Kent Active System Management (KASM)
Project Handbook V1.0
## Version History

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<thead>
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<th>Revisions</th>
<th>Author</th>
<th>Date</th>
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<tbody>
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<td>09/02/15</td>
</tr>
</tbody>
</table>
Contents

1 KASM Project Summary ................................................................................................................. 4
  1.1 Project Description .................................................................................................................. 4
  1.2 Business Objectives ............................................................................................................... 4
  1.3 Project Objectives and Deliverables ....................................................................................... 4
  1.3.1 Work Stream 1: Information Sharing, Data Integration and Setup .................................. 5
  1.3.2 Work Stream 2: Contingency Analysis Tool Development and Integration ...................... 5
  1.3.3 Work Stream 3: Load and Generation Forecasting and Network Modelling .................... 6
  1.3.4 Work Stream 4: Value Streams and Business Process Impacts ......................................... 6
  1.3.5 Work Stream 5: Knowledge Dissemination and Stakeholder Engagement ....................... 6
  1.4 Successful Delivery Reward Criteria ...................................................................................... 7
  1.5 Project Partners and supplier .................................................................................................... 9

2 Project Team Structure .................................................................................................................. 11
  2.1 Project Sponsor ...................................................................................................................... 11
  2.2 Senior Responsible Officer ................................................................................................... 12
  2.3 Project Lead ........................................................................................................................... 12
  2.4 Project Manager .................................................................................................................... 13
  2.5 Work Stream Lead ................................................................................................................. 14
  2.6 Project Design Authority ....................................................................................................... 15
  2.7 Technical Lead ...................................................................................................................... 15
  2.8 IS Solution Architect ............................................................................................................ 16
  2.9 Senior Users .......................................................................................................................... 16
  2.10 External Subject Matter Expert ............................................................................................ 17

3 Governance, Control and Reporting ............................................................................................. 18
  3.1 Governance Structure ............................................................................................................. 18
    3.1.1 Governance Structure Overview ..................................................................................... 18
    3.1.2 Governance Structure Overview Diagram ....................................................................... 19
    3.1.3 Steering Group ................................................................................................................ 20
    3.1.4 Project Board .................................................................................................................. 21
    3.1.5 Work Stream Meetings ................................................................................................... 22
    3.1.6 Project Design Authority ............................................................................................... 23
  3.2 The Right Way to Work ........................................................................................................... 24
  3.3 Knowledge Sharing ................................................................................................................ 24
    3.3.1 Between KASM team and UK Power Networks business ................................................. 24
    3.3.2 Between KASM project team and partner organisations .................................................. 24
    3.3.3 Between KASM project team and external stakeholders .................................................. 25
  3.4 Project Control Process .......................................................................................................... 25
    3.4.1 The Approval Process ..................................................................................................... 26
    3.4.2 Risk & Issue Management ............................................................................................... 27
    3.4.3 Change Management ...................................................................................................... 28
  3.5 Reporting ................................................................................................................................. 29
  3.6 Document Classification & Report Writing .............................................................................. 31
    3.6.1 Document Classification ................................................................................................. 31
    3.6.2 Report Writing ................................................................................................................ 31
Executive Summary

The Kent Active System Management (KASM) project aims to carry out a range of technical innovation trials to demonstrate more transparent operation and planning of the 132 kV network in East Kent. It is envisaged that the project will deliver benefits that will span across various areas, including the enablement of low carbon generation, the deferral of capital-intensive reinforcement projects, and the improvement in the reliability of the network.

The project duration is three years, from January 2015 to December 2017, with accountability for its delivery with the Future Networks team, supported by a number of directorates within UK Power Networks. Future Networks will be overseeing the delivery of the hardware and software aspects of the project, but with sign-off on designs and architecture from the Information Systems (IS) directorate, and on functionalities by the Asset Management and Network Operations Directorates. Future Networks will also be responsible for putting in place commercial contracts with relevant support from the IS and Legal teams.

