RETAIL ENERGY CODE

CSS CHANGES:

R0096- CSS MESSAGE REGENERATION FUNCTIONALITY

R0178 – IMPROVEMENTS TO CSS BUSINESS LOGIC

REC TECHNICAL SERVICES

CSS CHANGES – OVERVIEW

The Code Manager has recently completed Impact Assessments with the CSS Provider for two technical changes:

- R0096 - CSS Message Regeneration Functionality
- R0178 - Improvements to CSS Business Process Logic

Subsequent iterations to Changes R0096 and R0178 have made it necessary to provide Change Issues Group with an update on their progress.

RETAIL ENERGY CODE

R0096 – CSS MESSAGE REGENERATION FUNCTIONALITY

REC TECHNICAL SERVICES

R0096 – OVERVIEW

RETAIL ENERGY CODE

- Since CSS Go-Live, there have been incidents where CSS has failed to generate messages and therefore intended recipients do not receive them.
- As a result, **the Switching process fails.**
- CSS currently cannot generate messages that were not originally created.

Issue



- There are significant complications for the intended recipient, who is required to **manually intervene** to re-synchronise messages
- During development of this Change Proposal, the CSS incurred a **P1 Incident,** which resulted in secured active and inactive messages not being generated.

Impact



- The design of this solution was completed in June 2025, shortly after which the DIA was completed on **22 August 2025.**
- The solution and costs associated have changed from the PIA to the DIA.
- Despite the changing landscape of the REC, **this solution still stands to be the best option.**

Solution Process



R0096 – PROPOSED SOLUTION

RETAIL ENERGY CODE

- Adoption of an approach with revised priorities and newly added features:

What is R0096 trying to achieve?

- Exploring the **introduction of message regeneration functionality.**

- Recognising the importance of **re-triggering workflow operations that have encountered challenges.**

- Regenerate notifications - CSS must be capable of **identifying workflows that have not reached the desired state and instigate automated recovery,** with manual intervention as a last resort.

The solution consists of the following additions:

- Workflow Tracking Ledger – Provide information of the **current workflow state.**

- Workflow Regeneration Function – Compare current workflow state against desired workflow state and, if there is a mismatch, will initiate the 'Regenerate Workflow' which acts as a **self-healing system.**

- A 'Failing to Resolve Ledger' has also been incorporated into the solution with the aim to **provide live insight into the Workflow Ledger.**

R0096 – STATUS UPDATE

Changes since last PIA in September 2023

- Since PIA (Sep 2023), multiple REC changes and releases (e.g., R044, R0067, R0080) have **extended the CSS architecture.**
- DIA **reflects 2 years of system evolution** and anticipates future updates, with the system now far more complex.

New Features

- **Recovery Point System (RPSys):** Introduces durable checkpoints via Cosmos DB, orchestrator, and Service Bus migration.
- **Resilience Upgrades:** Moves from Azure Storage Queues to Service Bus Premium; enables multi-region writes in Cosmos DB.
- **Built-In Testing:** Incorporates Chaos Studio fault injection, K6 load testing, and dual-region failover simulations.
- **Design Evolution:** Learns from R0080 and moves beyond PIA's recovery concept to a robust, future-proof architecture.

