

Independent Expert Report

Independent assessment of ASX's
Assurance Program for its
Implementation of the CHES
Replacement Project

Third Six Monthly Progress Report

30 June 2023

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1. Executive Summary

Introduction

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

ASX has developed an Assurance Program in connection with the CHES Replacement Project, with the purpose of providing confidence to internal and external stakeholders and assisting in ensuring that the project meets its objectives.

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.

Scope

In accordance with the relevant Licence Conditions, ASX, with ASIC's and the RBA's consent, engaged EY to assess ASX's Assurance Program for its implementation of the CHES Replacement Project and oversee the implementation of any remedial actions from the trade outage independent expert review recommendations which are relevant to the CHES Replacement Project.

On 28 February 2022, we issued our first report on the design assessment of the Assurance Program to determine whether it was fit for purpose, identifying any topics that required further independent assessment and any remedial actions. Subsequently, we issued our second and third reports (30 June 2022 and 31 December 2022), providing an update on the previous reports issued and outlining the findings and recommendations resulting from our assessment of remedial actions from completed assurance reviews and the trade outage recommendations.

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This is our fourth independent expert report under the Licence Conditions and third six-monthly progress report.

The objective of this report is to provide an update on the status of the remedial actions from the 31 December 2022 Report and the progress of completed assurance activities in the period. This report also includes an update on the trade outage independent expert review recommendations relevant to the CHES Replacement Project. Refer to section 2.2 for scope details.

Key events in the period

- **CHES Replacement Project paused and project reset commenced.** Previously, ASX had announced in May 2022 delays to the expected delivery and replanning activities, leading to the commission of an independent review of the CHES Replacement application in August 2022, which provided 45 recommendations to be addressed by ASX. In November 2022, ASX announced that the activities on the CHES Replacement Project had been paused due to significant challenges with the solution design and its ability to meet ASX's and market requirements. Consequently, the reviews that had been planned under the CHES Replacement Assurance Program on the prior project were put on hold and the focus of the Assurance Program turned to the planning activities for a review over the solution design phase (refer to the assessment of the "Define and Plan" phase below). ASX commenced a project reset, appointing a new Project Director and going back to a solution design stage to re-assess all options for CHES replacement.
- **CHES Replacement Technical Committee established and Solution Design commenced.** In January 2023, ASX established the CHES Replacement Technical Committee to engage with industry stakeholders. Project work streams were established and delivery plan for the design phase agreed. Four solution types are being considered by ASX for the solution design decision: i) Fix CHES

Replacement; ii) Build Custom Solution; iii) Product based solution and iv) Iterate over legacy CHES.

With the objective of exploring the product-based solution option above, a RFI (Request for Information) was released in February 2023, and following the evaluation of responses, a RFP (Request for Proposal) was issued in April 2023.

- **CHES Replacement Program Assurance Forum re-established.** The CHES Replacement Program Assurance Forum (PAF) resumed its monthly meetings in March 2023, with revised Terms of Reference. Focus has been placed on oversight of the review of the “Define and Plan” phase of the CHES Replacement Project, re-baselining and oversight of open findings from previous reviews, as well as the status and progress of actions to remediate findings from the external independent review of the CHES Replacement application completed in November 2022.
- **Independent assessment of the “Define and Plan” phase of the CHES Replacement Project.** ASX engaged EY to independently assess the “Define and Plan” phase of the CHES Replacement Project. As agreed with ASX and the regulators, the purpose of this review is to assess whether ASX adopted and followed an appropriate and robust process for selecting a solution and supplier(s) for the delivery of CHES replacement.

EY’s review of the “Define and Plan” phase commenced in February 2023 and is currently in progress concurrent to project activities. A separate public report will be issued outlining any findings and recommendations at the end of the “Define and Plan” phase. We expect the CHES Replacement Assurance Program to oversee the tracking and remediation of findings, with EY validating that remediation activities taken by ASX are satisfactory to address the recommendations raised prior to ASX’s closure of findings. Our future six-monthly reports will assess the closure of any open findings and recommendations included in the final report of the “Define and Plan” phase review.

