MHHS PROGRAMME

Industry-led, Elexon facilitated

SIT Regression Framework & Regression Pack

MHHS-DEL3545

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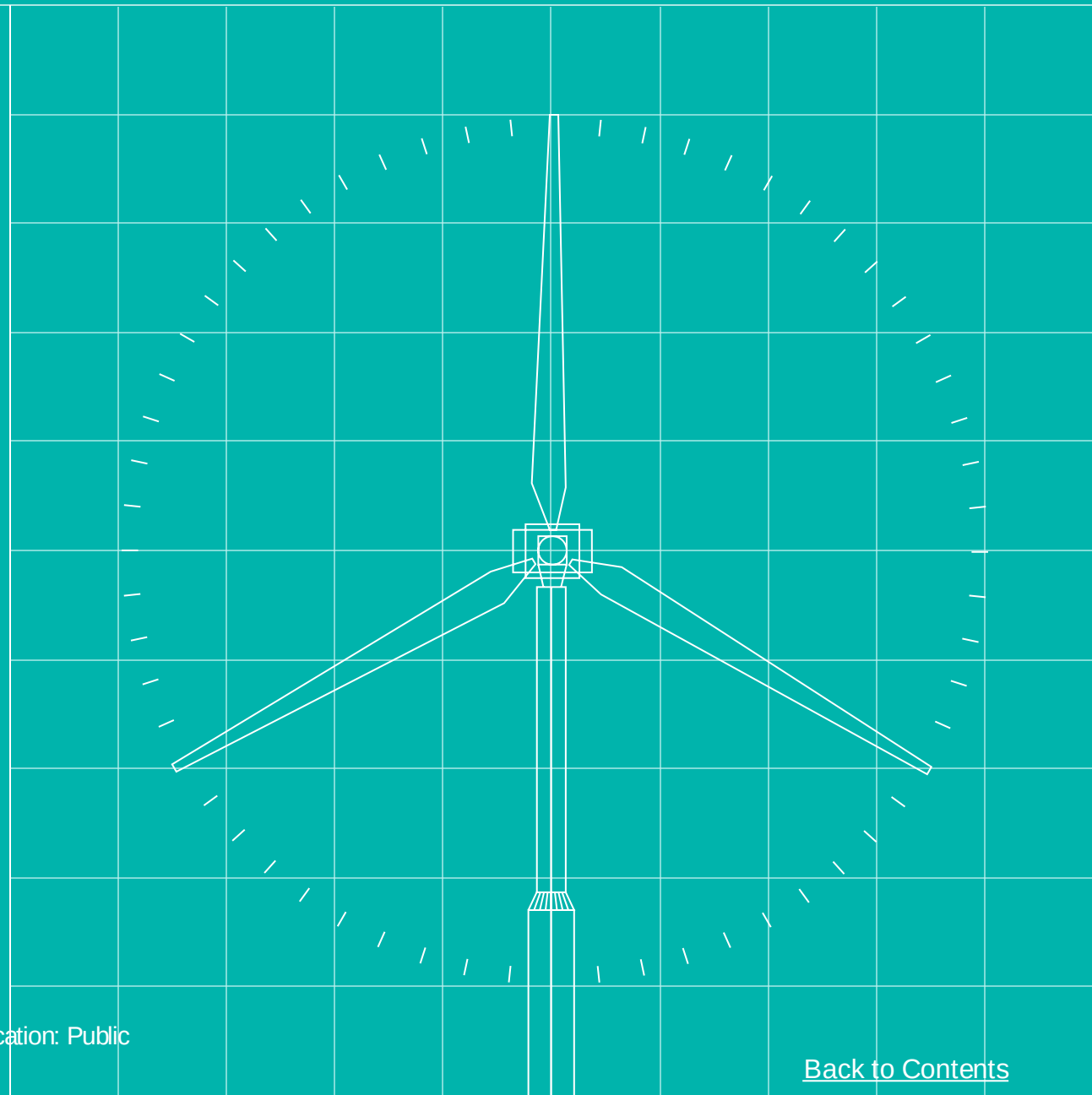
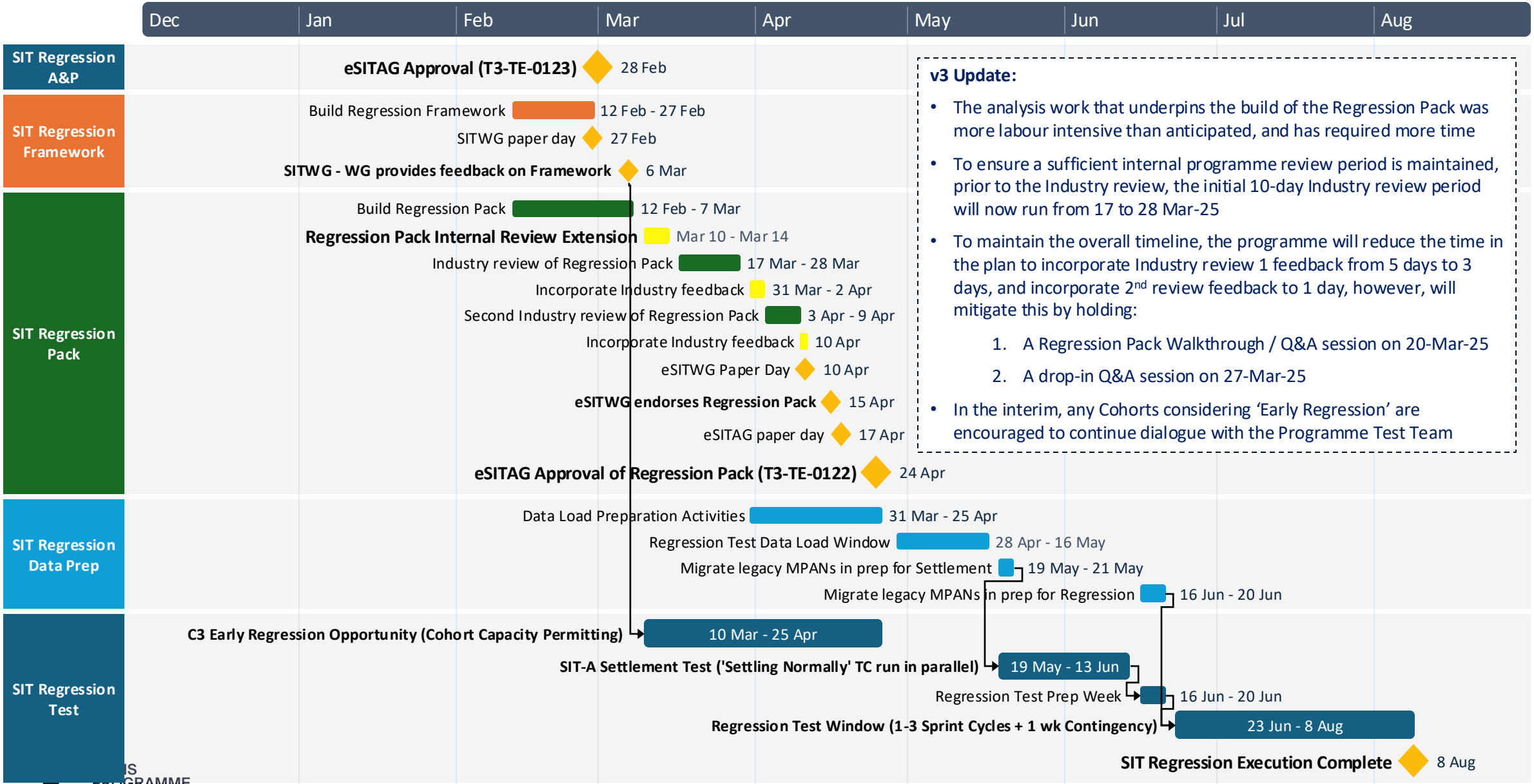
Contents

Section 0: Regression Test Timeline



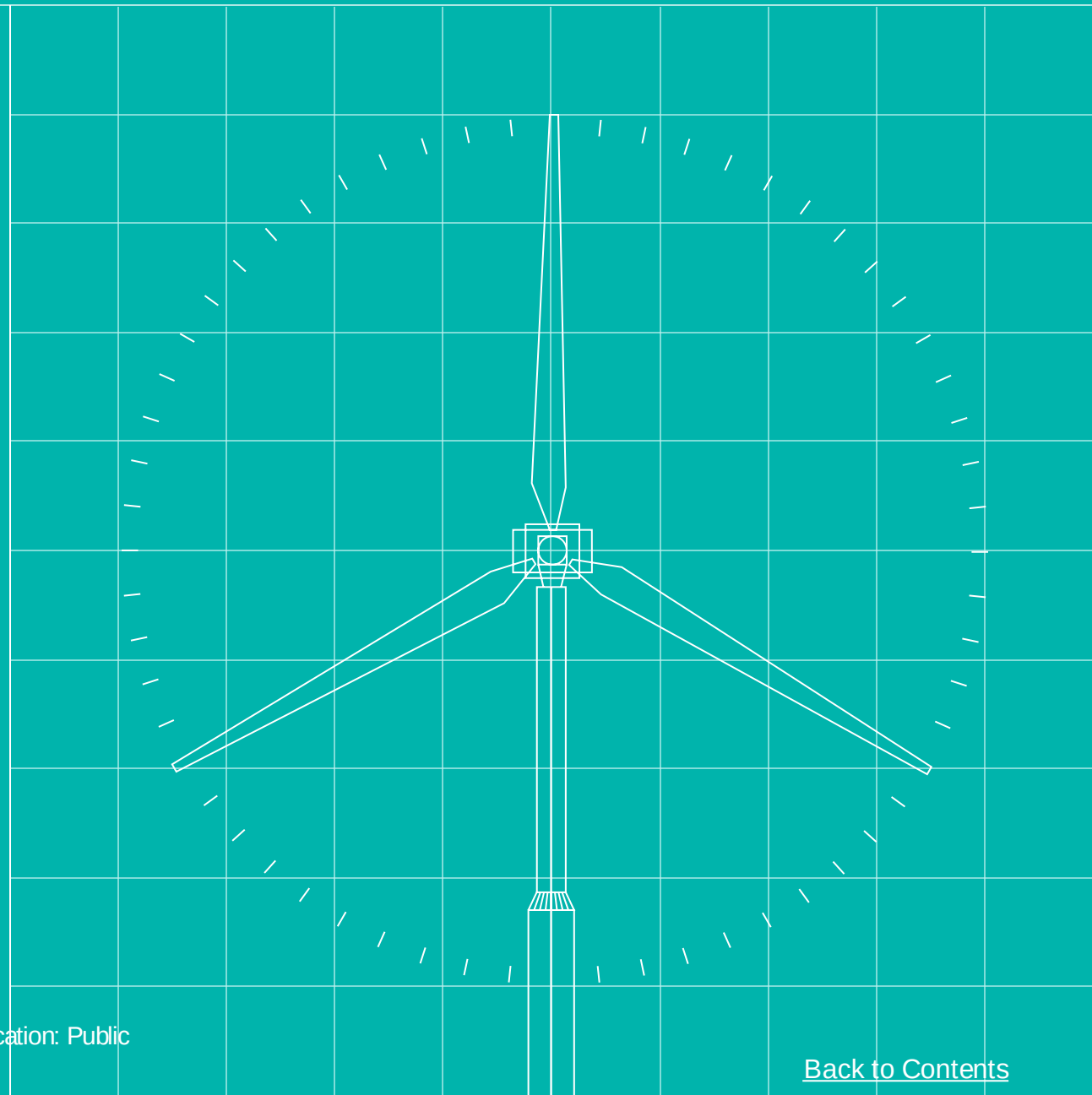
SIT Regression Timeline



v3 Update:

- The analysis work that underpins the build of the Regression Pack was more labour intensive than anticipated, and has required more time
- To ensure a sufficient internal programme review period is maintained, prior to the Industry review, the initial 10-day Industry review period will now run from 17 to 28 Mar-25
- To maintain the overall timeline, the programme will reduce the time in the plan to incorporate Industry review 1 feedback from 5 days to 3 days, and incorporate 2nd review feedback to 1 day, however, will mitigate this by holding:
    1. A Regression Pack Walkthrough / Q&A session on 20-Mar-25
    2. A drop-in Q&A session on 27-Mar-25
- In the interim, any Cohorts considering 'Early Regression' are encouraged to continue dialogue with the Programme Test Team

Section 1:
SIT Regression Framework & Regression Pack



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SIT Regression Test Framework & Regression Test Pack – Overview

Regression Framework

(Objective: determine the right breadth and degree of testing coverage to mitigate regression risk)

1. Core Regression Test Selection

- Top-down assessment of all SIT Tests to identify the highest value test cases in each theme
- Test Case Scoring Basis:
  - Maximisation of Theme & Requirements Coverage
  - High-Priority / High Volume Business Processes
  - Weighting of MPAN types (Segment & Meter Type) proportionate to live operations

2. Evidence based assessment of regression risk

- Analysis of Releases & CRs, Defect trends and Test Execution outcomes throughout SIT to identify any risk areas to treat in regression
- A combination of data driven and subjective assessment of risk
- May result in tailored supplementary selection (or de-selection) of TC candidates in the regression pack

Releases & CRs

SIT Functional (inc Settlement & Paired) & Migration Overall Test Pass Status (Per Cohort)		Cohort A	Cohort B	Cohort C	Cohort E	Cohort F	Cohort G	Cohort H	Cohort J
	C1 Pass (IR5)	45	24	23	17	37	21	15	46
	C2 Pass (IR7)	111	127	93	52	122	61	69	84
	C3 Pass (IR8)	206	229	212	212	226	251	225	220
	Req'd	68	17	65	99	11	53	55	68
	Req'd (On Hold)	17	11	15	15	11	20	17	16
	Internal Blocker	0	0	0	0	0	0	0	0
	TOTAL	447	408	408	395	407	406	381	434
	TOTAL Passed	362	380	328	281	385	333	309	350
	% Pass	81%	93%	80%	71%	95%	82%	81%	81%
	Tests Remaining	85	28	80	114	22	73	72	84

Test Outcomes

Defects & Code Deployments

Regression Pack

(Subject to SITWG Review)

Output

- Programme will provide a summary of the analysis and conclusions from the regression risk assessment
- The programme recommended test case selections for regression
- Coverage approach options for SITWG to consider
- Full list of SIT tests and scoring applied

Industry Review

- 2 SITWG review cycles:
  1. 17-Mar to 28-Mar (10 days)
  2. 03-Apr to 09-Apr (5 days)
- Bi-lateral dialogue with SIT Participants is welcomed during the review period
- **Note:** Participants that request material changes to the regression pack selection will be requested to present an evidence-based proposition for SITWG to consider

SIT Regression Test Framework – Regression Risk Assessment Focus Areas

Main Focus Area	Sub-focus Area	Assessment Focus	Findings	Conclusions
Releases & CRs	Review of all Interim Releases / CRs during SIT	• Release contents and risk profile • Deployment / Valid From dates • Mapping to relevant tests • Review of subsequent test results	**See Summary of Findings & Conclusions in Section 6**	
Defects & Code Deployments	Do defect trends indicate any problem areas that have yielded higher numbers of defects and therefore justify an emphasis in regression testing?	• Themes, business processes, functional areas • Defect types • Resolver groups (Central / Programme / Cohort Internal) • Occurrence trending; earlier, later or consistently through SIT? • Does prior and subsequent test execution outcome data provide insight?		
	Have we seen a relationship between releases and defects, or defect rates?	• Trend analysis over time • Focus on IRs, CRs and Code Deployments • CP and Voluntary Parties		
	Do we have evidence that any defects have been regression issues?	• What is the frequency? • Have there been any patterns seen? • Does prior and subsequent test execution outcome data provide insight?		
Test Outcomes	How effective was the balancing of test coverage between Cohorts in ensuring that the MHHS solution was broadly exercised throughout the SIT F & M timescales	• Review of all Tests across all themes • When were they executed, by whom • How does this relate to Releases and Defect Fix deployments		
	What tests have not been run and passed more recently i.e. since Cycle 1 or Cycle 2?	• How many, and what was the focus of the tests? • How many of those Business Processes and Requirements, or Functional Areas been exercised since in other tests and by which Cohorts more recently?		
	Passed Tests that were marked with the sub-status • ‘Passed with Observations’ • ‘Passed with Workaround’ Or N/A due to a ‘Declaration’	• How many, and what was the focus of the tests? • What was the nature and materiality of the Observations or Workarounds? • Did a N/A ‘Declaration’ have any regression risk relevance? • When did they occur? • Did other Cohorts encounter the same issues, or was confidence built by other Cohorts?		
	Test Assurance	• Have any assurance findings or trends identified a regression risk in any areas?		

