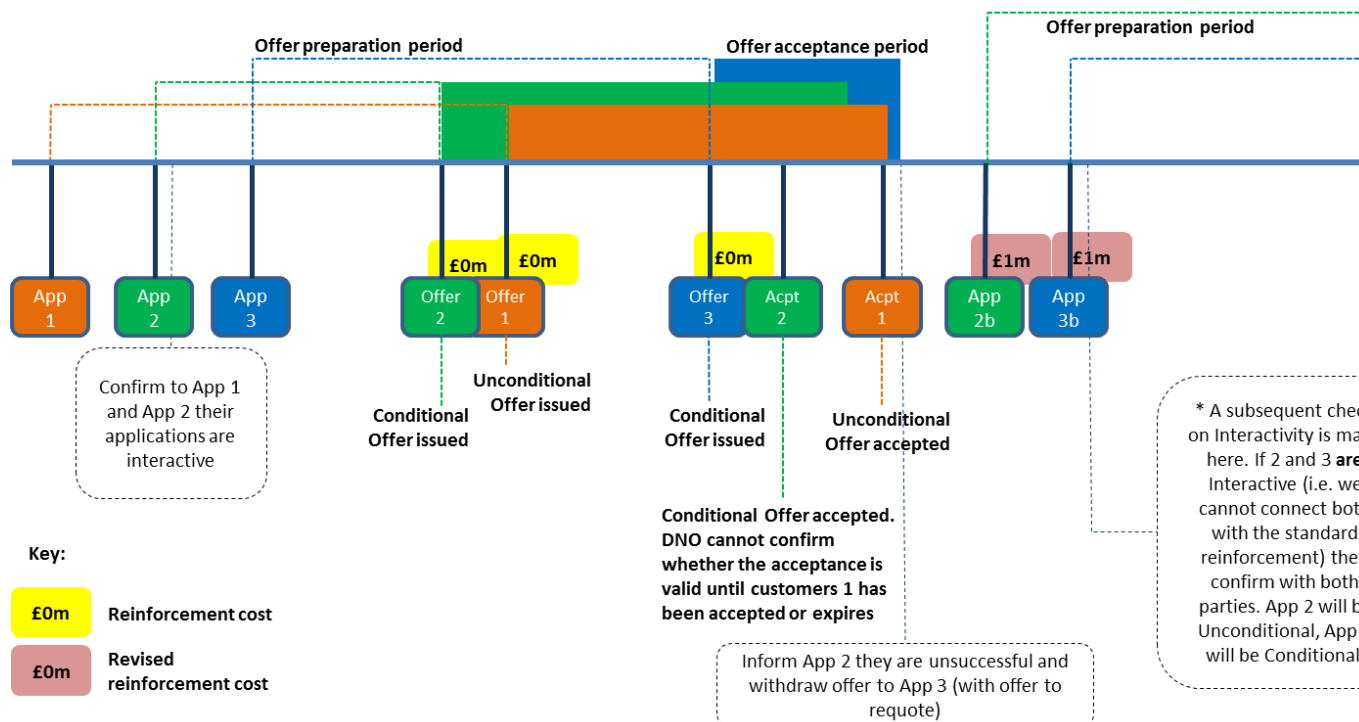
The diagrams below help to explain further the 'conditional' process and the 'cumulative' process, introduced in section 2 above.

'Conditional' process diagrams (refer to section 2.3 above)