This handbook is designed to provide an overview of the project specifically focusing on the project objectives, structure, organisations involved, governance and project controls. This information will be shared amongst all of the organisations involved in the KASM project and be made available to all project team members.

This is a 'live document', which is likely to be regularly updated and developed further as the project progresses through its life-cycle.

The KASM project bid documents can be found on Ofgem’s website:


The bid document provides greater detail regarding the existing problem and the methodology the KASM project will take to explore and demonstrate a solution to resolve the issue.
1 KASM Project Summary

1.1 Project Description

The last few years have seen a number of Grid Supply Points (GSPs) come under pressure from the level of generation on the electricity networks exporting their power. This is the most extreme form of the electricity network operating in the opposite way to which it was originally designed, where sections of the network are not only supplying their own demand, but also exporting the surplus onto the transmission system.

The area of east Kent being considered in this project contains only two GSPs of the more than 350 nationwide, and a third is being established in the area. Nevertheless, it currently requires 34 contingency scenarios to be analysed in order to understand the network fully.

The introduction of wind, solar, and the presence of interconnectors increases the number of extremes that need to be analysed - there is no longer a simple ‘day of highest winter demand’ and ‘day of lowest summer demand’. There are therefore more extremes; a greater requirement to monitor all contingencies; and a growth in the number of GSPs being affected.

Contingency analysis is a valuable tool to predict the effect of outages like failures of overhead lines and to take actions to keep the distribution network secure and reliable. UK Power Networks will trial for the first time the use of contingency analysis in the Great Britain (GB) electricity distribution network. It will also be the first trial of the implementation on a coordinated and interfaced basis with the electricity transmission network.

The KASM project will tackle and demonstrate the value of contingency analysis software in operational timeframes on the network in East Kent, delivering conservatively estimated net benefits of £0.6m. Once proven successful, replication of this method across GB could conservatively provide net benefits of over £65m over the lifetime of the 45 year investment, when compared to business-as-usual approaches.

1.2 Business Objectives

The KASM project has been designed to address a number of pragmatic issues related to reliability, capacity, and outage planning. The project will:

- Install a communication link between SPN’s control room and National Grid’s control room,
- Install a contingency analysis software tool in SPN’s control room,
- Develop complementary forecasting capabilities for load and generation in SPN’s control room, and
- Trial the use of the above tools in real-time, short-term, and long-term use cases.

1.3 Project Objectives and Deliverables

The project has been broken down into 5 delivery work streams, with an overview of the objectives and deliverables summarised below, and expanded on in the following sections:
1.3.1 Work Stream 1: Information Sharing, Data Integration and Setup

This work stream will be responsible for reviewing existing business processes for data retrieval and usage. Modifications will be made to current processes and new business processes will be developed for obtaining the data required for contingency analysis activities. In this work stream the process and expectations to receive and provide data will be defined.

This work stream is also responsible for implementing the IT infrastructure that is required to achieve data transfer to and from National Grid in compliance with the data, security and performance requirements. Staff will be trained and assigned to monitor and ensure data transfer is maintained at the required service level.

1.3.2 Work Stream 2: Contingency Analysis Tool Development and Integration

This work stream will be responsible for all activities related to getting the contingency analysis tool operational. In this work stream, activities related to functional design development and documentation will be conducted with input from the vendor and UK Power Networks operational teams. The developed design will be reviewed by UK Power Networks staff and potential changes to functionality, performance and output mechanisms will be documented.

Once the functional design is complete, data preparation to populate the contingency analysis tool is a key task in this work stream. UK Power Networks staff will be required to provide the contingency cases used within the tool and data dumps of the network model at periodic predetermined intervals will be made available to the vendor.

Design and data preparation are followed by the vendor software development and loading of the data provided by UK Power Networks. The provided data are loaded on to development hardware where the contingency analysis software operation and design verification is performed. Post development factory testing, site testing
and demonstration are performed by the vendor and UK Power Networks staff. Successful test and demonstration leads to production implementation of the contingency analysis tool.

