ASX
CHESS Project

Release 1 Build and Test Forum

13 February 2025

Acknowledging Country

ASX acknowledges the Traditional Owners of Country throughout Australia. We pay our respects to Elders past and present.

Artwork by Lee Ann Hall, *My country My People*

Housekeeping

Troubleshooting

> Please mute yourself when not speaking

> Please use the 'raise hand' feature on MS Teams if you would like to ask a question

> Please introduce yourself when talking for the benefit of all members

> Meeting is being recorded for the purposes of capturing decisions and actions

> Dial in details (audio only):

- +61 2 7208 4607

- Phone Conference ID: 858 596 270#

ASX

Important Information

Competition Law Reminder

Workshop members are reminded to have regard to their obligations under competition law. In particular, please note that the Competition and Consumer Act prohibits a corporation from engaging with one or more persons in a concerted practice that has the purpose, effect or likely effect of substantially lessening competition.

ASX

Agenda

01 Welcome & Purpose

02 Release 1 – Documentation Update

03 Release 1 – Commencing AMO Build and Test

04 Release 1 – Preparing for AMO Readiness

01
Welcome & Purpose

ASX

01– Release 1 Build and Test Forum – Welcome & Purpose

The purpose of the Release 1 Build and Test Forum is to support AMOs and Software Providers as they complete development and undertake testing when connected to the Release 1 Industry Test Environment

Responsibilities

> Be the key forum to provide technical support to AMOs and Software Providers during the AMO Build and Test phase

> Be a key forum to monitor and track progress on Release 1 industry readiness

> Provide monthly updates to the Technical Committee and Working Groups or as appropriate

Proposed Key Topics

> ITE connectivity updates

> FIX specifications updates - (now referred to as AMO User Technical Documentation)

> AMO testing scenarios

> Reporting on AMO build and test activities

> Updates to Release 1 AMO documentation (if required)

Key Messages

> The Forum:

　o is open to AMOs and Software Providers

　o is planned to be up to 1 hour in duration and held on a monthly cadence. Invitations and agenda will be shared closer to commencement

> AMO and Software Providers asked to nominate representatives to participate in the Release 1 Build and Test Forum. Nominated members should have the appropriate skills and business responsibilities to actively contribute

Overall Release 1 Industry readiness tracking, including preparation for Clearing Regression, will continue to be discussed at the I&T WG.

ASX

02
Release 1 - Documentation Update

ASX

02 – ITE Connectivity Guide Update

> ITE Connectivity Guide was published 17 Dec 2024

> Updates to Connectivity Guide scheduled to be published late-February 2025

- Updates are anticipated to include:
  - BGP Configuration Details
  - Connectivity Testing Details
  - VPN connectivity details for Software Providers operating in ITE only.

ASX

02 – AMO User Technical Documentation - FIX Specifications Update

> Current FIX Specifications V1.1 was published 12 Nov 2024

> Updated FIX Specifications V1.2 scheduled to be published late-February 2025

- Incorporated within AMO User Technical Documentation

- V1.2 updates are anticipated to include:

  o Trade Condition Codes

  o Basis of Quotation (BoQ)

  o CompID Failover using a FIX Gateway diagram to identify the auxiliary FIX Gateway model