Considering that the reviews that had been planned under the Assurance Program on the prior project were put on hold with the pause in the CHES Replacement project, no assurance reviews have been completed since our last six-monthly report.

Once the solution design is approved, ASX will update the Assurance Program accordingly in consideration of new defined project milestones and timelines. We will perform a refreshed design assessment over the updated CHES Replacement Assurance Program.

Summary findings and recommendations

Our assessment was limited to the activities completed in the period under review, as outlined below:

- ▶ **31 December 2022 Assessment Update** - We had one Partially Closed finding in our December report, which relates to the tracking of remedial actions managed by other teams and other projects. As agreed at the CHES Replacement Program Assurance Forum, ASX will re-examine this action for closure or re-baselining after the solution option decision.
- ▶ **Assessment of the remedial actions from completed assurance reviews** - Out of the 12 findings that have been closed since our 31 December report, 11 of them are related to completed assurance reviews. We found that for those 11 findings, the artefacts captured to demonstrate the closure of the remedial actions were sufficient to satisfy the Assurance Program’s closure requirements.
- ▶ **Assessment of the remedial actions from the trade outage Independent Expert review recommendations** - Out of the 12 findings that have been closed since our 31 December report, 1 of them is related to the trade outage Independent Expert review recommendations. We found that the artefacts captured to demonstrate the closure of the remedial actions were sufficient to satisfy the Assurance Program’s closure requirements. In addition, 9 management actions related to the trade outage Independent Expert review recommendations are still open and have been re-

baselined in the context of the new CHES Replacement Project. We will review their closure in our future six-monthly reports, when actioned by ASX.

- ▶ **Assessment of the re-baseline of due dates for the open findings from completed assurance reviews** - Open findings have been re-baselined in the context of the "Define and Plan" phase of the CHES Replacement Project. The re-baselining approach and outcomes were approved by the CHES Replacement Program Assurance Forum on 30 March 2023. We have evaluated the re-baseline approach and outcomes and did not identify any significant findings.

Next steps

Our next report under the Licence Condition is due on 31 December 2023.

We will re-assess the refreshed assurance program using the 'EY Cube' methodology, which supports the analysis of program risk coverage across three interrelated domains (Program Governance, Project Management and Technical Solution) to assess whether it is fit for purpose for the updated Replacement Project.

We will also cover any update on the implementation of any remedial actions from the completed assurance activities.

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

2. Introduction

2.1 Background

CHES Replacement Project

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

CHES Replacement Project Pause and Reset

On 17 November 2022, ASX announced that current activities on the project have been paused due to significant challenges with the solution design and its ability to meet ASX's and market requirements. The announcement outlined that ASX will reassess all aspects of the CHES replacement project following completion of independent review of the CHES Replacement application and its own internal assessment.

ASX commenced the reset of the project, appointing a new Project Director and going back to a solution design stage to re-assess all potential options for CHES replacement, work which is currently in progress. ASX has established a new industry forum "CHES Replacement Technical Committee" as a new channel to engage with industry stakeholders on CHES Replacement.

On 20 March 2023, ASX commissioned an independent review of the "Define and Plan" phase of the CHES Replacement Project to assess whether an appropriate and robust process was performed for selecting a solution and supplier(s) for the delivery of CHES Replacement.

CHES Replacement Project Assurance Program

With the announcement of the pause of the CHES Replacement Project in November 2022, the reviews that had been planned under the Assurance Program on the prior project were put on hold. The Assurance Program was not paused but turned its focus towards the planning activities for the review of the "Define and Plan" phase of the CHES Replacement Project.

With the project reset and while the new solution design assessment is completed, the Program Assurance Forum (PAF) has been re-established with revised Terms of Reference approved on 30 March 2023. Open findings from prior Assurance Program pre-project pause have been re-baselined to determine its applicability and expected timelines for resolution in the new context.

Considering the outcome of the independent review of the CHES Replacement application completed in November 2022, the current re-assessment of solution design, and the subsequent review of the "Define and Plan" phase, ASX will refresh the Assurance Program with updated areas of focus and timelines for assurance reviews over the CHES Replacement Project.

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 (trade outage independent expert review recommendations).

The combination of the trade outage and the criticality of the CHES 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 Assurance Program on its CHES 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 CHES Replacement Project.

