Independent Expert Report

Independent assessment of ASX's Assurance Program for the CHESS Replacement Project

Design Report

30 June 2024

EY
Building a better working world

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1.   Executive Summary

Introduction

CHESS Replacement Project

CHESS is used by ASX as a core system to perform clearing, settlement and other post-trade services for the Australian equity market. ASX is undertaking a project to replace with a new technology solution (CHESS Replacement Project).

In November 2023, ASX announced that it had completed its reassessment of the solution design to replace CHESS and will proceed with a product-based solution to be delivered by a global technology provider.

ASX Assurance Program over CHESS Replacement Project

Following the announcement, ASX developed an Assurance Program over the CHESS Replacement Project (ASX Assurance Program) to support the project in meeting its primary objective of the successful replacement and decommissioning of the current CHESS system.

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██████ The ASX Assurance Program is dynamic in nature and will be reviewed on an annual basis by ASX to ensure continuous coverage of material risks to the project.

Licence Conditions and EY Independent Expert role

In November 2021, ASIC imposed certain Licence Conditions on ASX Clear Pty Ltd and ASX Settlement Pty Ltd which included the appointment of an independent expert to assess the ASX Assurance Program and oversee the implementation of any remedial actions from the trade outage independent expert review recommendations which are relevant to the CHESS Replacement Project.

This report is our sixth independent expert report under the Licence Conditions.

Scope

The scope of this report is to assess whether the design of the ASX Assurance Program for the CHESS Replacement Project is fit for purpose, identifying any topics that require further independent assessment and any remedial actions.

For our assessment, we define "fit for purpose" as the extent to which the coverage of the material CHESS Replacement Project risks and deliverables, and the nature, extent, timing and sequencing of assurance activities, and governance and change management of the ASX Assurance Program, are suitable for the size and complexity of the project.

Approach

We assessed the ASX Assurance Program coverage against EY's Program Risk Management 'Cube' methodology, CHESS Replacement Project key risks and milestones, and the risks associated to findings and recommendations of prior external reviews and assurance.

Summary of findings and recommendations

> Based on the procedures performed, our assessment found that the ASX Assurance Program is fit-for-purpose. We found the coverage, nature, timing and extent of activities, and governance of the ASX Assurance Program are appropriate. We have no recommendations for the ASX Assurance Program.

▶ **Coverage of assurance activities** - Our coverage assessment did not identify any material gaps in relation to the coverage of the proposed high-level approach and the universe of topics for assurance reviews based on the known CHESS Replacement Project Release 1 activities up

to the go-live in the first half of 2026 and for Release 2 milestones up to December 2024.

Our assessment found that all assessment elements are covered by the ASX Assurance Program's risk universe.

Most elements will be assured in activities that have been scheduled in the current ASX Assurance Program plan to the end of the first half of 2026.

ASX has currently not scheduled assurance activities for two of the covered risk areas being (1) Organisational Change Management and (2) Operational and Technology Controls. ASX's Program Assurance Forum (PAF) considered that aspects of these topics are already covered through other scheduled assurance activities and approved re-assessing these topics and including them as part of the next annual review of the ASX Assurance Program. We expect those risk areas to have been assured under existing or additional activities prior to Release 1 go-live.

▶ **Nature and extent of assurance activities** – Our assessment of the high-level description of the reviews did not identify any significant findings on the nature and extent of the assurance activities proposed in the ASX Assurance Program.

ASX owns and runs the overall ASX Assurance Program and uses ASX internal independent expertise (Delivery Assurance and Internal Audit) and third-party providers, including a primary assurance provider, as subject matter experts for the relevant assurance activities.

ASX has commenced the detailed planning of the ASX Assurance Program activities to be performed in the coming months.

The high-level description of the review activities included in the ASX Assurance Program provide an adequate understanding of the nature of activities, scope and the topics to be covered in the assurance activities. Our assessment found that targeted assessments are planned to be performed in alignment to project risks which are linked to projects milestones, including specific assurance activities planned at the major milestone points of the CHESS Replacement Project. These will aggregate relevant targeted assurance reviews into a 'is the program ready to progress' assurance view.

We will assess the extent of actual assurance activities in our next reports through the review of detailed proposed scopes for each review in line with the planning cycle of the ASX Assurance Program.

▶ **Timing of assurance activities** – Our assessment of the proposed timing to review high-level topics against key project milestones did not identify any significant exceptions.

We acknowledge that the timings in the ASX Assurance Program are indicative and while review timings have been developed based on the current project schedule and milestones, the ASX Assurance Program timings may be adjusted if those change.

ASX is planning to on-board a primary assurance provider in August following an RFP process. Five ASX Assurance Program reviews are scheduled to be performed by the primary assurance provider starting August 2024. This leaves limited time for the appointment, mobilisation and commencement of scheduled assurance activities. ASX has reported that mitigations are in place to manage this dependency and that some level of contingency is included within the schedule. We will assess the actual timing of assurance activities in our next report.

▶ **ASX Assurance Program governance and change management** - Our assessment found that the ASX Assurance Program governance and change management processes are appropriate.

The ASX Assurance Program is owned by ASX's ███████████ ██████ and has a dedicated resource ███████████████ ████████████████████████ with assigned day to day operational responsibility.

The CHESS Replacement Program Assurance Forum (PAF) is the key governance forum that oversees the ASX Assurance Program and related assurance matters. ████████████████████████ ██ ███████████████

The ASX Assurance Program provides regular status reporting on the progress and outcomes of assurance activities, any escalations concerning the ASX Assurance Program and the status of open and closed findings to the ASX Clear Board, ASX Settlement Board and the Technology Committee. The ASX Assurance Program also provides updates to the ASX Business Committee, and the Cash Equities Clearing and Settlement Advisory Group on assurance related matters as required.

ASX has developed a ████████████████████████████ that provides guidelines on the fundamentals of Project Assurance in ASX, including independence required, assessment criteria, triggers, roles and responsibilities in relation to the assurance activities, and monitoring of recommendations until closure.

Internal and third-party providers of assurance activities are required to be independent with sufficient controls in place to avoid or mitigate conflicts that may arise from adjacent engagements at ASX or where resources from the assurance provider organisation are engaged in the delivery of the CHESS Replacement Project.

The ASX Assurance Program will be reviewed on an annual basis, which will support the maintenance of the relevance and alignment of the ASX Assurance Program to key project risks.

Next steps

Our next report under the Licence Condition is due on 31 December 2024. The scope of that report will cover any updates or adjustments to the scheduled reviews in the ASX Assurance Program and the timing of the ASX Assurance Program activities.

We will review the detailed scope and the outcome of the completed reviews, and any update on the implementation of any remedial actions from the assurance activities during the period.

We acknowledge and thank ASX for its cooperation in undertaking our independent assessment activities to date.

2. Introduction

2.1 Background

CHESS Replacement Project

On 20 November 2023, ASX announced that it had completed its reassessment of the solution design to replace CHESS and will proceed with a product-based solution to be delivered by a global technology provider. The CHESS Replacement Project is currently in the phase of detailed design and implementation. ASX proposed to implement the new platform in two main releases, with the clearing service to be delivered in a first release, and the settlement and sub-register services to follow in a second release.

The indicative timeframe for implementation of Release 1 (the clearing service) is first half of 2026, and the scenarios being considered for the Release 2 (the settlement and sub-register services) estimate implementation in 2028 or 2029. The delivery timeframes are subject to a number of factors including stakeholder consultation and detailed planning.

Given the scale and complexity of the CHESS replacement project, ASX has entered into an agreement with an external party to support ASX's project delivery in the role of solution integrator. The external party will provide additional capability and capacity in technology project delivery and industry expertise.

Stakeholder input has been key to the decision announced on 20 November 2023, including input from the CHESS Replacement Technical Committee, the ASX Business Committee and the Cash Equities Clearing and Settlement Advisory Group (Advisory Group). The first formal consultation with stakeholders commenced on 14 March 2024 covering the staged implementation approach and timing for replacing CHESS in two releases and the design, scope, schedule and testing plan for Release 1.

CHESS Replacement Project Assurance Program

ASX has developed the ASX Assurance Program based on the current level of information available for the CHESS Replacement Project Release 1 and Release 2, covering:

▶ Release 1 (Clearing) activities to 2026 go-live

▶ Release 2 (Settlement and Sub-register) activities focused on project anchor milestones up to December 2024

The objectives of the ASX Assurance Program are to:

▶ Support the project in meeting its primary objective of the successful replacement and decommissioning of the current CHESS system, with a new solution that meets functional and non-functional requirements (secure, reliable, available, performant, etc.);

▶ Assist in identifying and mitigating risk to improve project delivery, controls and outcomes;

▶ Provide confidence to internal and external stakeholders that project delivery is well managed and executed, and is tracking toward successful implementation;

▶ Provide input into decision-making for key project milestones including go-live readiness.

The ASX Assurance Program has been designed taking a top-down and bottom-up approach. The top-down approach considered key project milestones, cyclical or periodic reviews, industry practices and assurance frameworks, and the previous assurance program. The bottom-up approach considered project risks, assurance insights and findings from prior assurance reviews and the detailed project schedule and release plan for delivering capabilities of the solution.

The ASX Assurance Program is owned by ASX's ███ The execution of reviews under the ASX Assurance Program will be performed by a small mix of assurance providers, depending on the subject matter of each topic. The assurance providers will be comprised of independent external parties including a primary assurance provider, and independent internal resources such as the ASX Delivery Assurance and Internal Audit teams.

Review topics to be performed by the primary assurance provider include project health checks performed every six (6) months, industry consultation process and delivery process reviews, among others. At the time of the drafting of this report, ASX is still in the process of finalising the Request for Proposal (RFP) process and is yet to appoint the primary assurance provider.

The outcomes of individual reviews planned in the ASX Assurance Program, and their findings are tracked by the ASX Assurance Program workstream within the CHESS Replacement Project and reported periodically to the required ASX and project governance forums.

An annual review will be performed on the ASX Assurance Program to maintain its relevance and alignment to key project risks, including key changes to the project and the project risk profile, progress against project timeframes, milestones and implementation activities, and alignment with ASX management and external stakeholder input. Any changes to the ASX Assurance Program arising from the annual review will be agreed through the PAF and reported to the relevant governance forums.

ASX Clear and ASX Settlement Licence conditions

As a related matter, in November 2020 an outage occurred following a major upgrade to ASX's equity trading platform (ASX Trade), called the ASX Trade Refresh project. Consequently, the Australian Securities and Investments Commission (ASIC) and the Reserve Bank of Australia (RBA) required an independent expert review of the ASX Trade Refresh project to be completed. The independent expert made recommendations in

seven key categories from this review: risk, governance, delivery, requirements, vendor management, testing and incident management (collectively the trade outage independent expert review recommendations).

The combination of the trade outage and the criticality of the CHESS Replacement Project has led ASIC (as delegate for the Minister) to impose certain Licence Conditions on ASX Clear and ASX Settlement. Australian CS Facility Licence (ASX Clear Pty Limited) Additional Conditions Notice 2021 (No.1) dated 24 November 2021 and Australian CS Facility Licence (ASX Settlement Pty Limited) Additional Conditions Notice 2021 (No.1) dated 24 November 2021, condition 2 on Schedule 1 "Appointment of an independent expert" required ASX to engage an independent third party (independent expert) to conduct an assessment of its existing ASX Assurance Program on its CHESS Replacement Project prior to Go-Live and oversee the implementation of any remedial actions from the trade outage independent expert review recommendations which are relevant to the CHESS Replacement Project. ASX subsequently appointed EY as the independent expert on 21 December 2021.

With the objective of providing confidence to the efficient and effective future operation of Australia's financial markets infrastructure, the Licence Conditions are directed at mitigating risks with emphasis on the oversight of the CHESS Replacement Project and require EY as independent expert to assess whether ASX Assurance Program for the replacement of CHESS is designed and operating effectively with regular (6 monthly) reporting to ASIC.

2.2 Scope

In accordance with the relevant Licence Conditions, EY has been engaged to assess the refreshed ASX Assurance Program for its implementation of the CHESS Replacement Project to evaluate whether it is fit-for-purpose.

The objective of this report is to assess the refreshed CHESS Replacement Project Assurance Program developed by ASX to evaluate whether it is adequately designed to mitigate the risks associated with the nature, scale and complexity of the CHESS Replacement Project.

We define fit for purpose to be the extent to which the ASX Assurance Program includes the consideration of the following aspects:

a. **Coverage of assurance activities**. Assessing how the ASX Assurance Program was built and reviewing its design and content to determine whether the scope breadth is appropriate and if there is any key topic missing or not covered in the proposed list of reviews that integrate the plan.

b. **Nature and extent of assurance activities**. Assessing individual reviews proposed scope to determine whether they have been planned with the appropriate depth to achieve the expectations and objectives of the ASX Assurance Program.

c. **Timing of assurance activities**. Assessing proposed timing for the reviews in the ASX Assurance Program to determine whether they have been scheduled at the right time in alignment to when the associated project risks are more relevant.

d. **ASX Assurance Program governance and change management.** Assessing the established governance of the ASX Assurance Program including change management and ongoing maintenance.

2.3   Approach

In undertaking our assessment for the delivery of this report, the following activities were performed:

1. **Show me documentation:** A detailed review and analysis of the ASX Assurance Program and related relevant artefacts included those associated to the CHESS Replacement Project, including ████████ ████████████████████████████████████

██████, public submissions to the Parliamentary Joint Committee Corporations and Financial Services – Inquiry into Oversight of ASIC, the Takeovers Panel and the Corporations Legislation (PJC), and non-confidential submissions to ASX's CHESS Replacement: Consultation Paper on Staged Implementation Approach and Implementation of Release 1 (Clearing Services). All documentation was provided to EY by ASX based on a documentation request or were available to the public through the ASX or the PJC websites. A list of documentation reviewed can be found in Appendix M.