ASX

02 - Release 1 2025 Proposed Engagement Activities

Activities and Documentation to Support R1 Industry Readiness

Activity	Subject	Purpose	Planned Date	Status
Publish Documentation	Release 1 Industry Test Approach	Documentation describing the detailed industry test approach and expected activities of each involved party, as well as timing, entry and exit criteria and expected test outcomes of all Release 1 industry test phases	Q3 2024	Published 6 Sep 2024
Publish Documentation	Release 1 FIX Specifications	Documentation providing a detailed specification of all FIX messages, including message structures, rules, and message flow diagrams. Market-relevant specifications will be published in iterations as ASX analyses and completes designs for each drop	Q4 2024	Published 14 Nov 2024
Publish Documentation	Release 1 Connectivity Guide	Documentation detailing the technical connectivity requirements to connect to the CHESS replacement system, including connectivity method(s), network details and security details	Q4 2024	Published 17 Dec 2024
Engagement Activity	Release 1 ITE Open overview, including Industry Testing Activity and Progress Tracking	**I&T WG session** to provide overview of the opening of ITE, and discuss ASX proposed approach to tracking and reporting test phase activity	Q1 2025	Scheduled 27 Feb 2025
Publish Documentation	Release 1 AMO Accreditation Guide	Documentation providing detail on the CHESS replacement AMO Accreditation phase, expectations regarding conduct and expected results including the Accreditation process, connectivity, and message scenarios	Q1 2025	Tracking for end March 2025
Engagement Activity	Release 1 Clearing Regression Overview	I&T WG session to provide overview & discuss the prerequisites & process for completing the Clearing Regression phase	Q2 2025	
Engagement Activity	Release 1 Cutover Overview	I&T WG session to provide overview & discuss the prerequisites & process for completing Release 1 cutover activities	Q2 2025	
Publish Documentation	Release 1 Clearing Regression Test Guide	Documentation detailing the minimum ASX-specified Clearing Regression test scenarios, key activities and expectations regarding conduct and expected results including entry and exit criteria	Q2 2025	
Publish Documentation	Release 1 Guide to Operational Readiness Phase	Documentation detailing the Operational Readiness scenarios including mandatory success criteria	Q2 2025	
Publish Documentation	Release 1 Cutover and Migration Approach	Documentation detailing the cutover and migration approach, key activities, responsibilities including all verifications and validations required by ASX and the market, and milestones across the cutover and dress rehearsal windows.	Q2 2025	
Engagement Activity	AMO Parallel Phase Overview	I&T WG session to provide overview & discuss the prerequisites & process for completing the Parallel Test phase	Q3 2025	
Publish Documentation	Release 1 Guide to AMO Parallel Test	Documentation providing detail on the Parallel Test phase, key activities and expectations and expected results including entry and exit criteria	Q3 2025	
Publish Documentation	R1 Cutover Runbook	Documentation providing AMOs with key tasks and milestones, with an outline of detailed steps including planned timing. The runbook will be used in dress rehearsals and refined as required ahead of the final go-live event. Note that the cutover runbook will also include the steps required to rollback	Q3 2025	

Note: indicative only, subject to change based on industry inputs and further planning.

ASX

03

Release 1 – Commencing AMO Build and Test in ITE

ASX

03 – Release 1 – Industry Test Overview

The Industry Test Approach provides an overview of each test phase, where Approved Market Operators (AMOs) or their Software Providers are provided with the environments required to test the new CHESS clearing component and Financial Information eXchange (FIX) messaging for trade registration. Clearing Participants will have the opportunity to conduct regression testing to validate the CHESS Project system's backwards compatibility.

ASX will coordinate all testing activity with AMOs, their Software Providers and Clearing Participants. Industry testing will utilise a Release 1 Industry Test Environment (ITE) and a 'to be' Production environment (To-Be Prod). Current CHESS test environments will be integrated to Release 1 ITE to support Clearing Regression.
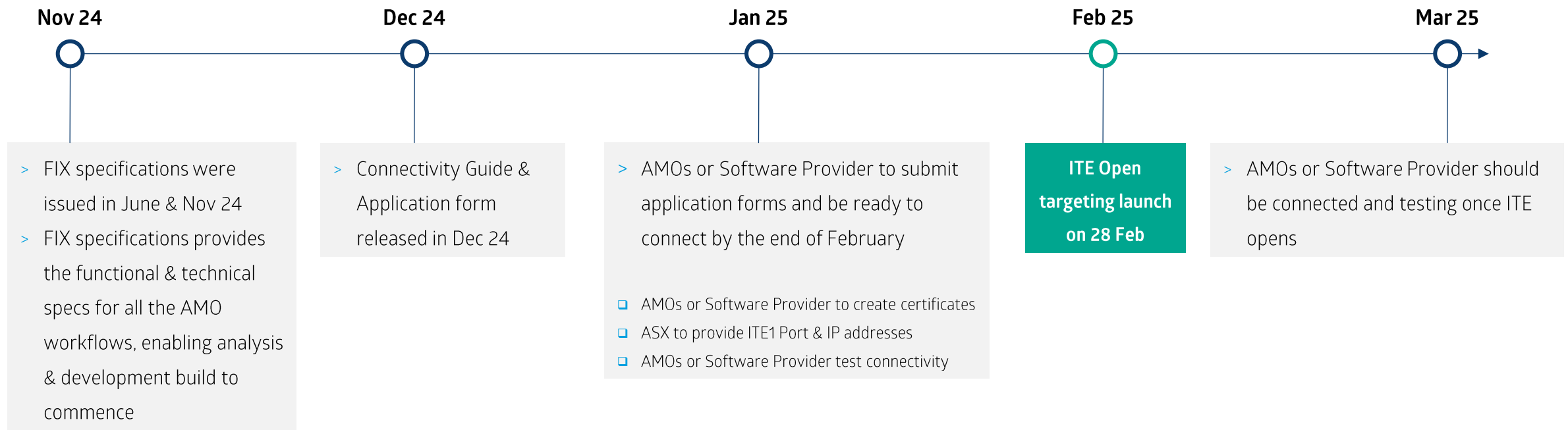
Industry testing for Release 1 comprises of six key phases:

