

# ELEXION

## **BSC SANDBOX: LESSONS LEARNED REPORT 2022**

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Draft for BSC Panel  
comment and approval

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Public

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## Purpose of this report and recommendations

This is Elexon's annual lessons learned report on the Balancing and Settlement Code (BSC) Sandbox.

It covers activities over the last year (9 December 2021 – 8 December 2022).

We invite the Panel to:

- a) **NOTE** Elexon's BSC Sandbox activities, effort and metrics for the last year;
- b) **NOTE** Elexon's lessons learned and our identified operational improvements (both implemented and planned);
- c) **PROVIDE** any comments for inclusion in the report to Ofgem; and
- d) **APPROVE** the lessons learned report for submission to Ofgem and publication on the BSC Website.

## What is the BSC Sandbox?

### Purpose

**The BSC Sandbox enables innovators to run time-limited trials, in a live market environment, by giving them temporary derogations from the normal BSC rules that would otherwise be a barrier.**

These derogations may also have other conditions, for example on scope.

[Approved Modification P362](#) introduced the BSC Sandbox in 2018. It became operational with the first BSC Sandbox application in August 2020. The process is described in [BSC Section H10](#) and the [BSC Sandbox Procedure](#).

### Interaction with other sandbox processes

The BSC Sandbox supports Ofgem's wider [Energy Regulation Sandbox \(ERS\)](#).

All applications have to be made through the ERS using Ofgem's application form. Ofgem triages them against its initial criteria, to see if they're suitable for further assessment. This includes identifying if the applicant's seeking a derogation from a licence, and/or from one or more of the Industry Codes that has its own sandbox process. Currently these are the BSC, Distribution Connection and Use of System Agreement (DCUSA) and Retail Energy Code (REC).

If there's a BSC impact, Ofgem notifies Elexon and this triggers the BSC Sandbox process. All BSC Sandbox applications therefore come through Ofgem's ERS, although not all ERS applications impact the BSC. Ofgem makes the final decisions on whether to approve or reject BSC Sandbox applications, including any conditions on the derogation.

### Length of derogations

The maximum length of a BSC derogation (the derogation period) is three years. This comprises:

- Two years' maximum Trial Period, in which the applicant tests their idea; and
- A further Transition Period, in which the applicant must exit their derogation by either:
  - Returning to full compliance with the normal BSC rules; or
  - Progressing a BSC Modification Proposal to make a permanent rule change, thereby opening up the benefits of the idea to all Parties.

Ofgem sets the start date of the derogation. Ofgem also decides the length of the Trial Period and Transition Period, subject to the above limits.

The Panel can recommend that Ofgem removes a BSC derogation early ('early cessation'), if the applicant breaches its conditions or if it no longer meets the eligibility criteria against which it was approved.

### Elexon's role

Elexon operates the BSC Sandbox process.

We provide a 'critical friend' role to applicants, the Panel and Ofgem by:

- Advising potential applicants on the process and any BSC implications of their idea
- Assessing applications against defined BSC Sandbox eligibility criteria, including on impact and risk
- Co-ordinating with Ofgem's ERS and other Industry Code sandbox processes where needed
- Consulting the Performance Assurance Board (PAB) and BSC participants
- Making recommendations on whether applications should be approved or rejected, including any conditions
- Submitting the Panel's final recommendations to Ofgem for decision
- Monitoring and reporting to the Panel on approved BSC derogations throughout their derogation period
- Reporting annually to the Panel and Ofgem on BSC Sandbox metrics and lessons learned.

### Where can I find more information?

You can find plain English guidance and details of all applications on our [BSC Sandbox web page](#).

Still have questions? Email [bsc.sandbox@elexon.co.uk](mailto:bsc.sandbox@elexon.co.uk).

## Elxon's BSC Sandbox activities and effort in 2022

### Summary of activities

This table summarises Elxon's BSC Sandbox activities in 2022.

The three applications shown are the total number raised through the BSC Sandbox since its introduction.