2. **Tell me Interviews with key stakeholders:** The review involved stakeholder interviews to capture additional input to complement the analysis of the documentation provided and enhance our understanding. Key stakeholders identified were asked about their role with respect to the project and the ASX Assurance Program and their perspectives around the design of the ASX Assurance Program including the coverage of key project risks and the expected levels of assurance to be provided.

   EY have grouped stakeholders into the following cohorts:

   - CHESS Replacement governance members, accountable and responsible executives

   - CHESS Replacement Assurance Program governance members, accountable and responsible executives

   - CHESS Replacement Assurance Program assurance providers

   - CHESS Replacement third party providers – TCS and Accenture.

   - Voice of the customer – Cash Equities Clearing and Settlement Advisory Group (Advisory Group) Chair, Business Committee Chair, Technical Committee Chair, Non-Confidential Release 1 Consultation submissions.

A list of interviews conducted with key stakeholders can be found in Appendix L.

Given the timing of this review EY has not conducted direct meetings with market participants, approved market operators (AMOs), custodians or registries. EY has used the above committee chairs and consultation submissions as a proxy for the voice of the customer. We will seek direct external views for our future reports.

3. **ASX Assurance Program design assessment:** Our evaluation of the breadth and depth of the ASX Assurance Program has included the following assessments:

▸ Comparison against typical project risks following EY's Program Risk Management 'Cube' methodology, including those related to program governance, project management, and technical solution (refer to Appendix C for the outcome of the analysis). Additional details on the EY 'Cube' methodology utilised to complete our design assessment of the ASX Assurance Program are set out in Appendix B.

▸ Assessment of the areas in scope for review against the detailed list of key risks included in the project ▮▮▮ (refer to Appendix D for the outcome of the analysis).

▸ Assessment of the project and business enablers and capabilities defined by the CHESS Replacement Project against the ASX Assurance Program (refer to Appendix E for the outcome of the analysis).

▸ Assessment of the ASX Assurance Program activities against the CHESS Replacement Project milestones (refer to Appendix F for the outcome of the analysis).

▸ Assessment of the areas in scope for review in the ASX Assurance Program against the external review report recommendations (refer to Appendix G for the outcome of our analysis).

▸ Assessment of the areas in scope for review in the ASX Assurance Program against the trade outage independent expert review recommendations (refer to Appendix H for the outcome of our analysis).

▸ Assessment of the areas in scope for review in the ASX Assurance Program against the previous assurance program reviews, the previous licence condition reviews and the Define and Plan phase report (refer to Appendices I, J and K for the outcome of the analysis).

▸ Assessment of the ASX Assurance Program versus our understanding of assurance programs for major implementation projects of the nature, scale and complexity of the CHESS Replacement Project, as well as the understanding of the previous CHESS Replacement Project.

2.4 Limitations

We draw your attention to the limitations inherent in this report:

▸ Our work was not performed in accordance with generally accepted auditing, review, or other assurance standards in Australia and accordingly does not express any form of assurance. This report does not constitute legal opinion or advice. We have not conducted a review to detect fraud or illegal acts.

▸ Our work does not assume any responsibility for any third-party products, programs or services, their performance or compliance with your specifications or otherwise.

▸ Our work did not intend to identify, address, or correct any errors or defects in your computer systems, other devices, or components thereof ("Systems"), whether or not due to imprecise or ambiguous entry, storage, interpretation, or processing or reporting of data. We are not responsible for any defect or problem arising out of or

related to data processing in any Systems in relation to the CHESS Replacement Project and its Assurance Program.

▸ Our review of the ASX Assurance Program detailed scope was limited to the information available and provided by ASX at this stage, where for future reviews included in the plan only high-level planning has been conducted and a detailed analysis of scope and effort is pending. That fact limits our ability to perform a more granular analysis on the depth of the ASX Assurance Program.

▸ Our review was limited to documents requested by EY and provided by ASX as deemed relevant in line with the agreed scope and EY requests, with the expectation that ASX had those artefacts documented to satisfy its own governance arrangements and executive accountability needs.

▸ Our scope under the licence conditions requires us to oversee the implementation of any remedial actions from the trade outage Independent Expert review recommendations which are relevant to the CHESS Replacement Project. For the purpose of our engagement, we define oversee as to observe, inspect and test that ASX has implemented the remedial actions. ASX are accountable and responsible for the implementation activities and EY will not act as management or direct the implementation.

▸ Our scope did not include a review of the primary assurance provider request for proposal (RFP) and appointment process managed by ASX.

2.5   Use and disclosure of our reports

We are providing specific advice only for this engagement and for no other purpose and we disclaim any responsibility for the use of our advice for a different purpose or in a different context. If you plan to use this advice on another transaction or in another context, please let us know and provide us with all material information so that we can provide advice tailored to the appropriate circumstances.

Our Reports (including the EY Summary Reports) may be relied upon by ASX and ASX's regulators ASIC and the RBA for the purpose outlined in our ██████████████████ only. We understand that ASIC and the RBA, and ASX may issue a media release and/or a public report referring to or publishing the content of our Reports and may make or issue our Reports or a summary of the content of our Reports. We will prepare a summary of our Reports (EY Summary Reports). We consent to ASIC and the RBA, and ASX publishing our Reports, EY Summary Reports and/or summaries of our Reports.

For the avoidance of doubt, no other party other than ASX, ASIC and the RBA may rely on the Reports. We disclaim all responsibility to any such other party for any loss or liability that the other party may suffer or incur arising from or relating to or in any way connected with the contents of our Reports, the provision of our Reports to the other party or the reliance upon our report by the other party.

3. Findings and Recommendations

Detailed in sections 3.1 through 3.4 are the findings and recommendations in relation to our review of the ASX Assurance Program to evaluate whether it is adequately designed to mitigate the risks associated with the nature, scale and complexity of the CHESS Replacement Project.

The table below is the overall summary of the procedures performed and the coverage of the elements assessed in the ASX Assurance Program:

Assessment source (see Appendices C to K for detailed elements)	Number of elements assessed	Covered and scheduled	Covered, currently not scheduled	Not covered
EY's Program Risk Management 'Cube' methodology	27	25	2	0
Project risks	42	42	0	0
Project and business enablers and capabilities / epics	29	9	20	0
Project milestones	21	19	2	0
External review report	45	39	6	0
Trade outage independent expert review report	66	66	0	0
Previous assurance program reviews	166	147	19	0
Previous licence conditions reports	12	11	1	0
Define and Plan phase independent report	37	31	6	0

Our assessment found that all assessment elements are covered by the ASX Assurance Program's risk universe.

Most elements will be assured in activities that have been scheduled in the current ASX Assurance Program plan to end of first half of 2026.

The elements assessed as "Covered but currently not scheduled" correspond to the two risk areas related to (1) Organisational Change Management and (2) Operational and Technology Controls.

These review topics are included in the risk universe considered by the ASX Assurance Program. These topics and the scheduling of activities was discussed and approved by ASX's Program Assurance Forum (PAF), including the consideration that aspects of these topics are already covered through other scheduled assurance activities. ASX intends to re-assess these topics and include them as part of the next annual review of the ASX Assurance Program. We would expect ASX to schedule these remaining elements for assurance prior to Release 1 go-live.

3.1 Coverage of assurance activities

The objective of this area is to assess how the ASX Assurance Program was built and designed and to assess the breadth of the program to determine whether there is any key topic missing in the proposed list of reviews that integrate the plan.

Context

ASX has developed an Assurance Program based on the current level of project planning for Release 1 and Release 2, covering all Release 1 (Clearing) activities to 2026 go-live, and Release 2 (Settlement and Sub-register) activities focused on project anchor milestones up to December 2024. The ASX Assurance Program aims to support the project in meeting its primary objective of the successful replacement and decommissioning of the current CHESS system, with a new solution that meets functional and non-functional requirements; to assist in identifying and mitigating risk, to improve project delivery, controls and outcomes; to provide confidence to internal and external stakeholders that project delivery is being well managed and executed, and is tracking

toward successful implementation; and to provide input into decision-making for key project milestones including go-live readiness.

Our review has considered as input the ASX Assurance Program ████
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The ASX Assurance Program has been designed taking a top-down and bottom-up approach. The top-down approach considered the following:

▶ Internal and external anchor project milestones, where proposed reviews have been considered in the context of the objectives for key phases of the project and the associated risks:

   ▶ Internal anchor milestones

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   ▶ External anchor milestones
      ○ Consultation Papers 1 and 2 responses
      ○ Approved Market Operators (AMO) Build / Test activities (ITE)
      ■ ██████████████████████████████
      ○ Release 1 Go-live

▶ Key areas to assist in providing comprehensive review coverage of the project:

▶ **Project Governance**: focuses on assurance activities to assess governance structure and effectiveness, decision making, project complexity and capability.

▶ **Project Management**: focuses on assessing processes and controls in managing project scope, cost, time, communication, integration, suppliers and delivery outcomes.

▶ **Delivery Processes**: includes the assessment of delivery methods, processes and delivery related activities within the relevant CHESS Replacement Project phase.

▶ **Technical solution**: focuses on assessing infrastructure and technical components, non-functional aspects of the solution.

▶ **Processes and controls**: includes the assessment of the design and operating effectiveness of key internal controls, risks and controls relating to new, changed, interim processes or workarounds.

▶ **Change, Readiness and Implementation**: focuses on the assessment of organisational change management, industry engagement activities, and implementation readiness.

▶ **Regulatory Reviews**: includes reviews required under additional licence conditions.

The bottom-up approach considered the following:

▶ Project delivery risks identified by the CHESS Replacement Project

▶ Assurance insights and findings from prior reviews

▶ Detailed project schedule and release plan for delivering capabilities of the solution.

Findings

Our assessment did not identify any significant gaps with regards to the proposed high-level approach to determine the design of the ASX Assurance Program.

The incorporation of Release 1 project activities until go-live in 2026 and Release 2 project anchor milestones up to December 2024 is appropriate as it integrates ASX Assurance Program activities to pertinent CHESS Replacement Project events up to the go-live in 2026. In addition, the consideration of top-down to designing the ASX Assurance Program is consistent with our EY's Program Risk Management 'Cube' methodology (Appendix C) utilised as a benchmark and industry practices to develop program assurance activities in relation to major implementation projects.

The bottom-up approach used in the design of the ASX Assurance Program considered topics that will cover the identified project risks (Appendix D), the project and business enablers and capabilities (Appendix E), and the findings and recommendations raised in the previous independent, external and assurance reviews (Appendices G, H, I, J, K).

Our analysis has identified some focus areas which have not had assurance activities scheduled in the current ASX Assurance Program (i.e., Organisational Change Management and Operational and Technology Controls Review). ASX had included those topics in the universe of assurance reviews but, after discussion and approval in the PAF, have not been included in the ASX Assurance Program schedule of reviews. The rationale for this approach is based on aspects of these topics which are already covered through other planned assurance activities and ASX intends to re-assess these topics and include them as part of the next annual review of the ASX Assurance Program.

EY expects the ASX Assurance Program to consider these in the next annual review, which will be assessed in our next reports.

The topics included in the ASX Assurance Program provided a high-level view of the areas to be covered, and ASX expects to perform detailed

planning and scoping closer to the indicative timing of the commencement of the planned assurance reviews. These will be covered in our next report due on 31 December 2024.

3.2   Nature and extent of assurance activities

The objective of this area is to assess the individual reviews proposed in the ASX Assurance Program scope to determine if they have been planned with the appropriate depth in regard to key areas in scope to achieve the ASX Assurance Program objectives and expectations.

Context

The ASX Assurance Program developed by ASX contains indicative scope and timetable for each of the planned reviews per the topics described on section 3.1 of this report.

The ASX Assurance Program includes a high-level view on the topic, identified accountable parties for each review and the proposed assurance provider.

Closer to the commencement of the planned assurance reviews, ASX will finalise the detailed scope. This is conducted through collaborative effort between the Senior Program Manager Assurance, accountable parties (i.e., business stakeholders acting as stream owners who apply their knowledge on the topic and subject matter expertise), and the relevant external or internal assurance provider.

ASX in the process of finalising the Request for Proposal (RFP) to select a primary assurance provider to perform a wide range of review topics. Where a small number of other external providers are to be used, selection will consider the capabilities, skills and experience of the assurance provider relative to the review topic and will be managed through the assurance program governance processes.

Findings

We have assessed the topics covered in the indicative scope included in the ASX Assurance Program against our methodology, project risks, project business enablers and capabilities, and common industry practices. We have not identified any significant findings in our assessment with the nature and extent of the ASX Assurance Program review topics.

The ASX Assurance Program has considered risks identified by the project and mapped them to ASX Assurance Program reviews to determine whether risks are addressed (refer to Appendix D for the results of our mapping of existing project risks to ASX Assurance Program reviews)

The ASX Assurance Program has established targeted assessments across the key areas identified, including targeted reviews scheduled in consideration of key project milestones and are focused on identified key areas of risk (refer to 3.3 Timing of assurance activities). ASX Assurance Program governance and change management processes are in place to address any potential challenges with the delivery of the reviews (refer to 3.4 ASX Assurance Program governance and change management processes).

ASX will finalise the detailed scope for reviews based on a defined planning cycle with the objective of defining review scopes that are relevant, timely and aligned to key risks. EY will assess the nature and extent of the ASX Assurance Program reviews in our next report due 31 December 2024.

3.3   Timing of assurance activities

The objective of this area is to assess the proposed timing for the reviews in the ASX Assurance Program to determine whether they have been scheduled at the right time in alignment to when the associated project risks are more relevant, so the reviews are executed at the right time to provide the assurance inputs expected.

Context

The ASX Assurance Program contains indicative timetable for each of the planned reviews. Per discussion with key stakeholders, we noted that the ASX Assurance Program activities are considered part of the critical path of the project. The reviews have been scheduled in relation to key project milestones as it is shown on the project plan (Appendix L).

Findings

We have assessed the timetable proposed in the ASX Assurance Program against key project milestones to determine whether they have been scheduled at the right time in alignment to when the associated project risks are more relevant. Our assessment (Appendix F) did not identify significant findings in relation to the timing proposed for the topics to review in the ASX Assurance Program.