#	Phase	Purpose	Duration
1	AMO Build and Test	Provides AMOs or their Software Provider a phase to complete their development and undertake testing.	Mar 25 – Jun 25
2	AMO Readiness	Provides the opportunity to complete further testing including optional performance testing and an optional simulated network outage in preparation for AMO Accreditation.	Jul 25 – Feb 26
3	AMO Accreditation	A mandatory industry test phase where AMOs or their Software Providers will need to demonstrate their software's ability to connect and interact with the CHESS replacement system.	Sep 25 – Nov 25
4	AMO Operational Readiness	A mandatory industry test phase where AMOs will demonstrate their organisation meets both the ASX's standards and operational requirements that will be established for the FIX Messaging Interface.	Sep 25 – Nov 25
5	CHESS User Clearing Regression	A mandatory industry test phase where Clearing Participants are required to perform internal testing and validation of all downstream EIS messages received that result from trade registration, clearing and netting services.	Oct 25 – Feb 26
6	AMO Parallel Test	A mandatory industry test phase for AMOs and provides the opportunity to reconcile an AMO's production feed of trade registrations to current CHESS against its feed of trade registrations on To-Be-Production infrastructure.	Nov 25 – Feb 26

Note: Dress rehearsals and other activities that will be conducted in the 'to-be production' environment and will be documented in the cutover approach

ASX

03 – Release 1 ITE Open

Key connectivity steps leading up to ITE open

| Nov 24 | Dec 24 | Jan 25 | Feb 25 | Mar 25 |

Nov 24
> FIX specifications were issued in June & Nov 24
> FIX specifications provides the functional & technical specs for all the AMO workflows, enabling analysis & development build to commence

Dec 24
> Connectivity Guide & Application form released in Dec 24

Jan 25
> AMOs or Software Provider to submit application forms and be ready to connect by the end of February

- AMOs or Software Provider to create certificates
- ASX to provide ITE1 Port & IP addresses
- AMOs or Software Provider test connectivity

Feb 25
ITE Open targeting launch on 28 Feb

Mar 25
> AMOs or Software Provider should be connected and testing once ITE opens

ASX

03 – AMO Build and Test Phase

Opening the Release 1 Industry Test Environment (ITE) marks the commencement of the AMO Build and Test phase

| AMO Build and Test	
Between March and June 2025 AMOs and Software Providers can complete their development and undertake testing in the Release 1 Industry Test Environment	
Environment	Release 1 Industry Test Environment
Data	Production like reference and security data
Entry Criteria	AMOs or their Software Provider to ensure that they are appropriately prepared and have internally tested software prior to connecting to the Release 1 ITE.
Exit Criteria	At the end of the AMO Build and Test phase, it is expected that all AMOs or Software Provider will have completed build associated with the FIX Messaging Interface. (Drop 1/Drop 2)
Proposed scenarios monitored	▪ Frequency of AMO logins (historical time scale) ▪ Total Trade Capture messages received through FIX gateway ▪ Total Trade Capture Cancellation messages received through FIX Gateway ▪ Total Market Data Snapshot messages received through FIX Gateway

ASX

03 – ITE Reporting

Initial reporting will be provided on testing activities, followed by industry tracking of each phase.

Monthly Activity (from March 25)

