

A landscape photograph of a mountain range under a cloudy sky. The sun is low on the horizon, creating a golden glow. Several bright, glowing yellow lines, representing energy or data, curve across the foreground and middle ground, starting from the left and moving towards the right. The mountains in the background are partially covered in snow.

# GB TERRE Implementation Group

3 February 2021

# Agenda

Item	Topic	Purpose	Presenter	Time
1	Welcome	Information	Graham Dolamore	5 mins
2	Current position	Information	Bernie Dolan	5 mins
3	Cost-benefit analysis	Agreement	Graham Dolamore	10 mins
4	Next steps for group	Agreement	David Bowman	5 mins

## Notes

- Please use the raise hand function to ask questions. We will invite questions at the end of each slide
- We are recording the meeting to aid minute capture. Anonymised minutes will be published on the ESO website. The recording will not be published.
- Slides, minutes and further industry information is published [here](#).

# Update on Current Position

## SwissGrid Participation in TERRE

- Switzerland, like GB, is a Third Country
- SwissGrid joined the TERRE platform in October 2020. They have been active in cross border flows (largest flow change between France and Italy, transiting via Switzerland, has been 1GW in balancing timescales)
- EU Commission sent letter to TERRE TSOs requesting that SwissGrid leave the platform by 1 March 2021
- After meeting of EC, RR TSOs and RR NRAs latest position is that parties will work on a new Capacity Calculation methodology to resolve security concerns. Until this concludes SwissGrid will stay on TERRE

## BEIS letter on TCA Articles ENER 13 and 19

- Letter sent to Fintan Slye requesting the following:
  - Request that TSOs work on an MOU to set out efficient and inclusive arrangements to ensure effective cooperation with ENTSO-E (as per ENER 19)
  - This framework will not confer the same status as membership of ENTSO-E
  - MOU to cover: electricity markets, access to networks, security of supply, infrastructure planning, offshore energy, efficient use of interconnectors, gas decarbonisation
  - In addition, a multiparty agreement (as per ENER 13), on compensation of costs for hosting cross border flows
- The letter makes no reference to TERRE and does not give general guidance on GB use of EU platforms

# Cost-benefit analysis

- Feedback in this group has highlighted conflicting industry priorities and parties unable to commit resource to TERRE
- We recognise the original estimate of ~€17m per year to GB consumers of TERRE
- **We propose to seek a third-party to carry out a CBA on GB RR product, to conclude no later than the end of June.** This is consistent with the Scenario 1 timelines previously discussed (see Annex 3)
- We will engage this group on the methodology and draft findings, but do not want to place burden on industry nor allow this to distract from our other priorities and market reforms
- **We envisage that this will provide a firm basis that, combined with any further clarity and stakeholder feedback, can lead to an informed decision**

The existing CBA may not be valid because:

- GB will no longer be able to access Replacement Reserve from Europe
- The CBA was based on 2013 data, which is likely to have changed
- Future market reforms (from the RIIO-2 plan) and other developments since 2013 may not be considered
- Some specific GB assumptions, such that wind cannot provide upward availability, are not consistent with the ESO's ambitions

# Next steps for group

- ESO to consider most efficient route to carry out CBA
- Present proposed methodology to implementation group for feedback – March
- Present draft findings for feedback – April / May
- Present final report – June

# Annex 1

Summary of feedback received to date



# Feedback received to date (1/4)

Channel	Feedback	ESO comment
Post-13 January meeting	<p>Party has decided not to participate actively in discussions and activities of the group until more clarity is received. Work may need to focus on other areas outlined in the TCA.</p> <p>Willing to support the group with any data or information as needed.</p>	We note this comment and are grateful for participation to date.
13 January meeting	Several participants felt that work should be paused as per Scenario 4, given that the TCA seems to prioritise day-ahead arrangements and so any work could lead to resource being diverted or represent a standard cost	Plan for third-party to carry out a CBA on standalone mode presented on 3 February
	Will we the ESO conduct a CBA on standalone mode as per scenario 1a?	
	Is Scenario 4 still an option?	Yes, and a CBA would help inform this
	How do we decide how to proceed?	Plan for third-party to carry out a CBA on standalone mode presented on 3 February
	Could benefits be delivered, or delivered more quickly, without a TERRE-like mechanism?	Yes, and this should be considered in the CBA and factored into decision making. This includes the wider market reforms that the ESO are planning. It is important to ensure reforms do not overlap, otherwise participants may have to choose to participate in one market or another, which would impact the benefits case