Ref	Applicant	Nature of trial	Current status	Elxon activities in 2022
BSB001	Emergent Energy	Alternative aggregation methodology for metered volumes on private networks where some but not all customers have opted for third-party supply	Live derogation Approved May 2021 Trial in preparation stage	<ul style="list-style-type: none"> <li>Supporting trial preparation by clarifying Elxon's accuracy test requirements</li> <li>Monitoring progress and reporting</li> </ul>
BSB002	Centrica Business Solutions	Balancing Mechanism participation by assets that are measured half-hourly and operated by a Virtual Lead Party on Non Half Hourly settled sites	Live derogation Approved Feb 2022 Trial in preparation stage	<ul style="list-style-type: none"> <li>Completing assessment process</li> <li>Supporting trial preparation, including ensuring risk controlled through our Kinnect Customer Solution</li> <li>Monitoring progress and reporting</li> </ul>
BSB003	Good Energy	Use of different Supplier Agents for Half Hourly Import and Export Metering Systems with Data Communications Company-enabled smart meters	Awaiting Ofgem decision Raised May 2022 Rejection recommended	<ul style="list-style-type: none"> <li>Undertaking assessment process</li> </ul>

For more detailed status updates on each application / derogation, see our Panel paper [332/05](#) from November 2022.

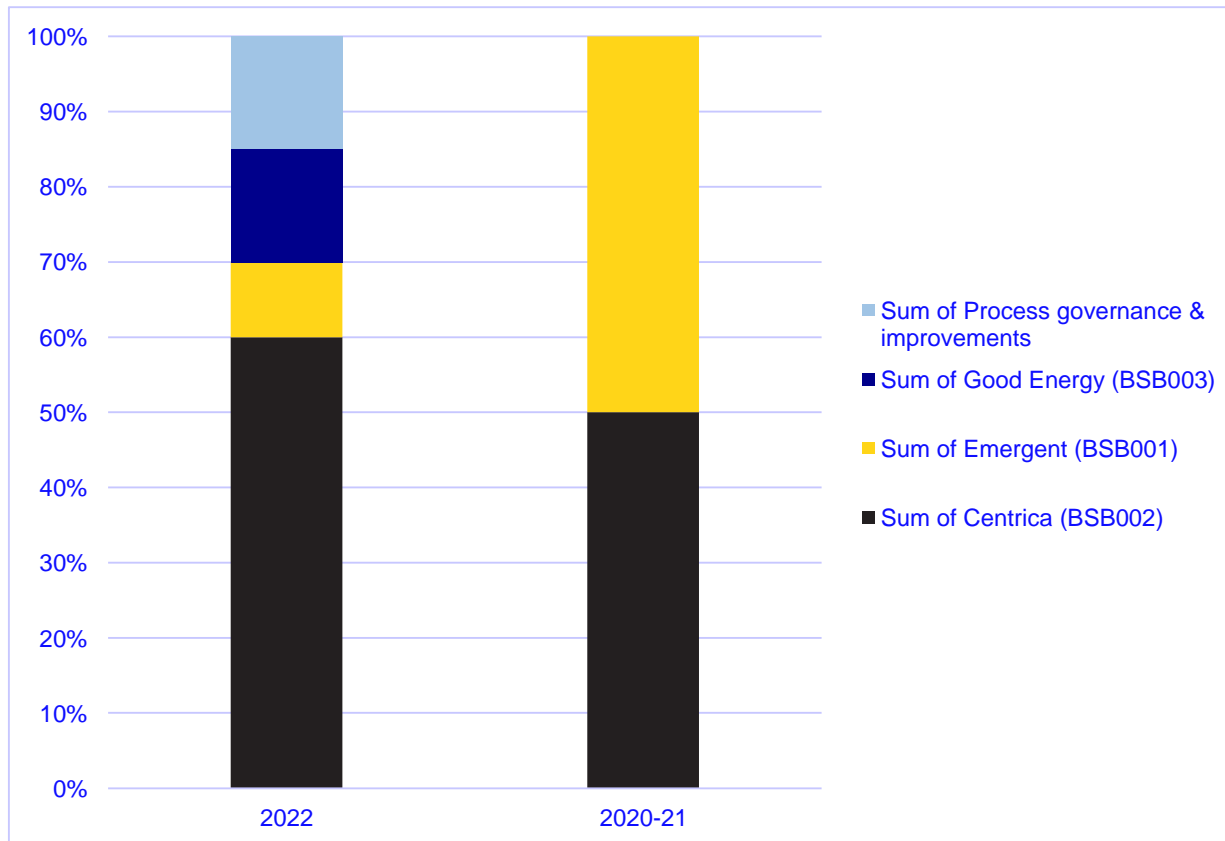
Since that paper, Centrica has made us aware of a further delay that means it may not start on-boarding customers to its trial until January 2023. We understand that this is due to needing to meet NGENSO's requirements and timescales for registering the necessary Secondary BM Units in the Balancing Mechanism, including having a minimum 1MW demonstrable capacity per BM Unit. Centrica's first formal progress report to Ofgem and Elxon is due at the end of November 2022.