We acknowledge that proposed timings are indicative at this stage and there might be adjustments depending on movements to the project schedule and the planned milestones.

Timings might vary as well depending on the appointment of the primary assurance provider. Five (5) ASX Assurance Program activities to be undertaken by the primary assurance provider are scheduled to commence in August 2024. However, we noted that the primary assurance provider is yet to be appointed at the time of this report, which may impact the timing and detailed scoping of the scheduled ASX Assurance Program reviews. To mitigate this dependency, ASX has included in the RFP a requirement for the third parties to include a Statement of Work (SoW), and detailed planning is being performed by ASX for the reviews scheduled in the next three (3) months to assist in expediting the process.

We acknowledge that looking forward the ASX Assurance Program will need to actively adapt to align to project future potential planning changes. We will perform an assessment on any adjustments to the

timing of assurance activities and potential impact to the effectiveness of the ASX Assurance Program in our next reports.

3.4 ASX Assurance Program governance and change management

The objective of this area it to assess the established governance of the ASX Assurance Program including change management and ongoing maintenance to determine whether adequate mechanisms have been established in place for a rigorous governance around the ASX Assurance Program activities.

Context

The ownership of the ASX Assurance Program transitioned ████████ ████████████████████████████ in December 2023. A dedicated resource ███████████████████████████████████████ is assigned to perform day-to-day operational activities of the ASX Assurance Program.

The PAF is accountable for steering the successful development and delivery of the ASX Assurance Program for the duration of the project. The PAF's accountabilities include:

▶ Ensuring assurance review topics are aligned to material risk and key project timing.

▶ Approving the scope of work, providers and timing for each review.

▶ Overseeing that appropriate action plans are developed and completed to address findings from reviews.

▶ Approving any changes to the ASX Assurance Program, such as changes to review scope and schedule, review topics and agreed action plans.

██ ████████████████████████████████████ ██ ████████████████████████████████████ ██████████████████████████████████ The PAF meets monthly.

The PAF will consider the ASX Assurance Program and provide recommendations ████████████████████████.

██ ████████████████████████████████████ ████████████████████████████████████ ██████████████████████████████████ ████████████████████████████████ ██████████████████████████████████████ ██████████████████████████████████ The ASX Assurance Program will periodically provide updates regarding public reports issued on the ASX Assurance Program to the ASX Business Committee.

The ASX Assurance Program will be reviewed on an annual basis, commencing early 2025, to remain current and aligned to key risks in the project. Any changes to the ASX Assurance Program as a result of the annual review will be agreed through the governance forums.

Findings

Our assessment found no material exceptions in relation with the current processes in place for the governance and change management of the ASX Assurance Program.

ASX has formalised the following key aspects surrounding the governance and maintenance of the ASX Assurance Program:

▶ Roles and responsibilities in relation with the ASX Assurance Program and its maintenance, including ownership, day-to-day operational activities, and governance forums.

▶ The process of maintaining the ASX Assurance Program, including frequency of periodic review and approvals required for changes to the ASX Assurance Program such as scope and timing.

▶ Reporting of progress and escalation in relation to the ASX Assurance Program, including reporting ████████████████ ██████████████████████████ and as required, the Advisory Group.

▶ Requirement for the assurance providers to manage independence and conflicts of interest (actual or perceived).

We will assess the governance and maintenance activities in our next report due 31 December 2024.

Appendix A   ASX Assurance Program summary

The ASX figure below depicts the summary of review groupings and potential review topics (ASX Assurance Program review universe) in the ASX Assurance Program.

Summary of review groupings and potential review topics

Review Grouping	Project Governance	Project Management	Delivery Processes	Technical Solution	Processes and Controls	Change, Readiness & Implementation	Regulatory Reviews
Focuses on	Governance structure and effectiveness, decision making, project complexity and capability Relevant to ongoing review and/or critical events or milestones	Processes and controls in managing project scope, cost, time, communication, integration, suppliers and delivery outcomes	Delivery methods, processes and delivery related activities within the phase	Infrastructure and technical components, non functional aspects of the solution	Design and operating effectiveness of key internal controls, risks and controls relating to new, changed, interim processes or workarounds	Organisational change management, industry engagement activities, and implementation readiness	Reviews required under additional licence conditions
Potential Review Topics	• Business Case • Complexity Profile • Capability and maturity • Decision framework • Progress measurement & reporting • Governance effectiveness • Compliance & regulatory • Benefits design and realisation • Post implementation review	• Scope management • Schedule management • Cost management • Resource management • Vendor/performance management • Integration management • Quality management • Risk management • Communications management • Benefits management	• Delivery methods & approaches • Requirements & design processes • Data Migration processes • Test processes/ standards • Test Governance design and effectiveness • ASX Industry Test Approach & processes	• Proof of Technology • Cloud requirements, validation and readiness • Resiliency (platform and components) • Performance & scalability • System interfaces • Security controls • Application controls • Business continuity, recovery, incident management processes	• Operational & Technology processes & controls • Business Process Risk and Control assessment processes	• Industry consultation process • Organisational Change Management processes • Cutover and support processes • Incident Playbook • Industry Readiness activities • Release 1 Implementation Readiness processes	• Independent assessment of Assurance Program • Pre Go-Live Report • Pre-Go Live Confirmation • PIR (6 months, 12 months)

Represents new groupings and new topics included in the Draft Assurance Program compared to the Assurance Program on the historic project

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ASX

The ASX table below depicts the activities scheduled in the current ASX Assurance Program ███████████████████████████
███████████████████

Assurance Plan
Final

CHESS Replacement Project
17 June 2024

ASX

1 | P a g e
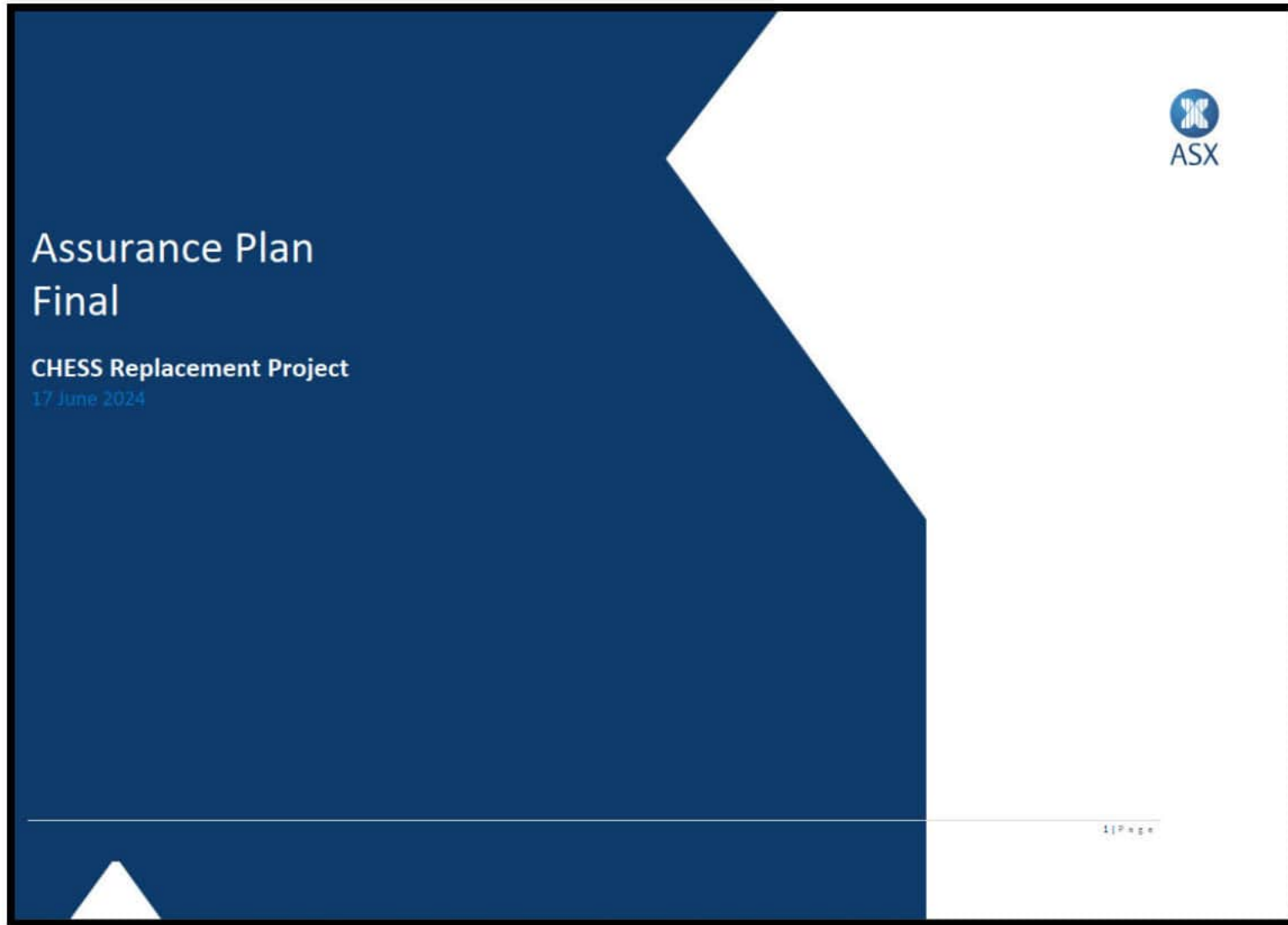
CHESS Replacement Assurance Plan - High level description of the reviews, dates and assurance providers

Indicative Review dates	Review Grouping	Review Name	Review topics	Provides confidence in	Indicative Provider	Project Milestone
Mar-May 2024 (complete)	Project Governance and Project Management	Light Health Check (Sentiment survey)	███████████	Internal stakeholder sentiment on likely success	ASX Internal Audit	███████████
Aug-Nov 2024	Project Governance and Project Management	Project Health Check 1		Key project governance and project management controls, vendor management and governance processes aligned to requirements, ways of working, revised business case	Primary Assurance Provider	

[1] Topic selection will be agreed through governance processes with a focus on topics most relevant and timely to support building confidence in key stages and/or decision making and relative to project activities, progress, risks

Indicative Review dates	Review Grouping	Review Name	Review topics	Provides confidence in	Indicative Provider	Project Milestone
Apr-May 2025	Project Governance and Project Management	Project Health Check 2	■■■	Key project governance and project management controls, vendor management and governance processes aligned to requirements, ways of working, status of delivery	Primary Assurance Provider	■■■
Oct-Nov 2025	Project Governance and Project Management	Project Health Check 3		As per Health Check 1 and 2	Primary Assurance Provider	
Apr-May 2026	Project Governance and Project Management	Release 1 ASX Post Implementation Review		Governance processes to evaluate project outcomes, continuous improvement, benefits realisation	ASX Delivery Assurance	
Jul-Aug 2024	Delivery Processes	ASX test policy and standards assessment for Release 1		Quality of test strategy and test planning practises across functional and non-functional testing compared to internal ASX, and international / industry standards; the	■■■	

Indicative Review dates	Review Grouping	Review Name	Review topics	Provides confidence in	Indicative Provider	Project Milestone
		(Stage 1: Test strategy and test planning activities)		governance framework for testing; and test design aligned to project risk and complexity		
Aug 2024	Delivery Processes	ASX Delivery Assurance Inflight Review 1	███	Alignment to ASX delivery standards	ASX Delivery Assurance	███
Aug-Sep 2024	Delivery Processes	Release 1 ASX Industry Test Approach and planning	███	Quality of approach and plan for the industry test phase and consideration of industry feedback	Primary Assurance provider	███
Sep-Oct 2024	Delivery Processes	Requirements and design processes	███	Key delivery processes that form the basis for building and testing the replacement solution that meets functional and non-functional requirements	Primary Assurance Provider	███
Nov 2024-Jan 2025 (tbc end Jul 2024)	Delivery Processes	Data migration processes (Part 1: migration strategy including test approach, control requirements and	███	The migration strategy and control design	Primary Assurance Provider	███

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Indicative Review dates	Review Grouping	Review Name	Review topics	Provides confidence in	Indicative Provider	Project Milestone
		design, data ownership)	████████████			
Nov 2024	Delivery Processes	ASX test policy and standards assessment for Release 1 (Stage 2: Test plans and test execution activities)	████████████	Quality of test plans and test execution practises compared to internal ASX, and international / industry standards; the governance framework for testing; and test planning and execution activities align with the test strategy	████	████
Feb-Aug 2025 (tbc Dec 2024)	Delivery Processes	ASX test policy and standards assessment for Release 1 (Stage 3: test execution activities)	████████████	Quality of test execution and test results reporting practises compared to internal ASX, and international / industry standards; governance framework for testing; and processes to test solution meets functional and non-functional requirements	████	
Aug-Sep 2025	Delivery Processes	Data migration processes (Part 2: progress, test activities and results)	████████████	Progress of migration activities and testing to verify the integrity of migrated data	Primary Assurance Provider	████

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ASX Limited

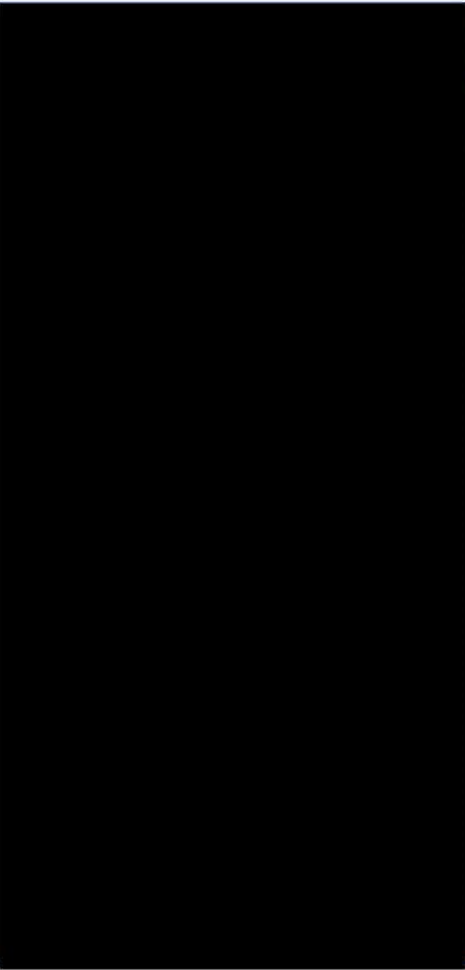Independent assessment of ASX's Assurance Program for the CHESS Replacement Project