Case 2 – customer 3 accepts their offer first

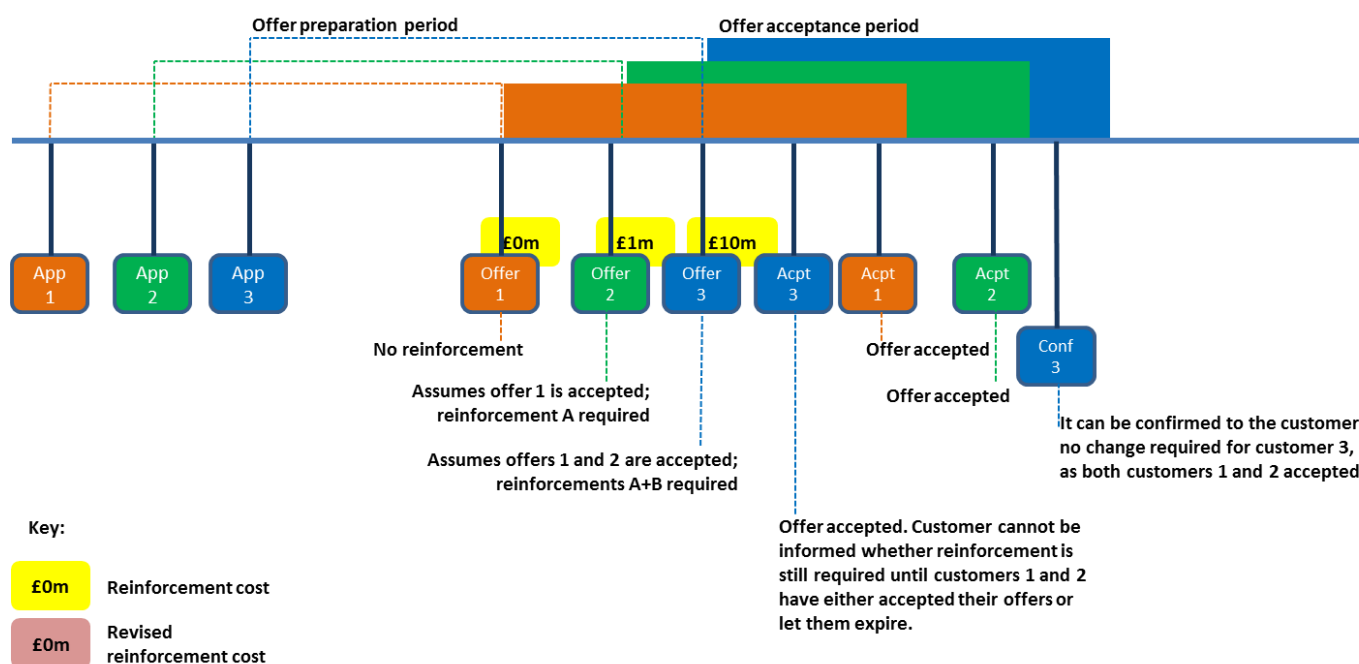


Case 4 – offer 2 is a CIC scheme with a shorter offer preparation period

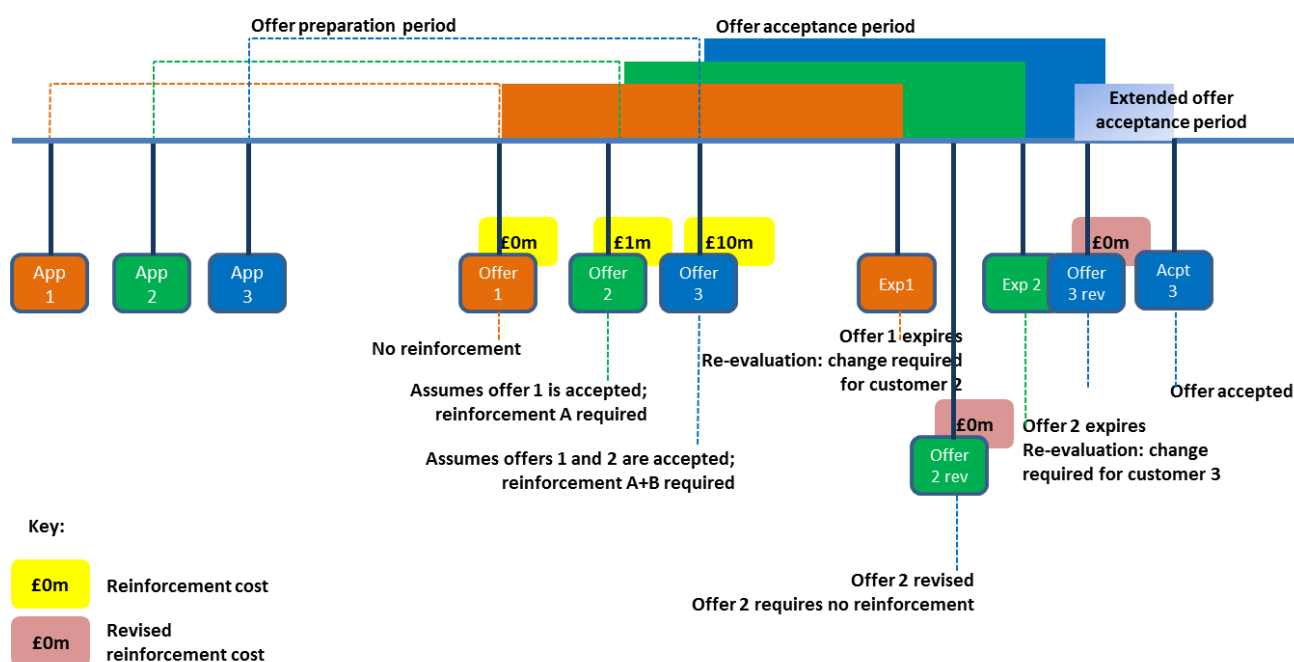