2.2 Scope

EY has been engaged to deliver the following scope of work:

1. In accordance with the relevant Licence Conditions, EY will assess ASX's Assurance Program for its implementation of the CHES Replacement Project and oversee the implementation of any remedial actions from the trade outage independent expert review recommendations which are relevant to the CHES Replacement Project.
2. In addition to the Licence Conditions, ASIC has required a Pre Go-Live Confirmation from EY as to our opinion with respect to:
 - a. The Assurance Program meeting its objectives of:
 - i. The successful replacement of CHES with a system that meets ASX's functional and non-functional requirements, and
 - ii. Promoting confidence to internal and external stakeholders
 - b. The adequacy of ASX's governance framework for testing, and

- c. The design adequacy of the CHES Replacement Project's 'Go-Live' decision framework (which incorporates both the business decision to implement the new system and implementation activity decision check-points over the cut-over weekend) and whether the decision framework has been followed.

Our engagement will deliver the following reports as required by the Licence Conditions and the Pre Go-Live Confirmation:

- ▶ Design Report that was published on 28 February 2022 included an assessment whether the existing Assurance Program is fit for purpose, identifying any topics that required further independent assessment and any remedial actions.
- ▶ Six Monthly Progress Reports, providing a status update of existing remedial actions and identifying any further remedial actions, and updating on implementation of any remedial actions from the trade outage independent expert review.
- ▶ Pre Go-Live report, which will set out the status of any remedial actions and whether they are necessary to be undertaken prior to Go-Live and an update on findings of the totality of the Assurance Program reviews indicating whether the remedial actions from the Design Report and Six Monthly Progress Reports and the relevant trade outage independent expert review recommendations have been appropriately implemented by ASX.
- ▶ Pre Go-Live Confirmation requested by ASIC in addition to the Licence Condition
- ▶ Two Post-Implementation Reviews (PIR)

This document refers to the third Six Monthly Progress Report per the agreed scope of work.

Scope of activities included in this Progress Report

The objective of this Six Monthly Progress Report is to assess the activities completed within the period by the CHES Replacement Assurance Program:

- ▶ **31 December 2022 Assessment Update.** Evaluate the status of the remediation actions associated with the findings raised in the previous six monthly Progress Report and the effectiveness of the change management and governance process of the Assurance Program.
- ▶ **Assessment of the findings from the completed assurance reviews.** Evaluate the status on the implementation of remedial actions arising from completed reviews and assess the adequacy of the validation process undertaken over the closure of those actions.
- ▶ **Assessment of the remedial actions from the trade outage Independent Expert review recommendations.** Evaluate the status on the implementation of any remedial actions from the trade outage Independent Expert review recommendations which are relevant to the CHES Replacement Project.
- ▶ **Assessment of the re-baseline of due dates for the findings from completed assurance reviews.** Evaluate the rationale and approvals for the due dates that have been re-baselined in the context of the “Define and Plan” phase of the CHES Replacement Project.

Scope of activities of EY’s review of the “Define and Plan” phase (to be reported in a separate public report)

ASX engaged EY to independently assess the “Define and Plan” phase of the CHES Replacement Project. As agreed with ASX and the regulators, the purpose of this review is to assess whether ASX adopted and followed an appropriate and robust process for selecting a solution and supplier(s) for the delivery of CHES replacement.

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The review includes the following five key objectives:

1. Define and Plan phase review: evaluate deliverability of the schedule for the “Define and Plan” phase, and whether the breadth of activities are adequate for the nature and expected outcomes of the phase.
2. Robustness of assessment and selection process: evaluate and provide risks, issues and findings regarding the assessment and selection activities and the adherence to an agreed process related to the:
 - (i) evaluation of solution options
 - (ii) evaluation of potential product/solution vendor
 - (iii) evaluation of potential system integration partner (SI).
3. Deliverables review: conduct a quality review of key inputs and outputs aligned to item 2 above, and other key deliverables aligned to the scope of the review, including the business case.
4. Deliverability review: review project management and governance processes for successful delivery, with consideration to the complexity profile, capability and maturity for the proposed solution and proposed delivery model.