## Summary of effort

Elxon's estimate of our total effort spent on BSC Sandbox activities in 2022 is approximately 0.5 FTE.

This figure:

- Covers the reporting period since our last annual report on 9 December 2021
- Spans the three live applications / derogations on the previous page
- Compares with 0.2 FTE across two live applications / derogations in our previous reporting period of 21 August 2020 – 9 December 2021 (see Panel paper [321/13](#))
- Comprises effort from multiple staff members (primarily from Elxon's Design Authority, but with support from relevant subject-matter experts across the business)



The graph shows the breakdown of this year's effort compared with the previous reporting period.

- Approximately 60% of this year's effort relates to Centrica's application / derogation (BSB002). This effort came from our risk controls for their trial, which we needed to put in place using our Kinnect Customer Solution. You can find more information about these controls in paper [332/05](#). We discuss the associated lessons learned later in this report.
- From 2023, we plan to enable better timesheet recording of our effort on sandbox activities. We also intend to align future annual reports with the end of the BSC Year (which runs April-March). We'll therefore submit an interim report in April 2023 and then the next full annual report in April 2024.
- We're not asking the Panel to introduce a processing fee for future BSC Sandbox applications, although the BSC allows for one. This is because of the small number of applications and low associated effort. As the BSC Sandbox process is demand-led, we'll review this again with the Panel next year (or sooner if something changes).
- All figures are rounded to the nearest 0.1FTE.

## Operational process improvements

During 2022, we've made a number of operational improvements to the BSC Sandbox process.

Our aims in making these have been to improve efficiency and the customer experience.

Improvements include:

- Launching our new [guidance note](#) for applicants that gives a short, plain English, process overview
- Improving our [BSC Sandbox web page](#) by:
  - Bringing all BSC Sandbox documents together in one place
  - Making the page easier to find within our website structure
  - Including a summary register of all BSC Sandbox applications
  - Creating document repositories for each application, with filters by process stage
- Simplifying the references we use for applications, so it's easier to identify their order and number
- Standardising the BSC Sandbox Report structure, with key information up front and a plain English glossary
- Scheduling regular working-level meetings with Ofgem, to help co-ordinate our sandbox activities

## Derogations from the BSC using the BSC Sandbox

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Glossary

This page gives guidance on the BSC Sandbox process. It also holds all public information for individual BSC Sandbox applications. Our BSC Sandbox supports Ofgem's Energy Regulation Sandbox, through which all applications must be made. Ofgem will tell us if there is a BSC impact and we need to start the BSC Sandbox process.

### On this page

1. [How it relates to you](#)
2. [Submitting an application](#)
3. [BSC process guides](#)
4. [BSC Sandbox Register](#)
5. [Applications under assessment](#)
6. [Applications approved](#)
7. [Applications rejected](#)
8. [Reviews and learnings](#)

### BSC Sandbox application process

#### Who is this guidance note for?

You'll find this note helpful if you're applying, or considering applying, for a derogation from the Balancing and Settlement Code (BSC) through the **BSC Sandbox**. You may be an innovator or a partner in an innovative trial. You may or may not be a BSC Party (signatory).