# Feedback received to date (2/4)

Channel	Feedback	ESO comment
Post 9 December meeting	<p>Interconnectors not on the critical path for any of the options.</p>	Discussed at 15 December interconnector working group
	<p>There are 'no regrets' actions such as the NGESO ECP4 upgrade that have already impacted the TERRE timeline and should be completed ASAP to de-risk the overall delivery of any option. Similarly the system to system flow methodology can be advanced and presumably is to be imminently completed for IFA2.</p>	
	<p>Scenario 1 has two very different outcomes with very different interconnector impacts.</p> <ul style="list-style-type: none"> <li>• Scenario 1a: TERRE is run in stand-alone mode, presumably with no use of interconnectors               <ul style="list-style-type: none"> <li>• Alternate balancing arrangements to TERRE need to be part of the IOP and BASA</li> <li>• Interconnectors will need to remove the TERRE functionality from their systems</li> </ul> </li> <li>• Scenario 1b: TERRE is run using bilateral FR-GB arrangements               <ul style="list-style-type: none"> <li>• We don't think this is credible in the short-term as the main work here would be on the regulatory arrangements, especially in France</li> </ul> </li> </ul> <p>Both scenarios would also mean that approaches on future arrangements such as MARI need to be reviewed</p>	
	<p>Scenario 2: The starting point for the work on interconnector agreements (BASA and OP) will be confirmation on the framework that will apply. This 'framework' includes (but is not limited to) the modification/replacement of the TERRE CA between NGESO and the TERRE TSOs, and resolution on the application/replacement of the European methodologies with local/regional alternatives approved by NRAs (e.g. TSO-TSO settlement methodology, TERRE IF, EBGL). The timeline associated with this is entirely dependent on the outcome of the FTA negotiations and is (for the most part) an external responsibility. The BASA and OP work can start once this framework has been confirmed – i.e. the 12-week plan circulated by NGESO only starts at this point.</p>	
	<p>The 12-week plan was agreed to by all FR-GB parties in summer 2020 but others then did not follow the plan. It would be useful to get feedback from those parties on why this was not possible and ensure that the plan is adapted accordingly. We suggest that that plan also needs to be validated/updated to consider the following known gaps/issues:</p> <ul style="list-style-type: none"> <li>• Settlement data flows and data definitions (LIBRA, JAO, NGESO, RTE, and interconnectors)</li> <li>• RTE settlement proposal</li> <li>• GB settlement clarifications (e.g. currency, exchange rate)</li> <li>• LIBRA changes to align with TSO-TSO settlement methodology (resolve congestion rent calculation errors) and define/update rounding rules (for settlement)</li> <li>• ATC notification/publication</li> <li>• Process performance testing using NGESO ECP4 file transfers – there is a very short window from TERRE results being available to reference programs being sent to TSOs involving multiple calculations and data transfers with as little as 6 minutes to complete</li> <li>• Regulatory timelines, i.e. if alternate rules to cover methodologies such as TSO-TSO Settlement require consultation and approval beyond the go/no-go point</li> <li>• Intraday (XBID) changes could be on a similar timescale and require changes to the current data provision timelines in the TERRE OP</li> <li>• Impact of any upcoming TERRE-LIBRA changes – for example, it was previously notified that there would be a move to ½ hourly cross border scheduling within 2 years of TERRE go-live, and then ¼ hourly two years later. These changes would require modification to the FR-GB interconnector hourly ramping requirements defined by NGESO and RTE which must then be implemented by FR-GB interconnectors</li> </ul>	
<p>Scenario 4: This was initially discussed as TERRE not being used. For interconnectors this would align with scenario 1a and require similar actions (alternate balancing arrangements and remove of code from interconnector systems).</p>		