Based on data that comes through from testing, ASX will be providing anonymised reporting to ensure participants are actively engaging with the system and to identify any lags in readiness effort.
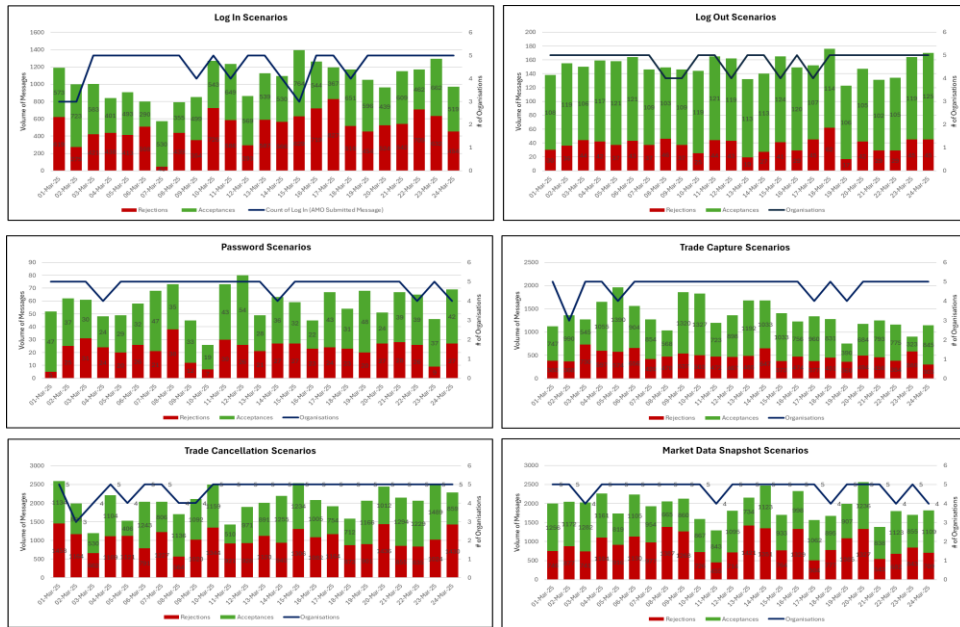
Example data

Industry Tracking Readiness (from July 25)

As development progress, ASX proposes to provide coverage on scenarios across each phase of Industry Testing with specific thresholds and requirements to be met before progressing further.

	Scenario Coverage		AMO Accreditation	AMO Operational Readiness
	Message	**Connectivity & Resilience**		
Org 1	100%	100%	✓	-
Org 2	60%	-	-	-
Org 3	100%	100%	✓	✓
Org 4	100%	80%	-	-

Example data

Threshold examples

> Organisations are expected to complete x% of their current production transaction volume of messages over a specified number of days

> Until such time as organisations have tested at levels below x% of their current production transaction volume , status will be reported as amber

ASX

03 – ITE Support Model

Information & Processes

Guide and Documentation
Refer to guides and specification documents that has been released
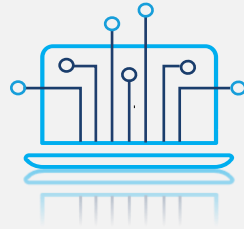
Environment Status
Communicating status of environment and open defects via ASX live webpage

Defects / Issues
For any defects / issues you may raise a new ticket via ASX online, email chessreplacement@asx.com.au

Support

Dedicated Team
A dedicated 9-5pm team to help manage any support issues

Bilaterals
Scheduled Bilaterals by request for more detailed information or support

ASX

03 – Known ITE Issues

#	Topic	Issue	Impact	Workaround
I01	FIX AE message	**Unexpected Error with special characters** FIX AE messages with **invalid character** are not generating an AR and stopping subsequent messages from being processed	If AMO sends FIX AE message and tag contains an invalid character, ASX need to clear the message, and messages may be lost	AMO to contact CHESS Project Customer Technical Support to resolve
I02	FIX AE message	**Client/house Segregation:** FIX AE tag **PartyRoleQualifier** (2376), which is optional is populated with an invalid value	If an AMO sends a FIX AE message with incorrect or missing **PartyRoleQualifier value,** AMO will receive a valid rejection with an incorrect error text: "<2376><PartyRoleQualifier>: [SUPPLIED_VALUE] is not an allowable value"	Rejection is valid – AMO to ignore the error description, and if they wish resubmit FIX AE message with correct **PartyRoleQualifier** if this field is populated. 0 – Agency , 1 – Principal, 100 - Mixed
I03	FIX W message	**Incorrect Reject Reason text:** FIX W reject text incorrect when **MDEntry** or **MdEntryPrice** missing or incorrect number of MDEntryPX (270) does not align to NoMDEntries(268)	If an AMO sends a FIX W message with incorrect or missing number of **MDEntry** or **MdEntryPrice values,** AMO will receive a valid rejection with an incorrect error text: MDEntry: **<269><closePrice>** or MdEntryPrice **<273><BidTime>**	Rejection is valid, AMO to ignore error description, and if they wish can resubmit a new FIX W message, and ensure **MDEntry** and **MdEntryPrice is** correctly populated
I04	FIX AE message	**Gap fill management** When an AMO sends a MsgSeqNum (34) that is higher than expected ASX should send a resend request for the missing messages	FIX Gateway is not transmitting a ResendRequest (2) message to the AMO, and what should happen is the session should be paused until the gap is filled by AMO	AMO to Logon <A> and re-transmit any missing messages that they did not send, or alternatively start a new session and reset the MsgSeqNum by poulating the tag ResetSeqnumFlag (141) to 'Y'
I05	All FIX Messages	**Malformed Messages** FIX Messages received with **incorrectly constructed headers** could result in an unexpected disconnection with the FIX Gateway	If AMO sends FIX message where the message header is incorrectly populated and ordered in this sequence - **MsgType**(35), **BeginString**(8), **BodyLength**(9). The FIX GW will generate a response (type 3 – session reject) which is unexpected, and the FIX session may be unexpectedly terminated when further messages are sent. Garbled messages should continued to be ignored, and the MsgSeqNum should not incremented	AMO to establish a new fix session, Logon <A> and fix the message header as defined in the FIX spec and re-transmit the message - **BeginString**(8), **BodyLength**(9)**MsgType**(35), and increment their MsgSeqNum (34)