Design Report

Indicative Review dates	Review Grouping	Review Name	Review topics	Provides confidence in	Indicative Provider	Project Milestone
Sep-Oct 2024	Technical Solution	Cloud Platform (Part 1: review of project management processes to manage delivery onto the cloud platform (and dependencies with Cloud Foundations project)	███████	CHESS replacement project activities are being well managed to support delivery of the CHESS replacement solution (services and controls) on cloud	Primary Assurance Provider	███████
Sep-Oct 2024	Technical Solution	Review of Proof of Technology (PoT) activities	███████	Project management of PoT activities that are being used to provide an early indication for mitigating solution risk regarding how underlying technology services will scale and to build confidence in project delivery and timeframes	Primary Assurance Provider	███████
Aug-Oct 2024	Technical Solution	Resiliency review (Part 1: design review and test approach / plan)	███████	CHESS replacement platform and components meeting non-functional requirements for resiliency and recovery; and CHESS replacement solution is reliable and available	Primary Assurance Provider	███████

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Indicative Review dates	Review Grouping	Review Name	Review topics	Provides confidence in	Indicative Provider	Project Milestone
			███████████████████████████			
Jan-Feb 2025	Technical Solution	Cloud Platform (Part 2: requirements, design and test approach / plan for cloud services, environments and cloud controls for the CHESS	Design effectiveness of the services and controls supporting the CHESS replacement solution on cloud	Primary Assurance Provider	████████

ASX Limited

Independent assessment of ASX's Assurance Program for the CHESS Replacement Project

Design Report

Indicative Review dates	Review Grouping	Review Name	Review topics	Provides confidence in	Indicative Provider	Project Milestone
		replacement solution				
Jun-Aug 2025	Technical Solution	Resiliency review (Part 2: operating effectiveness review evidenced through non-functional test results)	███████████████	CHESS replacement platform and components meeting non-functional requirements for resiliency and recovery; and CHESS replacement solution is reliable and available	Primary Assurance Provider	████████

Indicative Review dates	Review Grouping	Review Name	Review topics	Provides confidence in	Indicative Provider	Project Milestone
Aug-Oct 2024	Technical Solution	Performance and scalability review (Part 1: design review and test approach / plan)	███████	CHESS replacement solution meeting non-functional requirements and latency, performance and scalability of the application and platform	Primary Assurance Provider	███████
Jun-Aug 2025	Technical Solution	Performance and scalability review (Part 2: operating effectiveness review evidenced through non-functional test activities and results)	███████	CHESS replacement solution meeting non-functional requirements and latency, performance and scalability of the application and platform	Primary Assurance Provider	███████

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Indicative Review dates	Review Grouping	Review Name	Review topics	Provides confidence in	Indicative Provider	Project Milestone
Nov-Dec 2024	Technical Solution	System security requirements review (Part 1: security design review)	███████	CHESS replacement system meets security requirements	Primary Assurance Provider	███████
Dec 2024	Technical Solution	System security requirements review (Part 2: validation of security requirements implementation in industry test environment)	███████	CHESS replacement system meets security requirements	Primary Assurance Provider	███████
Jul-Aug 2025	Technical Solution	System security requirements review (Part 3: validation of security requirements implementation in	███████	CHESS replacement system meets security requirements	Primary Assurance Provider	███████

Indicative Review dates	Review Grouping	Review Name	Review topics	Provides confidence in	Indicative Provider	Project Milestone
		production environment)	████			████
Dec 2024	Technical Solution	Platform Penetration testing (Part 1: against Industry test environment)	████	CHESS replacement solution is secure	Other External	████
Jul-Aug 2025	Technical Solution	Platform Penetration testing (Part 2: against Production environment)	████	CHESS replacement solution is secure	Other External	████

Indicative Review dates	Review Grouping	Review Name	Review topics	Provides confidence in	Indicative Provider	Project Milestone
Nov-Dec 2024	Technical Solution	CHESS replacement application review – design effectiveness	███████████	Design effectiveness of key application system controls, key system interface controls and logical access security as specified through requirements, analysis and design documentation	ASX Internal Audit	████
May-Jun 2025	Technical Solution	CHESS replacement application review - operating effectiveness	███████████	Operating effectiveness of key application system controls, key system interface controls and logical access security evidenced through test plans and results	ASX Internal Audit	████

Indicative Review dates	Review Grouping	Review Name	Review topics		Provides confidence in	Indicative Provider	Project Milestone
Jul-Aug 2025	Technical Solution	Cloud Platform (Part 3: operational effectiveness and operational readiness)	███		Project and governance processes to assess and determine operational effectiveness and operational readiness, evidenced through test results, support processes and model	Primary Assurance Provider	███
Feb-Mar 2025	Processes and Controls	Release 1 Business process risk and control assessment process	███		Quality and effectiveness of the business process risk and control assessment process	ASX Delivery Assurance	███

Indicative Review dates	Review Grouping	Review Name	Review topics		Provides confidence in	Indicative Provider	Project Milestone
Aug-Nov 2024	Change, Readiness and Implementation Processes	Industry consultation processes (Release 1 and Release 2)	███████		ASX engagement with external stakeholders on key elements of detailed design and implementation	Primary Assurance Provider	███████
Apr-Dec 2025 (indicative)	Change, Readiness and Implementation Processes	Release 1 industry readiness activities	███████		ASX planning, management and execution of activities and processes to support AMOs and Clearing participants being operationally ready for Release 1 go live	Primary Assurance Provider	

Indicative Review dates	Review Grouping	Review Name	Review topics	Provides confidence in	Indicative Provider	Project Milestone
Nov 2025-Feb 2026	Change, Readiness and Implementation Processes	Cutover and support processes	██████	ASX operationally ready for go live deployment and post go live support processes	Primary Assurance Provider	██████
May 2025	Change, Readiness and Implementation Processes	Incident playbook review (Part 1: define and plan activities)	██████	Incident management and coverage of failure scenarios	Other External	██████
Aug 2025	Change, Readiness and Implementation Processes	Incident playbook review (Part 2: testing activities) (Part 3: tbc industry test activities)	██████	Incident management and role-play testing	Other External	██████
Dec 2025-Feb 2026	Change, Readiness and Implementation Processes	Release 1 readiness review	██████	Release 1 go live decision process, namely the processes to assess ASX, AMOs and Clearing participants are operationally ready for Release 1 go live; and the replacement system is reliable, secure, available and meets functional and non-functional requirements	Primary Assurance Provider or EY	██████

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Indicative Review dates	Review Grouping	Review Name	Review topics	Provides confidence in	Indicative Provider	Project Milestone
Apr-Jun 2024	Regulatory	Independent assessment of CHESS Replacement Assurance Program	███████	CHESS Replacement Assurance Program	EY	███
Sep-Dec 2024	Regulatory	Independent assessment of CHESS Replacement Assurance Program	███████	CHESS Replacement Assurance Program	EY	███
Apr-Jun 2025	Regulatory	Independent assessment of CHESS Replacement Assurance Program	███████	CHESS Replacement Assurance Program	EY	███
Sep-Dec 2025	Regulatory	Independent assessment of CHESS Replacement Assurance Program	███████	CHESS Replacement Assurance Program	EY	███

Indicative Review dates	Review Grouping	Review Name	Review topics	Provides confidence in	Indicative Provider	Project Milestone
Feb-Mar 2026	Regulatory	Pre-Release 1 go live report	███████	CHESS Replacement Assurance Program	EY	███████
Feb-Mar 2026	Regulatory	Pre-Release 1 go live confirmation	███████	Achievement of assurance program objectives, testing governance, go live decision framework, governance over go live weekend	EY	███████
Apr-Jun 2026	Regulatory	Independent assessment of CHESS Replacement	███████	CHESS Replacement Assurance Program	EY	███████

| Indicative Review dates	Review Grouping	Review Name	Review topics	Provides confidence in	Indicative Provider	Project Milestone
		Assurance Program	███████████			███████████
Aug-Sep 2026	Regulatory	Release 1 Post Implementation Review Report (6 months)	███████████	Outcomes and success of the Release 1 project 6 months post delivery	EY	███████████
Feb-Mar 2027	Regulatory	Release 1 Post Implementation Review Report (12 months)	███████████	Outcomes and success of the Release 1 project 12 months post delivery	EY	███████████

Appendix B   EY Program Risk Management methodology

As an input to conduct our independent assessment of ASX's CHESS Replacement project independent Assurance Program, we have considered EY's Program Risk Management framework as a benchmark to assist with the completeness and coverage of risks associated to the project in support of our evaluation of whether the Assurance Program is fit for purpose.

The 'EY Cube' methodology is utilised to support the analysis of program health across three interrelated domains:

▶ **Program Governance** – Specifies the governance structure and effectiveness, decision rights and accountability framework(s) to encourage the desired behaviour necessary to achieve the Program objectives. Governance related reviews typically focus on the design of program governance, decision-making, the business case definition (case for change) and benefits management.

▶ **Project Management** – The Program management approach and performance maturity must be aligned with the inherent program complexity. As part of this, project management areas typically focus on the Program's processes around managing scope, cost, time and change controls. Adequacy of Program's supplier/vendor performance and contract management can also be considered.

▶ **Technical Solution** – Assessment of the technical solution will provide a better understanding of the technical implementation approach and current state stability of the Program. Reviews can be solution specific functional and technical fit-for-purpose assessments (design and build) as well as areas relating to business requirements (including risks and controls where relevant), security, testing, data integration and cyber security services.

EY's Program Risk Management 'Cube' Methodology
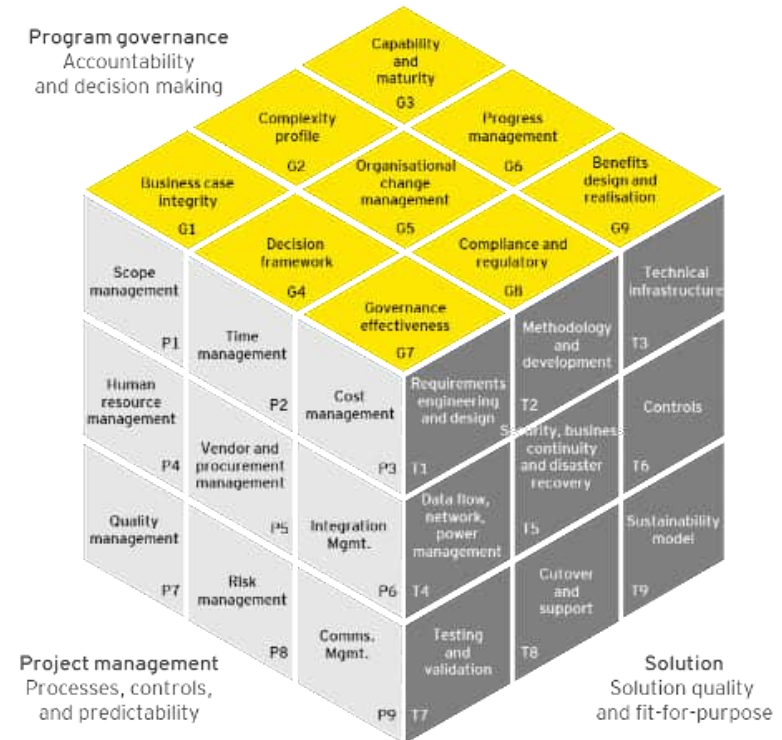
As there is no single applicable international standard for this type of assurance (fit for purpose assessment of an assurance program), EY applies the EY Cube methodology, which is aligned with international standards on risk management and frameworks for the management of project risks such as the ones included in the table below:

International Standard	Year	Organisation	Description
Project Management Standards			
ISO 21500:2021 (second edition 2021-3)	2021	International Organisation for Standardisation (ISO)	Specifies the organizational context and underlying concepts for undertaking project, programme and portfolio management.
ISO 21502:2020	2020	ISO	Provides high-level descriptions of practices that are considered to work well and produce good results within the context of project management.
PMI Standard for Project Management 7th Edition	2021	Project Management Institute (PMI)	Identifies project management principles that guide the behaviours and actions of project professionals and other stakeholders who work on or are engaged with projects.
PMI PMBoK Guide 7th Edition	2021	PMI	Focuses on delivering outcomes regardless of the approach used by the project team.
PRINCE2 7th Edition	2023	AXELOS	A structured project management method.
Other Relevant Standards on risk management			
NIST Special Publication 800-37 (Revision 2)	2018	National Institute of Standards and Technology (NIST)	Describes the Risk Management Framework (RMF) and provides guidelines for applying the RMF to information systems and organizations.
COBIT 2019	2019	ISACA	Framework for the governance and management of enterprise information and technology, aimed at the whole enterprise.
ISO 31000:2018	2018	ISO	Provides guidelines on managing risk faced by organisations.
Internal Control – Integrated Framework	2013	Committee of Sponsoring Organizations of the Treadway Commission (COSO)	Guideline for designing, implementing and conducting systems of internal control.
Information Technology Infrastructure Library (ITIL) v4	2019	AXELOS	Library of best practices for managing IT services and improving IT support and service levels.

Appendix C Assessment outcome against EY's Program Risk Management 'Cube' methodology

We have compared the key focus areas included in the ASX Assurance Program against typical project risks following EY's Program Risk Management 'Cube' Methodology, including those related to program governance, project management and technical solution. The objective of this mapping is to determine the coverage of those typical project risks by the proposed ASX Assurance Program reviews.