'Cumulative' process diagrams (refer to section 2.4 above)

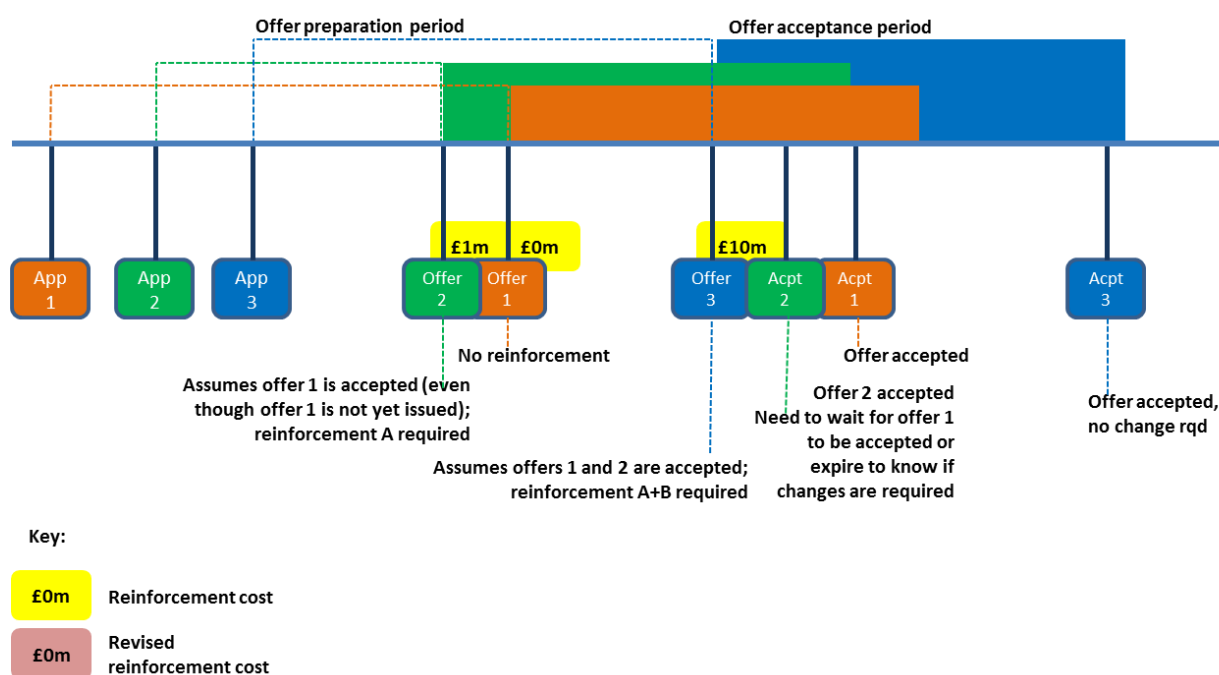
Case 2 – all offers accepted, customer 3 accepts their offer first