SIT Regression Test Framework – Test Case Selection Approach

1. Core Regression Test Selection

- Initially there will be a top-down analysis of SIT tests to identify the highest value test cases in each theme (or relevant area), when selecting the tests, the following factors will be considered:
    - If the test covers high-priority and high-volume Business Processes
    - The breadth of Requirements coverage
    - A consideration of the MPAN type coverage (Segment & Meter Type) proportionate to production volumes
- Each of these tests will be marked as a 'Core Regression Test Candidate' and a summary of the justification for inclusion provided

2. Supplemental Regression Test Selection

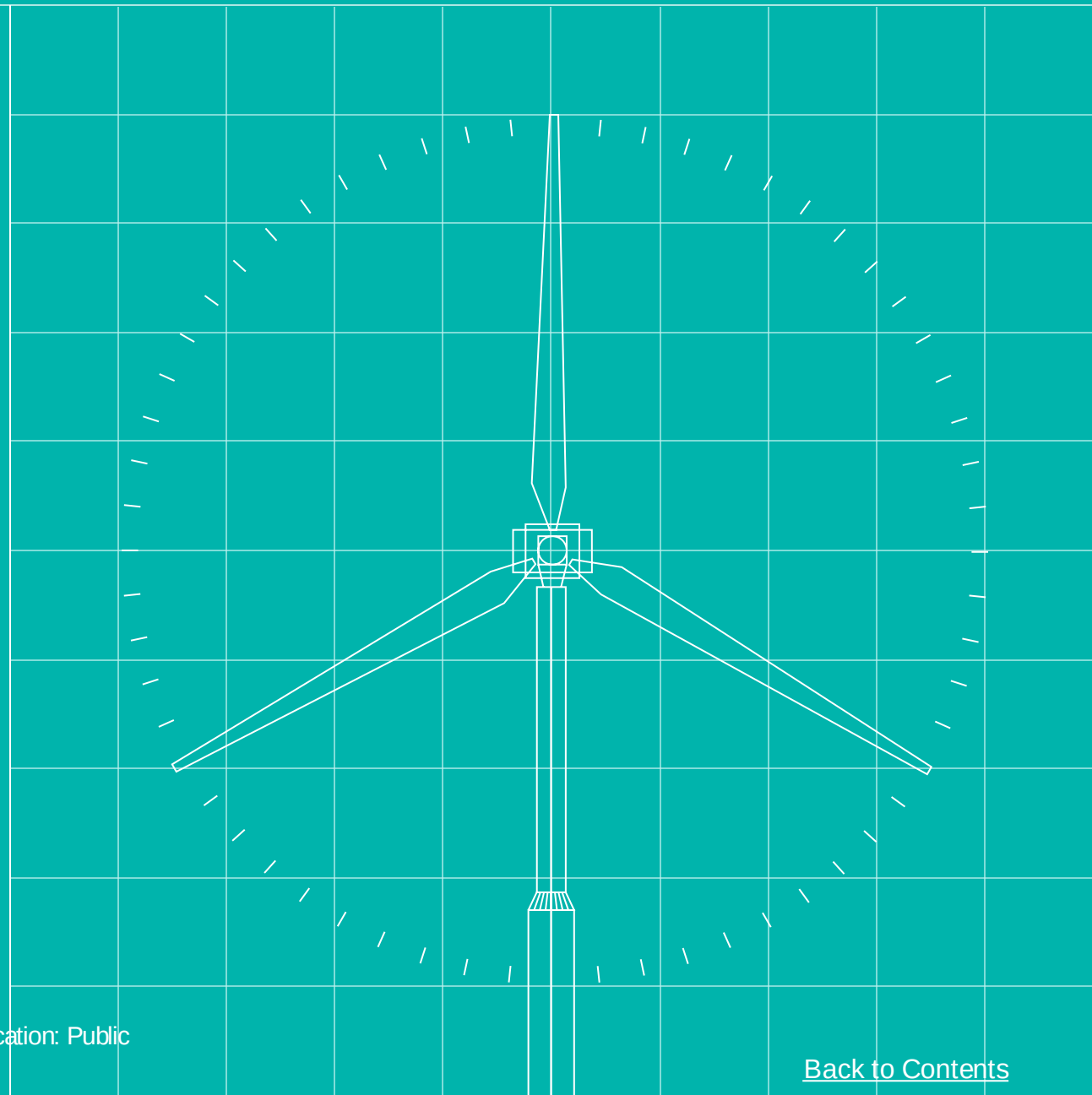
- Where regression risk areas have been identified, and these will not be sufficiently mitigated by the Core regression candidates, then an appropriate test will be selected and added to the candidate list as a 'Supplementary Regression Test Candidate'
- Where selected, a justification based on the risk assessment findings will be provided
- If the risk assessment findings identify an area as high risk, and other areas as lower risk of regression, then there may be a case to de-select tests in the lower risk area in favour of selecting tests in the higher risk area, where this has occurred the justification will be documented and published with the Regression Pack

Regression Coverage vs. Cohort Capacity

In the event the regression risk assessment identifies more candidates for inclusion, than planned capacity thresholds outlined in the Regression Approach and Plan, then the programme will put the tests into priority categories and present possible options to SITWG on how coverage can be increased, for example by:

1. Distributing between Cohorts
2. Increasing the Sprint length and Test Case contents, but reducing the number regression sprint cycles
3. By a combination of 2 and 3

Section 2:
SIT F & M Core Regression Test Selection



SIT Core Regression Test Selection – Approach (SIT F & M)

Theme	Total Unique Tests (In Scope)
1 - New Connections	7
2 - Change of Registration	49
3 - Change of Supplier	21
4 - Change of Data	22
5 - Change of Metering	23
6 - Metering Changes	58
7 - Consumption	93
8 - Settlement	42
9 - ISD	11
Forward Migration CoA	23
Forward Migration CoS	18
Reverse Migration CoS	13
	380*

**This is the final set of In-Scope tests (i.e. 'De-scoped' and 'Optional' test cases have been removed)*

Assessment Approach:

- 380 In-scope unique SIT Functional and Migration tests were assessed (326 SIT-F & 54 SIT-M)
- 2 stages of review and selection took place:
    1. Initial SI Assurance Team
    2. SI Assurance, SME, SRO Design & MHHS Design Team
- The objective was to select high value tests within each Theme as candidates for the Core Regression pack, providing:
    1. Rationale for selection (including prioritisation)
    2. Rationale for tests de-selected

Criteria used for Selection:

- High Frequency / Volume Scenarios, Coverage of Multiple Requirements, Coverage of Secondary Routing, Significant Functionality & Process coverage
- Migration: P1 selections included Traditional & Smart Meter Market Segments. P2 included Advanced & Unmetered Meter Market Segments
- Functional: P1 selections included all Market Segments

Criteria used for De-selection:

- Edge case tests, Limited MPAN availability, Low volumes / frequency of execution, Limited requirement coverage, Negative Tests
- Note - tests within the ISD theme were deemed low complexity and risk, with a core regression candidate test case executed by all Cohorts in sprint 12, therefore these were de-selected from the pack

Prioritisation of Candidates:

Priority	Summary
1	The core set of programme recommended highest value test case candidates in each theme, proposed for Cohort regression test execution in a single sprint capacity (~800 points)
2	Additional tests of slightly lower value that could form increased coverage options if chosen (time / capacity implications) – Medium Volumes, Medium Requirement coverage & Medium Priority Meter Market Segments meant these were assigned as P2
3	Additional tests of lower value that could form increased coverage options if chosen (time / capacity implications) – Lowest Volumes, Lowest Requirement Coverage & Lowest Priority Meter Market Segments meant these tests were assigned as P3

SIT Regression Test Functional & Migration Core Pack – Proposed SIT Functional Priority 1 Core Pack Selections

Priority	Stage	Theme	Scenario	Test Case	Segment	MPAN Type(s)	Points	Inclusion Rationale
1	Functional	1 - New Connections	SITFTS-0050 Create MPAN	SITFTS-0050 TC01 Smart Metered	Smart Meter	Import+Export	**200**	REQ Count 133. Included as this is an Import/Export new connection. Test covers multiple sub processes (MPAN creation, initial registration, linking MPANs, Agent appointments, energsation and meter installation). Also included due to number of issues related to linking of MPANs, appointment of agents on Import / Export and Meter Installations
1	Functional	1 - New Connections	SITFTS-0050 Create MPAN	SITFTS-0050 TC03 Advanced	Advanced	Single	**120**	REQ Count 116. Included due to New Build demand in the market. Test covers multiple sub processes Test covers multiple sub processes (MPAN creation, initial registration, linking MPANs, Agent appointments, energisation and meter installation. **Advanced also covers in scope Dflows that are not covered in Smart**
1	Functional	2 - Change of Registration	SITFTS-0940 Registration data update for Domestic Premise Indicator	SITFTS-0940 TC01 Update for Domestic Premise Indicator Smart	Smart	Single	**10**	REQ Count 8. Candidate as there are high volumes to process.
1	Functional	3 - Change of Supplier	SITFTS-0040 Change of supplier, MS and DS	SITFTS-0040 TC01 Smart Metered	Smart Meter	Single MPAN	**40**	REQ Count 89. Smart meter happy path CoS Candidate for regression. Frequency and volumes in Live are significant. Test covers sub processes Change of Supply and Agent Appointment process.
1	Functional	4 - Change of Data	SITFTS-0130 Change of DS, no change of supplier or MS	SITFTS-0130 TC03 Unmetered	Unmetered	Single	**20**	REQ Count 35. Happy path change of data service on an unmetered site, included to represent coverage of unmetered meter type where other tests in pack cover smart and advanced agent appointments
1	Functional	5 - Change of Metering	SITFTS-0120 Change of MS and DS, no change of supplier	SITFTS-0120 TC01 Smart Metered	Smart Meter	Single MPAN	**40**	REQ Count 72. Must have TC as agreed with Design. Happy path change of agent, covers change of metering service and change of data service using different event codes for agent appointments (CSP)
1	Functional	5 - Change of Metering	SITFTS-0120 Change of MS and DS, no change of supplier	SITFTS-0120 TC02 Advanced	Advanced	Import+Export	**60**	REQ Count 89. Must have TC as agreed with Design. Import/Export and does auto appointment, covers change of metering service and change of data service; **auto appointment not covered elsewhere**.
1	Functional	6 - Metering Changes	SITFTS-0900 Change of meter - successful	SITFTS-0900 TC01 Traditional to Smart Meter Exchange	Traditional	Single	**20**	REQ Count 25. Smart metering programme, smart meters replacing traditional meters. Included as Smart metering programme still requiring high volumes .
1	Functional	7 - Consumption	SITFTS-0012 Consumption on Change of Supplier, no change of MS	SITFTS-0012 TC02 Smart	Smart Meter	Single	**10**	REQ Count 10. Frequency and volumes in Live are significant. Happy path read off the back of a CoS. Process covers final billing (end of the process) after CoS
1	Functional	8 - Settlement	SITFTS-ST0030 Consumption settling normally	SITFTS-ST0030 Consumption settling normally	Traditional, Smart, Advanced, Unmetered	Multiple	**N/A**	The Settling Normally TC will be included in the pre-regression Settlement testing stage for all Cohorts (19-May to 13-Jun). The test was selected as is the highest value test in the theme

SIT Regression Test Functional & Migration Core Pack – Proposed SIT Migration Priority 1 Core Pack Selections

Priority	Stage	Theme	Scenario	Test Case	Segment	MPAN Type(s)	Points	Inclusion Rationale
1	Migration	Forward Migration CoA	Forward Migration CoA - Change of Services (MS + DS)	SIT-M-FM-COA-MS-DS-TC01	Trad	Single	**80**	• Vanilla Forward Migration Change Of Agent Scenario for Traditional Meter Segments. This scenario offers coverage of a high frequency of transactions for Migration. • Traditional meter segment functionality is identical to that of Smart Meters, so executing the test covers both meter segments and offers the widest coverage. • Expected to be one of most common scenario during Migration. • Scenario has a good e2e requirement coverage for Forward Migration.
1	Migration	Forward Migration CoS	Forward Migration CoS - Change of Services (MS + DS)	SIT-M-FM-COS-MS-DS-TC04	Smart NHH	Single	**120**	• Vanilla Forward Migration Change Of Supplier Scenario for Smart Meter Segment. • Covers Change Of Supplier with Change of Agents (MS & DS). • ~~Traditional meter segment functionality is identical to Smart Meter, so executing the test for this segment offers the widest coverage for this scenario.~~ • Executing this test will cover the SDS-DSP interactions • Expected to be one of most common scenarios during Migration. • Scenario has a good e2e requirement coverage for Forward Migration.
1	Migration	Reverse Migration CoS	Reverse Migration CoS - This includes a Change of Services (MS + DS)	SIT-M-RM-COS-MS-DS-TC03	Adv HH	Single	**80**	• Vanilla Reverse Migration Change Of Supplier Scenario for ~~Smart~~ Advanced Meter Segments. • ~~Traditional meter segment functionality is identical to Smart Meter, so executing the test for this segment offers the widest coverage for this scenario.~~ • Covers Change Of Supplier with Change of Agents (MS & DS). • Expected to be one of the most common Reverse Migration scenarios. • Scenario has a good e2e requirement coverage for Reverse Migration.