# Feedback received to date (3/4)

Channel	Feedback	ESO comment
9 December meeting	Scenario 1 – are code modifications needed and how long would they take? Changes are likely to be needed across multiple codes.	Covered under “reach agreement with industry for GB implementation”. Indicative view of 6 months.
	Scenario 1 - is contingency built into the plan?	The presented plan is optimal; final plans would include contingency.
	Scenario 1 - is there a specific deadline for go-live?	No specific deadline. Month 1 on the timeline is assumed to be January 2021, indicating mid-2022 for go-live, dependent on a suitable benefit case.
	Scenario 1 – the timetable seems long given most implementation details should have been confirmed	The impact assessment will determine were re-work is needed due to the implementation of other systems (such as Power Available), new commercial arrangements and how the solution interacts with an integrated European platform. ESO to provide further details on each item in the plan
	Scenario 2 – would a cost-benefit analysis be needed if implementation were an obligation?	No
	Scenario 2 – why is the “continuous integration of code” line shorter in scenario 2 than 1.	Assumed level of change is lower under scenario 2.
	Scenario 2 – baseline assumption is that if the FTA allowed the use of TERRE it should be able to be implemented quickly.	Power Available Phase 2 has been prioritised given the consumer benefit case. The current Balancing Mechanism system does not facilitate parallel development.

# Feedback received to date (4/4)

Channel	Feedback	ESO comment
Post 2 December meeting	Does scenario 2 represent an <i>opportunity</i> or <i>obligation</i> to participate in TERRE?	Obligation for the ESO, opportunity for market participants
	Need to split scenario 1 – standalone mode and bilateral exchanges	To be discussed at interconnector working group on 15 December 2020
	In scenario 1 and 2 there should be a CBA before any go / no decision and before bulk of remaining implementation work is undertaken by ESO	Will consider this in the implementation plans
	Does GB TERRE Implementation Group have sufficient representation	Invite was sent out to our Balancing distribution list and placed on website. Further representation is welcome.
2 December meeting	Scenario 3 not feasible. Material risk of change and stranded spend. Might be difficult to get industry engagement	Decision not to take scenario 3 forward for more detailed planning
	Scenario 1 is the only credible scenario. Need scenario 4 as decision point in scenario 1.	Combine scenario 4 as decision point in scenario 1. Proceed with scenarios 1 and 2 for more detailed planning
	Need to consider impact on MARI if work on TERRE is stopped. Suggestion that work on MARI should stop too.	Noted
	What is the ESO view on scenarios?	As per the industry update of 4 September, work is currently paused.
Post 25 November meeting	Support for scenario 4. Could form part of least worst regrets pathway.	2/12 - Combine scenario 4 as decision point in scenario 1. Proceed with scenarios 1 and 2 for more detailed planning
	Scenario 4 could be seen as a nuance of scenario 1	
	Scenario 1 is only credible scenario	
	Scenario 1 – split standalone mode and bilateral exchanges into distinct scenarios.	Discussed at 2/12 meeting and agreed to further develop at Interconnector working group
	No regrets items such as ECP4 upgrade and system-to-system flow methodology should proceed now	To be discussed at the Interconnector working group
	Seek clarification that the design of the TERRE solution has not changed. Need to be mindful of impact of further industry testing on other initiatives	Noted
25 November meeting	Could the ESO take a local copy of the TERRE algorithm and associated software and use in standalone mode	In theory yes, but this would not allow replacement reserve exchange with Europe which is central to the benefit case. A CBA would be needed.
	Does any IT work need to happen now to avoid delaying the scenarios?	Work is continuing on testing ESO systems with the Libra platform. The consideration then is whether the ESO should start to implement code that affects internal and external parties and systems that may need unwinding, representing a potential regret spend.
	How far does waiting for legal clarity push back delivery, assuming we can access TERRE by 1 January 2021.	From a non-technology perspective we need to understand whether the final trade agreement means the commercial arrangement are the same as what we currently expect and make any necessary changes. In terms of technology, there will be a remobilisation plan but this would be impacted by a change freeze over the Christmas period as is standard practice for operators of critical national infrastructure
	Is there a credible scenario assuming we are not going to have access and then re-start if the situation changed.	Combined with post meeting feedback, this became scenario 4.
	Would changes to Article 19 that would remove our obligation to be part of TERRE apply across all scenarios	Presume this is the case.