ASX

04

Release 1 – Preparing for AMO Readiness

ASX

04 - AMO Readiness non-functional industry testing approach

As part of the Release Notes at the commencement of the AMO readiness phase ASX plans to publish a schedule for supported non-functional activities. AMOs requested to notify ASX if consideration of additional scenarios are required.

ASX scheduled Non-Functional activities:

Resiliency *

FIX Gateway failures

- Forced gateway disconnections simulating component failures

Performance

Target state production grade simulated message volumes

- AMOs invited to submit Connection / Trade Registration / Price Update messages on top of simulated volumes

- AMOs encouraged to perform their own resiliency testing during simulated volume periods

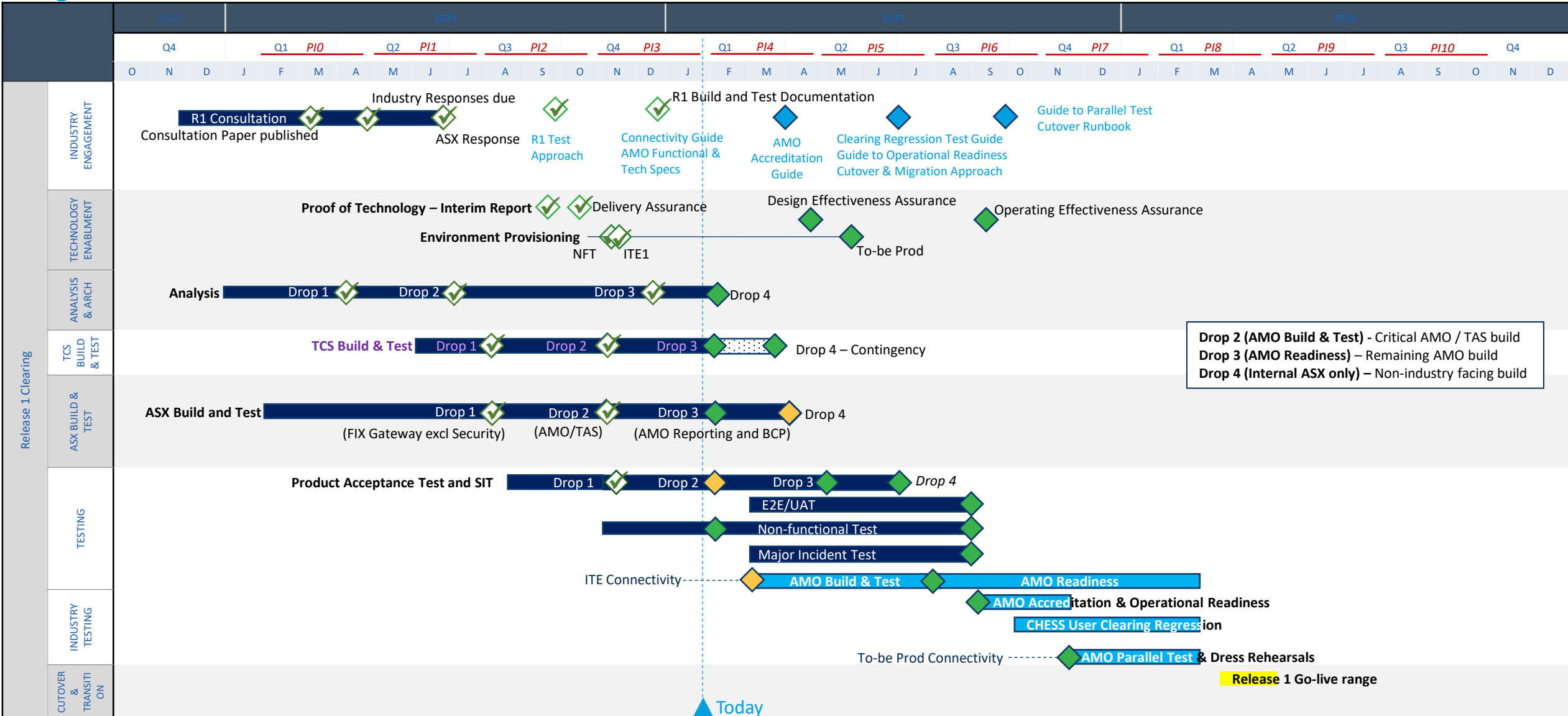### Business Continuity

Alternate File Ingest

- Trade Registration

- Price Updates

* ASX scheduled resiliency tests will be scheduled during both unstressed and simulated target state production grade volume periods.

ASX

04 – Updated Release 1 Indicative Project Timeline – February 2025

High level overview of the indicative timeline

Key | Industry | ASX / Vendor | Status

Timeline periods: 2023 / 2024 / 2025 / 2026

Q4 | Q1 PI0 | Q2 PI1 | Q3 PI2 | Q4 PI3 | Q1 PI4 | Q2 PI5 | Q3 PI6 | Q4 PI7 | Q1 PI8 | Q2 PI9 | Q3 PI10 | Q4

O N D | J F M | A M J | J A S | O N D | J F M | A M J | J A S | O N D | J F M | A M J | J A S | O N D

Release 1 Clearing

INDUSTRY ENGAGEMENT
- R1 Consultation
- Consultation Paper published
- Industry Responses due
- ASX Response
- R1 Test Approach
- Connectivity Guide / AMO Functional & Tech Specs
- R1 Build and Test Documentation
- AMO Accreditation Guide
- Clearing Regression Test Guide / Guide to Operational Readiness / Cutover & Migration Approach
- Guide to Parallel Test / Cutover Runbook

TECHNOLOGY ENABLEMENT
- Proof of Technology – Interim Report
- Delivery Assurance
- Design Effectiveness Assurance
- Operating Effectiveness Assurance
- Environment Provisioning