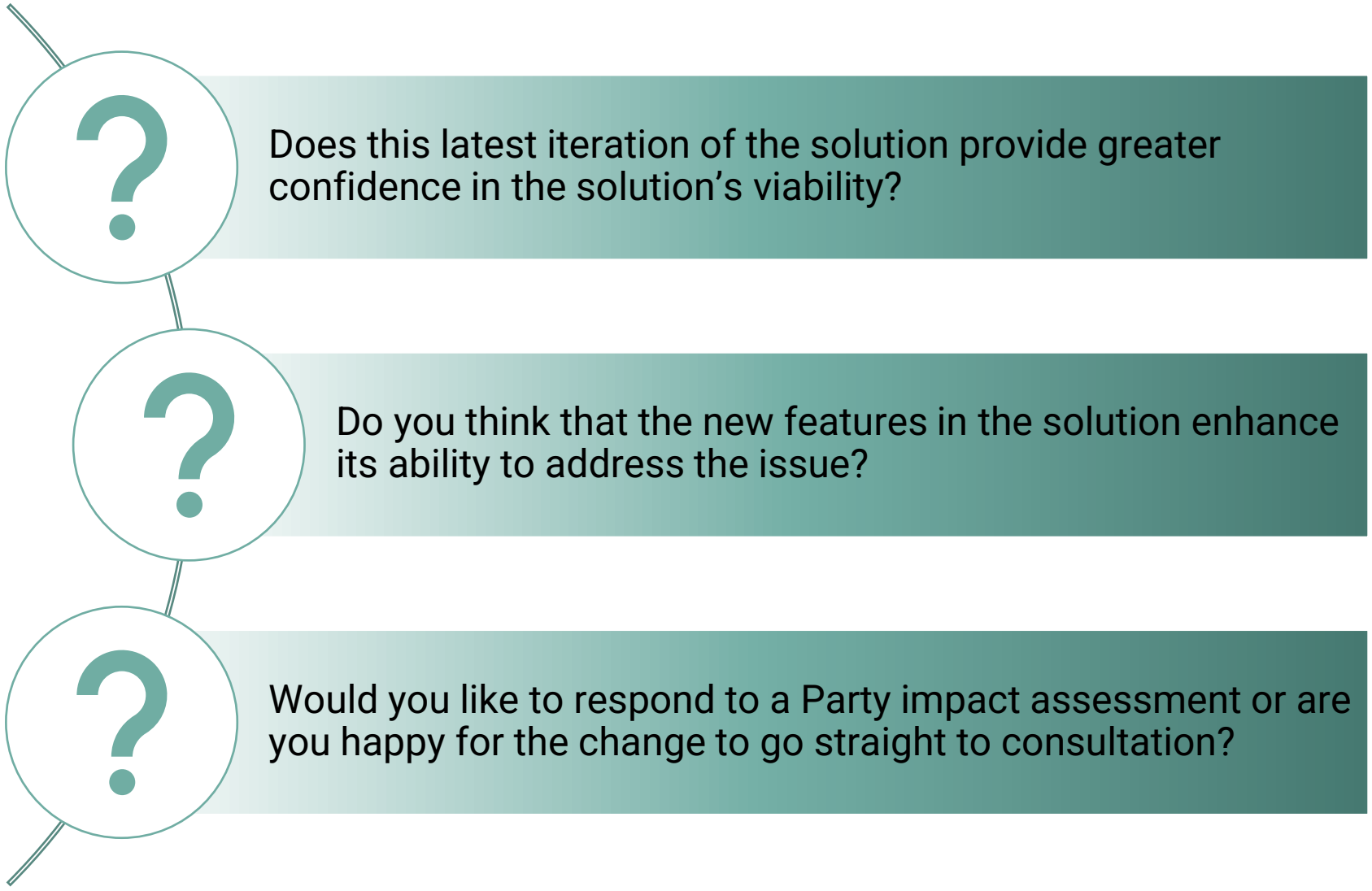
New Cost

- Design cost (approved): **£98,734.24**
- Build and Test cost: **£986,230.01**
- **Total: £1,084,964.25**
- Original PIA ROM cost: £401,477.24 - £534.477.24

Benefits of this Solution

- **Near-Zero Data Loss:** RPO < 2 mins.
- **Reduced Market Disruption:** Automatic recovery of stalled workflows.
- **Cost Avoidance:** Minimised manual reprocessing.
- **Improved Transparency:** Real-time dashboards and recovery logs.
- **Future Proofing:** Resilient design to mitigate future incidents.

R0096 – QUESTIONS FOR CHANGE ISSUES GROUP



Does this latest iteration of the solution provide greater confidence in the solution's viability?

Do you think that the new features in the solution enhance its ability to address the issue?

Would you like to respond to a Party impact assessment or are you happy for the change to go straight to consultation?

RETAIL ENERGY CODE

R0178 - IMPROVEMENTS TO CSS BUSINESS PROCESS LOGIC

REC TECHNICAL SERVICES

R0178 – BUSINESS CASE

What has happened so far?

- This change went to Change Issues Group but was placed on hold previously.
- The Code Manager in the meantime has explored alternative options .

Options now

- Either pursue the technical change option or adopt a non-technical change.
- The decision to be made is either to have the three key problem areas addressed at a cost by pursuing a technical change or to pursue a non-technical change and have REC Performance Assurance (RPA) report against it.