SIT Regression Test Functional & Migration Core Pack – Proposed SIT Functional Priority 2 Regression Selections

Priority	Stage	Theme	Scenario	Test Case	Segment	MPAN Type(s)	Points	Inclusion Rationale
2	Functional	2 - Change of Registration	SITFTS-0930 Registration data update for Consent Granularity	SITFTS-0930 TC01 Smart Daily to HH Consent	Smart	Single	**10**	REQ Count 8. Candidate as there are high volumes to process. Candidate has recently been executed and Passed on IR8 in sprint 13, so assigned as a P2
2	Functional	3 - Change of Supplier	SITFTS-0040 Change of supplier, MS and DS	SITFTS-0040 TC02 Advanced	Advanced Meter	Import + Export	**60**	REQ Count 104. Advanced meter happy path CoS Candidate for regression. Test covers a number of sub processes. Smart CoS in (SITFTS 0040) as P1 due to volume, Advanced Import export volumes not as significant as former. Import / Export agent appointment defects justifies P2 inclusion.
2	Functional	6 - Metering Changes	SITFTS-0840 Disconnection initiated by LDSO or Customer	SITFTS-0840 TC01 Smart Customer	Smart Meter	Single MPAN	**80**	REQ Count 51. Smart Disconnection from meter point also includes De energisation and meter removal (which is covered by SITFTS-0900 TC04). Medium volumes in live.
2	Functional	6 - Metering Changes	SITFTS-0840 Disconnection initiated by LDSO or Customer	SITFTS-0840 TC03 Advanced LDSO with Meter	Advanced Meter	Single MPAN	**80**	REQ Count 50. Advanced Disconnection from meter point also includes De energisation and meter removal (which is covered by SITFTS-0900 TC04). Covers additional meter type for disconnection. Lower volumes than for Smart, therefore P2
2	Functional	6 - Metering Changes	SITFTS-0860 Change of Market Segment	SITFTS-0860 TC01 Advanced to Smart Market Segment Change	Advanced	Single	**120**	REQ Count 87. This is being added due to the overall coverage the test possesses (Agent Appointments [appointment code SEG], Mkt Seg change, and meter exchange). Included due to defects around Agent Appointments and Mkt Segment updates. Volumes do not warrant it being a P1
2	Functional	6 - Metering Changes	SITFTS-0900 Change of meter - successful	SITFTS-0900 TC03 Advanced to Advanced Meter Exchange	Advanced	Single	**40**	REQ Count 23. MEX for example faulty meter Trad to Smart is the more higher volume process (covered in P1s), hence this is P2, but still medium volumes.
2	Functional	7 - Consumption	SITFTS-0012 Consumption on Change of Supplier, no change of MS	SITFTS-0012 TC10 Smart CoS with change of MS and DS, BST	Smart Meter	Single	**10**	REQ Count 1. Candidate due to IF-21 Split and TC is initiated and completed in BST. CoS covered in P1 has higher volumes but doesn't cover the IF021 split which this does.

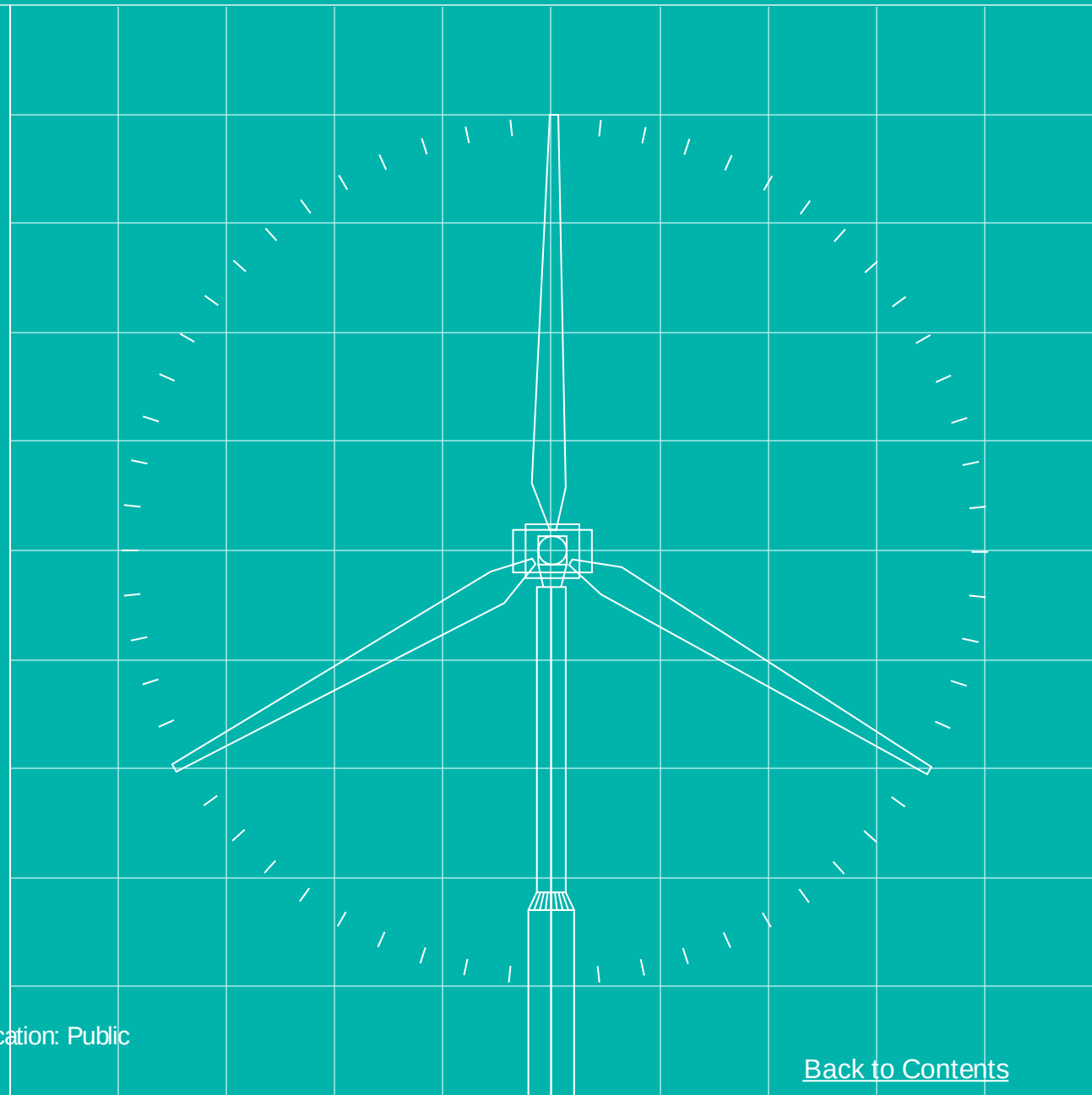
SIT Regression Test Functional & Migration Core Pack – Proposed SIT Migration Priority 2 Regression Selections

Priority	Stage	Theme	Scenario	Test Case	Segment	MPAN Type(s)	Points	Inclusion Rationale
2	Migration	Forward Migration CoA	Forward Migration CoA - Change of Services (MS + DS)	SIT-M-FM-COA-MS-DS-TC03	Adv HH	Single	**80**	• Vanilla Forward Migration Change Of Agent Scenario for Advanced Meter Segments. This scenario offers coverage of a high frequency of transactions for Migration. • Executing the test for this meter segment offers a wide coverage. • Expected to be one of most common scenario during Migration. • Scenario has a good e2e requirement coverage for Forward Migration. Advanced Meter Segment indicated Medium Volumes & Priority
2	Migration	Forward Migration CoA	Forward Migration CoA - Change of Services (MS + DS) - Unmetered	SIT-M-FM-COA-UNMET-TC01	Unmetered	Single	**80**	• Vanilla Forward Migration Change Of Agent scenario for Unmetered Segment. • Executing this scenario will ensure coverage for this segment also. • Scenario has a good e2e requirement coverage for Forward Migration. Unmetered Meter Segment indicated Lowest Volumes & Priority

SIT Regression Test Functional & Migration Core Pack – Proposed SIT Functional Priority 3 Regression Selections

Priority	Stage	Theme	Scenario	Test Case	Segment	MPAN Type(s)	Points	Inclusion Rationale
3	Functional	1 - New Connections	SITFTS-0050 Create MPAN	SITFTS-0050 TC04 Unmetered	Unmetered	Single	**80**	REQ Count 102. unmetered MPAN required for new sites. Test covers a number of sub processes. Not been Passed by any Cohorts since IR7 Unmetered Meter Segment indicates low volumes; due to time constraints and capacity, this test would be less value than those in P1/P2.
3	Functional	2 - Change of Registration	SITFTS-1000 Registration data update for import-export linkage	SITFTS-1000 TC01 Smart, linkage addition Same Supplier	Smart	Single	**20**	REQ Count 10. Candidate due to linkage between import and export. Low volumes with two established MPANs (not new connections)
3	Functional	3 - Change of Supplier	SITFTS-0010 Change of supplier, no change of DS or MS	SITFTS-0010 TC03 Unmetered	Unmetered	Single MPAN	**40**	REQ Count 84. CoS happy path for unmetered supply Candidate for regression. Test covers a number of sub processes. Unmetered Meter Segment indicates low volumes; due to time constraints and capacity, this test would be less value than those in P1/P2.
3	Functional	6 - Metering Changes	SITFTS-0280 Change of energisation - successful	SITFTS-0280 TC01 Smart Credit MS Energisation	Smart Credit	Single	**20**	REQ Count 18. Energisation change happy path Smart Credit. Included as part of pre-existing meters that have been de-energised, not new connections (covered as P1)
3	Functional	6 - Metering Changes	SITFTS-0280 Change of energisation - successful	SITFTS-0280 TC04 Advanced LDSO Energisation	Advanced	Single	**40**	REQ Count 24. Energisation change happy path Advanced. Runs through LDSO processing rather than supplier direct to meter service. Low volumes. New Connections P1 process covers Energisation for same segment but not LDSO elements.
3	Functional	7 - Consumption	SITFTS-0012 Consumption on Change of Supplier, no change of MS	SITFTS-0012 TC05 Trad Agreed	Traditional Meter	Single	**10**	REQ Count 14. Candidate due to the number of cases of traditional reads off the back of change of supply. Process runs D0010 Read hence why included as P3, but volumes do not warrant higher priority (Smart is covered by P1)

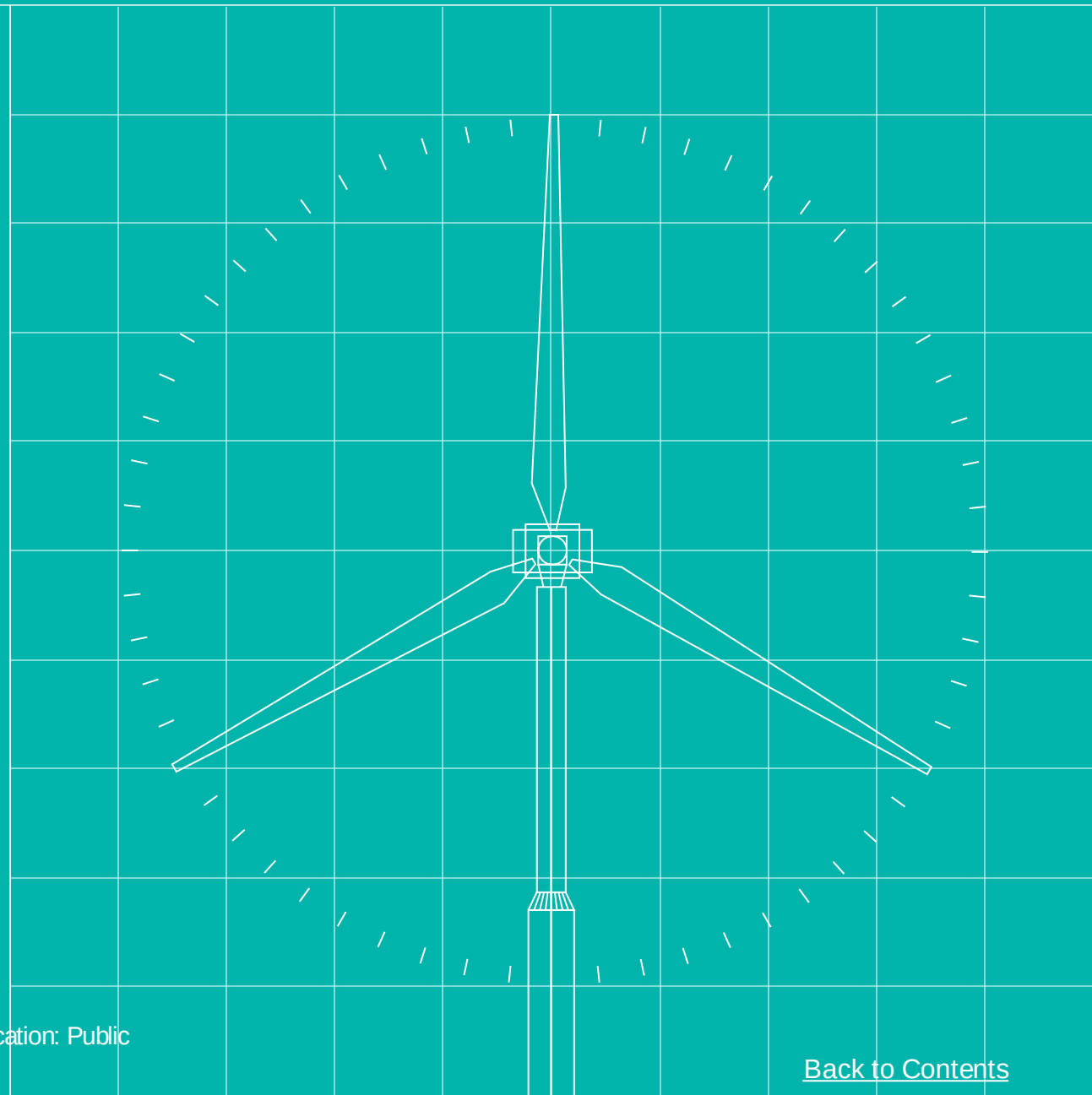
Section 3: Regression Risk Assessment – SIT F & M Releases & CRs