The review of governance processes will include reviewing the effectiveness of the strategy, plans and processes in place for engaging with industry stakeholders via the CHES Replacement Technical Committee.

5. Review the implementation of project specific actions due in the “Define and Plan” phase which relates to the independent review of the CHES Replacement application commissioned by ASX in August 2022 and completed in November 2022.

According to the scope agreed with ASX and regulators, a public report with findings and recommendations will be issued at the end of the “Define and Plan” phase. As the work is in progress and will

be reported separately, no details on preliminary findings and recommendations have been included in section 3 of this report. Our future six-monthly reports will assess the closure of any open findings and recommendations included in the final report of the "Define and Plan" phase review.

2.3 Approach

In undertaking our assessment for the delivery of this report, our approach was tailored to the activities completed in the period and the following steps were performed:

1. *Documentation review*: Review and analysis of the CHES Replacement Program Assurance Forum and Strategic Guidance Group (SGG) meetings, minutes and supporting documentation as well as evidence of closure for the findings that have been closed in this period. All documentation was provided to EY by ASX based on a documentation request. A list of documentation reviewed can be found in Appendix D.
2. *Assurance Program Governance meetings*: Meetings were held to understand the status and process of closure of the findings from the completed assurance activities including on-going governance and change management activities in relation to the Assurance Program.
3. *Interviews with key stakeholders*: The review also involved stakeholder interviews to capture additional input to complement the analysis of the documentation provided and inform our understanding. A list of interviews conducted with key stakeholders can be found in Appendix C.

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 CHES Replacement Project and its Assurance Program.
- ▶ Our review of the closure of the remedial actions associated with the completed assurance reviews was limited to assess the due diligence of the process undertaken through the review of the documentation provided by ASX as documented evidence to support the closure. Professional scepticism required that our review of issue closure was based on the artefacts that supported the closure at the time, rather than present day interviews with those involved in historic closures. We did not evaluate the operational implementation and adequacy of the remedial actions.
- ▶ 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 CHES 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.

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 this SOW 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 below are the findings and recommendations from our 30 June 2023 Progress Report which includes our review and update on the 31 December 2022 Report and status update of existing remedial actions from the completed Assurance Reviews, the assessment of remedial actions from the trade outage Independent Expert review recommendations and the assessment of re-baseline of historic findings.

3.1 31 December 2022 Assessment Update

The objective of this area is to evaluate the status of the remediation actions associated with the findings raised in the 31 December 2022 Report and the continued effectiveness of the change management and governance process of the Assurance Program.

Context

Our 31 December 2022 Report considered one finding as Partially Closed and included one recommendation in relation to the clarity over expected timelines for closure of defects arising from assurance reviews.

Findings

ASX's Program Assurance Forum (PAF) on 30 March 2023 agreed that this action would be re-examined for closure or re-baselining after the solution option decision. The previous remedial action has been closed and a new one has been raised under the new project to assess additional reporting over defects from Assurance Reviews for the new CHES Replacement Project. We will follow-up on the closure of this action on our next progress report.

3.2 Assessment of completed assurance reviews

The objective of this area is to evaluate the status of the implementation of remedial actions and assess the adequacy of the validation process undertaken over the closure of the remedial actions arising from completed reviews.

Context - Status and closure of remedial actions

The table below represents the status of existing remedial actions from the completed Assurance Reviews tracked by ASX as of 30 March 2023. Refer to Appendix A for the detailed table outlining the status per assurance review.

Reviews completed as of 30 March 2023	18/44
Total findings to date	166
Findings closed to date	139
Findings transferred to new project ¹	18
Findings to be re-examined for closure or re-baselining after the solution option decision ²	9
Total open findings	27

¹ Findings from completed assurance reviews that could have applicability to the new solution have been transferred to the new CHES Replacement Project and are being tracked by the Assurance Program

² Findings from Security Reviews performed on the previous CHES replacement solution will not be relevant if the previous solution is not the solution option endorsed. These findings will be re-examined for closure or re-baselining after the solution option decision

Defects that were specific to the previous CHES Replacement solution will also be re-examined for closure or re-baselining based on the solution option decision. The re-baselining approach and outcomes were approved by the CHES Replacement Program Assurance Forum on 30 March 2023.