1.3.3 Work Stream 3: Load and Generation Forecasting and Network Modelling

In this work stream, systems that will be used in conjunction with the contingency analysis tool will be developed. Uncertainties in forecasting intermittent resources such as wind, solar and system loads that do not fit the traditional load and generation pattern will need to be considered. In this work stream, load and generation modules to accurately depict the nature of resources on the network will be developed. A forecasting model architecture that incorporates the following attributes will be developed:

- Generator and load modules;
- Forecasting engine;
- Historical generation and load patterns;
- Historical weather patterns; and
- Optimisation and normalisation modules.

The metrics that will be derived from the developed forecasting modules will be the output curves for distributed generation in the area based on forecasted weather, and the load curves based on historical data and forecasted weather. Also, forecasting error curves will be used to assess the accuracy of the forecasts.

The overall structure of the forecasting modules has not yet been defined in detail, but the preferred solution is Bigwood Systems’ Elite Multi Time-Scale Load and Generation Forecaster. UK Power Networks will work with the planning team and the software vendor to assist in designing the architecture. The design will include averaging or ‘poll of polls’ mechanisms to incorporate uncertainties of intermittent generation and load and achieve traditional type forecasts for the look-ahead horizon.

We will actively seek to avoid duplication of any existing forecasting work and when appropriate, we will incorporate existent forecasts as inputs in order to minimise error (e.g., National Grid’s wind forecasts for large wind generators).

1.3.4 Work Stream 4: Value Streams and Business Process Impacts

Load and generation forecasting combined with accurate contingency analysis has the potential to provide a range of benefits with respect to network management. Accurate real-time, short and long term planning is valuable in effectively managing the distributed resources resulting in optimum use of the available network resources. The purpose of this work stream is to explore the objectives, design and methodology to conduct real-world trials with the installed applications. The outcome of these trials will be used to support network management functions across the different time horizons.

1.3.5 Work Stream 5: Knowledge Dissemination and Stakeholder Engagement

The KASM project incorporates the use of software, hardware and soft measures that will produce various streams of knowledge and lessons learned. It is envisaged that the project conclusions will have the most impact with DNOs, the TNOs, and distributed generation developers. Other parties that would potentially benefit from the knowledge generated by KASM are academic institutions, HM Department of Energy and Climate Change (DECC), Ofgem, the Electricity Network Association (ENA) and various smart grid stakeholders and groups.

Stakeholder engagement is a vital way of communicating project activities to interested parties; the information transfer process will be bi-directional so that information feeds back to the UK Power Networks’ project team. Engagement activities will include periodic project workshops and internal dissemination events.

A dedicated work stream will focus solely on the capture and dissemination of knowledge and learning from the project to other DNOs and stakeholders for use in their projects and business activities.
1.4 Successful Delivery Reward Criteria

The Successful Delivery Reward Criteria (SDRC), which form an integral part of the project bid submission to Ofgem, are designed to reward those projects that are well managed and achieve specific milestones/targets to the standard that should be expected given the information provided in the KASM project direction. Achievement of these criteria to time, cost and quality are essential to the project being considered a success.

The diagram below provides a high level view of the SDRC timeline the project is working towards.

