

SUMMARY POLICY ISSUE PAPER – FOR EDAG DISCUSSION

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Summary and recommendations

1. This paper describes the proposed testing strategy for the new switching arrangements which will enable gas and electricity consumers achieve faster, more reliable switching. The testing strategy aims to define the overall approach to planning and organising testing and allocating associated roles and responsibilities at a high level.
2. This Testing Strategy will be followed by a more detailed programme level Testing Management Plan which will be produced at the Detailed Level Specification (DLS) phase of the Switching Programme and will define the detailed approach to be taken, entry and exit criteria and individual roles and responsibilities for each test phase outlined in this strategy.
3. The main objectives for this testing strategy are:
 - Defining the purpose, aim, objectives, scope, requirements and risks relevant to testing within the Switching Programme;
 - Defining an overall approach to testing the new switching arrangements, taking into account best practice and any identifying any remaining areas of uncertainty due to ongoing definition of the programme; e.g. the solution architecture and the transition (release) strategy;
 - Identifying proposals for the testing phases for switching and any related options;
 - Identifying key roles and responsibilities for testing during Design, Build and Test (DBT) and any related options for how these could be fulfilled;
 - Defining key interrelationships between testing and other programme activities;
 - Highlighting the need for clear entry and exit criteria for each test phase and the need to consider and prioritise test coverage carefully in light of risk and importance; and

- Defying the key documentation and deliverables that would be expected as the programme progresses through its phases.
- There are many other interdependent areas with testing in the context of the programme, notably: solution architecture/design; transition; data cleanse & migration; governance & assurance. These interdependent areas are still evolving and maturing and so the Testing Strategy cannot be finalised until these interdependent areas have fully matured.

4. Our key recommendations are:

- Test phases are assessed and tailored in relation to specific needs of Switching. A number of formal/non-discretionary test phases are recommended:
 - Pre-Integration Testing
 - Systems Integration Testing
 - Service Integration Testing
 - End-to-End Testing
 - Operational/Service Management Testing
 - Non-functional Testing (for requirements not fully covered by the previous phases)
- A number of informal (discretionary) test phases are also recommended to manage and mitigate risk prior to the formal test phases above, similar to those used for SMIP. These should however be considered as part of a wider 'package' of design de-risking approaches (in line with Agile principles) which will be examined by the System Integration strategy (see paragraph 19 of the main document).
- Testing needs to be aligned with System Integration. We have commenced work on a complimentary System Integration Strategy for switching, which will be delivered as a separate product as part of this workstream.
- This Testing Strategy needs to be an enduring document for use within the programme by all parties. It should be updated again in DLS and periodically thereafter to ensure continued relevance.
- An additional Testing Management Plan should also be developed during DLS which will define the detailed testing approaches for each phase, entry/exit criteria, roles and responsibilities, and reporting.
- Management and execution of testing of solution components (pre-Integration Testing and System Integration Testing if applicable) should be undertaken by the parties responsible for their design and build.
- Cross-party testing (at system and service level interactions) needs to be managed and executed by a suitable, ideally independent, body on behalf of the authority; this should be the System Integrator if one is appointed or another specialist body appointed by the authority.

- Approval and acceptance criteria (for test inputs and outputs) and assurance (of testing process, deliverables) should align with overall governance and assurance proposals for the DBT phase.
 - Further work is needed to understand the potential scope of a market trial in addition to the recommended test phases, and the value that this would add, and whether this should be considered as part of testing or transition.
5. Our questions for consideration at EDAG are:
- Do you agree with our proposed approach to testing?
 - Are there any aspects of this approach that we have missed?

Background and Analysis

6. Version 2 of the TOM established the need for progressive assurance for the Switching Programme through a series of defined test phases, similar to those for the Smart Metering Implementation Programme (SMIP).¹ For this reason, we have not considered a 'do nothing' approach to testing. However, if no or minimal changes to the current switching arrangements are recommended, then this will clearly have an impact on the amount of testing required.
7. The design of a testing regime for products and services forming a complex system is driven by the risk appetite of the system owner. To exhaustively test a system can add disproportionate time and cost if not carefully balanced against the risk impacts of not testing all parts of the system under all conditions. However, switching arrangements are crucial to the effective operation of the energy retail market, so for the purposes of this document we have assumed that the risk appetite is low to avoid any significant impact to consumers and suppliers and any consequential reputational impact for the industry.
8. To identify our preferred testing approach, we have conducted an analysis of applicable best practice and standards. In addition, a number of highly relevant recent projects were examined for Lessons Learned, including the on-going SMIP and Project Nexus.
9. As well as best practice and lessons learned applicable to switching, which have been embodied into the relevant parts of this testing strategy, there are some wider areas of best practice and lessons learned that have applicability to the whole delivery strategy within which testing sits. These are summarised below:
10. **System Integration.** Successful achievement of the outcomes of the Switching Programme are dependent on numerous parties delivering their part of the new arrangements together with the effective integration of these component parts to achieve the overall system and service level requirements to time, cost and quality. A separate System Integration strategy is being developed for the programme and aligned with this testing strategy.

¹ https://www.ofgem.gov.uk/sites/default/files/docs/2015/11/tom_v2_final_17112015_0.pdf, p52

11. **Agile Principles.** As recommended by the most recent Government report into public IT programmes, there are a number of underpinning Agile principles that can be applied to the Switching Programme. These are listed in Paragraph 20 of the main Testing Strategy.
12. How these processes and principles should be applied to the Switching Programme is covered in more detail in the main document and in the related system integration strategy currently being produced.

Related Issues

13. In addition to the System Integration work package, as identified above, there are many other interdependent areas with the Testing Strategy in the context of the programme. The key areas are:
 14. **Choice and design of solution architecture.** The extent of change involved in the building the switching solution and the final design will affect the complexity and risk and hence the extent and type of testing necessary to provide the required assurance. If a 'do nothing' or 'do minimum' solution is adopted, testing will be minimal.
 15. **Transition strategy.** The chosen strategy for moving from the existing switching arrangements to the new solution will affect the duration and profile of testing, the manner in which it takes place and the way in which issues and defects are dealt with
 16. **Governance and Assurance in the Design, Build and Test phase and immediate post-implementation period.** Governance of the testing stage will need to align with the overall governance arrangements and testing itself will need to be subject to appropriate assurance based on risk as for any other part of the programme delivery. The choice over System Integration roles and responsibilities will also affect testing roles and responsibilities. Effective governance and assurance will be required to ensure that testing by all parties is adequate and appropriate for the level of risk to the programme.
17. These interdependent areas are still being developed as part of the Delivery Strategy workstream and wider programme. When these areas are fully matured and stable, the testing strategy should be updated to reflect them.