The BSC Sandbox supports Ofgem's **Energy Regulation Sandbox (ERS)**. All applications must be sent to Ofgem. This guidance should be read alongside Ofgem's own ERS guidance. You can find links to Ofgem's website at the end of this note.

#### What's the BSC Sandbox?

Do you want to carry out a pre-competitive and time-limited trial, in a live market environment, of an innovative product, service, methodology or business model? If this trial isn't compatible with normal energy licence or industry code rules, you can apply through Ofgem's ERS for one or more derogations from these rules.

If your application to Ofgem's ERS requires a derogation from an industry code that has its own sandbox derogation process (currently the BSC, DCUSA<sup>1</sup> and REC<sup>2</sup>) then Ofgem will let the relevant code administrator(s) know. The code administrator will co-ordinate their own supporting process.

For example, you may want to trial an activity or arrangement that would not normally be permitted by the BSC rules. Through the BSC Sandbox, Elexon assesses the risks and impacts of a derogation on behalf of the BSC Panel (the BSC's governing committee). The Panel makes a recommendation to Ofgem and Ofgem makes the final decision.

#### What's a BSC derogation and how long can I hold one?

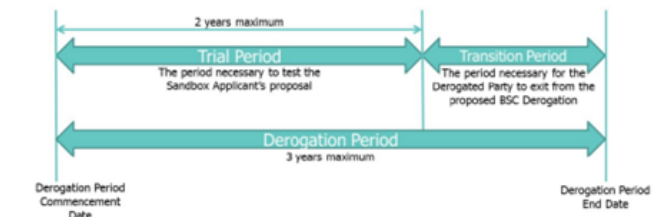
A derogation gives you temporary permission, for a limited period of time, not to comply with one or more BSC rules. A derogation can be from rules in the BSC and/or its Code Subsidiary Documents, e.g. BSC Procedures (BSCPs).

The maximum time for which you can hold a BSC Sandbox derogation is **3 years** in total. This includes:

- 2 years maximum for the **Trial Period**. You should apply for the shortest possible amount of time that you need to test your innovation.
- An extra **Transition Period**, by the end of which you must either transition back to full BSC compliance or have progressed a permanent change to the BSC rules. You should plan to do this in the shortest time possible.

The **Derogation Period** you're granted may therefore be less than the maximum shown in the diagram below.

Diagram 1: Derogation Period



<sup>1</sup> Distribution Connection and Use of System Code: <https://www.dcuca.co.uk/sandbox/register/>

<sup>2</sup> Retail Energy Code. See the REC's Sandbox and Derogation User Guide: <https://tracortf.co.uk/rec-user-guides>

## Elxon's BSC Sandbox lessons learned in 2022

### Applications – assessment timescales and process

This table gives key metrics on the assessment timetable and process for BSC Sandbox applications.

For completeness, we've included all three applications regardless of when they were raised.

Ref	Applicant	Received by Elxon	Report to Ofgem	Time from receipt to report	Impacts other code sandbox?	Consultation responses	BSC derogation recommended?	BSC derogation approved?
BSB001	Emergent Energy	21/08/20	16/04/21	8 months	Yes – DCUSA	2	Yes	Yes
BSB002	Centrica Business Solutions	30/06/21	14/01/22	6.5 months	No	4	Yes	Yes
BSB003	Good Energy	13/05/22	16/09/22	4 months	Yes - REC	2	No	TBC