We have independently assessed the process for the closure of management actions linked to the completed assurance activities through the review of relevant artefacts provided by ASX.

The project team closed 12 findings since our December 2022 Report:

- 1 finding from our December 2022 Report (replaced by a new finding raised under the new project to assess additional reporting over defects from Assurance reviews);
- 6 findings related to the Project health check review (closed by ASX as no longer applicable in light of project pause and design re-assessment)
- 1 finding from the Trade Outage Review Recommendations (refer to 4.1.1 on Appendix B)
- 2 findings and 2 clarification items from the review of the SOW related to the independent review of CHES Replacement application (addressed as part of final deliverables and review outcomes produced by the independent reviewer)

Findings - Status and closure of remedial actions

We assessed the relevant artefacts and we did not identify any significant findings on the closure of remediation activities in the period.

3.3 Assessment of the remedial actions from the trade outage Independent Expert review recommendations

The objective of this area is to evaluate the status on the implementation of any remedial actions from the trade outage Independent Expert review recommendations which are relevant to the CHES Replacement Project.

Context

In November 2020, ASX implemented a major upgrade to the Trade platform through the ASX Trade Refresh Project which resulted to a market outage.

As a result, an Independent Expert was commissioned by ASX to conduct a review of the ASX Trade Refresh Project. The Independent Expert report released in June 2021 provided 59 specific recommendations for improvement which ended up in 20 actionable items for the CHES Replacement Project.

Findings

Out of 20 actions, 11 actions have been closed and 9 that remained open have been transferred to the new project and are due to be implemented over the following months.

Out of the 11 closed actions, 8 were evaluated during the 30 June 2022 report, 2 were assessed during the 31 December 2022 report and 1 was assessed in this period as described in section 3.3.

We will assess the status and closure of the 9 open actions in our future six-monthly progress reports. Refer to Appendix B for the status of these 20 items.

3.4 Assessment of the re-baseline of due dates for the findings from completed assurance reviews

The objective of this area is to evaluate the re-baseline of due dates for the findings from completed assurance reviews.

Context

Considering the announcement made in November 2022 and that the CHES Replacement is back to the "Define and Plan" phase, the open findings from completed assurance reviews have been assessed and re-baselined. All open findings were reviewed in the context of the new project and the re-baseline approach and outcomes were approved by the CHES Replacement Program Assurance Forum on 30 March 2023.

Out of the 27 open findings as outlined in section 3.3, 18 have been transferred to the new project and 9 findings will be re-examined for closure or re-baselining, after the solution option decision.

Findings

We assessed the relevant artefacts and found that the re-baselining approach and outcomes have been properly documented and approved. No significant findings have been identified on the re-baselining approach.

We will assess the status and closure of the open actions in our future six-monthly progress reports, as appropriate.

Acknowledging that the CHES Replacement Project is going through significant replanning activities as part of the Define and Plan phase, we recommend that the Program Assurance team should re-examine the findings closed to date to determine whether there is any applicability to the new solution and whether any further actions should be considered and transferred to the new project. This activity should consider the findings closed to date in relation to completed Assurance Reviews and the trade outage Independent Expert review recommendations.

Appendix A Tracking of Assurance reviews by ASX's Assurance Program (as at 30 March 2023)