The SDRC are further detailed in the table below, along with the evidence required to prove compliance. These will be tracked and their progress will be assessed throughout the project to ensure timely delivery and provision of the required evidence.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Evidence</th>
<th>Date</th>
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<tbody>
<tr>
<td>9.1</td>
<td>Development of the strategy for inter-control room communication protocol for the purposes of KASM</td>
<td>Published report on key technical and commercial challenges relevant to inter-control room link and the KASM project, whether proposed by the KASM team or raised by stakeholders, including other DNOs; Implementation guidelines for the inter-control room communication link in consultation with National Grid for use by the project.</td>
</tr>
<tr>
<td>Criteria</td>
<td>Evidence</td>
<td>Date</td>
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| 9.2 Completion of the system integration of Contingency Analysis (CA) software into UK Power Networks systems, excluding a real-time link to National Grid | • Sign-off on set up of CA software;  
• Sign-off on successful demonstration and testing of CA software; and  
• Published report on CA software integration that includes the control room IT architecture, lessons learned, engagement with other DNOs, and identified risks. | March 2016 |
| 9.3 Completion of installation of forecasting modules that will link the DNO control room with other data sources | • Sign-off on installation of forecasting modules;  
• Forecast data, benchmarked for accuracy against historical data;  
• Published report demonstrating forecasts including each of solar, on-shore wind and off-shore wind;  
• Forecast error curves plotted at primary substation, 132kV circuit, and GSP levels;  
• Description of integration architecture with the overall solution;  
• Published report on data aggregating forecasting modules that includes lessons learned and identified risks. | March 2016 |
| 9.4 Demonstration of use of real-time contingency analysis in the control room | • Demonstration of contingency results from live SCADA readings, supplied within 15 minutes of them being collected;  
• Completion of user survey identifying the most critical forecast time periods perceived by control room users (e.g. next 15 mins; tomorrow; next shift);  
• Published report with description of the solution, the user interface, and the capabilities. | December 2016 |
| 9.5 Completion of trials and implementation of reliability management, outage management and network capacity management | • Published results from functional trials and the achieved benefits in reduced distributed generation curtailment;  
• Published report demonstrating data collection from Grain, Kemsley, Cleve Hill, Canterbury North, Sellindge, Dungeness and Ninfield 400kV network and sensitivity of the contingency analysis results to this data;  
• List of connection offers that have been linked to reinforcement when assessed using conventional processes, and identification of those that have been revised to remove the reinforcement requirement after being assessed using the trialled methodology; quantification of the released network capacity based on the comparison of the above list;  
• Published report on considerations for selecting, designing and installing CA software for each use case. | December 2017 |
### Criteria

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<th>Criteria</th>
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| Development of business design to incorporate contingency analysis as business-as-usual | - Identification of business areas impacted by the introduction of contingency analysis in a Distribution Network Operator  
- Outline of proposed changes to systems, policies and processes required in the DNO operating model in order to incorporate contingency analysis as part the business as usual operation. | December 2017 |

### 1.5 Project Partners and supplier

The successful delivery of this project will require close collaboration and partnership with all organisations involved in designing and delivering the solution. A brief overview of these organisations and their roles within the programme is outlined below.

<table>
<thead>
<tr>
<th>Organisation</th>
<th>National Grid (Project Partner)</th>
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| Related Activities | ICCP link to SPN control room  
- Cooperation in the development of forecasting capabilities  
- Consultation in definition of data exchange rules |
| Role Summary | National Grid will provide real-time information on:  
1. Power flows across 400kV SGTs  
2. The configuration of the network, including switching  
3. The output of generators that are connected to the transmission network  
The output of the HVDC interconnectors in the area |
| What does National Grid bring to KASM? | National Grid is a key operational partner and the data they hold is important to the success for the project. |
| Key Interactions | Bigwood Systems; UK Power Networks Design Authority, WS1 and WS3 |
| External Collaborator benefits from the Project | The project will improve the flow of information between National Grid and UK Power Networks resulting in further collaboration opportunities and improving the reliability of the network. |
| Key Contacts(s) | Philip Johnson, Business Change Manager  
philip.johnson@nationalgrid.com |