Case 4 – customers 1 and 2 do not accept their offers, changes for customers 2 and 3



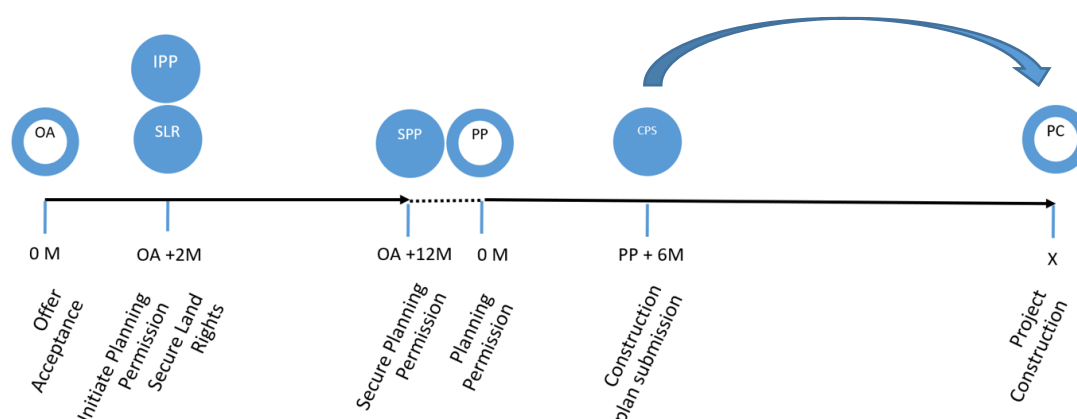
Case 5 – offer 2 is a CIC scheme with a shorter offer preparation period



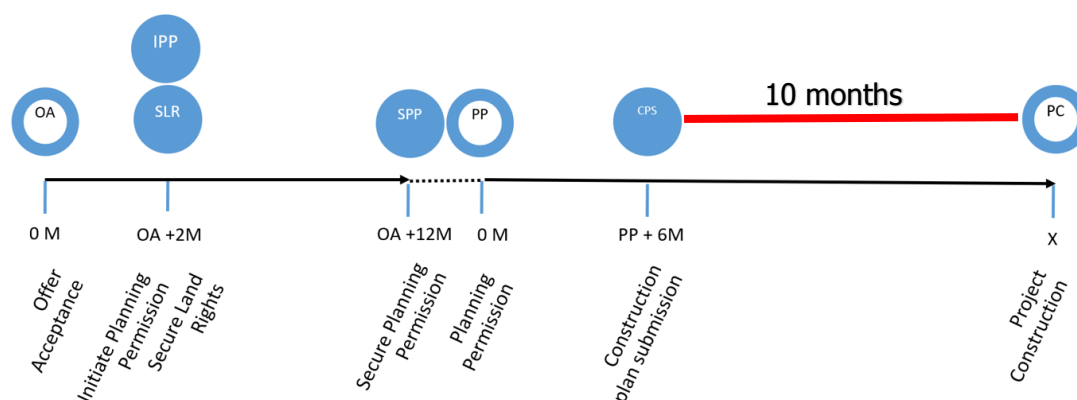
Appendix 4: Milestone 7 timescales

The timescale to provide evidence to support milestone 7 (project commitment) depends on the information provided through milestone 6 (construction plan submission).