- NFT / ITE1 / To-be Prod

ANALYSIS & ARCH
- Analysis — Drop 1, Drop 2, Drop 3, Drop 4

TCS BUILD & TEST
- TCS Build & Test — Drop 1, Drop 2, Drop 3, Drop 4 – Contingency

ASX BUILD & TEST
- ASX Build and Test — Drop 1 (FIX Gateway excl Security), Drop 2 (AMO/TAS), Drop 3 (AMO Reporting and BCP), Drop 4

TESTING
- Product Acceptance Test and SIT — Drop 1, Drop 2, Drop 3, Drop 4
- E2E/UAT
- Non-functional Test
- Major Incident Test

INDUSTRY TESTING
- ITE Connectivity
- AMO Build & Test
- AMO Readiness
- AMO Accreditation & Operational Readiness
- CHESS User Clearing Regression

CUTOVER & TRANSITION
- To-be Prod Connectivity
- AMO Parallel Test & Dress Rehearsals
- Release 1 Go-live range

Drop 2 (AMO Build & Test) - Critical AMO / TAS build
Drop 3 (AMO Readiness) – Remaining AMO build
Drop 4 (Internal ASX only) – Non-industry facing build

Today

Thank you.

ASX

ASX

Disclaimer/important information

Information provided in this presentation is for educational purposes and does not constitute financial product advice.

You should obtain independent advice from an Australian financial services licensee before making any financial decisions. Although ASX Limited ABN 98 008 624 691 and its related bodies corporate ("ASX") has made every effort to ensure the accuracy of the information as at the date of publication, ASX does not give any warranty or representation as to the accuracy, reliability or completeness of the information.

To the extent permitted by law, ASX and its employees, officers and contractors shall not be liable for any loss or damage arising in any way (including by way of negligence) from or in connection with any information provided or omitted or from any one acting or refraining to act in reliance on this information.

Past performance of the ASX sharemarket and of any financial products referenced in this presentation is not a reliable indicator of future performance.

© Copyright 2025 ASX Operations Pty Limited ABN 42 004 523 782. All rights reserved 2025.

ASX