EY Program Risk Management 'Cube' Methodology			ASX Assurance Program connected reviews	ASX Assurance Program Coverage – assessment outcome
Domain	Focus area	Topics considered		
Project Governance	G1 - Business case integrity	██████████████████ ████████████████████ ███████████████████ ██████████████	Project Health Check 1	Covered
	G2 - Complexity profile	████████████████████████ ███████████████████	Project Health Check 1, 2 and 3 ASX Delivery Assurance Inflight Review 1	Covered Note 1 – While not included in the explicit scope of the ASX Assurance Program, complexity of the project would be covered through reviews for CHESS Replacement Project governance and whether the project has complied with the ASX Delivery Framework.
	G3 - Capability And maturity	█████████████████████████ ██████████████ ████████████████████████ █████████████	Project Health Check 1, 2 and 3	Covered
	G4 - Decision framework	████████████████████████████ █████████████████ ███████████████████████████ ████████████████████ ████████████	Project Health Check 1, 2 and 3 Industry Consultation Processes Release 1 ASX Industry Test Approach and Planning Release 1 Industry Readiness Activities Release 1 Readiness Review	Covered
	G5 - Organisational	███████████████████████ ████████████████████	Project Health Check 1, 2 and 3 Release 1 readiness review	Covered but Organisational Change Management is currently not scheduled.

EY Program Risk Management 'Cube' Methodology			ASX Assurance Program connected reviews	ASX Assurance Program Coverage – assessment outcome
Domain	Focus area	Topics considered		
	Change management	████████████████ ████████████████████ ████████████████████████		Note 2 – Organisational Change Management (OCM) review is currently not scheduled in the ASX Assurance Program. The exclusion of OCM review was discussed in the CHESS Replacement PAF whereby the plan and timing of this assurance activity will be revisited in the next annual review of the ASX Assurance Program to be performed in 2025. The exclusion of the OCM review in the current ASX Assurance Program is due to aspects of OCM having been included in other planned assurance activities (i.e., Project Health Checks 1,2, and 3; Release 1 readiness review) or CHESS Replacement project independent assessments (i.e., CHESS Replacement Project 'Define and Plan' Phase report). ASX has reported that there are OCM-related actions subject to current independent assurance reviews (i.e., ████████████████████ on external review report actions) due for completion in CYQ3 2024. Our future reports will assess how OCM areas are evaluated.
	G6 - Progress management	████████████████████ ██████████████ ██████████████████████ ████████ ████████████████	Project Health Check 1, 2 and 3	Covered
	G7 - Governance effectiveness	████████████████████ ██████████████████████ ████ ██████████████████████ ████████████████████	Project Health Check 1, 2 and 3	Covered

EY Program Risk Management 'Cube' Methodology			ASX Assurance Program connected reviews	ASX Assurance Program Coverage – assessment outcome
Domain	Focus area	Topics considered		
	G8 - Compliance and regulatory	▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆ ▆▆▆▆▆▆▆▆▆▆ ▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆	Project Health Check 1, 2 and 3 Requirements and Design Process Review	Covered
	G9 - Benefits design and realisation	▆▆▆▆▆▆▆▆▆▆▆▆ ▆▆▆▆▆▆▆▆▆ ▆▆▆▆▆▆▆▆▆▆▆▆▆	Project Health Check 1, 2 and 3 Requirements and design processes Release 1 ASX PIR	Covered
Project Management	P1 - Scope management	▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆ ▆▆▆▆▆ ▆▆▆▆▆▆ ▆▆▆▆▆▆▆▆ ▆▆▆▆	Project Health Check 1, 2 and 3	Covered
	P2 - Time management	▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆ ▆▆ ▆▆▆▆▆ ▆▆▆▆▆▆▆ ▆▆▆▆▆▆ ▆▆▆	Project Health Check 1, 2 and 3	Covered
	P3 - Cost management	▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆ ▆▆▆▆▆▆▆▆▆ ▆▆▆▆▆▆ ▆▆▆▆▆▆▆▆	Project Health Check 1, 2 and 3	Covered
	P4 - Human resource management	▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆▆ ▆▆▆▆▆ ▆▆▆▆▆▆▆ ▆▆▆▆▆▆▆ ▆▆▆▆▆▆▆▆▆▆▆▆▆ ▆▆▆▆	Project Health Check 1, 2 and 3	Covered
	P5 - Procurement management	▆▆▆▆▆▆▆▆▆▆▆▆ ▆▆▆▆▆▆▆▆▆▆▆ ▆▆▆▆▆▆	Project Health Check 1, 2 and 3	Covered

EY Program Risk Management 'Cube' Methodology			ASX Assurance Program connected reviews	ASX Assurance Program Coverage – assessment outcome
Domain	Focus area	Topics considered		
	P6 - Integration management	████████████ ██████████ ████████ ██████	Project Health Check 1, 2 and 3	Covered
	P7 - Quality management	████████████ ████████████████ ██████ ███████	Project Health Check 1, 2 and 3	Covered
	P8 - Risk management	██████████████████ █████ ████████████ ███████	Project Health Check 1, 2 and 3	Covered
	P9 - Communications management	███████████████ █████████████ █████████████ ████████	Project Health Check 1, 2 and 3 Industry Consultation Processes Release 1 ASX Industry Test Approach and Planning Release 1 Industry Readiness Activities	Covered
Proposed technical solution	T1 - Requirements engineering and design	████████████████ ██████ ████████	Requirements and design processes	Covered
	T2 - Methodology and development	██████████████ ██████████ ████████ █████	ASX Delivery Assurance Inflight Review 1 Project Health Check 1, 2 and 3	Covered
	T3 - Technical infrastructure	██████████████ ████████ ████████████████ ██████	Cloud Platform Resiliency Review Performance and Scalability Review Review of Proof of Technology Activities	Covered

	EY Program Risk Management 'Cube' Methodology			ASX Assurance Program connected reviews	ASX Assurance Program Coverage – assessment outcome
Domain	Focus area	Topics considered			
	T4 - Data management	███████████████████ ██████ ███████████ ██████ ███████		Release 1 Data Migration	Covered
	T5 - Security and controls	█████████████████ ████████████████ ███ ███████████████ █████████████ ████████████		System Security Requirements Review Platform Penetration testing CHESS R application review Release 1 Business process risk and control assessment process	Covered but Operational and Technology Controls reviews are currently not scheduled. Note 3 – Operational and Technology Controls reviews have been considered by ASX in the design of the ASX Assurance Program, however, had currently not been scheduled as part of the current ASX Assurance Program. ASX intends to re-assess the inclusion of the review in its annual refresh in early 2025. ASX has noted that coverage of the topic will be considered as part of detailed scoping for the following Release 1 reviews on the current assurance plan: Requirements and Design Processes, Business process risk and control assessment process and Release 1 Readiness activities. Our future reports will assess how these areas are evaluated.
	T6 - Business continuity and recovery	████████████████ ███████████ ██████████████████		Resiliency Review Incident Playbook Review	Covered

EY Program Risk Management 'Cube' Methodology			ASX Assurance Program connected reviews	ASX Assurance Program Coverage – assessment outcome
Domain	Focus area	Topics considered		
	T7 - Testing and validation	██████████████████ ███████████ ████████████████████ ███████████████ ███	ASX Test policy and standards assessment for Release 1 Release 1 ASX Industry Test Approach and planning Resiliency Review Performance and Scalability Review System Security Requirements Review	Covered
	T8 - Cutover and support	███████████████ ██████████ █████████████████ ████ ██████ ████████████	Cutover and support processes	Covered
	T9 - Sustainability model	████████████ ████████████ ███████ ██████	Incident Playbook Review Release 1 ASX PIR Cutover and support processes	Covered

Appendix D   Assessment outcome against project risks

The objective of this mapping is to determine at a high level how the Assurance Program proposed reviews cover the risks identified by the CHESS Replacement Project. We have compared the key focus areas included in the ASX Assurance Program against key project risks performing the following procedures:

a. ██
████████████

b. ██
██
████████████████████████████

Risk aggregation by Impact Category	# of Risk Exposures identified in each impact category	ASX Assurance Program Coverage - assessment outcome*
Schedule	██	Covered
Objectives/Benefits	█	Covered
Budget	█	Covered
Customer	█	Covered
Regulator	█	Covered
People	█	Covered
Supplier	█	Covered

* The assessment outcome is limited to the information available at the time of our review, which include limitations on the granularity provided on the indicative scope for the Assurance Program reviews. ASX will finalise the detailed scope for reviews based on a defined planning cycle with the objective of defining review scopes that are relevant, timely and aligned to key risks.

Appendix E   Assessment outcome against project enablers and capabilities/epics

The objective of this mapping is to determine at a high level how the Assurance Program proposed reviews cover the risks associated to the enablers and capabilities/epics defined by the CHESS Replacement Project. We have compared the key focus areas included in the ASX Assurance Program against key business enablers and capabilities for Release 1 (R1):

a. Obtained the functional capabilities, non-functional capabilities, and project enabler documents for CHESS Replacement Release 1 (R1) which outlines the key product features for R1. ███.

b. For each of the R1 capabilities and project enabler, reviewed the 'bottom up' approach, and FY24 CHESS Replacement ASX Assurance Program to identify whether the related assurance activity will cover R1 related capabilities and enabler. ████████████████████████████
    ██

The assessment outcome is based on the high-level topics described in the Assurance Program as detailed scope of each assurance activity has not been finalised at this stage.

No	Project enablers / capabilities / epics	ASX Assurance Program connected review	ASX Assurance Program Coverage – assessment outcome
	Release 1 functional capabilities / epics		
1	CP001 - System Actor (Foundation)	System Security Design Part 1 System Security Validation Part 2 System Security Validation Part 3 Application Review - Design Effectiveness / Operating Effectiveness (logical access security)	Covered but Operational Controls review is currently not scheduled. Note 1 – The Operational Controls review was excluded from the current ASX Assurance Program which was discussed in the CHESS Replacement PAF whereby the plan and timing of this assurance activity will be revisited in the next annual review of the ASX Assurance Program to be performed in 2025. This review is targeted to be performed by Internal Audit and will be considered as part of the FY25 IA plan. We will assess this in our next reports.
2	CP002 - Trade Acceptance Service	Requirements and Design processes Test policy and standards assessment Stage 1, Stage 2, Stage 3 BPRA (business process risk and control assessment) process review Application Review - Design Effectiveness / Operating Effectiveness (application system controls)	Covered but Operational Controls review is currently not scheduled. Refer to Note 1 in CP001 regarding Operational Controls review.
3	CP003 - Clearing (Phasing State)	Requirements and Design processes Test policy and standards assessment Stage 1, Stage 2, Stage 3	Covered but Operational Controls review is currently not scheduled.

No	Project enablers / capabilities / epics	ASX Assurance Program connected review	ASX Assurance Program Coverage – assessment outcome
	Release 1 functional capabilities / epics		
		BPRA (business process risk and control assessment) process review Application Review - Design Effectiveness / Operating Effectiveness (application system controls)	Refer to Note 1 in CP001 regarding Operational Controls review.
4	CP011 – Reference data (Foundation)	Application Review – Design Effectiveness / Operating effectiveness (application system controls, interface controls) Requirements and Design processes Test policy and standards assessment Stage 1, Stage 2, Stage 3	Covered but Operational Controls review is currently not scheduled. Refer to Note 1 in CP001 regarding Operational Controls review.
5	CP014 - Billing (Trading and Clearing)	Application Review - Design Effectiveness / Operating Effectiveness (system interface controls) BPRA (business process risk and control assessment) process review	Covered but Operational Controls review is currently not scheduled. Refer to Note 1 in CP001 regarding Operational Controls review.
6	CP015 - Data Services	Requirements and Design processes Test policy and standards assessment Stage 1, Stage 2, Stage 3	Covered but Operational Controls review is currently not scheduled. Refer to Note 1 in CP001 regarding Operational Controls review.
7	CP016 - User interface	System Security Design Part 1 System Security Validation Part 2 System Security Validation Part 3 Application Review - Design Effectiveness / Operating Effectiveness (logical access security) BPRA (business process risk and control assessment) process review	Covered but Operational and Technology Controls reviews are currently not scheduled. Refer to Note 1 in CP001 regarding Operational Controls review. Note 2: Technology Controls review was excluded from the current ASX Assurance Program which was discussed in the CHESS Replacement PAF whereby the plan and timing of this assurance activity will be revisited in the next annual review of the ASX Assurance Program to be performed in 2025. This review is targeted to be performed by Internal Audit and will be considered as part of the FY25 IA plan. We will assess this in our next reports.
8	CP017 - Messaging interface	Requirements and Design processes Test policy and standards assessment Stage 1, Stage 2, Stage 3 Performance and Scalability Design (Part 1) / Testing (Part 2) Resiliency Design (Part 1) / Testing (Part 2)	Covered
9	CP018 - Scheduling and Operational Hours	Requirements and Design processes Test policy and standards assessment Stage 1, Stage 2, Stage 3 BPRA (business process risk and control assessment) process review	Covered but Operational and Technology Controls reviews are currently not scheduled. Refer to Notes 1 and 2 in CP001 and CP016 regarding Operational Controls and Technology Controls review.