<table>
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<tr>
<th>Organisation</th>
<th>Navigant Consulting (Project Partner)</th>
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<tr>
<td>Related Activities</td>
<td>Advise in contingency analysis software installation</td>
</tr>
<tr>
<td>Role Summary</td>
<td>To provide support in Work Stream 2 – Contingency Analysis Tool Development and Integration and 3 – Load and Generation Forecasting and Modelling and to support the development and integration of the Bigwood solution. Navigant’s will also be providing expert advice to the Design Authority as part of a wider group of experts.</td>
</tr>
<tr>
<td>What does Navigant bring to KASM?</td>
<td>Specialised technical knowledge and project management expertise. Navigant have worked with international utilities on many smart grid assignments involving unique software tools.</td>
</tr>
<tr>
<td>Key Interactions</td>
<td>Bigwood Systems; UK Power Networks Design Authority</td>
</tr>
<tr>
<td>External Collaborator benefits from the Project</td>
<td>An excellent case study for business development purposes. Best practice insights that can benefit other stakeholders and clients. Relationship building with UK Power Networks.</td>
</tr>
</tbody>
</table>
| Key Contacts(s) | Sam Sankaran (based Burlington, MA, USA) / Associate Director  
sam.sankaran@navigant.com |
<table>
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<tr>
<th>Organisation</th>
<th>Bigwood Systems Inc. (Supplier)</th>
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</table>
| Related Activities | - Install contingency analysis software in SPN control room  
- Incorporate forecasting capability  
- Incorporate data from National Grid link |
| Role Summary | The supply and delivery of a contingency analysis and load and generation forecasting tool that will enable the prioritisation of the impact of actual and potential outage events on UK Power Networks 132kV electricity distribution network. |
| What does Bigwood Systems bring to KASM? | Bigwood and its SecureSuite (VSA&E) Tool & Elite software was selected from a number of proposals because of its innovative approach, unique visualisation of results, and competitive price. |
| Key Interactions | UK Power Networks control engineers, outage managers, planning engineers; UK Power Networks Design Authority. |
| External Collaborator benefits from the Project | Bigwood Systems will benefit from exposure to a new market. A high profile qualification in Europe will assist Bigwood Systems’ marketing efforts in the UK and Europe. |
| Key Contacts(s) | Pat Causgrove (based Ithaca, NY, USA) / General Manager  
pat@bigwood-systems.com |
## Project Team Structure

The key roles and subsequent responsibilities within the KASM project are outlined below. This is not an exhaustive list, but the key areas of responsibility within the delivery team are highlighted.

### 2.1 Project Sponsor

Project Sponsor is ultimately responsible for the success of the project and will be supported by the Senior Responsible Officer. The Project Sponsor’s role is to ensure that the project is focused throughout its life-cycle on achieving its objectives and delivering an outcome that will achieve the project benefits.

The Project Sponsor will provide guidance and advice to the Project Lead to ensure that project delivery remains aligned with the delivery of benefits. The Project Sponsor will be the ultimate escalation point for resolution of risks, issues and change control and, when appropriate, help the Project Lead with internal and external stakeholders and partner organisations.
Reporting Lines

- Provide support to the Senior Responsible Officer.

Responsibilities and duties

- Supports the high level stakeholder management with partner organisations and external stakeholders.
- Provides advice and guidance to the Project Lead on the shape and direction of the project.
- Holds the Project Lead to account.
- Is the ultimate point of escalation for all major risks, issues and change requests, especially those involving one of the partner group or key external stakeholders.

Governance

- Chairs the KASM Project Steering Committee.

2.2 Senior Responsible Officer

The Senior Responsible Owner (SRO) is responsible for the success of the project and will be supported by the Project Sponsor. The SRO’s role is to ensure that the project is focused throughout its life cycle on achieving its objectives and delivering an outcome that will achieve the project benefits.

The SRO will provide guidance and advice to the Project Sponsor to ensure that project delivery remains aligned with delivery of the learning, and that the business case originally presented is still valid. The SRO will escalate risks, issues and change control to the Project Sponsor and, when appropriate, help the Project Sponsor with internal and external stakeholders and partner organisations.

Reporting Lines

- Manages the Project Lead.
- Provide support to both Project Sponsor and Project Lead as and when required.

Responsibilities and duties

- Reviews or appoints a peer reviewer to review all communications with Ofgem.
- Supports the engagement of high-level stakeholder management with partner organisation and external stakeholders.
- Provides advice and guidance to the Project Lead on the shape and direction of the project.
- Holds the Project Lead to account.