# Annex 2

Further detail on TERRE integration



# Further detail on TERRE integration

## TERRE Pause explained

The ESOs approach to not deploy the TERRE code into production was based on the following considerations:

- **Remove operational risk** - Deployment of code would enable input from external systems that we are not expecting inputs from; if those systems should send us unexpected data this would be an overhead on the control room and also pose a potential operational security risk
- **Cost to the consumer** – removes the month on month IT operational cost

## Integration considerations for any new solution

**Impact Assessment:** Every TSO participating in TERRE is connected to the LIBRA platform hosted by RTE. It is assumed that a GB implementation will require a UK hosted 'IT platform' (LIBRA equivalent) to enable the exchange of RR data. A GB implementation only will require the design and delivery of a UK based IT solution, and the additional development an IT operational support model/organisation and the underpinning contractual and commercial agreements. This 'GB IT platform' will then be integrated with the existing TERRE functionality that we have developed and tested to date.

**Legacy Platform constraints:** The ESO's legacy balancing mechanism has evolved from technology originally introduced in the late 70's. The primary constraint of the legacy technology is the BM's inability to maintain parity with more contemporary platforms via it's rate and pace of change. Whereas more modern platforms are componentised / modular i.e. multiple modules that act together and allow multiple changes to take place in parallel, the complexity within the BM means code is only merged into the mainstream baseline when it becomes close to production-ready, resulting in code merges that are a significant undertaking.

**Continuous Integration:** The TERRE codebase will be 'continuously maintained' to include all changes made to the production (operational) baseline. All planned changes to the BM are depicted within the ESO forward plan (regulatory & operational changes). The point at which TERRE restarts will determine the level of effort and timeframes to reintegrate the TERRE code into the 'production baseline'. Once integrated through testing (both internal & external) is required to ensure the integrity of the BM is maintained, thus reducing the risk of outage and risk to supply.

The following non BM changes will also need to be implemented and reintegrated into the current production baseline, and will also undergo the same rigorous testing cycles.

- NED & Modis – Market reporting, RR instruction data to enable settlements and energy and capacity reporting
- ECP – Communications platform providing external interfaces to Libra and Interconnectors
- CRM – Web portal for management of existing and new market participants (All unit types: Primary, secondary and additional and ancillary market units)
- Registration Database – Distribution of markets participants data (eg unit information to BM and other internal NG systems)
- API – Programmatic Web interface for access to the balancing mechanism for market participants to submit and receive data (ie bids and instructions)

**Testing Internal systems:** All IT systems in scope of TERRE will need to ensure that functional changes (projects and operational) through the ESO forward plan do not break or interfere with TERRE functionality, and equally importantly TERRE functionality does not break or interfere with existing functionality, thus causing either a risk to supply, incorrect market reporting, or create a cyber risk to pose a security threat to our Critical National Infrastructure.

**External testing:** All external market participants will need to perform integration testing to ensure that they can submit and receive RR data to the balancing mechanism. National grid and market participants will also need to perform operational testing for all RR process introduced e.g. registration, balancing settlements and reporting.