No	Project enablers / capabilities / epics	ASX Assurance Program connected review	ASX Assurance Program Coverage – assessment outcome
	Release 1 functional capabilities / epics		
10	CP034 - Migration (Phased Cutover)	Data Migration processes Part 1 and Part 2	Covered
11	CP037 - CHESS Integration	Application Review - Design Effectiveness / Operating Effectiveness (system interface controls) Requirements and Design processes Test policy and standards assessment Stage 1, Stage 2, Stage 3 BPRA (business process risk and control assessment) process review Performance and Scalability Design (Part 1) / Testing (Part 2) Resiliency Design (Part 1) / Testing (Part 2)	Covered but Operational Controls review is currently not scheduled. Refer to Note 1 in CP001 regarding Operational Controls review.
	Release 1 Non-functional capabilities / epics		
12	CP019 - Data Governance	Requirements and Design processes Test policy and standards assessment (Stage 1, Stage 2, Stage 3) Application Review - Design Effectiveness / Operating Effectiveness (application system controls)	Covered but Technology Controls review is currently not scheduled. It was also observed that the system security requirements review, penetration testing, performance and scalability, and Technology Platform & Resiliency Review assurance activities will assess data confidentiality, integrity, and availability. Refer to Note 2 in CP016 regarding Technology Controls review.
13	CP020 - Environment	Review of PoT activities Health Check 1 (environment planning) Cloud Platform Part 2 and Part 3 reviews Resiliency Design (Part 1) / Testing (Part 2) Performance and Scalability Design (Part 1) / Testing (Part 2)	Covered but Technology Controls review is currently not scheduled. Refer to Note 2 in CP016 regarding Technology Controls review.
14	CP021 - Connectivity	Requirements and Design processes Test policy and standards assessment (Stage 1, Stage 2, Stage 3)	Covered but Operational and Technology Controls reviews are currently not scheduled. Refer to Notes 1 and 2 in CP001 and CP016 regarding Operational Controls and Technology Controls review.
15	CP022 - Data Management	Performance and Scalability Design (Part 1) / Testing (Part 2) Resiliency Design (Part 1) / Testing (Part 2) Review of PoT activities Cloud Platform Part 2 and Part 3 reviews Requirements and Design Test Policy and Standards Assessment (Stage 1, Stage 2, Stage 3)	Covered but Technology Controls review is currently not scheduled. Refer to Note 2 in CP016 regarding Technology Controls review.

No	Project enablers / capabilities / epics	ASX Assurance Program connected review	ASX Assurance Program Coverage – assessment outcome
	Release 1 functional capabilities / epics		
16	CP023 - Interoperability	Requirements and Design processes Test policy and standards assessment (Stage 1, Stage 2, Stage 3) System Security Design Review Part 1 System Security Validation Review Part 2, Part 3 Resiliency Design (Part 1) / Testing (Part 2)	Covered but Operational and Technology Controls reviews are currently not scheduled. Refer to Notes 1 and 2 in CP001 and CP016 regarding Operational Controls and Technology Controls review.
17	CP024 - Security Identity	System Security Design Review Part 1 System Security Validation Review Part 2, Part 3 Platform penetration testing Part 1, part 2	Covered but Operational and Technology Controls reviews are currently not scheduled. Refer to Notes 1 and 2 in CP001 and CP016 regarding Operational Controls and Technology Controls review.
18	CP025 - Security Protect	System Security Design Review Part 1 System Security Validation Review Part 2, Part 3 Platform penetration testing Part 1, part 2	Covered but Technology Controls review is currently not scheduled. Refer to Note 2 in CP016 regarding Technology Controls review.
19	CP026 - Security -detect, respond, recover	System Security Design Review Part 1 System Security Validation Review Part 2, Part 3 Platform penetration testing Part 1, part 2 Incident Playbook review (Part 1, Part 2) Resiliency Design (Part 1) / Testing (Part 2)	Covered but Technology Controls review is currently not scheduled. Refer to Note 2 in CP016 regarding Technology Controls review.
20	CP027 - Service Management - service and manageability	Requirements and Design processes Test policy and standards assessment (Stage 1, Stage 2, Stage 3)	Covered but Technology Controls review is currently not scheduled. Refer to Note 2 in CP016 regarding Technology Controls review. It was also observed that the planned cut over and BPRA process reviews will assess this capability.
21	CP028 - Durability and resilience	Resiliency Design (Part 1) / Testing (Part 2) Review of PoT activities Performance and Scalability Design (Part 1) / Testing (Part 2)	Covered
22	CP029 - Useability	Requirements and Design processes Test policy and standards assessment (Stage 1, Stage 2, Stage 3)	Covered
23	CP046 - Service Management - Supportability	Requirements and Design processes Test policy and standards assessment (Stage 1, Stage 2, Stage 3)	Covered but Technology Controls review is currently not scheduled.

No	Project enablers / capabilities / epics	ASX Assurance Program connected review	ASX Assurance Program Coverage – assessment outcome
Release 1 functional capabilities / epics			
			Refer to Note 2 in CP016 regarding Technology Controls review. It was also observed that the planned BPRA and cutover and support process reviews will assess this capability.
Project enablers			
24	CP057 Industry Testing & Readiness (R1)	Industry Test Approach R1 Industry Readiness Activities review R1 Implementation Readiness processes review	Covered
25	CP054 - Internal Verification (R1)	Test Policy and Standards Assessment Stage 1, Stage 2, Stage 3 Performance and Scalability Design (Part 1) / Testing (Part 2) R1 Implementation Readiness processes review	Covered
26	CP055 - Customer Engagement (R1)	Industry Consultation Process review R1 Industry Readiness Activities Project Health Check reviews (Communications Management) Requirements and Design processes R1 Implementation Readiness processes review	Covered
27	Project Process and Governance	Project Health Check reviews	Covered
28	CP051 - Cutover and Rehearsal (R1)	Data Migration processes Part 1 and Part 2 Cutover and Support processes R1 Industry Readiness Activities R1 Implementation Readiness processes review	Covered
29	CP050 - Organisational Change (R1)	BPRA (business process risk and control assessment) process review Incident Playbook review (Part 1, Part 2) Cutover and Support processes R1 Implementation Readiness processes review	Covered but Organisational Change Management review is currently not scheduled. Refer to assessment outcome in Appendix C *Assessment outcome against EY's Program Risk Management 'Cube' methodology* regarding G5 - Organisational Change management.

Appendix F Assessment outcome against project milestones

The objective of this mapping is to determine the alignment of Assurance Program proposed reviews to key project milestones defined by the CHESS Replacement Project. We have compared the activities included in the ASX Assurance Program against project milestones to determine whether they have been scheduled at the right time in alignment to when the associated project risks are more relevant, so the reviews are executed at the right time to provide the assurance inputs expected:

No	Milestone	ASX Assurance Program Connected Reviews	ASX Assurance Program Coverage – assessment outcome
		Delivery Processes: Requirements and design processes	Covered
		Delivery Processes: ASX Delivery Assurance Inflight Review 1	
		Change, Readiness and Implementation Processes: Industry consultation processes (Release 1 and Release 2)	Covered
		Delivery Processes: Release 1 ASX Industry Test Approach and planning	Covered
		Delivery Processes: Requirements and design processes	Covered
		Delivery Processes: ASX Delivery Assurance Inflight Review 1	
		Delivery Processes: Requirements and design processes	Covered
		Technical Solution: Resiliency review (Part 1: design review and test approach / plan)	
		Technical Solution: Performance and scalability review (Part 1: design review and test approach / plan)	
		Technical Solution: System security requirements review (Part 1: security design review)	
		Technical Solution: CHESS replacement application review – design effectiveness	
		Delivery Processes: ASX test policy and standards assessment for Release 1 (Stage 1: Test strategy and test planning activities)	Covered
		Technical Solution: Review of Proof of Technology (PoT) activities	Covered
		Delivery Processes: Requirements and design processes	Covered
		Delivery Processes: Release 1 ASX Industry Test Approach and planning	Covered
		Delivery Processes: Data migration processes (Part 1: migration strategy including test approach, control requirements and design, data ownership)	Covered
		Project Governance and Project Management: Project Health Check 1	Covered
		Change, Readiness and Implementation Processes: Industry consultation processes (Release 1 and Release 2)	Covered
		Delivery Processes: Requirements and design processes	Covered
		Delivery Processes: ASX test policy and standards assessment for Release 1 (Stage 2: Test plans and test execution activities)	Covered
		Delivery Processes: Data migration processes (Part 1: migration strategy including test approach, control requirements and design, data ownership)	Covered
		Delivery Processes: ASX test policy and standards assessment for Release 1 (Stage 2: Test plans and test execution activities)	Covered

No	Milestone	ASX Assurance Program Connected Reviews	ASX Assurance Program Coverage – assessment outcome
		Technical Solution: System security requirements review (Part 2: validation of security requirements implementation in industry test environment)	Covered
		Technical Solution: Platform Penetration testing (Part 1: against Industry test environment)	
		Technical Solution: Cloud Platform (Part 2: requirements, design and test approach / plan for cloud services, environments and cloud controls for the CHESS Replacement solution	
		Delivery Processes: Data migration processes (Part 2: progress, test activities and results)	Covered
		Technical Solution: System security requirements review (Part 2: validation of security requirements implementation in industry test environment)	Covered but Operational and Technology Controls reviews are currently not scheduled. The Operational and Technology Controls reviews were excluded from the current ASX Assurance Program which was discussed in the CHESS Replacement PAF whereby the plan and timing of these assurance activities will be revisited in the next annual review of the ASX Assurance Program to be performed in 2025. We will assess these in our next reports.
		Processes and Controls: Release 1 Business process risk and control assessment process	
		Technical Solution: CHESS replacement application review - operating effectiveness	
		Technical Solution: Resiliency review (Part 2: operating effectiveness review evidenced through non-functional test results)	
		Technical Solution: Performance and scalability review (Part 2: operating effectiveness review evidenced through non-functional test activities and results)	
		Technical Solution: Platform Penetration testing (Part 2: against Production environment)	
		Technical Solution: System security requirements review (Part 3: validation of security requirements implementation in production environment)	
		Technical Solution: Cloud Platform (Part 3: operational effectiveness and operational readiness)	
		Data migration processes (Part 2: progress, test activities and results)	Covered
		Change, Readiness and Implementation Processes: Release 1 industry readiness activities	Covered but Operational and Technology Controls, and Organisational Change Management reviews are currently not scheduled. The Operational and Technology Controls reviews were excluded from the current ASX Assurance Program which was discussed in the CHESS Replacement PAF whereby the
		Change, Readiness and Implementation Processes: Incident playbook review (Part 1: define and plan activities)	
		Change, Readiness and Implementation Processes: Incident playbook review (Part 2: testing activities) (Part 3: tbc industry test activities)	
		Change, Readiness and Implementation Processes: Cutover and support processes	
		Change, Readiness and Implementation Processes: Release 1 readiness review	

No	Milestone	ASX Assurance Program Connected Reviews	ASX Assurance Program Coverage – assessment outcome
			plan and timing of these assurance activities will be revisited in the next annual review of the ASX Assurance Program to be performed in 2025.
			Refer to assessment outcome in Appendix C *Assessment outcome against EY's Program Risk Management 'Cube' methodology* regarding G5 - Organisational Change management.
			We will assess these in our next reports.

Appendix G   Assessment outcome against external review report recommendations

The objective of this mapping is to determine at a high level how the Assurance Program proposed reviews cover the risks associated to the external review report recommendations in the context of the current phase of the CHESS Replacement Project. We have reviewed the recommendations included in the external review report to determine whether the risks that these recommendations are aiming to address have been considered in the design of the ASX Assurance Program. The mapping below performed is not intended to map in detail the recommendations, the corresponding ASX actions, and the completed or ongoing assurance reviews outside of the ASX Assurance Program to conclude on whether these specific actions have been addressed.

ASX has reported that the implementation of the actions to address all external review report recommendations are the subject of independent external assurance that has either been completed as part of the 'Define and Plan' Phase review (December 2023) or via ███████████████ ████████████████████ due to be completed in Q3 of the Calendar Year 2024.

External Review Report Recommendations	ASX Assurance Program Connected Reviews	ASX Assurance Program Coverage – assessment outcome
Solution design		
R14	Project Health Checks 1, 2 and 3	Covered
R15	Requirements and Design Process	Covered
R33	Project Health Checks 1, 2 and 3 Release 1 Readiness Review	Covered
R40	Requirements and design processes Review of Proof of Technology (PoT) activities	Covered
R41	Requirements and design processes Review of Proof of Technology (PoT) activities	Covered
R42	Requirements and design processes Review of Proof of Technology (PoT) activities	Covered
R43	Requirements and design processes Review of Proof of Technology (PoT) activities	Covered
R45	Review of Proof of Technology (PoT) activities Resiliency reviews (Parts 1, and 2) Performance and scalability reviews (Parts 1, and 2)	Covered but Operational and Technology Controls reviews are currently not scheduled. Operational and Technology Controls reviews were excluded from the current ASX Assurance Program which was discussed in the CHESS Replacement PAF whereby the plan and timing of these assurance activities will be revisited in the next annual review of the ASX Assurance Program to be performed in 2025.