R0178 – OVERVIEW

This Change Proposal is aimed towards rectifying a collection of issues that were identified with the CSS Business Process Logic.

These have been identified as follows:

1. Deactivation of an active reg. whilst in-flight switch in progress

Instances of the incumbent supplier withdrawing before the 'Supply Effective from Date' cause accepted switches to fail at Gate Closure (17:00hrs). This leaves no losing supplier, stalling the switch process.

2. Deactivation of a prior cancelled registration

This scenario occurs when the registered supplier of an MPxN is the same supplier that cancelled a previous switch for the same MPxN. The supplier might accidentally deactivate the active registration using the cancelled registration identifier. CSS currently accepts this request, erroneously changing the cancelled registration state to inactive and sending out securedInactive messages.

3. OFAF switch containing multiple MPxN

This is the instance where the end user sends through a One Fail All Fail (OFAF) switch with the same MPxN contained within the payload 2 or more times.

Multiple registration IDs are created for the same MPxN, and the registration is left in an incorrect state given a lack of appropriate BDVRs.

R0178 - SOLUTION

RETAIL ENERGY CODE

1. Deactivation of an active reg. whilst in-flight switch in progress

There are instances where the incumbent supplier is withdrawing prior to the 'Supply Effective from Date', causing the accepted switch to fail at Gate Closure which occurs at 17:00hrs.

Number of Occurrences since go-live: **156**

Proposed Solution

The desired outcomes for each meter state have been listed in the table below. The intention is to provide as little intervention as possible and recognise the following:

- Dormant: The meter is inactive. Note that this is a temporary state and therefore the meter could be put back into service.
- Terminated: The meter has reached end of life and cannot be reinstated. Note that this is a permanent state.

Initial RMP Status	RMP Status changed to:	Registration Status (from)	Registration Status (to)	Desired Outcome
Operational	Dormant	Inactive	Active	Switch should continue
		Inactive	Cancelled	
Dormant	Terminated	Inactive	Cancelled	Switch should not continue (this is believed to be as per current functionality)

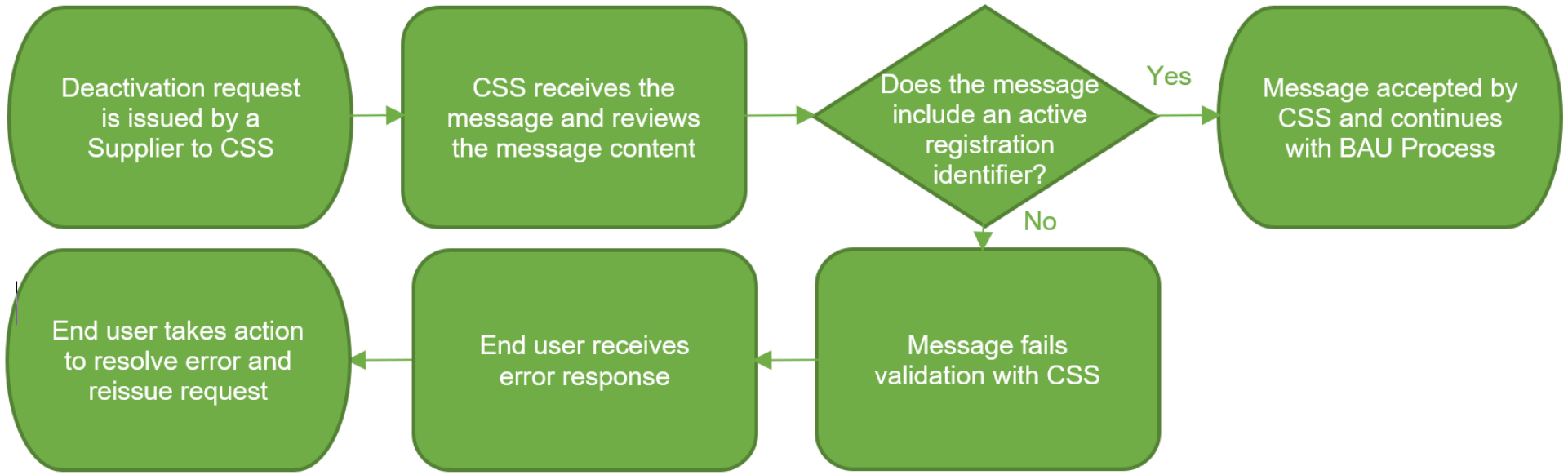
The aim is for an effective solution to be developed which would ensure that the consumer is switched with the original effective date being used and that CSS systems could cater for such registration events whilst following the normal Gate Closure processes.