SIT Regression Risk Assessment - Releases & CRs

Interim Release	Sub Releases	Effective From	Change Requests included in the Release	Themes / Impact to Testing	Regression Risk Assessment
IR5	5.1 5.2 5.4 5.5	**11-Mar-24**	CR019 - Replacement of D0242 D0315 for MHHS CR028 – Removal of IF-001 from EES CR029 – Introduction of Opt in/out functionality CR030 – Compression of ECS Reports	**This Release formed the entry into SIT Cycle 1** The IR5.x release implemented 167 DINs. The majority of the updates were the correction of errors and alignment issues with Swagger	**Low Risk –** 2388 of 2638 (91%) of in-scope tests executed across all Themes and Cohorts since this release
IR6	None	**10-Jun-24**	N/A	This released focused on the publication of 34 DINs updating to the ECS reporting and ISD and the Interface Catalogue	
IR7	7.1 7.2 7.3	**10-Jun-24**	CR023 - Standardisation of Interfaces within the Smart Data Services CR024 - Update of two data items CR032 - Replacement of REP080 to use the P210 CR034 - Delay to Elexon Level 4 validation response – NFR (1009)	**This Release formed the entry into SIT Cycle 2** The IR7.x release implemented 112 DINs. The majority of the updates related to Swagger the interface catalogue, ECS reporting and Legacy DTC flows	**Low Risk –** 2171 of 2638 (82%) of in-scope tests executed across all Themes and Cohorts since this release
IR8	8.1 8.2 8.3	**21-Oct-24**	CR037 - Migration Message Processing Choreography Update CR039 - IF040 removal of REGS in "To Parties" field CR040 - Confirmation of LDSO response times CR046 - Change of Energy Direction CR043 - MPAN/ABMU Mapping CR054 - Updates to Non-Functional Requirement	**This Release formed the entry into SIT Cycle 3** The IR8.x releases implemented 127 DINs, The initial IR8.0 release focused on updates to DES138 and Swagger, CR043 - Small change to Helix systems to accommodate receiving and sending of the mention data flows and mapping of. Impacted Theme - Settlements	**Low Risk –** 1520 of 2638 (80%) of in-scope tests executed across all Themes and Cohorts since this release CR043 - ST0053 TC01 ABMU Normal Settlement – passed by all cohorts in Feb 2025
	8.4	**06-Dec-24**		Subsequent sub-releases corrected errors in Method statements, requirements as testing focused on more functional aspects of the TOM. Updates to interfaces stabilised. From October 2024 Interim releases only delivered updates to address defects or errors that would prevent testing from progressing Primary Impact of IR8.4 was on COS/CSP testing on related and linked MPANS which was placed on hold and subsequently released post interim release. Defects 39202/39963/38352 retested and closed post release.	**Low Risk** – targeted retesting of IR changes actioned post release and defects closed as a result of testing across all cohorts. 97 or 116 (83%) tests for related/linked MPANS have been passed since interim release.
	8.5 8.6	**20-Jan-25**	CR056 - Batching of ERDS to CSS Agent Appointment Files	CR-056 - Correction in the intermittent FIFO Processing of MPRS to CSS messages. IR8.5 – DIN to address #37835 (retested and closed) and design document alignment updates.	**Low Risk** – CR056 testing actioned across multiple cohorts for MDR agent appointments between MPRS and CSS and defects closed.
	8.7	**22-Jan-25**	CR044 – Alignment of DTN Data Flows CR059 - Replacement of REP-020 with D0357	This release was a retrospective alignment of the replacement of REP-020 by Helix for the Settlements theme. Change was already in place by Helix prior to 22/01/25	**Low Risk** – retrospective CR to deliver fixes which have been subsequently tested and proven under settlements testing.
	8.8	**12-Feb-25**	N/A	This release focused on correcting routing in the IF-041, This did not impact testing, DES138 update to routing at participant level IF-041 during COS. Alignment of primary routing statement for data services. IR actioned by participants data services. Document update	**Low Risk** – impact isolated to IF-041 and release delivered with testing in flight by cohorts, and associated defects raised have been closed post retest.

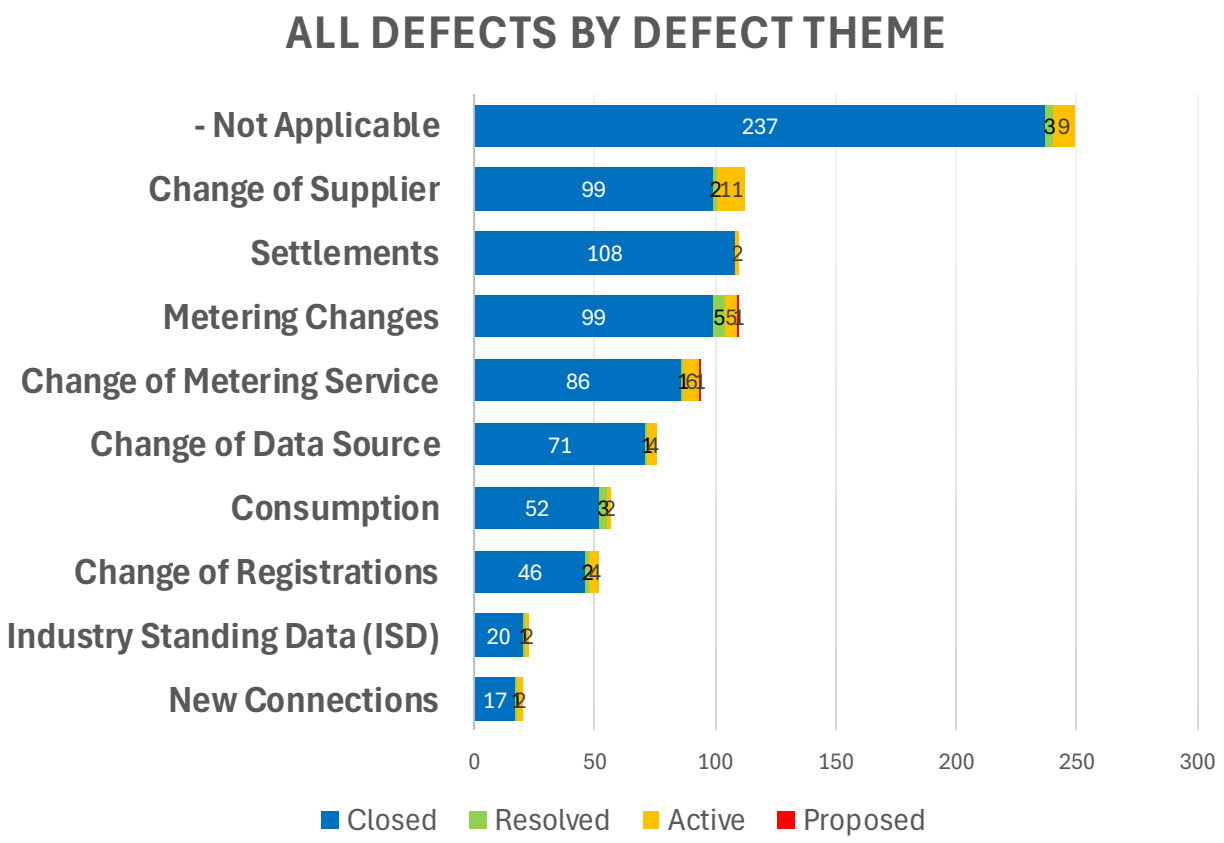
Section 4: Regression Risk Assessment – SIT F & M Defects & Code Deployments



SIT Regression Risk Assessment – SIT F & M Defects & Code Deployments (Introduction)

SIT Functional & Migration Defects

SIT Stage	S1 - Critical	S2 - Major	S3 - Minor	S4 - Low	Grand Total
SIT - Functional	11	417	322	27	777
SIT - Migration		62	58	4	124
Grand Total	**11**	**479**	**380**	**31**	**901**



Introduction and Approach

It is a fact that software regression can occur through the course of systems development, and this effect can go unnoticed if software isn't sufficiently exercised in the testing process after code iterations have been deployed.

Analysis of defects encountered through a testing programme can help to draw out themes or problematic areas that have yielded higher numbers of defects, which can then inform decisions on where to focus regression testing effort.

When analysing the SIT Functional & Migration defect history, the headline numbers and theme distribution only tell part of the story. Defects have been raised for a number of reasons by industry testing participants through the course of the testing, and as a principle this has been encouraged to ensure that unexpected testing events and outcomes could be properly assessed and the right course of action determined.

When assessing regression risk, it is firstly important to establish the reasons, outcomes and root causes of defects to determine those that could pose a risk to code regression, for example a documentation defect resolved by a documentation change, poses a much lower regression risk than a defect that was resolved by a code fix, therefore this analysis will focus in on defects that resulted in code releases to resolve, and look for any themes or patterns that indicate the need for regression risk mitigation.

SIT Regression Risk Assessment – Defects & Code Deployments (Defect Outcome)

Filtering based on Defect Outcomes:

State	Count
Closed	834
Active	25
Resolved	19
Accepted By Resolver	15
Resolver Group Assigned	6
Proposed	2
Grand Total	**901**

SIT is ongoing and for the purposes of this analysis only defects that have been closed, or drawing to a closure will be assessed

Closure Reason	Count
Fixed	563
Clarification / Advice Provided	126
Rejected	62
Dispensation Accepted	59
Withdrawn	23
Change required	5
(blank)	
Grand Total	**838**

Defects with the following 'Closure Reasons', 'Rejected' and 'Withdrawn' were excluded as these weren't valid defects, and no further action was taken.

Also filtered out are those that were closed due to an accepted 'Dispensation', these resulted in Cohort tests being set to N/A and no further action was taken.

Note the closure reason '(blank') these are where defects are still open, or closure reason is not yet determined.

Closure Reason	Count
Fixed	563
Clarification / Advice Provided	126
Change required	5
Grand Total	**694**

Defects with the 'Closure Reason', 'Clarification / Advice Provided' have been filtered out as the course of action was to resolve a query raised via a defect.

Also those that required a Change Request to resolve (see section 3)

Fixed --> Root Cause Category	Count
Code	205
Test Script	144
Data	91
Configuration	38
Requirement	20
Environment	19
Certificate issue	13
Documentation	13
Infrastructure	11
Payload	4
Pre-existing condition	4
Role profile/authorisation	1
Grand Total	**563**

See next slide

SIT Regression Risk Assessment – Defects & Code Deployments (Root Cause and Theme)

Root Cause:

Fixed --> Root Cause Category	Count	Regression Risk Commentary
Code	205	Subject of further Regression risk analysis
Test Script	144	Low Risk – no code impact
Data	91	Low Risk – no code impact
Configuration	38	Low Risk – no code impact
Requirement	20	Low Risk – no code impact
Environment	19	Low Risk – no code impact
Certificate issue	13	Low Risk – no code impact
Documentation	13	Low Risk – no code impact
Infrastructure	11	Low Risk – no code impact
Payload	4	Low Risk – no code impact
Pre-existing condition	4	Low Risk – no code impact
Role profile/authorisation	1	Low Risk – no code impact
Grand Total	**563**	

RC Code Defect by Theme	S1 - Critical	S2 - Major	S3 - Minor	S4 - Low	Grand Total
- Not Applicable	3	35	14	2	54
Metering Changes		10	15		25
Settlements		18	7		25
Change of Supplier		14	9		23
Change of Metering Service		7	13	1	21
Change of Data Source		10	9		19
Consumption		10	6		16
Change of Registrations		6	8		14
New Connections		3	2		5
Industry Standing Data (ISD)	1	1	1		3
Grand Total	**4**	**114**	**84**	**3**	**205**

As can be seen here the fix root cause of ‘Code’ is fairly evenly distributed across the themes, not indicating a specific theme area of concern or pattern, and roughly correlating to the number of tests in each area

(Please note that analysis is at the point in time, and stats may have moved on since publishing)

SIT Regression Risk Assessment – Defects & Code Deployments (Code fix Resolvers)

Theme & Code Fix Resolver Groups

	Central Party Resolvers					Programme Resolvers			Cohort Internal	Grand Total
Theme	**St.Clements**	**Avanade - DIP provider**	**Helix**	**C&C**	**C&C - RECCo**	**SI Design**	**SI Assurance**	**SI Data Team**		
- Not Applicable	6	19	9	1	1	4			14	54
Change of Data Source	2			1					16	19
Change of Metering Service	7			2		2	2	1	7	21
Change of Registrations	4	1		7					2	14
Change of Supplier	10	2		1			2	1	7	23
Consumption		1				3			12	16
Industry Standing Data (ISD)			2			1				3
Metering Changes	7	1		2		2			13	25
New Connections	1	2							2	5
Settlements	2	1	11	3		2			6	25
Grand Total	**39**	**27**	**22**	**17**	**1**	**14**	**4**	**2**	**79**	**205**
			106				**20**			

Key Observations:

- The highest volume of code fix defects were resolved by St Clements (MPRS), this correlates to the higher degree of impact of the MHHS design on the MPRS system
- Higher volumes of MPRS code fixes were needed in the Change of Supplier and Metering Changes themes
- DIP code fixes were predominantly routing relating issues so were less likely to sit within a specific theme
- As expected, Settlements code fixes were predominantly required from Helix
- Code fix defects with Programme Resolvers were Central Party defects that had a final resolution action undertaken by a programme resolver team, there were no notable patterns or regression risks identified in this category
- No notable patterns could be seen within Cohort Internal code fix defect data set, other than a higher predominance of defects declared within the 'Change of Data Source', 'Consumption' and 'Metering Changes' themes

SIT Regression Risk Assessment – Defects & Code Deployments (Code fix vs Releases)

Code Fixes vs. Release Found

	Cycle 1	Cycle 2	Cycle 3	
Resolver Group	Code Fix Defects	Code Fix Defects	Code Fix Defects	Total
St.Clements	1	11	27	39
Avanade - DIP provider	6	11	10	27
Helix	1	9	12	22
C&C	2	5	10	17
C&C - RECCo		1		1
SI Design	1	6	7	14
SI Assurance		1	3	4
SI Data Team	1	1		2
Cohort Internal	2	17	60	79
	14	62	129	205
	7%	30%	63%	

All Cohorts						
Total No. Tests (All Cohorts)	No. Passed (IR5)	% Passed (IR5)	No. Passed (IR7)	% Passed (IR7)	No. Passed (IR8)	% Passed (IR8)
2638	217	8%	651	25%	1520	58%
	Cycle 1		Cycle 2		Cycle 3	

Findings

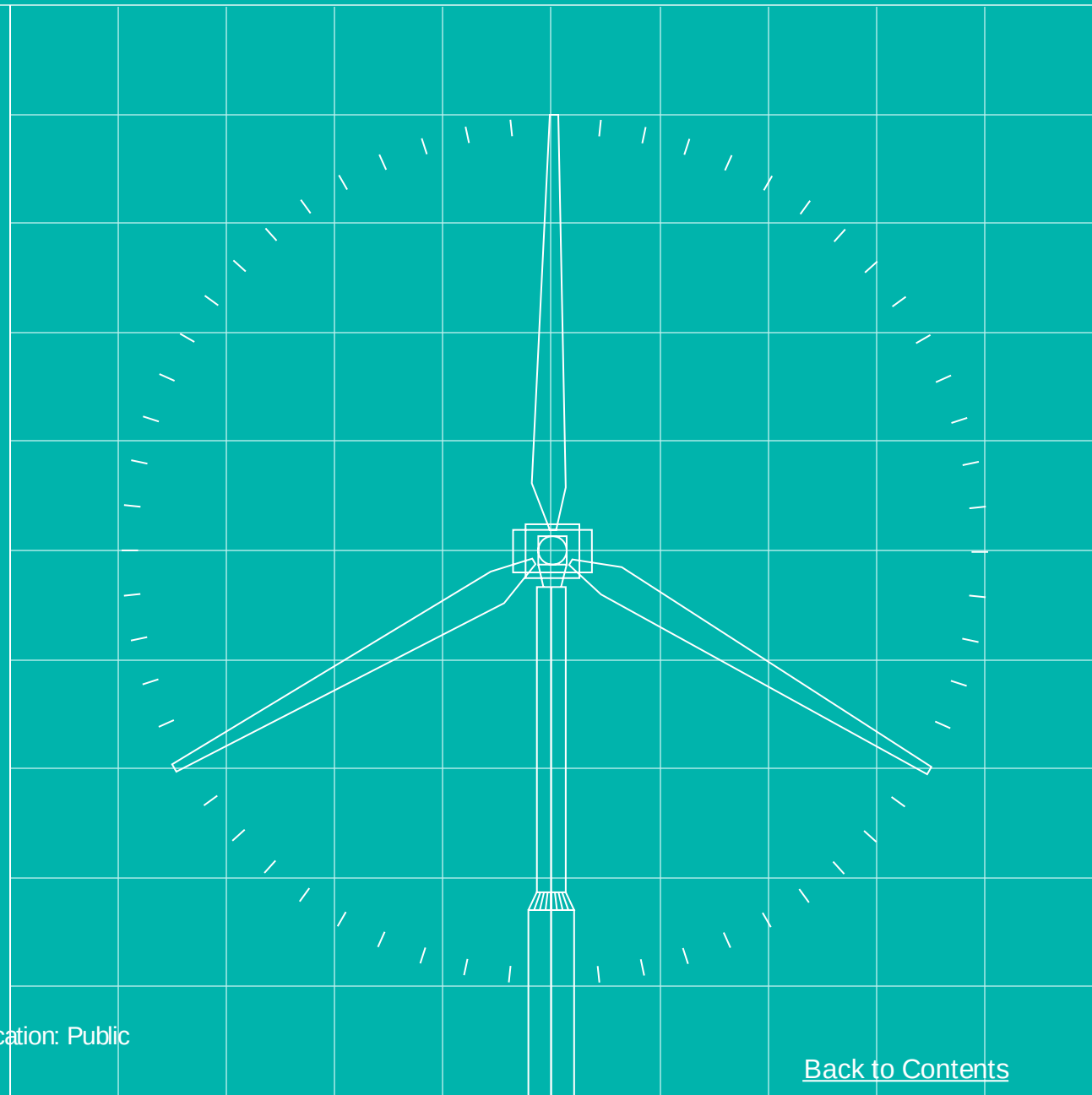
- When analysing defect outcomes the number of defects resulting in Code fixes and therefore relevant for regression risk analysis, was relatively low in relation to the overall number of defects raised
- The distribution of code fix defects amongst resolver groups, did not demonstrate any reasonable concern
- There were no significant themes or patterns seen in the code fix defect data that would indicate required additional risk mitigation in regression
- The distribution of code fix defects across Cycles / Interim Releases correlated with the amount of testing undertaken in each Cycle
- Analysis of individual Code fix defects did not demonstrate a theme of defects that had been previously fixed, occurring again later, instead the defects raised and fixed correlated with the testing being undertaken at the time, which were then resolved successfully which was demonstrated by subsequent test results