Ref	Review (responsible executive initials)	Comp. Date	Total findings	Closed findings	Open findings	Awaiting independent validation	Closure due Feb	Closure due March	Closure due 1-3 months (Apr -Jun)	Closure due > 3 months (July on)
1	Project health check	Nov-19	27	27	0		-	-	-	-
2	Project Replan	Sep-20	6	6	0		-	-	-	-
3	Project health check	May-21	7	7	0		-	-	-	-
4	Trade Outage Review Recommendations - Self Assessment	Oct-21	51	51	0		-	-	-	-
5	Trade Outage Review Recommendations - Independent Assessment	Dec-21	20	11	9	Transferred to new project				
8	Assurance Program Design	Feb-22	3	3	0		-	-	-	-
9	Assurance Program Design Update	Jun-22	4	4	0		-	-	-	-
10	Assurance Program Design Update	Dec-22	11	4	7	Transferred to new project				
13	Testing approach review (Note 1)	Apr-21	NA				-	-	-	-
17	Security design review (Note 2)	May-21	3	0	3	To be re-examined for closure or re-baselining after the solution option decision				
18	Security Test (Pre-ITE1)	Mar-22	Defects tracked separately			To be re-examined for closure or re-baselining after the solution option decision				
19	Security Assurance Review (ITE2)	Aug-22	Defects tracked separately			To be re-examined for closure or re-baselining after the solution option decision				
21	Identity and Access Management (Note 3)	Jun-21	External to Program - tracked separately			Removed from ongoing monitoring under the CHES Replacement Assurance Program				
22	Identity and Access Management (ITE2) (Note 4)	Jun-22	NA							
23	Technology controls review	Sep-21	19	19	0		-	-	-	-
27	Operations controls review	Sep-21	inc above	inc above	inc above		inc above	inc above	inc above	inc above
38	Data Migration Review	Dec-21	9	7	2	Transferred to new project				
41	Security Design Review	Oct-22	6	0	6	To be re-examined for closure or re-baselining after the solution option decision				
	Total		166	139	27	0	0	0	0	0

1. Not a formal review but involved third-party resources working with ASX to advise and update the test approach

2. Closure of finding is awaiting independent validation

3. Represents a best practise operational assessment of third-party products in the ASX environment commissioned through a separate CIAM/CSAM project

4. Review was external to Program. Review not specific to the CHES Replacement system.

Findings have no impact to CHES Replacement

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Appendix B Trade outage independent expert review recommendations

Independent Expert Recommendation Reference	Status for CHES Replacement (as at 30 th March 2023)	EY Assessment Result
1.1.1	Closed	Fully Addressed. Evaluated as part of the 30 June 2022 Progress Report.
1.3.4	Closed	Fully Addressed. Evaluated as part of the 30 June 2022 Progress Report.
1.3.6	Closed	Fully Addressed. Evaluated as part of the 31 December 2022 Progress Report.
1.4.1	Closed	Fully Addressed. Evaluated as part of the 30 June 2022 Progress Report.
3.1.1	Closed	Fully Addressed. Evaluated as part of the 30 June 2022 Progress Report.
3.1.2	Closed	Fully Addressed. Evaluated as part of the 30 June 2022 Progress Report.
3.2.1	Closed	Fully Addressed. Evaluated as part of the 30 June 2022 Progress Report.
3.2.7	Closed	Fully Addressed. Evaluated as part of the 31 December 2022 Progress Report.
4.1.1	Closed	Fully Addressed. Evidence has been provided to demonstrate that the team completed the action to backup and restore content residing on third-party sites, with it now residing on ASX sites.
5.1.1	Open	N/A. To be reviewed in future progress reports
5.1.2	Closed	Fully Addressed. Evaluated as part of the 30 June 2022 Progress Report
6.2.1	Open	N/A. To be reviewed in future progress reports.
6.3.2	Open	N/A. To be reviewed in future progress reports.
6.4.3	Open	N/A. To be reviewed in future progress reports.
6.4.4	Open	N/A. To be reviewed in future progress reports.
6.4.6	Open	N/A. To be reviewed in future progress reports.
6.5.1	Closed	Fully Addressed. Evaluated as part of the 30 June 2022 Progress Report.
6.5.3	Open	N/A. To be reviewed in future progress reports.
6.5.4	Open	N/A. To be reviewed in future progress reports.
7.1.1	Open	N/A. To be reviewed in future progress reports.

Appendix C Interview list

The below table outline the interviews conducted with ASX stakeholders:

Interview list	
Role	Date of interview
Chief Risk Officer / Senior Program Manager	Weekly meeting; Interviews on specific topics conducted on 19 May 2023; 25 May 2023; 8 June 2023.

Appendix D Documents reviewed



ASX Limited
Independent assessment of ASX's Assurance Program for its Implementation of the CHES Replacement Project
Third Six Monthly Progress Report



Appendix E 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 CHES Replacement Assurance Program ("Project"), in accordance with the engagement agreement dated 21 December 2021 including the General Terms and Conditions ("the **Engagement Agreement**").

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