- The time needed to assess applications will vary by complexity. However, the metrics suggest a downwards trend as we've embedded the process.
- Going forwards, we'll get impact assessments of BSC Sandbox applications from across all areas of Elxon and (if needed) our service providers:
  - This is a lesson from our progression of Centrica's application, where we underestimated the effort needed to implement our risk controls for their trial
  - While the final effort wouldn't have changed our recommendation materially, it's identified an area for improvement in our operational process.
- The number of consultation responses on BSC Sandbox applications is low but comparable with Modification/Change Proposal consultations:
  - We've seen greatest consultation engagement from PAB members, which is perhaps not surprising since we present applications to PAB directly.
- For future consultations on BSC Sandbox applications, we intend to:
  - Run a 15 Working Day (WD) consultation where possible (previously 10WD), in line with the [Code Administration Code of Practice \(CACoP\)](#) principle for change
  - Include our Risk Assessment in the consultation, and not just our Impact Assessment as previously (we started doing this with Good Energy's application)
  - Continue joint consultations with other Industry Code sandbox processes where relevant, as we did with the REC for Good Energy.
- We plan to keep inviting applicants to attend the Panel, as we believe this worked well with Good Energy's application.
- We're aware that Emergent also recently raised a separate DCUSA sandbox application that's currently with Ofgem for decision. We discuss this later on in this report, under lessons learned from interactions with other sandboxes.

## Approved derogations – timescales

This table gives key metrics on the timescales and outcomes of all approved BSC Sandbox derogations.

Ref	Applicant	Derogation Period			Approved scope	Trial successful?	Early cessation triggered?	Mod raised?
		Commencement Date	End Trial Period	End Transition Period				
BSB001	Emergent Energy	26/09/21	25/09/23	25/09/24	2,000 Metering System IDs	TBC	No	TBC
BSB002	Centrica Business Solutions	01/09/22	31/08/24	31/08/25	2.5 MW total capacity participating assets (Panel/Ofgem can agree increase in Year 2)	TBC	No	TBC

- The BSC doesn't permit variations to approved derogations other than on time – and then only within specific limits. The scope of approved derogations can't be altered unless provided for in their conditions. If another derogation is needed for a newly-identified barrier, then this has to be a new application.
- The BSC defines a derogation's commencement (start) date as being set by Ofgem, or determined in accordance with Ofgem's directions.
- All BSC Sandbox applicants so far have asked for the maximum allowed Trial Period (2 years) and overall derogation period (3 years).
- Although their commencement dates have passed, meaning their trials have begun, Emergent and Centrica are both yet to on-board customers.
- An applicant's proposed commencement date is important because a late start to a trial:
  - Reduces the time remaining to complete it, potentially increasing the risk of trial failure
  - Reduces the time remaining to progress any enduring rule change as a Modification Proposal before the derogation ends
  - Means less progress for Elexon to report to the Panel (since Ofgem's approval letter sets the applicant's reporting frequency from the commencement date).
- Delays in trial progress can be due to many different reasons. These could include underestimating required activities, unexpected factors outside the applicant's control or problems with the trial itself. By their nature, sandbox applications involve trialling something new for the first time and so not all trials will be successful.
- Because of the commercial risk involved, applicants may be hesitant to commit to a specific commencement date before their application's approved. Ofgem's therefore been taking the approach of requiring applicants to set a date within four months of receiving approval.
- As critical friend, we plan to advise all future applicants that:
  - Their Trial Period should be the shortest time needed to test their idea
  - The derogation commencement date is their commercial decision, but there are risks to their trial if they're not ready to go
  - They should work backwards from the end of their derogation period to decide when a Modification Proposal needs to be raised, based on its likely complexity.
- There may be exceptional circumstances that Ofgem could consider justify a later change to a derogation's commencement date, if they are beyond an applicant's control and don't create extra impact or risk. However this would need careful consideration, as the BSC Sandbox rules don't include a process for this and the intention is that derogations are temporary arrangements.




## Approved derogations – reporting

Ofgem’s introducing a progress report template for all approved ERS applications, including BSC Sandbox derogations.

- We’ll use this to help standardise future reporting, as Ofgem’s BSC Sandbox decisions normally require progress reports to go to both Ofgem and Elexon.
- The template will make it easier to co-ordinate ERS, BSC and other Industry Code sandbox updates.
- The template will also make it easier for us to publish and share BSC derogation progress reports with the Panel, by separating or redacting any confidential information.
- We’re expecting Centrica’s first formal progress report for BSB002 (due at the end of November 2022) to use the new template.