Conclusion

- Analysis of SIT F & M Defects hasn't identified any clear regression risks to treat and doesn't support the selection of any targeted testing

(Please note that analysis is at the point in time, and stats may have moved on since publishing)

Section 5: Regression Risk Assessment – SIT F & M Test Outcomes



SIT Regression Risk Assessment – Test Outcomes (Test & Theme Coverage Across Cycles)

Tests Passed across all Cycles and Themes:

		All Cohorts						
Theme	Total Unique Tests (In Scope)	Total No. Tests (All Cohorts)	No. Passed (IR5)	% Passed (IR5)	No. Passed (IR7)	% Passed (IR7)	No. Passed (IR8)	% Passed (IR8)
1 - New Connections	7	**40**	0	0%	18	45%	21	53%
2 - Change of Registration	49	**337**	92	27%	118	35%	112	33%
3 - Change of Supplier	21	**152**	0	0%	13	9%	97	64%
4 - Change of Data	22	**147**	2	1%	9	6%	116	79%
5 - Change of Metering	23	**166**	1	1%	16	10%	120	72%
6 - Metering Changes	58	**427**	65	15%	115	27%	216	51%
7 - Consumption	93	**664**	56	8%	162	24%	389	59%
8 - Settlement	42	**211**	0	0%	0	0%	166	79%
9 - ISD	11	**88**	1	1%	51	58%	28	32%
Forward Migration CoA	23	**176**	0	0%	106	60%	69	39%
Forward Migration CoS	18	**131**	0	0%	42	32%	89	68%
Reverse Migration CoS	13	**99**	0	0%	1	1%	97	98%
	380*	**2638**	**217**	**8%**	**651**	**25%**	**1520**	**58%**
			Cycle 1		**Cycle 2**		**Cycle 3**	
Cohort A	**380**	**366****	**43**	**12%**	**107**	**29%**	**197**	**54%**
Cohort B	**380**	**322****	**22**	**7%**	**107**	**33%**	**180**	**56%**
Cohort C	**380**	**325****	**22**	**7%**	**88**	**27%**	**178**	**55%**
Cohort E	**380**	**316****	**16**	**5%**	**50**	**16%**	**186**	**59%**
Cohort F	**380**	**315****	**36**	**11%**	**104**	**33%**	**167**	**53%**
Cohort G	**380**	**334****	**20**	**6%**	**55**	**16%**	**234**	**70%**
Cohort H	**380**	**309****	**15**	**5%**	**64**	**21%**	**205**	**66%**
Cohort J	**380**	**351****	**43**	**12%**	**76**	**22%**	**173**	**49%**

**This is the final set of In-Scope tests therefore only Passes against these tests have been recorded (i.e. 'De-scoped' and 'Optional' test cases have been removed)*

***Not all Tests apply to each Cohort e.g. Unmetered segment tests, or where a test has been deemed N/A due to a 'Declaration'*

Findings

- Test assignment and outcome data was analysed across the SIT Functional and Migration cycles:
  - SIT Cycle 1 (IR5): 11-Mar-24 – 14-Jun-24
  - SIT Cycle 2 (IR7): 17-Jun-24 – 04-Oct-24
  - SIT Cycle 3 (IR8): 21-Oct-24 – Present
- The programme strategy throughout testing was to balance test case assignments between Cohorts. The intent was to exercise the greatest breath of MHHS solution coverage as soon as possible and therefore flush out and resolve Central Party defects at pace. This has served to keep the solution broadly exercised throughout
- As solution stability built, and Cohort test execution capability was learned, in correlation the testing velocity and pace has increased, this has meant that the majority of testing (1580 test case Passes / 58%) has been undertaken in the last cycle and on the most recent IR release
- In all themes this is the case, with the exception of 'Change of Registration', however there has been a balanced execution of this theme in each cycle, and 'ISD' which is low risk and been recently re-exercised in Sprint 12
- Those Cohorts that have increased velocity later on in the SIT testing, have further increased this confidence by exercising more of their testing in Cycle 3 thus decreasing overall regression risk (see Appendix A for a break for each individual Cohort)

Conclusion

- Analysis of SIT F & M test outcomes hasn't identified any clear regression risks and doesn't support the selection of any additional targeted testing

(Please note that analysis is at the point in time, and stats may have moved on since publishing)

SIT Regression Risk Assessment – Test Outcomes (Tests not executed since Cycle 1 or 2)

Pass Status	Count	%		
Pass (IR5)	8	2%		
Pass (IR5 & IR7)	15	4%		
Pass (IR5 & IR8)	7	2%		
Pass (IR5, IR7 & IR8)	44	12%	**98%**	**% Unique Tests Passed (By 1 or More Cohorts)**
Pass (IR7 & IR8)	108	28%		
Pass (IR7)	22	6%		
Pass (IR8)	168	44%		
Req'd	0			
Req'd (Blocked)	0	0%		
Req'd (On Hold - BST)	4	1%	**2%**	**% Unique Tests Still to Pass (By 1 or More Cohorts)**
Req'd (On Hold - Settlement CSS)	4	1%		
Req'd (MDR PPs Only - TBC)	0	0%		
Total*	**380**			

Total Passed (1 or More Cohorts)	**372**
Total Required (1 or More Cohorts)	**8**

*N/A (1x All Cohorts Declations)	1
*N/A (1x SET 2 Settlement Test)	1
*Optional (Not Included)	9

**This is the final set of In-Scope tests (i.e. 'De-scoped' have been removed), therefore only Passes against these tests have been recorded*

Findings

- 45 Unique Test Cases assessed
- 8 Unique Test Cases (2%) have not been Passed Since IR5 (all SIT F)
    - All fell in the categories of Low Volume, Edge Case, Negative tests
    - 4 of 8 have since seen multiple passes in other test cases in the same scenario that have Passed on IR8
- 37 Unique Test Cases (10%) have not been Passed Since IR7
    - 31 of 37 are SIT F Tests:
        - 27 fell in the categories of Low Volume, Edge Case, Negative tests and not deemed to meet the selection criteria (22 also had IR8 Passes on Test Cases in the same scenario)
        - 1 test has already been selected as a P2 regression candidate for consideration, however, has seen multiple other test cases in the scenario that have Passed on IR8
        - 3 tests have already been selected as P3 candidates for consideration, however again each has seen multiple other test cases in the same scenario that have Passed on IR8
    - 6 of 37 are SIT M Tests:
        - 2 have already been selected as P1 tests in the Core Regression Pack
        - 1 test has medium volume/frequency, and has already been selected as a P2 regression candidate for consideration
        - 3 tests have requirements that have been covered by other tests which have passed on IR8 (1 of which is also a P1 selection, and 1 of the 3 is a negative scenario)

Conclusion

- Noting the Test Cases already selected in the Core Pack or options 2 or 3 for consideration, there are no other risk factors that would justify treating in the regression test stage

(Please note that analysis is at the point in time, and stats may have moved on since publishing)

SIT F & M Test Outcomes – Tests ‘Passed with Observations’ or ‘Passed with Workaround’ (1 of 2)

Tests Passed with a ‘PwO’ or ‘PwW’ sub-status

The use of the 'Passed with Observations' and 'Passed with Workaround' sub-statuses are permitted under conditions outlined in the SIT F & M DITL policy.

In essence 'PwO' can be used if an unexpected event occurs which doesn't impact or invalidate the outcome objective of the test, or in rare cases an event occurred where a programme accepted workaround was employed, again without impacting the core test objective.

Any use of these sub-statuses needs to be approved by the programme, and is the subject of separate test assurance after the event.

The programme has reviewed these cases to determine associated regression risk.

	Count of of Pass By Ovservation Or Workaround by Cohort by Theme								
Theme	A	B	C	E	F	G	H	J	Grand Total
1 - New Connections	-	-	-	-	1	1	-	1	3
2 - Change of Registration	-	-	-	-	-	-	2	-	2
3 - Change of Supplier	2	1	1	1	1	5	1	-	12
4 - Change of Data	1	-	-	-	1	-	2	-	4
5 - Change of Metering	3	1	-	1	2	1	4	-	12
6 - Metering Changes	6	1	-	-	3	11	3	-	24
7 - Consumption	1	-	1	-	-	1	2	-	5
9 - ISD	1	-	1	1	-	-	-	-	3
Forward Migration CoA	-	3	1	1	-	2	-	-	7
Forward Migration CoS	-	-	-	-	-	2	-	2	4
Reverse Migration CoS	1	-	-	-	-	5	2	-	8
Grand Total	**15**	**6**	**4**	**4**	**8**	**28**	**16**	**3**	**84**

Findings

- As of 12-Mar-25, out of 380 unique tests in scope a total of 73 unique tests have a ‘PwO’ or ‘PwW’ noted against them (across 91 separate test runs)
- 7 test run instances are in the Settlements theme, and have been excluded from the Regression risk assessment as have been test assured and the SIT Regression Approach and Plan has outlined that inclusion of the Settling Normally test will be the approach to mitigate regression risk
- This analysis focused in on the remaining 84 test case runs in the SIT F and M stages / workstreams which have observations;’ recorded:
    - SIT F – 65 test instances out of 2021 test case runs
    - SIT M – 19 test instances our of 406 test case runs
- Excluding 166 Passed Settlement test cases runs, there have been 2472 Passed test case runs in SIT F and M across all Cohorts
- Within 2472 SIT F & M Passed tests case runs, 84 individual tests runs where found where the sub-statuses have been used (3%), including 14 unique test cases with multiple instances of ‘PwO’ or ‘PwW’ (all 14 have either had a subsequent clean pass, have a cohort yet to run the test case or have been reviewed to understand the ‘PwO’ or ‘PwW’)
- The largest concentration of PwO or PwW across all cohorts is in Theme 6 – ‘Metering Changes’
    - 24 test cases passed with observations, however, 19 tests have since been passed by other cohorts cleanly
    - 2 tests which have not subsequently been cleanly passed were deemed low risk (see next slide)
    - 3 tests still have one or more Cohorts that has yet to execute the test case, so there is an expectation of a clean pass, and these will be monitored in the remainder of Cycle 3

(Please note that analysis is at the point in time, and stats may have moved on since publishing)

SIT F & M Test Outcomes – Tests 'Passed with Observations' or 'Passed with Workaround' (2 of 2)

	Subsequent Clean Pass By Another Cohort		
Theme	**Yes**	**No**	**TBC - Not executed by all cohorts**
1 - New Connections	1	-	2
2 - Change of Registration	2	-	-
3 - Change of Supplier	11	1	1
4 - Change of Data	4	-	-
5 - Change of Metering	9	1	2
6 - Metering Changes	19	2	3
7 - Consumption	3	-	1
9 - ISD	-	3	-
Forward Migration CoA	7	-	-
Forward Migration CoS	3	1	-
Reverse Migration CoS	7	-	1
Grand Total	**66**	**8**	**10**

Issue Theme	Total
Assurance approved - CP issue - Retest covered by other cohorts and passed	39
Assurance approved - Data - Retest covered by other cohorts and passed	12
Assurance approved - Design confirmation	6
Assurance approved - Design Doc Update - Fixed in new version	1
Assurance approved - Environment restriction	4
Assurance approved - Internal issue - Retest covered by other cohorts and passed	13
Assurance approved - TC - Fixed in new version	9
Grand Total	**84**

Findings

- Analysis of each of the 84 test case runs, found that 66 (79%) of the test runs had all had later been passed cleanly by another cohort
- 10 test cases (12%) still have one or more Cohorts that has yet to execute the test case, so there is an expectation of a clean pass, and these will be monitored in the remainder of Cycle 3
- There are 8 test case runs (9%), across 6 unique test cases, that were most recently executed and noted with a 'PwO' or 'PwW' sub-status, these test cases have been Passed by all Cohorts prior to this in SIT, therefore with no planned opportunity to re-run this test case. Analysis of the specific observations found the events to be very low risk (see table below)

Conclusion

- The incidence of use of 'PwO' or 'PwW' sub-status has not been significant during SIT F & M, and in most cases were due to events that were not seen in subsequently executed runs of the same test case, or otherwise due to minor observations, therefore this is not seen as relevant risk factor that would justify treating in the regression test stage

All Cohorts Passed, but most recent runs with a 'PwO' sub-status:

Theme	Test Name	PwW/PwO	Defect/Observation/Rational
3 - Change of Supplier	SITFTS-0095 TC02 Unmetered	PwO	• Passed by A and J - no observations noted • Observation related to cosmetic typo on test steps in TC which had been corrected post TC review- steps role incorrect hence passed by observsation • No risk to regression to note
5 - Change of Metering	SITFTS-0120 TC06 Advanced Metered Exchange of Customer & PSR information	PwO	• One off timing issue reports by cohort A, not repeated on any other run by other cohort runs and other tests in scope by cohort A
6 - Metering Changes	SITFTS-0280 TC03 Traditional MS Energisation	PwO	• Working as expected, general observation noted by cohort G - B095/B096 groups aren't mandatory but should be provided where the information is held by REGS
6 - Metering Changes	SITFTS-0890 TC02 Smart Hist UPD Rej	PwO	• Defect 46350 - internal cohort observation - not faced by any other cohorts • Clarification provided by design team to confirm working as design as per Swagger/DES138. No fix required. • No risk to regression to note
9 - ISD	SITFTS-0425 TC01 ISD human-readable version	PwO	• Recorded by 3 cohorts • #32172 (CP) Pass with Observations - approved by programme
Forward Migration CoS	SIT-M-FM-COS-MS-DS-TC05 - Smart Meter (HH)	PwW	• Defect 42651 - Passed with Workaround - U Received for IF-36 • Later fixed and retested on other migration scenarios and defect closed

(Please note that analysis is at the point in time, and stats may have moved on since publishing)

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SIT F & M Test Outcomes – Tests marked as N/A with a 'Declaration'

In circumstances where for valid reasons a Cohort is unable to execute an assigned test case, the DITL policy allows for a 'Declaration' defect to be raised stating the reasons why.