External Review Report Recommendations	ASX Assurance Program Connected Reviews	ASX Assurance Program Coverage – assessment outcome
		We will assess these in our next reports.
Operating Model		
R06	ASX Delivery Assurance inflight Review 1 Project Health Checks 1, 2 and 3	Covered
R11	ASX Delivery Assurance inflight Review 1 Project Health Checks 1, 2 and 3	Covered but Organisational Change Management is currently not scheduled. Refer to assessment outcome in Appendix C Assessment outcome against EY's Program Risk Management 'Cube' methodology regarding G5 - Organisational Change management.
R26	Release 1 Readiness Review Project Health Checks 1, 2 and 3	Covered but Organisational Change Management is currently not scheduled. Refer to assessment outcome in Appendix C Assessment outcome against EY's Program Risk Management 'Cube' methodology regarding G5 - Organisational Change management.
R39	Project Health Checks 1, 2 and 3 Test Policy and Standards Assessment for Release 1	Covered
Delivery Execution		
R01	Project Health Checks 1, 2 and 3	Covered
R03	Project Health Checks 1, 2 and 3	Covered
R04	Project Health Checks 1, 2 and 3	Covered
R07	Project Health Checks 1, 2 and 3	Covered
R38	Project Health Checks 1, 2 and 3 ASX Delivery Assurance Inflight Review 1	Covered
Standardised Artefacts		
R12	Requirements and Design process Review Project Health Checks 1, 2 and 3	Covered
R22	Project Health Checks 1, 2 and 3	Covered
R29	Project Health Checks 1, 2 and 3	Covered
R31	Project Health Checks 1, 2 and 3	Covered

External Review Report Recommendations	ASX Assurance Program Connected Reviews	ASX Assurance Program Coverage – assessment outcome
R32	Project Health Checks 1, 2 and 3	Covered
R35	Project Health Checks 1, 2 and 3	Covered
R36	Project Health Checks 1, 2 and 3	Covered
Release Management		
R23	Review of Proof of Technology (PoT) activities Resiliency reviews (Parts 1, and 2) Performance and scalability reviews (Parts 1, and 2) System security requirements reviews (Part 1, 2, and 3)	Covered
R25	Project Health Checks 1, 2 and 3	Covered but Organisational Change Management review is currently not scheduled. Refer to assessment outcome in Appendix C Assessment outcome against EY's Program Risk Management 'Cube' methodology regarding G5 - Organisational Change management.
Collaboration Tools		
R10	Project Health Checks 1, 2 and 3	Covered
R19	ASX Test policy and standards assessment for Release 1 Technical solution reviews Project Health Checks 1, 2 and 3	Covered
Delivery Agility		
R09	ASX Delivery Assurance Inflight Review 1	Covered
R16	ASX Delivery Assurance Inflight Review 1	Covered
Quality Engineering		
R17	ASX Test policy and standards assessment for Release 1	Covered
R18	ASX Test policy and standards assessment for Release 1	Covered
R20	Project Health Checks 1, 2 and 3 ASX Test policy and standards assessment for Release 1	Covered
R21	ASX Test policy and standards assessment for Release 1	Covered

External Review Report Recommendations	ASX Assurance Program Connected Reviews	ASX Assurance Program Coverage – assessment outcome
	Project Health Checks 1, 2 and 3	
R44	ASX Test policy and standards assessment for Release 1 Resiliency reviews (Parts 1, and 2) Performance and scalability reviews (Parts 1, and 2)	Covered
Ways of Working		
R27	Release 1 Readiness Review Project Health Checks 1, 2 and 3	Covered but Organisational Change Management reviews is currently not scheduled. Refer to assessment outcome in Appendix C Assessment outcome against EY's Program Risk Management 'Cube' methodology regarding G5 - Organisational Change management.
R28	Release 1 Readiness Review Project Health Checks 1, 2 and 3	Covered but Organisational Change Management review is currently not scheduled. Refer to assessment outcome in Appendix C Assessment outcome against EY's Program Risk Management 'Cube' methodology regarding G5 - Organisational Change management.
Design Maturity		
R37	ASX Test policy and standards assessment for Release 1 Review of Proof of Technology (PoT) activities Resiliency reviews (Parts 1, and 2) Performance and scalability reviews (Parts 1, and 2)	Covered
Product Ownership		
R24	Cutover and support processes	Covered
Reporting		
R02	Project Health Checks 1, 2 and 3	Covered
R08	Project Health Checks 1, 2 and 3	Covered
R13	Project Health Checks 1, 2 and 3	Covered
R30	Project Health Checks 1, 2 and 3	Covered
R34	Project Health Checks 1, 2 and 3	Covered

Appendix H Assessment outcome against trade outage independent expert review recommendations

The objective of this mapping is to determine at a high level how the Assurance Program proposed reviews cover the risks associated to the trade outage independent expert review recommendations in the context of the CHESS Replacement Project. We have compared the CHESS Replacement relevant items from the trade outage independent expert review recommendations against the ASX Assurance Program reviews. The assessment outcome is based on the high-level topics described in the ASX Assurance Program as detailed scope of each assurance activity has not been finalised at this stage.

Independent Expert Recommendation Domain	Independent Expert Recommendation Reference	ASX Assurance Program Connected Reviews	ASX Assurance Program Coverage – assessment outcome
Risk Culture	1.1.1	Project Health Checks 1, 2 and 3	Covered
Project Risk Pre-Delivery Activities	1.2.1	Project Health Checks 1, 2 and 3	Covered
	1.2.2	Project Health Checks 1, 2 and 3	Covered
	1.2.3	Project Health Checks 1, 2 and 3	Covered
	1.2.4	Project Health Checks 1, 2 and 3	Covered
	1.2.5	Project Health Checks 1, 2 and 3	Covered
Project Risk and Issue Delivery Activities	1.3.1	Project Health Checks 1, 2 and 3; Business process risk and control assessment process	Covered
	1.3.2	Project Health Checks 1, 2 and 3	Covered
	1.3.3	Project Health Checks 1, 2 and 3	Covered
	1.3.4	Project Health Checks 1, 2 and 3	Covered
	1.3.5	Project Health Checks 1, 2 and 3	Covered
	1.3.6	Project Health Checks 1, 2 and 3	Covered
	1.3.7	Release 1 Readiness Review	Covered
	1.3.8	Project Health Checks 1, 2 and 3	Covered
	1.3.9	Project Health Checks 1, 2 and 3	Covered
Project Related Customer Interactions	1.4.1	Project Health Checks 1, 2 and 3; 2024 Industry Consultation processes	Covered
Project Governance	2.1.1	Project Health Checks 1, 2 and 3	Covered
	2.1.2	Project Health Checks 1, 2 and 3	Covered
	2.1.3	Project Health Checks 1, 2 and 3	Covered
	2.1.4	Project Health Checks 1, 2 and 3	Covered
Project Pre-Delivery Practices	3.1.1	Project Health Checks 1, 2 and 3	Covered
	3.1.2	Project Health Checks 1, 2 and 3; Release 1 Post Implementation Review	Covered
	3.1.3	Project Health Checks 1, and 3	Covered
Project Delivery Practices	3.2.1	Project Health Checks 1, 2 and 3	Covered
	3.2.2	ASX test policy and standards assessment for Release 1 (Stage 1, 2, and 3)	Covered
	3.2.3	ASX Delivery Assurance Inflight Review 1	Covered
	3.2.4	Project Health Checks 1, 2 and 3	Covered
	3.2.5	Project Health Checks 1, 2 and 3	Covered
	3.2.7	Project Health Checks 1, 2 and 3; Release 1 Readiness Review	Covered

Independent Expert Recommendation Domain	Independent Expert Recommendation Reference	ASX Assurance Program Connected Reviews	ASX Assurance Program Coverage – assessment outcome
ASX Requirements Maintenance	4.1.1	Requirements and design processes	Covered
Technology Vendor Management Practices	5.1.1	Project Health Checks 1, 2 and 3	Covered
	5.1.2	Project Health Checks 1, 2 and 3	Covered
ASX Test Culture	6.1.2	ASX test policy and standards assessment for Release 1 (Stage 1, 2, and 3)	Covered
	6.1.3	ASX test policy and standards assessment for Release 1 (Stage 1, 2, and 3)	Covered
ASX Test Methods and Technology	6.2.1	ASX test policy and standards assessment for Release 1 (Stage 1, 2, and 3)	Covered
	6.2.2	ASX test policy and standards assessment for Release 1 (Stage 1, 2, and 3)	Covered
ASX Test Policy Uplift	6.3.2	ASX test policy and standards assessment for Release 1 (Stage 1, 2, and 3)	Covered
	6.3.3	ASX test policy and standards assessment for Release 1 (Stage 1, 2, and 3)	Covered
ASX Test Planning	6.4.1	ASX test policy and standards assessment for Release 1 (Stage 1, 2, and 3)	Covered
	6.4.2	Release 1 ASX Industry Test Approach and planning	Covered
	6.4.3	Release 1 industry readiness activities	Covered
	6.4.4	Resiliency reviews (Part 1: design review and test approach / plan); Resiliency review (Part 2: operating effectiveness review evidenced through non-functional test results)	Covered
	6.4.5	ASX test policy and standards assessment for Release 1 (Stage 1, 2, and 3); CHESS replacement application review - design effectiveness; CHESS replacement application review - operating effectiveness	Covered
	6.4.6	ASX test policy and standards assessment for Release 1 (Stage 1, 2, and 3)	Covered
	6.4.7	ASX test policy and standards assessment for Release 1 (Stage 1, 2, and 3)	Covered
	6.4.8	ASX test policy and standards assessment for Release 1 (Stage 1, 2, and 3)	Covered
ASX Test Quality Metrics	6.5.1	ASX test policy and standards assessment for Release 1 (Stage 1, 2, and 3)	Covered
	6.5.2	ASX test policy and standards assessment for Release 1 (Stage 1, 2, and 3)	Covered
	6.5.3	Requirements and design processes; ASX test policy and standards assessment for Release 1 (Stage 1, 2, and 3)	Covered
	6.5.4	ASX test policy and standards assessment for Release 1 (Stage 1, 2, and 3)	Covered
Conformance Test Planning	6.7.1	Release 1 ASX Industry Test Approach and planning; Release 1 industry readiness activities	Covered
Incident Management Activities	7.1.1	Resiliency review (Part 1: design review and test approach / plan); Resiliency review (Part 2: operating effectiveness review evidenced through non-functional test results); Incident playbook review (Part 1: define and plan activities); Incident playbook review (Part 2: testing activities; Part 3: tbc industry test activities)	Covered

Appendix I   Assessment outcome against previous Assurance Program reviews

The objective of this mapping is to determine at a high level how the Assurance Program proposed reviews cover the topics and risks associated to the findings of prior Assurance Program reviews in the context of the CHESS Replacement Project. We have compared the findings and/or recommendations raised in the ASX Assurance Program of the previous solution against the current ASX Assurance Program proposed reviews:

Previous assurance program reviews				ASX Assurance Program Connected Reviews	ASX Assurance Program Coverage – assessment outcome
Ref	Review	Comp. Date	Total findings		
1.	Project health check	Nov-19	27	Project Health Check 1, 2 and 3 Delivery Processes reviews Release 1 Readiness Review	Covered
2.	Project Replan	Sep-20	6	Project Health Check 1, 2 and 3 Delivery Processes reviews Test Policy and Standards Cloud Platform reviews Resiliency reviews Performance and scalability reviews System security reviews	Covered
3.	Project health check	May-21	7	Project Health Check 1, 2 and 3 Requirements and design Cutover and support	Covered
4.	Trade Outage Review Recommendations – Self Assessment	Oct-21	51	This has been superseded by review #5.	
5.	Trade Outage Review Recommendations – Independent Assessment	Dec-21	20	Refer to Appendix H Assessment outcome against trade outage independent expert review recommendations	
6.	Assurance Program Design	Feb-22	3	Refer to Appendix J Assessment outcome against previous license conditions report	
7.	Assurance Program Design Update	Jun-22	4	Refer to Appendix J Assessment outcome against previous license conditions report	
8.	Assurance Program Design Update	Dec-22	11	Refer to Appendix J Assessment outcome against previous license conditions report	
9.	Testing approach review (Note 1)	Apr-21	NA	This was not a formal review but involved third-party resources working with ASX to advise and update the test approach.	Covered. This will be covered by ASX test policy and standards assessment for Release 1 reviews.
10.	Security design review	May-21	3	System Security Requirements Review Penetration testing	Covered
11.	Security Test (Pre-ITE1)	Mar-22	Defects tracked separately	Penetration testing	Covered
12.	Security Assurance Review (ITE2)	Aug-22	Defects tracked separately	Penetration testing	Covered
13.	Identity and Access Management	Jun-21	External to Program – tracked separately	Project Health Check 1, 2 and 3	Covered
14.	Identity and Access Management (ITE2)	Jun-22	NA	Project Health Check 1, 2 and 3	Covered

Previous assurance program reviews				ASX Assurance Program Connected Reviews	ASX Assurance Program Coverage – assessment outcome
Ref	Review	Comp. Date	Total findings		
15.	Technology controls review	Sep-21	19	CHESS replacement application review – design effectiveness CHESS replacement application review – operating effectiveness	Covered but Technology Controls review is currently not scheduled. Refer to outcome assessment in Appendix E Assessment outcome against project enablers and capabilities/epics for CP016 regarding Technology Controls review.
16.	Operations controls review	Sep-21	inc above	CHESS replacement application review – design effectiveness CHESS replacement application review – operating effectiveness	Covered but Operational Controls review is currently not scheduled. Refer to outcome assessment in Appendix E Assessment outcome against project enablers and capabilities/epics for CP001 regarding Operational Controls review.
17.	Data Migration Review	Dec-21	9	ASX Delivery Assurance Inflight Review 1 Data migration	Covered
18.	Security Design Review	Oct-22	6	Project Health Check 1, 2 and 3 System Security Requirements Review	Covered

Appendix J   Assessment outcome against previous license conditions report

The objective of this mapping is to determine at a high level how the ASX Assurance Program proposed reviews cover the risks associated to the findings of previous license conditions and related reports in the context of the CHESS Replacement Project.

We have reviewed the recommendations from the previous license condition reports and assessed whether these were considered in producing the current ASX Assurance Program, determining the coverage of risks associated to the recommendations raised.

Report Name	Number of Recommendations	ASX Assurance Program Coverage – assessment outcome
Independent assessment of ASX's Assurance Program for its Implementation of the CHESS Replacement Project Design Report	3	Covered The ASX Assurance Program addressed the recommendations as follows: • For each planned assurance activity, the review topics to be covered is outlined in the ASX Assurance Program and mapped to related Project milestones. • The CHESS Replacement Project Assurance Forum (PAF) is the key governance forum that provides oversight of the ASX Assurance Program. It was also observed that the ASX Assurance Program is to be reviewed at least on an annual basis.
Independent assessment of ASX's Assurance Program for its Implementation of the CHESS Replacement Project Six Monthly Progress Report June 2022	2	Covered The Release 1 Readiness review in the ASX Assurance Program covers the recommendation regarding precision of technical criterion and improvement of go-live reporting to support the go/no go decision. The other recommendation relates to utilising common risk rating scale, improvement in validation process for the closure of findings, and tracking of defects by other teams which are related to the delivery of the ASX Assurance Program, which we will assess in future reports. We have observed that dependency management has been built into the ASX Assurance Program activities (i.e., Cloud Platform Part 1) and will be continuously assessed through the Project Health Checks 1,2, and 3. Furthermore, the Senior Program Manager Assurance, CHESS Replacement, attends the CHESS Replacement Project increment planning sessions to gain visibility of any other programs or initiatives that might impact CHESS Replacement.
Independent assessment of Accenture Australia Pty Ltd's Statement of Work (SoW) 6 October 2022	6	Covered but Operational Controls review is currently not scheduled. We have assessed the topics and risks related to the 6 recommendations made to determine at a high level how those are covered by the reviews scheduled by the Assurance Program: • Recommendation #1: Review of historical architectural decision.