R0178 - SOLUTION

RETAIL ENERGY CODE

2. Deactivation of a prior cancelled registration	This scenario occurs when the registered supplier of an MPxN is the same supplier that cancelled a previous switch for the same MPxN. The supplier might accidentally deactivate the active registration using the cancelled registration identifier. CSS currently accepts this request, erroneously changing the cancelled registration state to inactive and sending out securedInactive messages. Number of Occurrences since go-live: **10**

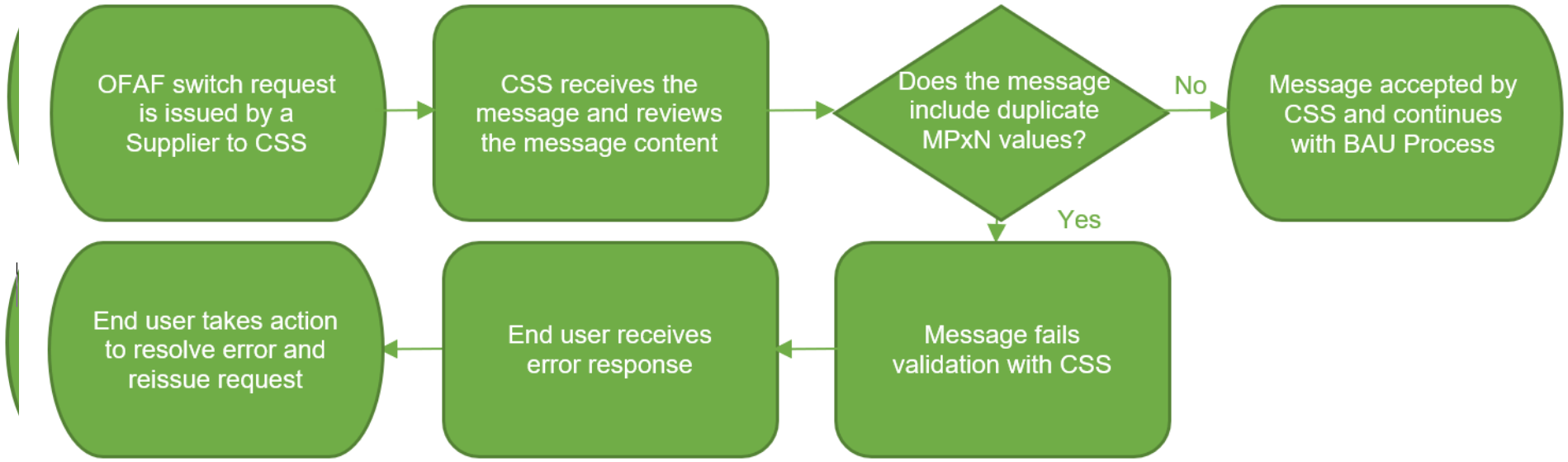
Proposed Solution



R0178 - SOLUTION

3. OFAF switch containing multiple MPxN.	This is the instance where the end user sends through a One Fail All Fail (OFAF) switch with the same MPxN contained within the payload 2 or more times. Multiple registration IDs are created for the same MPxN, and the registration is left in an incorrect state given a lack of appropriate BDVRs. Number of Occurrences since go-live: **19**

Proposed Solution



R0178 – NON-TECHNICAL SOLUTION

RETAIL ENERGY CODE

Proposed Solution

1. Deactivation of an active reg. whilst in-flight switch in progress:

- Clarification in the REC legal text that Parties should not withdraw before the 'Supply Effective from Date'
- Generate a new report which will allow RPA to track and monitor party compliance, via the solution to R0224.



2 & 3. Deactivation of a prior cancelled registration, OFAF switch containing multiple MPxN:

- Issue guidance documents which will outline correct practices for parties

R0178 – QUESTIONS FOR CHANGE ISSUES GROUP



Do we see more value in a technically engineered fix or in a simpler, non-technical resolution?