Case number:

Case delivery manager:



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### Sandbox Progress Reporting Template

#### A. Sandbox information

Organisation/project name:			
Report number:	Reporting period:		
Report submitted by:		Submission date:	

#### B. Progress update

Is your Sandbox progressing as planned?  
Yes  No

Describe what happened in this reporting period?

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Did you identify any risks/issues this reporting period? If yes, describe pre-identified and other risks that manifested in this reporting period, and set out what actions you took to mitigate these.

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Did you achieve any milestones this reporting period?

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Please list any insights you were able to identify/capture in this reporting period.

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What are your plans for the next reporting period?

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Case number:

Case delivery manager:



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### Sandbox Progress Reporting Template

#### C. Additional updates (trials only)

**If BSC or DCUSA Sandbox**, are there any additional reporting requirements to the code body?  
Yes  No  N/A

**If yes**, have you reported on your progress to [ElectraLink](#) and / or Elexon already?  
Yes  No

**Trial change/variation request:** are you planning to make any changes to your Sandbox that you'd like to discuss with us and / or code bodies?  
Yes  No

**If yes**, please provide detail on the following in the box below:

- a) Details of the proposed change;
- b) The reasons for the proposed change;
- c) The impact of the proposed change, including changes to risks;
- d) How the changes would be implemented; and
- e) Whether the proposed change to the Trial has any impact on the regulatory considerations detailed in the section D of the Sandbox decision letter.

Please note completion of this section does not guarantee that your change/variation request will be granted. We will consider your request and give a decision as soon as reasonably practicable.

The type of change/variation that can be requested depends on your Sandbox. Please check relevant Sandbox guidance or contact relevant code body or [Ofgem's Innovation Link](#) for more information.

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## Purpose and potential outcomes of BSC Sandbox process

This table sets out our learnings on the purpose and potential outcomes of the BSC Sandbox process.

These are based on our experience of operating the process since August 2020.

The BSC Sandbox is:	The BSC Sandbox isn't:
<ul style="list-style-type: none"><li>• For testing new and innovative ideas in a live market environment</li><li>• To gather learnings to help inform a Modification Proposal that removes barriers to innovation and opens up the benefits for all BSC Parties</li><li>• Limited to the minimum scope / timescales needed to test the idea</li><li>• Something that's not permitted by normal BSC rules, so conditions may be needed to mitigate any Settlement Risk or impact on BSC Parties</li><li>• Unlikely to be appropriate if there's a significant impact, that can't be mitigated, on one or more of the following:<ul style="list-style-type: none"><li>– Settlement Risk</li><li>– BSC Parties</li><li>– Elexon's operational effort</li></ul></li></ul>	<ul style="list-style-type: none"><li>• A way to bring a full-scale commercial product to market without a Modification Proposal</li><li>• A guarantee of trial success – learnings from failure are equally valuable and can avoid the industry effort of a wasted Modification Proposal</li><li>• A guarantee of an enduring rule change (the considerations may be different under a Modification Proposal for an enduring fully-scaled solution, compared with those for a limited trial)</li><li>• Necessarily a better first route to addressing a barrier to innovation, compared with just raising a Modification Proposal – it depends on what learnings the trial can offer that could help inform a Modification Proposal's solution</li></ul>

We'll reflect these lessons in our future advice to applicants.

## Interactions with other sandbox processes

This table compares the number of BSC Sandbox applications with those for Ofgem’s ERS and other Industry Code sandboxes.