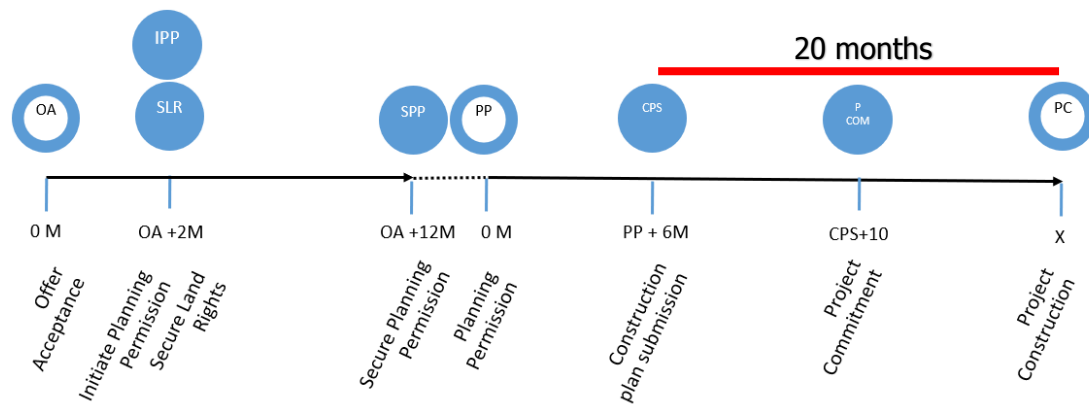
This milestone requires customers to present to the network company for agreement, the customer's programme of works (and/or ICP programme of works) that demonstrates how they will be ready for the agreed connection date. This must include a fixed date for Project Construction.



If there is less than 12 months between the date that the construction plan is provided and the date that construction begins, then it may not be necessary to include milestone 7 (to be agreed with the network company)



Where the Project Construction Milestone (Milestone 8) is more than 12 months after the date the construction plan is submitted, the date for milestone 7 submission will be set at a date that is half way between milestone 6 and milestone 8.



Appendix 5: CUSC Section 15

Under Connection and Use of System Code (CUSC) Section 15 developers with Transmission Entry Capacity, Interconnector User Commitment Capacity or Developer Capacity become liable for (and must secure against) certain Transmission reinforcement works related to their connection. In the event that a developer terminates their agreement with the Electricity System Operator (ESO), or reduces their contracted capacity, prior to their connection they will become liable to pay a cancellation charge. This cancellation charge must be secured by the developer through codified means of acceptable securitisation e.g. a letter of credit or via escrow. Once the developer connects this particular liability and security ceases, although a wider cancellation charge could remain payable in the event of termination of the agreement post-connection if sufficient notice is not provided to the ESO. The ESO working with Transmission Owners (TOs) provides updated liability and security information to developer on a six-monthly basis.

Each developer has a contracted 'Trigger Date' in respect of their liability, at which point their security will reduce e.g. from 100% of their liability to 42% of their liability for projects to be directly connected to the Transmission System. The Trigger Date is the 1st April which is three financial years prior to the financial year in which the developer is contracted to connect. As and when the developer has key consents in place after their Trigger Date has occurred then their security will reduce further e.g. to 10% of their liability for projects to be directly connected to the Transmission System. This reduction in security reflects the expected reduction in risk of project termination as a project moves closer to their connection date.

Developers have the option to fix their liability in respect of attributable works (i.e. certain contracted works up to and including the nearest node on the main interconnected transmission system) to provide certainty on some of their liability in the event they terminate their project, or reduce contracted capacity, prior to connection. Once a developer has elected to fix their attributable works liability then it will remain fixed from that point (i.e. there is no ability to unfix) although the profile can in some cases be readjusted by the ESO.

As well as fixing capital costs the local asset reuse factor, strategic investment factor and distance factor (all of which are percentage discounts from the capital costs to reflect risk sharing) are also fixed. For projects which have not elected to fix the capital costs and these factors will be reconciled by the ESO, working with the TOs. The liability associated with 'wider works' (which only becomes applicable once the Trigger Date has occurred) cannot be fixed and is updated on an annual basis via a wider cancellation charge statement published by the ESO.

These arrangements ensure a transparent risk sharing methodology between developers and consumers in relation to investment in the Transmission System to facilitate the connection of new capacity where required.

Further information can be located within CUSC Section 15 or the guidance documentation which was published when this user commitment methodology was introduced as follows.

<https://www.nationalgrideso.com/codes/connection-and-use-system-code-cusc?code-documents>

<https://www.nationalgrideso.com/connections/applying-connection>