Upon programme approval, the Cohort is permitted to set the test case to N/A.

Tests Marked N/A due to Declarations:

Theme	SIT Functional	SIT Migration	Grand Total
1 - New Connections	3		3
2 - Change of Registration	10		10
3 - Change of Supplier	1		1
4 - Change of Data	7		7
5 - Change of Metering	6		6
6 - Metering Changes	12		12
7 - Consumption	6		6
8 - Settlement	2		2
Forward Migration CoA		1	1
Forward Migration CoS		5	5
Grand Total	**47**	**6**	**53**

Declaration Analysis	Count
Low Risk - Negative test - Unable to reproduce due to Internal Validation Restriction	1
No Risk - Passed by at least 1 cohort	52
Grand Total	**53**

Findings

- As of 12-Mar-25 a total of 53 test cases have had a declaration raised against them, on occasion by multiple Cohorts – 1 declaration raised on later a descoped test has been omitted
- 6 Declarations raised against a Migration test cases
- All declaration defects have been raised by Cohorts due to the test cases being a negative scenario and the cohort being unable to reproduce the negative scenario due to internal system validations
- Out of 53 test cases with declarations, at least 1 Cohort has been able to successfully prove the scenario and therefore provide the MHHS Business Process coverage required to prove the design
- 1 test case has not been covered by any cohorts due to internal UMSO system validations in place by both UMSO systems, which means the negative scenario cannot be replicated in test and should not be possible in production either
- In all cases the requirement under test where a declaration was raised were not Qualification requirements pertaining to the Voluntary Party asked to initiate the test

Conclusion

- The incidence and nature of Declarations is not relevant to the SIT regression risk profile and doesn't support the selection of any targeted testing

SIT F & M Test Outcomes – Results of Test Assurance

SIT Functional Assurance:

Assurance Failure	Total	As a percentage
Evidence not in a doc file	60	10%
Inconsistent reference	32	5%
Unredacted data in evidence	271	45%
Correct evidence not attached	161	27%
No Evidence	72	12%

SIT Settlement Assurance:

Assurance Failure	Total	As a percentage
Evidence not in a doc file	43	29%
Inconsistent reference	3	2%
Unredacted data in evidence	50	34%
Correct evidence not attached	53	36%
No Evidence	0	0%

SIT Migration Assurance:

Assurance Failure	Total	As a percentage
Evidence not in a doc file	0	0%
Inconsistent reference	1	13%
Unredacted data in evidence	4	57%
Correct evidence not attached	3	38%
No Evidence	0	0%

Findings

- Assurance failures have in all cases been associated with test evidence quality or presence issues
- To date there have been no instances where an issue with evidence has deemed the outcome of the test to be invalid and requiring re-execution i.e. the correct evidence has been supplied to address issue.

Conclusion

- The incidence and nature of Assurance issues is not relevant to the SIT regression risk profile and doesn't support the selection of any targeted testing

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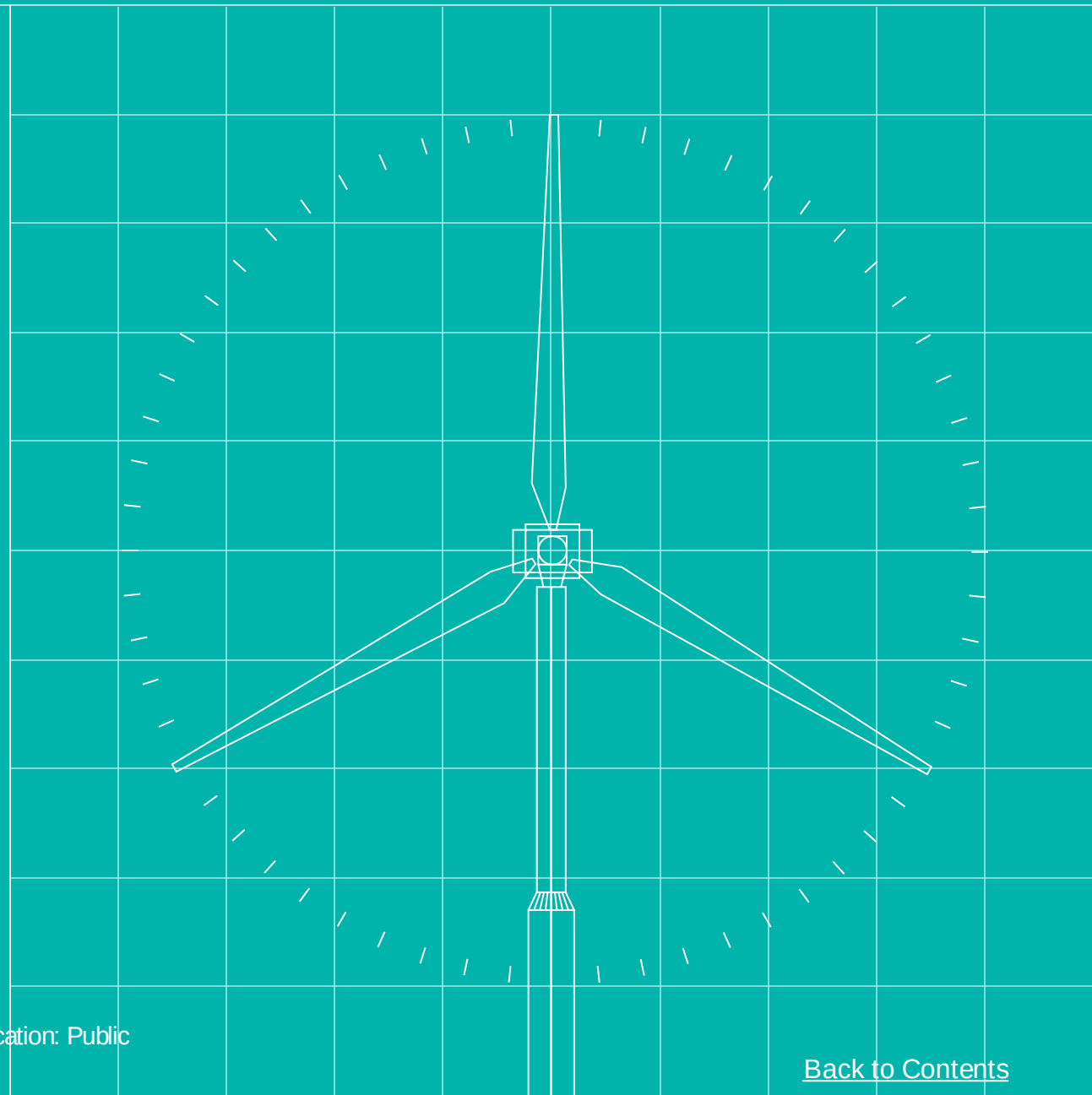
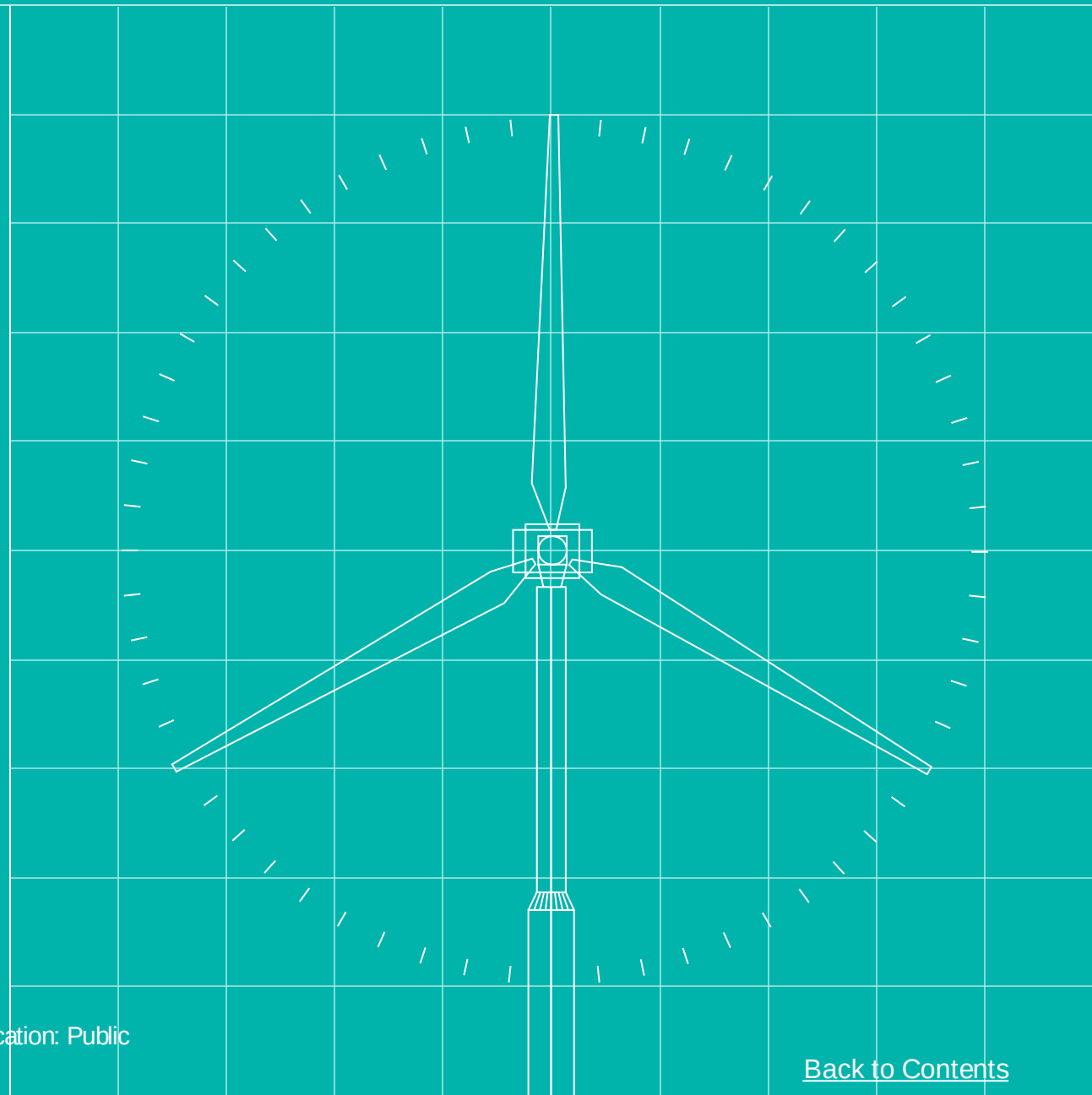
Section 6: Regression Risk Assessment – SIT F & M Findings & Conclusions



SIT F & M Regression Risk Assessment Focus Areas – Summary of Findings and Conclusions

Main Focus Area	Sub-focus Area	Assessment Focus	Findings	Conclusions
Releases & CRs	Review of all Interim Releases / CRs during SIT	• Release contents and risk profile • Deployment / Valid From dates • Mapping to relevant tests • Review of subsequent test results	Analysis of releases and subsequent confidence in Test Outcomes has not identified any risk areas to treat	**The conclusion of the risk assessment is that there are no clear risk factors to treat that would justify or support emphasising specific areas or themes beyond the test cases selected in the Core Regression Test Pack**
Defects & Code Deployments	Do defect trends indicate any problem areas that have yielded higher numbers of defects and therefore justify an emphasis in regression testing?	• Themes, business processes, functional areas • Defect types • Resolver groups (Central / Programme / Cohort Internal) • Occurrence trending; earlier, later or consistently through SIT? • Does prior and subsequent test execution outcome data provide insight?	The findings have not identified any risk areas to treat	
	Have we seen a relationship between releases and defects, or defect rates?	• Trend analysis over time • Focus on IRs, CRs and Code Deployments • CP and Voluntary Parties	The findings have not identified any risk areas to treat	
	Do we have evidence that any defects have had regression issues?	• What is the frequency? • Have there been any patterns seen? • Does prior and subsequent test execution outcome data provide insight?	The findings have not identified any risk areas to treat	
Test Outcomes	How effective was the balancing of test coverage between Cohorts in ensuring that the MHHS solution was broadly exercised throughout the SIT F & M timescales	• Review of all Tests across all themes • When were they executed, by whom • How does this relate to Releases and Defect Fix deployments	The findings have not identified any risk areas to treat	
	What tests have not been run and passed more recently i.e. since Cycle 1 or Cycle 2?	• How many, and what was the focus of the tests? • How many of those Business Processes and Requirements, or Functional Areas been exercised since in other tests and by which Cohorts more recently?	The findings have not identified any further risk areas to treat	
	Passed Tests that were marked with the sub-status • ‘Passed with Observations’ • ‘Passed with Workaround’ Or N/A due to a ‘Declaration’	• How many, and what was the focus of the tests? • What was the nature and materiality of the Observations or Workarounds? • Did a N/A ‘Declaration’ have any regression risk relevance? • When did they occur? • Did other Cohorts encounter the same issues, or was confidence built by other Cohorts?	The findings have not identified any risk areas to treat	
	Test Assurance	• Have any assurance findings or trends identified a regression risk in any areas?	The findings have not identified any risk areas to treat	

Section 7:
SIT Operational & NFT Regression Test Selection



SIT Core Regression Test Selection – Operational & NFT

Operational Test Theme	Total Unique Tests (In Scope)
1 - MPRS / LDSO and Business Requirements	53
2 - Security & Operational Choreography	42
3 - Service Mgt, DIP Onboarding & BCDR	68
	163

NFT Theme	Total Unique Tests (In Scope)
1 - DIP & Helix	2
2 - Lifecycle Processing & End-to-End	15
3 - Targeted Interfaces	11
	28

Assessment Approach:

- 191 In-scope unique Non-Functional and Operational Tests were assessed (163 Operational & 28 NFT)
- 2 stages of review and selection took place:
    1. Initial SI Assurance Team
    2. SI Assurance & MHHS Design Team
- The objective was to select high value tests within each Theme as candidates for the Core Regression pack, providing:
    1. Rationale for selection (including prioritisation)
    2. Rationale for tests de-selected

Criteria used for Selection:

- Number of defects raised
- Process coverage

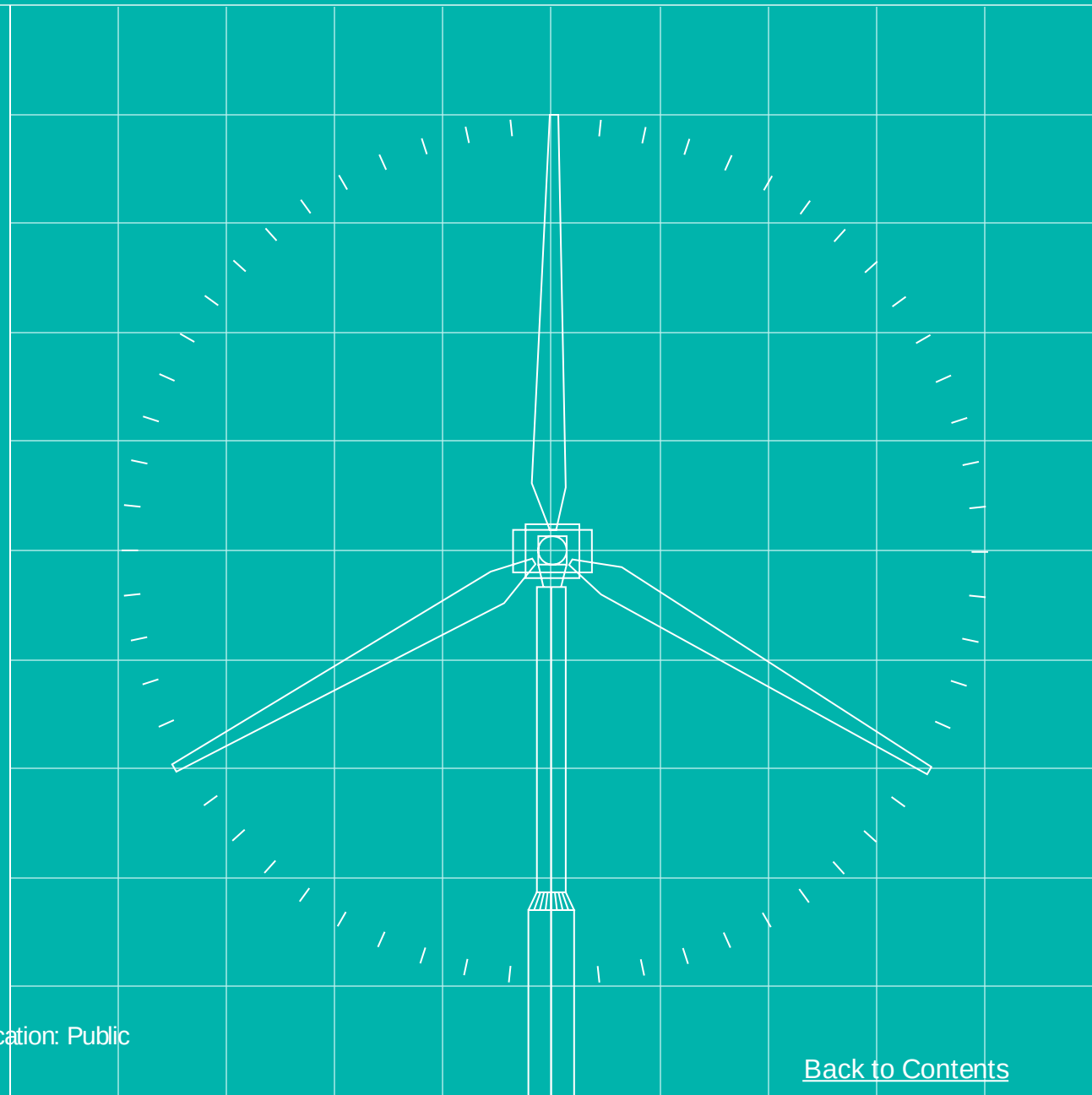
Criteria used for De-selection:

- High Volume Scenarios (all are equal volume/value)
- Coverage of Requirements
- Indivisibility (one test run in isolation might not provide value)
- Code Release when test was last executed
- Cost and environment limitations to run

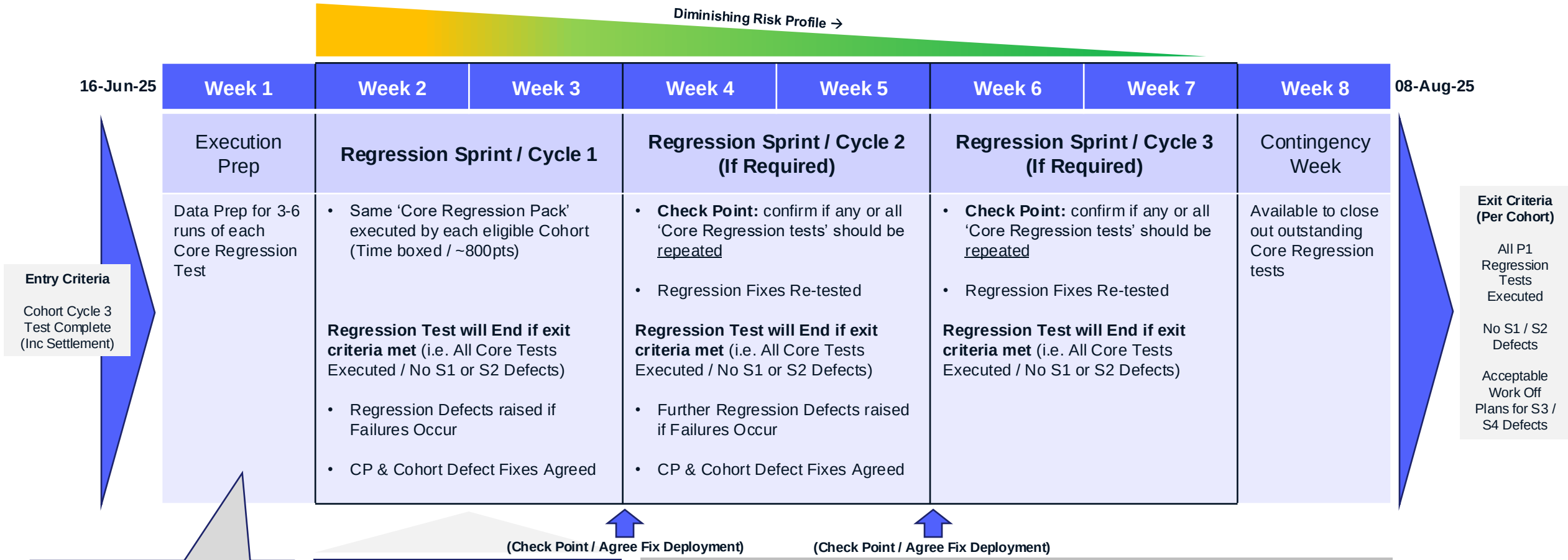
Proposed Regression Test selection:

Stage	Theme	Scenario	Inclusion Rationale
Operational	Incident Management	SITOPS US01 Service Management – Unscripted Test	• High number of Sev-2 Defects raised • High value of process and training testing • No test environment impact

Section 8:
SIT Regression Test Pack and Approach



SIT Regression Stage – Recommended Core Regression Pack Approach



~2k MPANs will be created and provisioned per cohort, which can be used for Settlement CoS Testing, Regression Testing and then informal "sandbox" testing post Regression

Supplemental Cohort Regression Tests (Optional)

Subject to:

1. Prior programme agreement of tests
2. Demonstratable Cohort capacity to execute without impacting 'Core Regression Pack' objectives

Evidence Capture Approach

Test evidence in SIT Regression will not be required, assuming the following conditions are met:

1. If the original test was passed during the initial SIT
2. If the required evidence was captured as part of the initial SIT
3. If the Participant asserts that the regression test was passed during regression testing

Please note - if a test case fails in Regression the programme will still expect that evidence is provided by Participants to support defect triage and analysis.

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SIT Regression Test – Regression Pack Recommendation & Options

Recommendation

Based on the analysis of test cases and the regression risk assessment undertaken, the programme recommends that the same Core Regression Pack (Option 1) is executed by each individual Cohort, as this will serve as the proportionate amount and type of regression testing to mitigate regression risk.

Options

In response to Participant feedback on the SIT Regression Approach and Plan, additional options are presented for SITWG consideration and feedback

Option	Candidate Priorities	Total Tests	Total Points	Number of Sprints / Cycles	Test Case Assignment Approach	Pros	Cons	Programme Recommendation
1	P1	13	800	3	• Each Cohort assigned the same set of Regression tests	• Level playing field for each Cohort • Maximises outcome comparison • Allows a 3-cycle approach	• Lower Regression coverage option	**Recommended Option**
2	P1 & P2	22	1360	3	• Assumption that all 8 Cohorts in regression • 4 different sets of tests (800pts each) • Same set assigned to Cohort pairings	• Increases Regression coverage • Allows a 3-cycle approach	• Uneven playing field for Cohorts • Decreases outcome comparison	
3	P1, P2 & P3	28	1570	2	• Assumption that all 8 Cohorts in regression • 4 different sets of tests (1200pts each) • Same set assigned to Cohort pairings	• Maximum Regression coverage option	• Uneven playing field for Cohorts • Decreases outcome comparison • 2-cycle approach less likely to achieve 'Clean Pass' status	

SIT Regression Test – Post-Consultation Cycle 1 Clarifications (1 of 2)

SIT Regression Exit Principles:

- The programme continues to recommend that the same Core Regression Pack (Option 1) is executed by each individual Cohort, as this will serve as the proportionate amount and type of regression testing to mitigate regression risk
- Cohorts that successfully achieve completion of Option 1 / Priority 1 tests will meet their SIT Exit, assuming that there are no Sev 1 or 2 defects, and any remaining Sev 3 or 4 defects have a programme agreed work off plan
- As an established principle, when 2 Cohorts have successfully completed the Option 1 / P1 tests, then the programme will have achieved overall SIT exit objectives, noting that programme support will continue to be provided for other Cohorts still Regression testing
- **Paired Testing** - there is no requirement for P1 paired regression tests to be run by each Cohort as both the Gaining and Losing party. Agree with your Paired Cohort which Cohort will be the initiator on the test and then let the Programme know
- **Unmetered tests** - the programme acknowledges that not all Cohorts have unmetered in scope, and so for those Cohorts that don't have Unmetered in their portfolio they are not required to run the test. If Participants within a Cohort decide to use this capacity to run supplementary tests in the regression sprints, then the programme supports that, however it will not be required to achieve SIT exit (see 'Supplementary Regression testing' below)

Supplementary Regression testing (during the Regression stage):

- The programme will support the execution of supplementary Regression tests; however, Cohorts / Participants must demonstrate that they have the capacity to execute these without impacting P1 regression tests, and that all Cohort members agree to support them
- Execution and completion of supplementary regression tests will not form part of that exit criteria; any Programme, Central Party, or Core Provider support will be 'best endeavours' and only available where it does not impact the completion of any Cohort P1 Regression tests or associated defect resolution
- Defects encountered during supplementary regression tests will be considered in the overall exit Criteria for SIT and subject to the same thresholds. Participants that have raised defects against supplementary regression tests will be expected to re-test any fixes delivered back into the test environment, unless it is agreed that another Cohort is available to retest the fix

SIT Regression Test – Post-Consultation Cycle 1 Clarifications (2 of 2)

Supplementary Regression testing (post-Regression stage):

- The programme will support the execution of supplementary Regression tests; however, Cohorts / Participants must demonstrate to the programme that all Cohort members agree to support them

- Any planned tests must be agreed with the programme beforehand; Programme, Central Party, or Core Provider support for testing and defects will be provided via the support capacity originally provisioned for the continued 'non-MVC' SIT Participant testing phase, if demand exceeds this capacity, then PPs should not expect the same responsiveness as during SIT Cycles 1, 2 & 3 and Regression

- Any defects encountered during these tests, will be assessed regarding production impact. Participants that have raised defects against these tests will be expected to re-test any fixes delivered back into the test environment, unless it is agreed that another Cohort is available to retest the fix

Defects & Release Clarifications:

- The Defect Management principles and process will be unchanged, noting that defect priorities will be set in relation to Regression stage objectives and agreed with Participants on a case-by-case basis

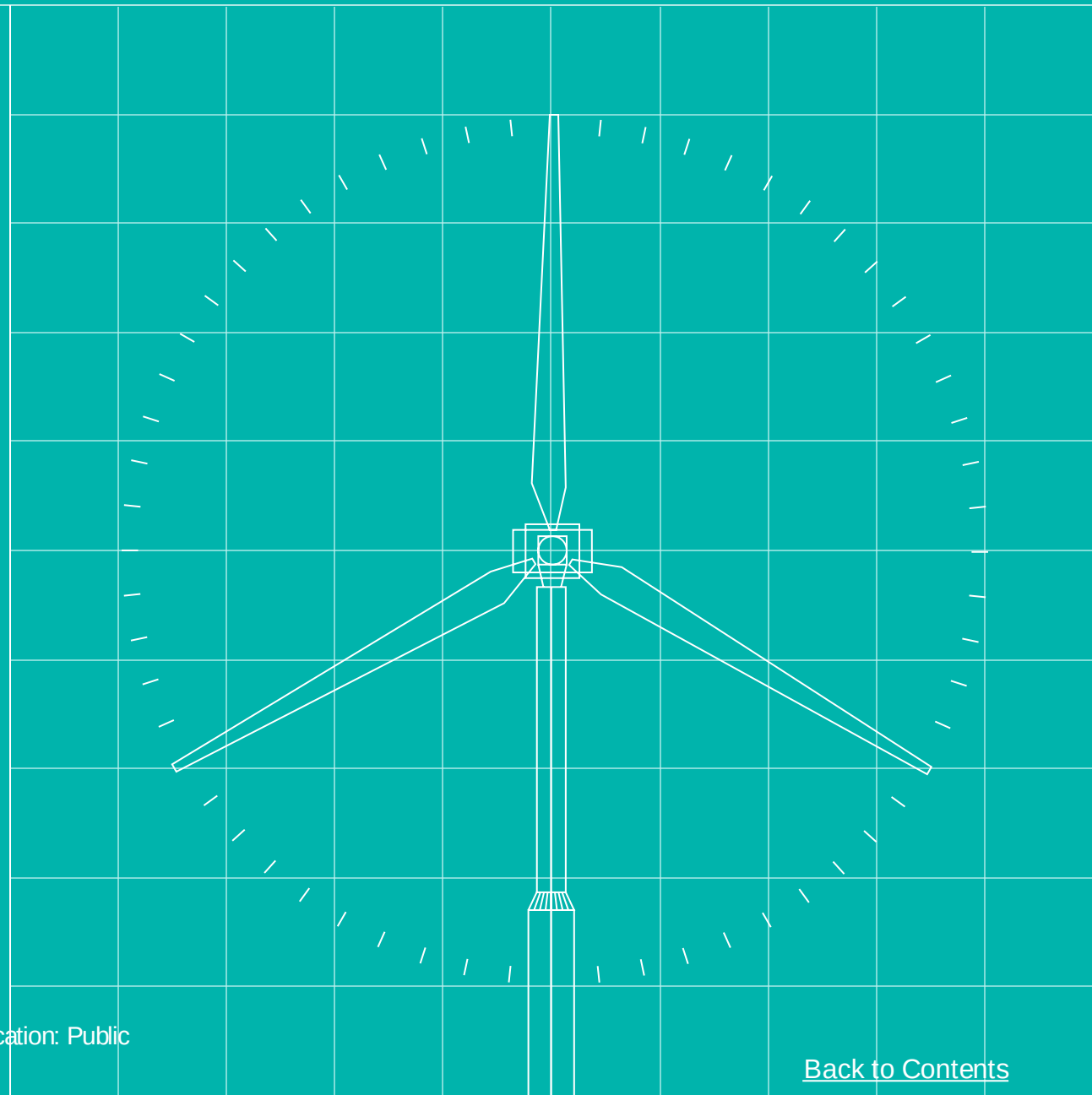
- Existing SIT defect SLAs will apply during Regression; however, a programme risk has been raised acknowledging that delays in the release of Central Party and Core provider fixes may delay the completion of Regression – each Central Party and Core provider will be actioned to provide their approach to mitigate defect resolution delays during the Regression stage