Report Name	Number of Recommendations	ASX Assurance Program Coverage – assessment outcome
		ASX Assurance Program Connected Activity: Review of Proof of Technology (PoT) activities; Project Health Checks 1,2, and 3; Requirements and Design processes. • Recommendation #2: Expand scope of review to confirm and validate operational controls built into CHESS. ASX Assurance Program Connected Activity: CHESS Replacement application review – Design effectiveness; CHESS Replacement application review – Operating effectiveness (pre-go live); Release 1 Business process risk and control assessment process. Refer to assessment outcome in Appendix E Assessment outcome against project enablers and capabilities/epics for CP001 regarding Operational Controls review. • Recommendation #3: Review vendor contract to determine that there are no conditions that could impede the delivery and support for the CHESS application. ASX Assurance Program Connected Activity: Project Health Checks 1,2, and 3; Release 1 Readiness review; Cutover and support processes. • Recommendation #4: Expand scope of review to include detailed review of post go-live operating model. ASX Assurance Program Connected Activity: Release 1 Readiness Review; Cutover and support processes. • Recommendation #5: Validate the sufficiency of current and future security reviews. ASX Assurance Program Connected Activity: System security requirements review Parts 1,2, and 3; Platform Penetration testing Parts 1 and 2. • Recommendation #6: Expand scope of to include considerations for the ability to either engage alternative solutions and how much of the current delivery could be reused. ASX Assurance Program Connected Activity: Project Health Checks 1,2, and 3; Review of Proof of Technology (PoT) activities.
Independent assessment of ASX's Assurance Program for its Implementation of the CHESS Replacement Project Six Monthly Progress Report December 2022	1	• The recommendation relates to partially closed item from the June 2022 six monthly progress report regarding tracking of defects by other teams. Refer to the details above for our assessment.
Independent assessment of ASX's Assurance Program for its Implementation of the CHESS Replacement Project Six Monthly Progress Report	Nil	N/A

Report Name	Number of Recommendations	ASX Assurance Program Coverage – assessment outcome
June 2023		
Independent assessment of ASX's Assurance Program for its Implementation of the CHESS Replacement Project Fourth Six Monthly Progress Report 31 December 2023	Nil	N/A No recommendations raised in the report however, it was indicated that we will re-examine how the closure of the 8 findings was addressed in the new ASX Assurance Program. The 8 findings relate to the following: • 1 partially closed finding from the December 2022 six monthly progress report. Refer to the details above for our assessment. • 5 findings from the Trade Outage Review recommendations. Refer to Appendix H for the outcome of our assessment. • 2 findings from the review of the Statement of Work related to the external CHESS Replacement Application Delivery Review. Refer to assessment outcome above for the Independent assessment of Accenture Australia Pty Ltd's Statement of Work (SoW).

Appendix K   Assessment outcome against ASX CHESS Replacement Project 'Define & Plan' phase Final Report
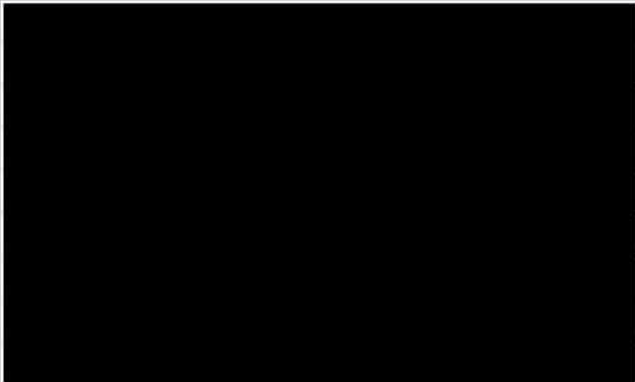
The objective of this mapping is to determine at a high level how the Assurance Program proposed reviews cover the ongoing risks associated to those raised and closed during the 'Define and Plan' review.

We have compared the ASX Assurance Program activities against the risks identified in the ASX CHESS Replacement Project 'Define & Plan' phase Final Report. The assessment outcome is based on the high-level topics described in the ASX Assurance Program as detailed scope of each assurance activity has not been finalised at this stage.

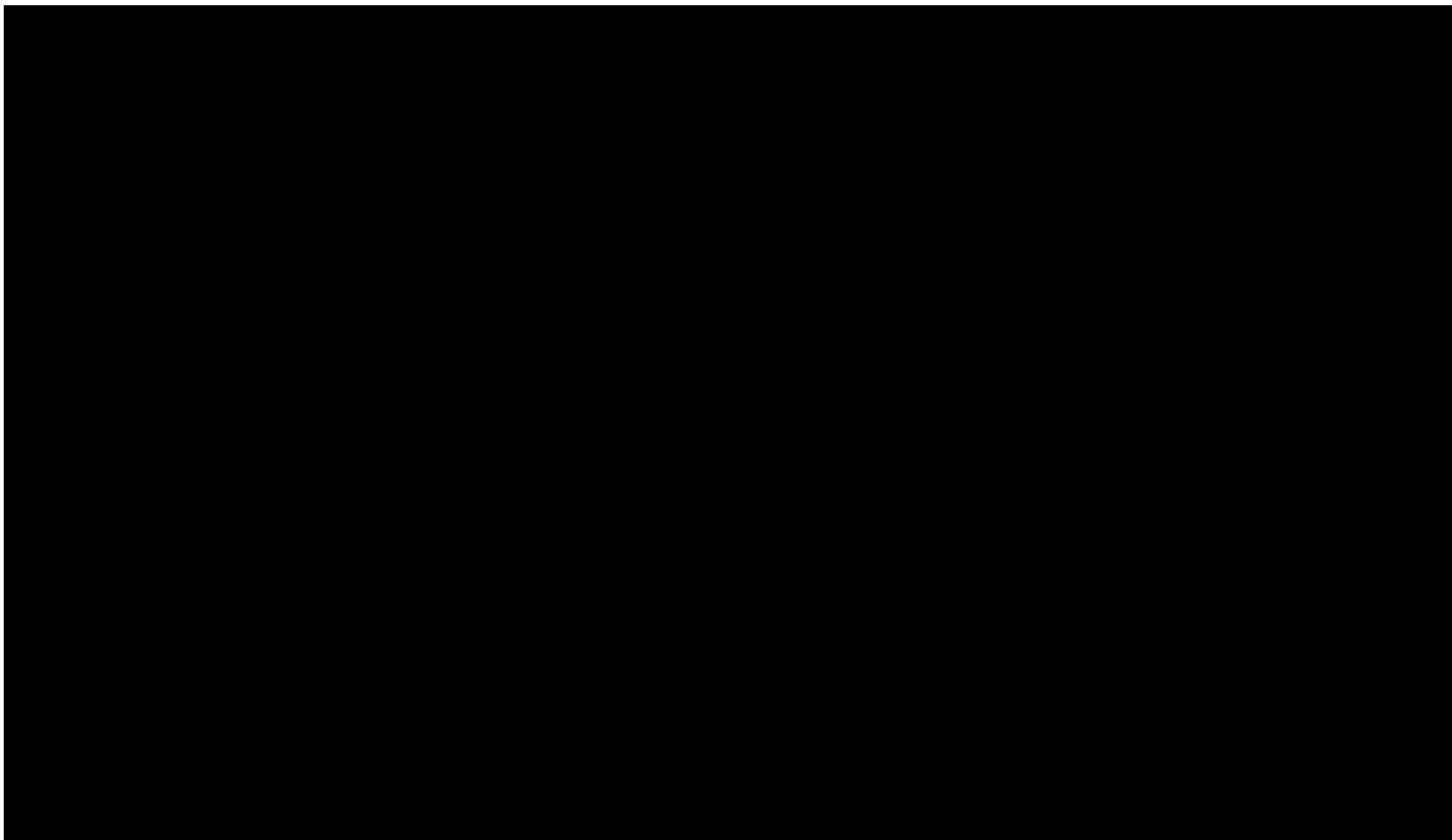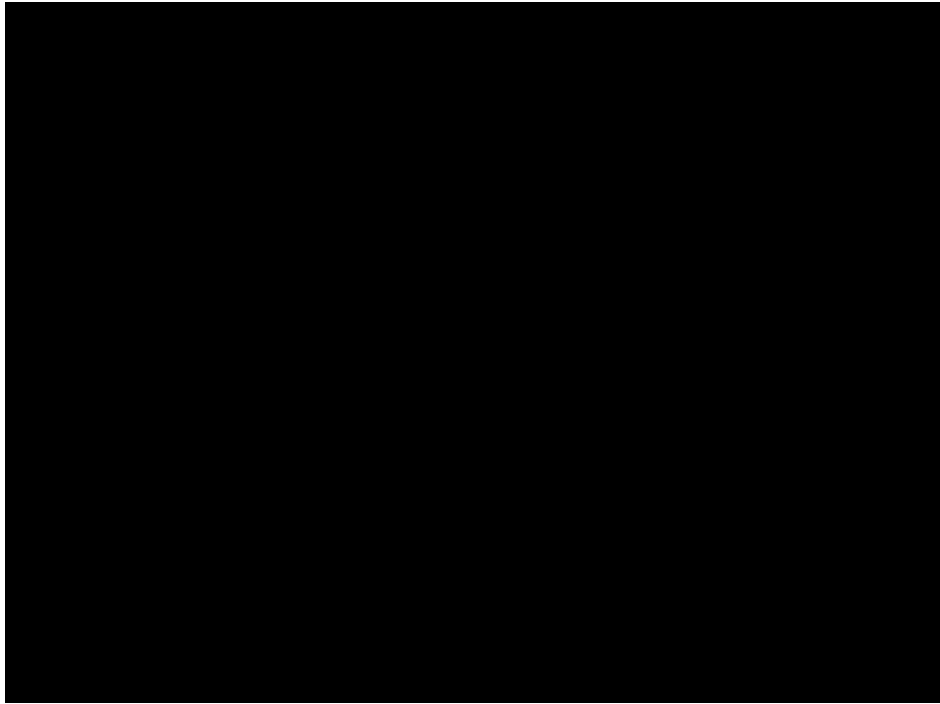| Scope area	Number of risks raised and closed during the review	ASX Assurance Program Connected Reviews	ASX Assurance Program Coverage – assessment outcome
Deliverability of the 'Define & Plan' phase	7	Project Health Checks 1, 2 and 3; ASX Delivery Assurance Inflight Review 1; Requirements and Design Process; Release 1 ASX Industry Test Approach and planning; 2024 Industry Consultation processes	Covered
Robustness of the vendor and product selection process	12	N/A	N/A. The ASX Assurance Program activities commenced after the vendor and product has been selected.
Review of key CHESS R project deliverables and process	24	Cutover and support processes; Release 1 readiness review; Requirements and Design Process; Project Health Checks 1, 2 and 3; Industry Consultation Process (Release 1 and 2); Release 1 industry readiness activities	Covered but organisational change management (OCM) review is currently not scheduled. 6 of the 24 risks raised and closed relate to OCM. Refer to assessment outcome in Appendix C Assessment outcome against EY's Program Risk Management 'Cube' methodology regarding G5 - Organisational Change management.
Deliverability of the proposed solution and model	5	Review of Proof of Technology (PoT) activities; Project Health Checks 1, 2 and 3	Covered
Implementation of CHESS R Actions relating to CHESS R External Review recommendations (November 2022)	1 partially addressed action (not due)	Project Health Checks 1, 2 and 3; ASX test policy and standards assessment for Release 1 (Stage 1, 2, and 3)	Covered

Appendix L   Interview list

The below table outline the interviews conducted with internal and external stakeholders:

Interview list		
Stakeholder Group	**Role**	**Date of interview**
ASX Assurance Program governance members, accountable and responsible executives	████████████████████	5 June 2024
		Various meetings
CHESS Replacement governance members, accountable and responsible executives		17 June 2024
		18 June 2024
		7 June 2024
		4 June 2024
		4 June 2024
		13 June 2024
ASX Assurance Program assurance providers		4 June 2024
CHESS Replacement third party service providers	Accenture Delivery Lead	13 June 2024
	TCS Delivery Lead	13 June 2024
Voice of the customer	Business Committee Chair	11 June 2024
	Technical Committee Chair	7 June 2024
	Advisory Group Chair	7 June 2024

For the purpose of the design report, inputs from industry participants (voice of the customer) were obtained through the meetings with the Business Committee Chair, and the Technical Committee Chair, as well as the review of non-confidential submissions to ASX's CHESS Replacement: Consultation Paper on Staged Implementation Approach and Implementation of Release 1 (Clearing Services), and of public submissions to Parliamentary Joint Committee on Corporations and Financial Services - Inquiry into Oversight of ASIC, the Takeovers Panel and the Corporations Legislation.

Appendix M   Documents reviewed

ASX Limited

Independent assessment of ASX's Assurance Program for the CHESS Replacement Project

Design Report

Appendix N   Release Notice

Ernst & Young ("**EY**") was engaged on the instructions of ASX Operations Pty Ltd ("ASX", "Client" or "you") to conduct an Independent Assessment of the CHESS Replacement Assurance Program ("**Project**"), in accordance with the engagement agreement dated 19 April 2024 including the General Terms and Conditions ("the **Engagement Agreement**").

The results of EY's work, including the assumptions and qualifications made in preparing the report, are set out in EY's report dated 28 June 2024 ("**Report**"). ASX and ASX's regulators ASIC and the RBA, should read the Report in its entirety including any disclaimers and attachments. A reference to the Report includes any part of the Report. No further work has been undertaken by EY since the date of the Report to update it.

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2.   EY disclaims all liability in relation to any other party who seeks to rely upon the Report or any of its contents.

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