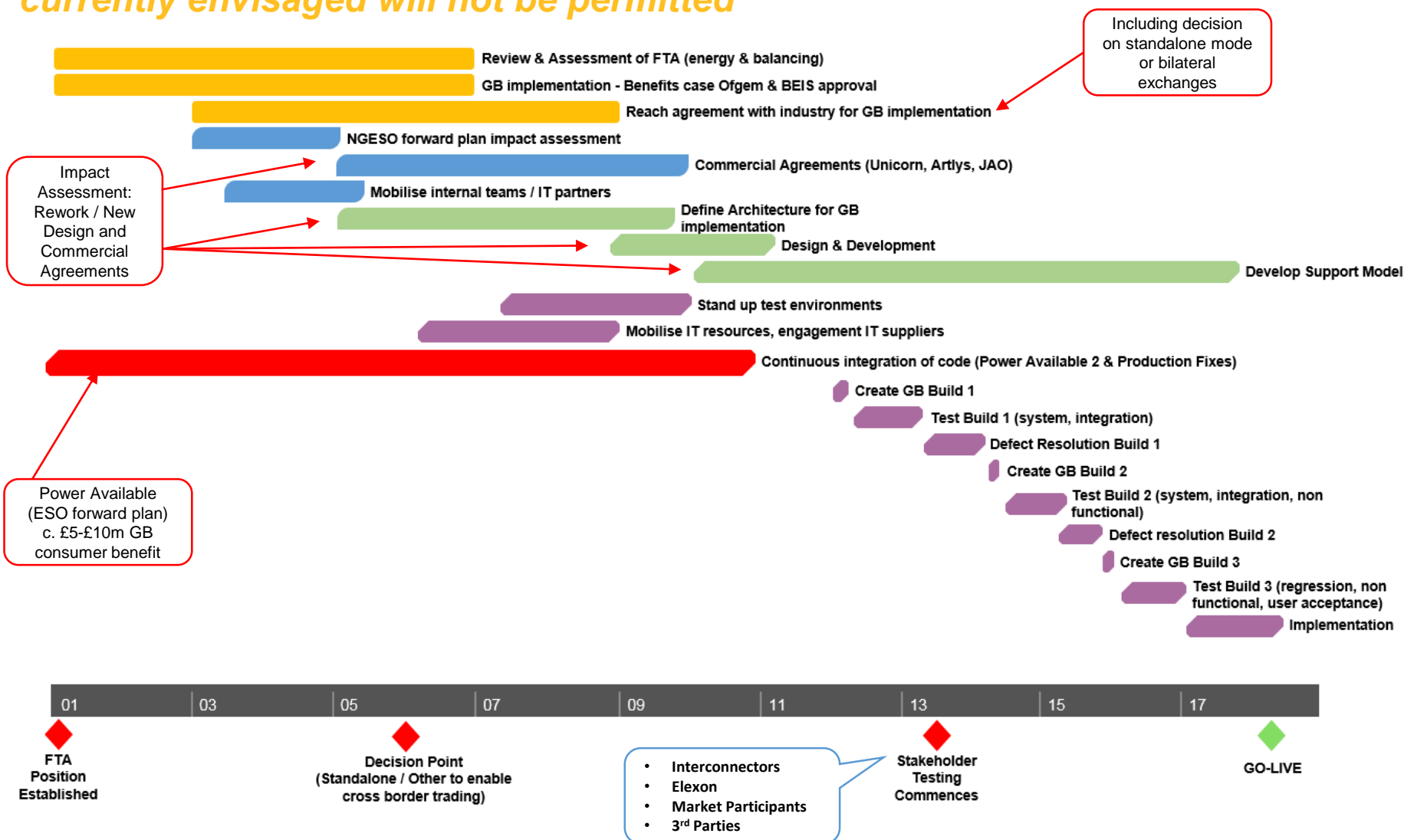
# Annex 3

Scenario 1a implementation plans



# Scenario 1 — Wait for legal clarity before proceeding

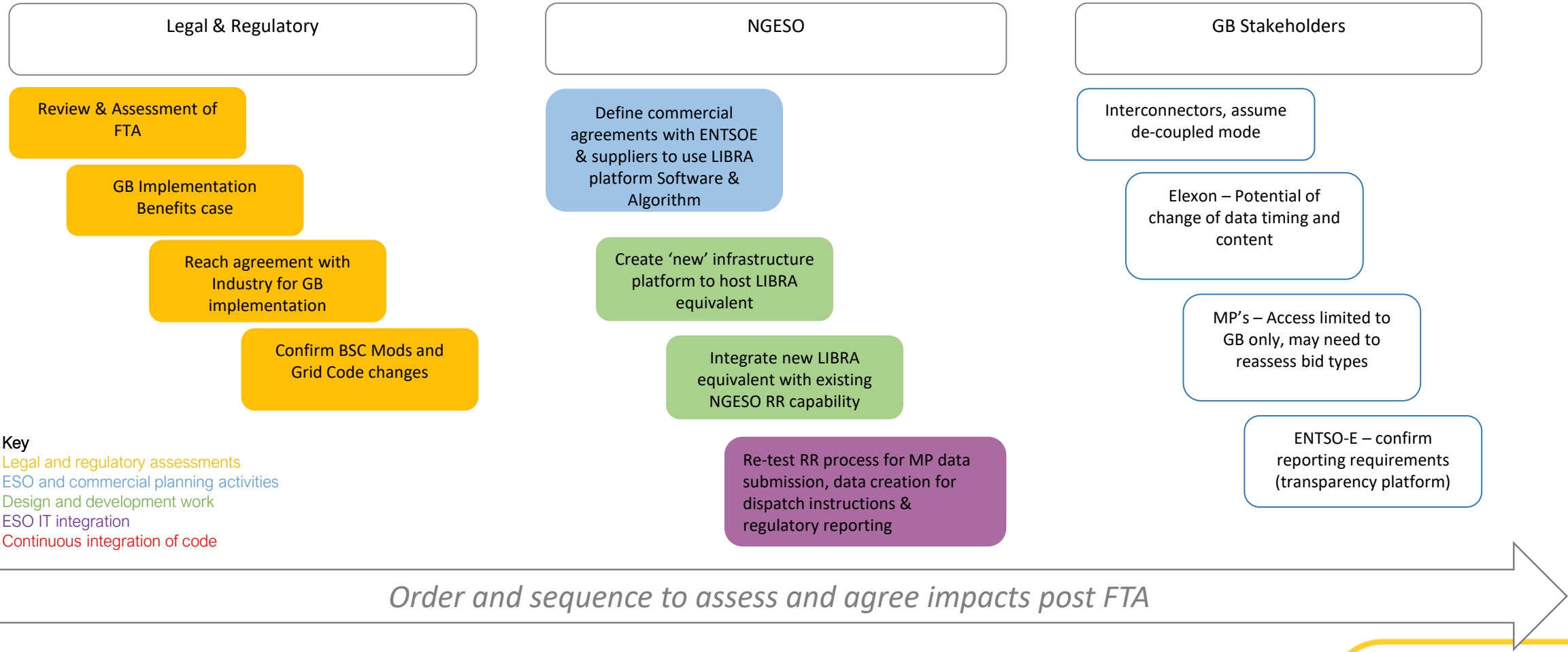
*'FTA or no FTA means that our participation as a third country to exchange RR using TERRE in the way currently envisaged will not be permitted'*



Risks	Mitigation
FTA assessment & review takes longer the base assumption	Continued engagement with BEIS / Ofgem and regular review via this group.
CBA presents minimal benefits case	Seek alternative solutions or do not proceed
High-level of re-work needed for standalone mode	Incorporated into the CBA
No access to algorithm to facilitate standalone model	Engagement with RR provider for EU and leverage IP rights.
End-to-end integration needed across multiple party systems	Continuous engagement with affected parties to understand knock-on effects
Cross Border Arrangements- greater scale of change required (agreements, operation and settlements)	Interconnector sub group coordination.

# 1a – Standalone Mode

*Assumes NGENSO will build an equivalent of the 'LIBRA' platform to operate a GB RR market.  
Assumes NGENSO have access to the LIBRA platform software/algorithm*



### Key

- Legal and regulatory assessments
- ESO and commercial planning activities
- Design and development work
- ESO IT integration
- Continuous integration of code

*Order and sequence to assess and agree impacts post FTA*