Governance

- Attends the KASM Project Steering Committee.

2.3 Project Lead

The Project Lead is responsible for the definition of the scope and successful delivery of the project objectives (as described in sections 1.2, 1.3 and 1.4), providing oversight and setting the direction of the team. The Project Lead will be the escalation point for resolution of project issues, in particular between partners.

The Project Lead will provide guidance and advice to the Project Manager to ensure that project delivery remains aligned with delivery of benefits, and will liaise with internal and external stakeholders and partner organisations.
Reporting Lines

- Reports to the Senior Responsible Officer
- Manages the Project Manager
- Manages the Design Authority

Responsibilities and duties

- Manages the strategic aspects of the project engagement and mitigates any key risks.
- Reports project progress to the Senior Responsible Officer and Project Sponsor.
- Clearly articulates the purpose of the work and provides strong leadership to the project organisation.
- Provides clear communications within the project organisation and out to the UK Power Networks wider organisation.
- Engages in high-level stakeholder management with partner organisations and external stakeholders.
- Manages communication with the regulator (Ofgem) and ensures that all regulatory requirements are met.
- Liaises with Ofgem’s project officer for all matters relating to the project’s regulatory reporting requirements.
- Reviews and approves high-level deliverables across the project.
- Ensures relevant leadership meetings and quality assurance procedures take place for all project deliverables.
- Acts as the single point of escalation for all major issues, especially those involving one of the partner group or key external stakeholders.
- Escalates changes, issues or approval request to the Project Steering Committee when required.
- Authorises key documentation for external consumption.

Documentation

- Reviews reports generated by the project and which are presented to the KASM Project Steering Committee (such as regular project update reports submitted to Ofgem).

Governance

- Chairs the KASM Project Board.
- Attends the KASM Project Steering Committee.

2.4 Project Manager

The Project Manager is responsible for the successful delivery of the overall scope, schedule and cost of the project, creating and managing the project plan, monitoring and reporting progress to the Project Lead and taking action to resolve variances; managing and responding to issues, ensuring mitigating actions are in place for key risks.

Reporting Lines

- Reports to the Project Lead.
- Manages the Work Stream Leads.
- Manages the project support function.

Responsibilities and duties

- Has the authority to run the project on a day-to-day basis.
- Responsible for ensuring that delivery from the work streams is to the appropriate level of quality, on time and within budget, according to the project plan.
- Accountable for the planning, structuring and execution of the work streams.
- Responsible for ensuring dependencies across work streams are identified and managed and any changes are assessed for their impact on other work streams.
- Responsible for ensuring the appropriate issue, change and approval processes are followed.
• Responsible for ensuring all required evidence is produced to show compliance with SDRCs within the stated timeframes.
• Will manage and report to the Project Lead on financial progress against agreed budget.
• Owns the overall project plan which should accurately reflect the present situation and assess the impact of work stream changes on the overall project.
• Manages the risk log of the project and subsequently manages the risk mitigation.
• Escalates changes, issues or approval requests to the Project Lead when required outside of the governance cycle.
• Developed and implements best practice project management methodologies, standards and controls to be used by the project teams, including drafting procedures and providing advice.
• Sets the standards for project management resources including advising and participating in the selection process as required, support in resource allocation where necessary.
• Provides training in project management methodologies and standards.
• Monitors compliance/audit/challenge project teams to ensure that project management standards are met.
• Measures, reports and forecasts the Key Performance Indicators (KPIs)

Documentation

• Owns the overall project plan and tracks key milestones.
• Manages the KASM financial model, reconciling spend with actual.
• Produces monthly project reports for the steering committee.
• Compiles the 6 monthly project progress reports.
• Co-ordinates the production of reports across the work streams with the respective work stream leads.
• Co-ordinates the timely delivery of reporting against the projects SDRC.

Governance

• Attends the KASM Project Steering Committee and Project Board.
• Where required, attends the Technical Design Authority meetings.
• Attends the RAID and Plan review meetings.