Cycle / Sprint Approach Clarifications:

- An internal programme check point will be held at the end of each cycle / sprint where decisions will be made on:
    - Defect fix deployment plans
    - If incomplete tests can continue into the next sprint
    - If any tests need to be paused or restarted due to planned fixes and associated regression risk
    - If a Cohort has met their exit criteria and can stop testing (noting the aggregate CP defect position)

- A Cohorts checkpoint will be held at the beginning of the Cycle / Sprint and PPs informed of their actions to take

Appendix A: Test & Theme Coverage Across Cycles per Cohort Pairing



SIT Regression Risk Assessment – Test Outcomes (Test & Theme Coverage Across Cycles)

		Cohort B						
Theme	Total Unique Tests (In Scope)	Total No. Tests (Cohort)	No. Passed (IR5)	% Passed (IR5)	No. Passed (IR7)	% Passed (IR7)	No. Passed (IR8)	% Passed (IR8)
1 - New Connections	7	**5**	0	0%	2	40%	3	60%
2 - Change of Registration	49	**41**	12	29%	19	46%	10	24%
3 - Change of Supplier	21	**18**	0	0%	0	0%	18	100%
4 - Change of Data	22	**20**	0	0%	2	10%	17	85%
5 - Change of Metering	23	**20**	0	0%	2	10%	16	80%
6 - Metering Changes	58	**51**	8	16%	21	41%	22	43%
7 - Consumption	93	**78**	2	3%	27	35%	45	58%
8 - Settlement	42	**27**	0	0%	0	0%	21	78%
9 - ISD	11	**11**	0	0%	10	91%	1	9%
Forward Migration CoA	23	**22**	0	0%	18	82%	4	18%
Forward Migration CoS	18	**17**	0	0%	6	35%	11	65%
Reverse Migration CoS	13	**12**	0	0%	0	0%	12	100%
Cohort B	**380**	**322**	**22**	**7%**	**107**	**33%**	**180**	**56%**

		Cohort F						
Theme	Total Unique Tests (In Scope)	Total No. Tests (Cohort)	No. Passed (IR5)	% Passed (IR5)	No. Passed (IR7)	% Passed (IR7)	No. Passed (IR8)	% Passed (IR8)
1 - New Connections	7	**4**	0	0%	1	25%	3	75%
2 - Change of Registration	49	**40**	17	43%	15	38%	8	20%
3 - Change of Supplier	21	**18**	0	0%	5	28%	12	67%
4 - Change of Data	22	**19**	1	5%	0	0%	18	95%
5 - Change of Metering	23	**23**	0	0%	5	22%	18	78%
6 - Metering Changes	58	**52**	9	17%	18	35%	25	48%
7 - Consumption	93	**77**	9	12%	29	38%	36	47%
8 - Settlement	42	**25**	0	0%	0	0%	21	84%
9 - ISD	11	**11**	0	0%	9	82%	2	18%
Forward Migration CoA	23	**22**	0	0%	16	73%	6	27%
Forward Migration CoS	18	**12**	0	0%	5	42%	7	58%
Reverse Migration CoS	13	**12**	0	0%	1	8%	11	92%
Cohort F	**380**	**315**	**36**	**11%**	**104**	**33%**	**167**	**53%**

(Please note that analysis is at the point in time, and stats may have moved on since publishing)

SIT Regression Risk Assessment – Test Outcomes (Test & Theme Coverage Across Cycles)

		Cohort G						
Theme	Total Unique Tests (In Scope)	Total No. Tests (Cohort)	No. Passed (IR5)	% Passed (IR5)	No. Passed (IR7)	% Passed (IR7)	No. Passed (IR8)	% Passed (IR8)
1 - New Connections	7	5	0	0%	3	60%	2	40%
2 - Change of Registration	49	42	8	19%	7	17%	27	64%
3 - Change of Supplier	21	21	0	0%	2	10%	12	57%
4 - Change of Data	22	17	0	0%	3	18%	12	71%
5 - Change of Metering	23	18	0	0%	0	0%	13	72%
6 - Metering Changes	58	49	2	4%	5	10%	41	84%
7 - Consumption	93	93	10	11%	13	14%	65	70%
8 - Settlement	42	24	0	0%	0	0%	19	79%
9 - ISD	11	11	0	0%	6	55%	5	45%
Forward Migration CoA	23	23	0	0%	12	52%	11	48%
Forward Migration CoS	18	18	0	0%	4	22%	14	78%
Reverse Migration CoS	13	13	0	0%	0	0%	13	100%
Cohort G	**380**	**334**	**20**	**6%**	**55**	**16%**	**234**	**70%**

		Cohort H						
Theme	Total Unique Tests (In Scope)	Total No. Tests (Cohort)	No. Passed (IR5)	% Passed (IR5)	No. Passed (IR7)	% Passed (IR7)	No. Passed (IR8)	% Passed (IR8)
1 - New Connections	7	**3**	0	0%	2	67%	1	33%
2 - Change of Registration	49	**40**	8	20%	11	28%	21	53%
3 - Change of Supplier	21	**18**	0	0%	2	11%	9	50%
4 - Change of Data	22	**14**	0	0%	0	0%	13	93%
5 - Change of Metering	23	**18**	0	0%	2	11%	14	78%
6 - Metering Changes	58	**55**	4	7%	9	16%	40	73%
7 - Consumption	93	**78**	3	4%	11	14%	58	74%
8 - Settlement	42	**21**	0	0%	0	0%	14	67%
9 - ISD	11	**11**	0	0%	2	18%	9	82%
Forward Migration CoA	23	**22**	0	0%	19	86%	3	14%
Forward Migration CoS	18	**17**	0	0%	6	35%	11	65%
Reverse Migration CoS	13	**12**	0	0%	0	0%	12	100%
Cohort H	**380**	**309**	**15**	**5%**	**64**	**21%**	**205**	**66%**

(Please note that analysis is at the point in time, and stats may have moved on since publishing)

SIT Regression Risk Assessment – Test Outcomes (Test & Theme Coverage Across Cycles)

		Cohort C						
Theme	Total Unique Tests (In Scope)	Total No. Tests (Cohort)	No. Passed (IR5)	% Passed (IR5)	No. Passed (IR7)	% Passed (IR7)	No. Passed (IR8)	% Passed (IR8)
1 - New Connections	7	**5**	0	0%	2	40%	2	40%
2 - Change of Registration	49	**41**	9	22%	22	54%	9	22%
3 - Change of Supplier	21	**18**	0	0%	0	0%	14	78%
4 - Change of Data	22	**18**	0	0%	1	6%	16	89%
5 - Change of Metering	23	**23**	0	0%	1	4%	15	65%
6 - Metering Changes	58	**55**	4	7%	24	44%	18	33%
7 - Consumption	93	**78**	9	12%	20	26%	40	51%
8 - Settlement	42	**26**	0	0%	0	0%	22	85%
9 - ISD	11	**11**	0	0%	8	73%	3	27%
Forward Migration CoA	23	**21**	0	0%	6	29%	15	71%
Forward Migration CoS	18	**17**	0	0%	4	24%	13	76%
Reverse Migration CoS	13	**12**	0	0%	0	0%	11	92%
Cohort C	**380**	**325**	**22**	**7%**	**88**	**27%**	**178**	**55%**

		Cohort E						
Theme	Total Unique Tests (In Scope)	Total No. Tests (Cohort)	No. Passed (IR5)	% Passed (IR5)	No. Passed (IR7)	% Passed (IR7)	No. Passed (IR8)	% Passed (IR8)
1 - New Connections	7	**5**	0	0%	1	20%	4	80%
2 - Change of Registration	49	**41**	7	17%	5	12%	17	41%
3 - Change of Supplier	21	**18**	0	0%	1	6%	8	44%
4 - Change of Data	22	**20**	0	0%	0	0%	17	85%
5 - Change of Metering	23	**20**	0	0%	2	10%	17	85%
6 - Metering Changes	58	**55**	9	16%	14	25%	21	38%
7 - Consumption	93	**76**	0	0%	15	20%	46	61%
8 - Settlement	42	**21**	0	0%	0	0%	17	81%
9 - ISD	11	**11**	0	0%	0	0%	3	27%
Forward Migration CoA	23	**21**	0	0%	9	43%	11	52%
Forward Migration CoS	18	**16**	0	0%	3	19%	13	81%
Reverse Migration CoS	13	**12**	0	0%	0	0%	12	100%
Cohort E	**380**	**316**	**16**	**5%**	**50**	**16%**	**186**	**59%**

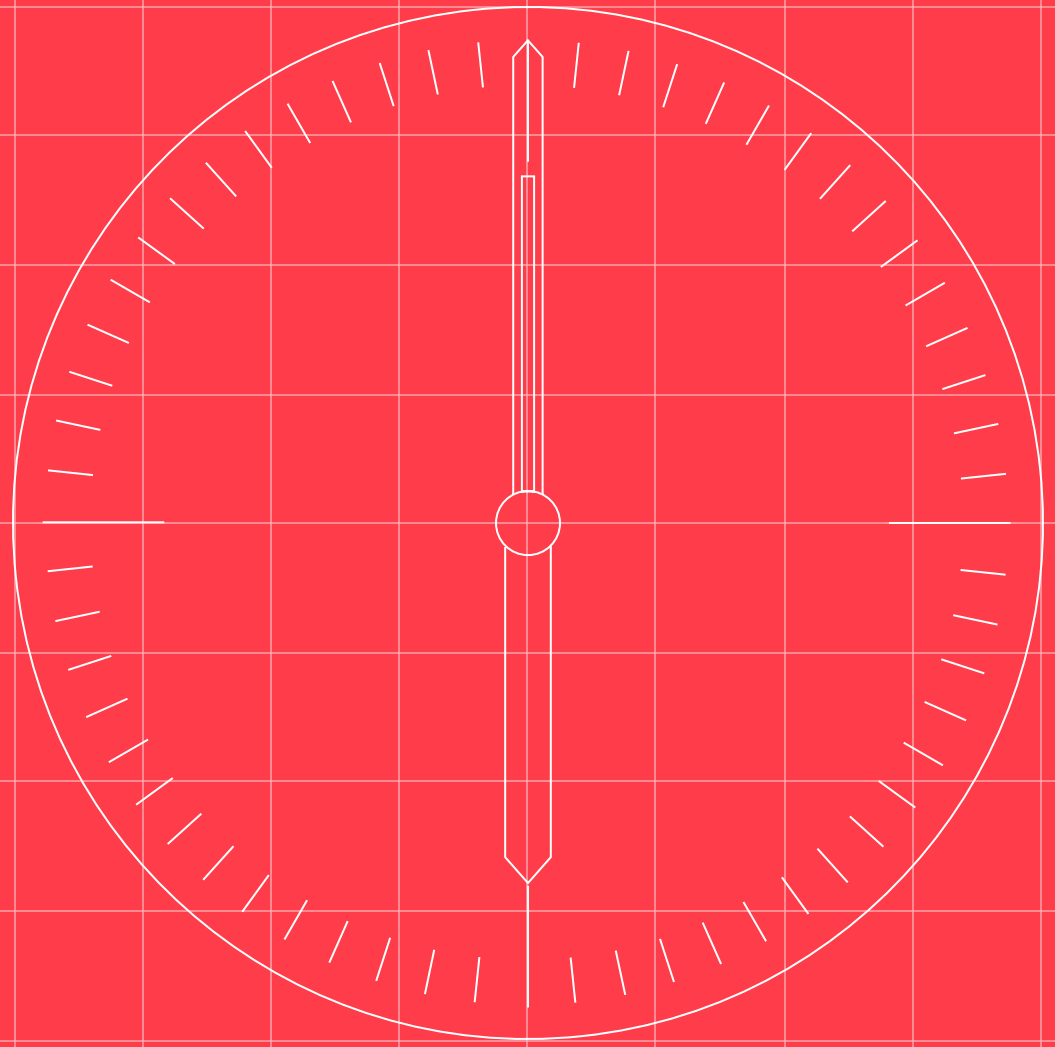
SIT Regression Risk Assessment – Test Outcomes (Test & Theme Coverage Across Cycles)

		Cohort A						
Theme	Total Unique Tests (In Scope)	Total No. Tests (Cohort)	No. Passed (IR5)	% Passed (IR5)	No. Passed (IR7)	% Passed (IR7)	No. Passed (IR8)	% Passed (IR8)
1 - New Connections	7	7	0	0%	5	71%	2	29%
2 - Change of Registration	49	47	13	28%	25	53%	9	19%
3 - Change of Supplier	21	21	0	0%	2	10%	17	81%
4 - Change of Data	22	20	1	5%	2	10%	17	85%
5 - Change of Metering	23	23	1	4%	3	13%	18	78%
6 - Metering Changes	58	57	19	33%	11	19%	24	42%
7 - Consumption	93	91	9	10%	25	27%	52	57%
8 - Settlement	42	35	0	0%	0	0%	27	77%
9 - ISD	11	11	0	0%	8	73%	3	27%
Forward Migration CoA	23	23	0	0%	17	74%	6	26%
Forward Migration CoS	18	18	0	0%	9	50%	9	50%
Reverse Migration CoS	13	13	0	0%	0	0%	13	100%
Cohort A	**380**	**366**	**43**	**12%**	**107**	**29%**	**197**	**54%**

		Cohort J						
Theme	Total Unique Tests (In Scope)	Total No. Tests (Cohort)	No. Passed (IR5)	% Passed (IR5)	No. Passed (IR7)	% Passed (IR7)	No. Passed (IR8)	% Passed (IR8)
1 - New Connections	7	6	0	0%	2	33%	4	67%
2 - Change of Registration	49	45	18	40%	14	31%	11	24%
3 - Change of Supplier	21	20	0	0%	1	5%	7	35%
4 - Change of Data	22	19	0	0%	1	5%	6	32%
5 - Change of Metering	23	21	0	0%	1	5%	9	43%
6 - Metering Changes	58	53	10	19%	13	25%	25	47%
7 - Consumption	93	93	14	15%	22	24%	47	51%
8 - Settlement	42	32	0	0%	0	0%	25	78%
9 - ISD	11	11	1	9%	8	73%	2	18%
Forward Migration CoA	23	22	0	0%	9	41%	13	59%
Forward Migration CoS	18	16	0	0%	5	31%	11	69%
Reverse Migration CoS	13	13	0	0%	0	0%	13	100%
Cohort J	**380**	**351**	**43**	**12%**	**76**	**22%**	**173**	**49%**

(Please note that analysis is at the point in time, and stats may have moved on since publishing)

End



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