Figures (at 23/11/22)	Ofgem ERS	BSC Sandbox	DCUSA Sandbox	REC Sandbox	Notes
<b>Total applications</b>	<b>10</b>	<b>3</b>	<b>1</b>	<b>2</b>	<ul style="list-style-type: none"> <li>ERS figures include all BSC, DCUSA and REC applications shown (1 of the BSC applications and 1 of the REC applications are part of the same ERS application relating to Good Energy (BSB003))</li> <li>DCUSA application relates to Emergent (BSB001) but is a separate ERS application to its BSC one</li> </ul>
Under assessment	1	0	0	1	<ul style="list-style-type: none"> <li>ERS and REC figures are the same application - no BSC interactions</li> </ul>
Awaiting decision	2	1	1	1	<ul style="list-style-type: none"> <li>ERS figures represent 2 applications but 3 derogations (the Good Energy ERS application involves BSC and REC derogations, the other is Emergent’s DCUSA application)</li> </ul>
Approved	4	2	0	0	<ul style="list-style-type: none"> <li>ERS figures include the two approved BSC applications for:                             <ul style="list-style-type: none"> <li>Emergent (BSB001)</li> <li>Centrica (BSB002)</li> </ul> </li> </ul>
Rejected	2	0	0	0	<ul style="list-style-type: none"> <li>No BSC interactions</li> </ul>
Withdrawn	1	0	0	0	<ul style="list-style-type: none"> <li>No BSC interactions</li> </ul>

- Figures shown are for Ofgem’s ERS v2.0, which has been running since 2020 (v1.0 had a different process and predated the Industry Code sandboxes).
- Ofgem’s ERS is broader than just BSC, DCUSA and REC. It can give innovators licence derogations as well as bespoke guidance, confirmation of permissible activities, and comfort on Ofgem’s approach to compliance and enforcement.
- No formally-submitted ERS applications with BSC impacts have been filtered out (withdrawn or rejected) during Ofgem’s initial triage process. In practice, this wouldn’t happen without Ofgem making us aware. Some potential applications have ended up not being raised after informal discussions with Ofgem and Elexon.
- Our understanding from Ofgem is that:
  - All DCUSA derogations must go through the ERS initially and then the DCUSA sandbox process, before going to Ofgem for final decision
  - REC derogation applications must go through the ERS and REC sandbox process if they impact another Industry Code or licence, or need Ofgem support.
- The figures above don’t include any applications for REC derogations where no other decisions are need (by Ofgem or other Industry Codes). Ofgem’s ERS guidance doesn’t currently mention the REC sandbox and we’re discussing this with Ofgem.
- Emergent raised their DCUSA sandbox application in April 2022 although their BSC trial started in September 2021. We understand from Ofgem that this is due to more recent distribution charging policy changes, and from ElectraLink that there’s no dependency between the different derogations. Ofgem will make the final decision on the DCUSA application, and will take into account the already-granted BSC derogation and its timescales.
- Ofgem’s reintroducing quarterly catch-ups with the relevant Code Bodies for the Industry Code sandboxes, to help co-ordinate cross-code sandbox activities.

## Is the BSC Sandbox delivering against the Applicable BSC Objectives?

This table shows the Applicable BSC Objectives. We're required to give a view annually on whether the BSC Sandbox is achieving these.

Applicable BSC Objectives	
(a)	The efficient discharge by the Transmission Company of the obligations imposed upon it by the Transmission Licence
(b)	The efficient, economic and co-ordinated operation of the National Electricity Transmission System
(c)	Promoting effective competition in the generation and supply of electricity and (so far as consistent therewith) promoting such competition in the sale and purchase of electricity
(d)	Promoting efficiency in the implementation of the balancing and settlement arrangements
(e)	Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency [for the Co-operation of Energy Regulators]
(f)	Implementing and administrating the arrangements for the operation of contracts for difference and arrangements that facilitate the operation of a capacity market pursuant to EMR legislation
(g)	Compliance with the Transmission Losses Principle

- As with last year, we believe it's still too early to say whether the BSC Sandbox process is delivering against these objectives. This is because:
  - We've only had three applications so far
  - Although one application is recommended for rejection, this is an appropriate outcome of the BSC Sandbox process
  - Of the two approved BSC derogations, neither trial has yet produced learnings
  - We need to wait for the outcomes of the trials and any resulting Modification Proposals before we can assess the overall benefit of the process.
- We'll continue to review this annually with the Panel.