2.5 Work Stream Lead

The Work Stream Lead will be responsible for ensuring the production of the work stream’s deliverables to an agreed quality, in a timescale and at a cost as defined by the Project Manager.

Reporting Lines

• Reports to the Project Manager.
• Manages the work activities of resources operating in the work stream.

Responsibilities and duties

• Responsible for ensuring that the work stream develops and produces the required deliverables to the agreed quality standard, cost and timescale.
• Responsible for supporting the delivery of SDRCs that are dependent on deliverables from the work stream.
• Has the authority to run the work stream on a day to day basis.
• Manage the development, production and delivery of deliverables, calling on effort from the Design Authority where required.
• Ensures the work stream deliverables meet the requirements outlined in the business case.
• Develops and manages the plans during the course of the project to accurately reflect the current situation.
• Manages risks, issues and dependencies affecting their work stream.
• Manages and reports on financial progress against agreed budget.
• Reports to the Project Board through fortnightly reporting and through exception reports.
• Manages the partner relationship for their work stream and work closely with partner organisations to design and deliver the solution.
• Liaise with the Design Authority to ensure the work stream deliverables are consistent with the agreed overall technical design.

Documentation

• Manages the creation of, and develops detailed design documents.
• Prepares work stream plans and detailed stage plans as required.
• Produces fortnightly reports and exception reports.
• Creates internal lessons learned reports.

Governance

• Chairs / attends any work stream progress meetings.
• Attends the KASM Project Board.
• Attends the Design Authority meetings as required.

2.6 Project Design Authority

The Design Authority will be responsible for all aspects of commercial, technical design, architecture, and specifications for the project. The Design Authority also ensures that end to end technical design enables the project to deliver to the requirements outlined in the KASM proposal.

The Project Design Authority will review all detailed designs and plans produced by the individual work streams to ensure compliance with specifications. They will also provide advice and guidance to the partners and work streams involved in designing the solutions, but will be independent of these delivery functions to ensure impartiality and assurance.

The Project Design Authority will be made up of four key roles;
• Technical Lead,
• IS Solution Architect
• Senior Users
  o Control room
  o Outage planning
  o Infrastructure planning
• External Subject Matter Expert (fulfilled by Project Partner)

These roles will report to the Project Lead but will have a dotted line relationship with the Project Manager to ensure accurate definition and, once defined, protection of the scope.

Governance

• Chair their relevant leadership meetings.
• Attend the Project Design Authority Board.
• Attend work stream meetings as and where required.

2.7 Technical Lead

Holds responsibility as the overall Technical Design Authority lead. Responsible for all aspects of technical design and architecture, including co-ordination and control of the design process, design reviews and the management of the requirements set through to satisfactory acceptance.
Responsibilities and duties

- Manages, reviews and submits for approval on behalf of the Project Design Authority Board the requirements which define the scope of the project.
- Manages the preparation and maintenance of the high-level functional and technical specifications from an engineering, IT and telecoms perspective.
- Prepares and maintains project-specific standards/baselines e.g. for testing.
- Maintains the integrity of UK Power Networks’ future technologies roadmap by ensuring any project implementation can be integrated into current and future operations.
- Ensures the end-to-end design process is achieved and optimised.
- Provides advice to all work streams during the detailed design, implementation and test phases.
- Reviews the lower level and subcontractor designs.
- Manages the timely delivery of design reviews.
- Sets appropriate tasks for reports, monitors and reviews progress.
- Develops and manages close working relationships with key internal and external contacts.
- Acts as the primary point of contact for the Project Lead and Project Manager.

2.8 IS Solution Architect

Responsible for all aspects of IT architecture and design. Supports the technical lead in their role as the overall Technical Design Authority.

Responsibilities and duties

- Preparing, implementing, and maintaining reference architectures for IT (including applications) and telecoms architecture.
- Preparation and maintenance of the high-level functional and technical specifications from an IT and telecoms perspective.
- Maintaining the integrity of UK Power Networks future technologies roadmap from an IT and telecoms perspective by ensuring any project implementations can be integrated into current and future operations.
- Ensuring the end-to-end IT and telecoms implementation process and solution can be achieved and optimised.
- Providing advice to the individual work streams during the detailed design, implementation and test phases.
- Reviewing the lower level and subcontractor designs.
- Managing the timely delivery of design reviews.
- Developing and managing close working relationships with key internal and external contacts.

2.9 Senior Users

Responsible for defining the user requirements that will feed into the design of the proposed solution. They support the technical lead in their role as the overall Technical Design Authority.

Responsibilities and duties

- Preparation and maintenance of high-level functional specifications from a user perspective.
- Providing necessary data and information to the contractors, as and when required.
- Ensuring compatibility of proposed solutions with existing processes and operations.
- Providing advice to the individual work streams during the detailed design, implementation and test phases.
- Reviewing the lower level and subcontractor designs.
- Managing the timely delivery of design reviews.
- Developing and managing close working relationships with key internal and external contacts.
2.10 External Subject Matter Expert

Responsible for providing advice and input based on global best practices and prior experience. Supports the technical lead in their role as the overall Technical Design Authority.

Responsibilities and duties

- Review of high-level functional specifications from IT and user perspective.
- Ensuring compliance of proposed solutions to best practices and global standards.
- Providing advice to the individual work streams during the detailed design, implementation and test phases.
- Reviewing the lower level and subcontractor designs.
- Managing the timely delivery of design reviews.
- Developing and managing close working relationships with key internal and external contacts.
3 Governance, Control and Reporting

3.1 Governance Structure

3.1.1 Governance Structure Overview

The governance structure for the project covers three levels and has two different streams, solution governance and project governance. This model, matched with an effective structure, will facilitate and enable a robust focus on delivering the solution to the project’s time, cost and quality constraints. The governance model is supported by simple and effective reporting and project control mechanisms to enable quick and effective decisions to be made in a controlled manner.

For each of the governance groups shown in the diagram, there exists a one-page “terms of reference” document outlining the following:

- Responsibility
- Decisions
- Level of Authority
- Attendees
- Frequency
- Outputs

The governance model has been designed to deliver effective decision making rather than an opportunity to communicate progress to a wider audience. There will be separate communications sessions arranged on a regular basis to communicate progress across the whole KASM project team and partners.

The governance structure is outlined on the following pages, along with attendees, chairperson and frequency.
3.1.2 Governance Structure Overview Diagram

KASM Governance Overview

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Solution Governance</th>
<th>Project Governance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly</td>
<td>Project Design Authority Board</td>
<td>Steering Group</td>
</tr>
<tr>
<td>(Level 1)</td>
<td>Attendees / Circulation:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Project Sponsor (Chair)</td>
<td>Attendees:</td>
</tr>
<tr>
<td></td>
<td>• Senior Responsible Officer</td>
<td>• Project Manager</td>
</tr>
<tr>
<td></td>
<td>• Technical Lead</td>
<td>• Capital Programme</td>
</tr>
<tr>
<td></td>
<td>• Project Lead</td>
<td>• Design Authority</td>
</tr>
<tr>
<td></td>
<td>• Business area attendance as required</td>
<td>• Chair</td>
</tr>
<tr>
<td>Fortnightly</td>
<td>Project Board</td>
<td></td>
</tr>
<tr>
<td>(Level 2)</td>
<td>Attendees:</td>
<td>Attendees:</td>
</tr>
<tr>
<td></td>
<td>• Project Lead (Chair)</td>
<td>• Project Lead</td>
</tr>
<tr>
<td></td>
<td>• Project Manager</td>
<td>• (Chair)</td>
</tr>
<tr>
<td></td>
<td>• Design Authority Chair</td>
<td>• Team members</td>
</tr>
<tr>
<td></td>
<td>• Technical Lead</td>
<td>• Partner representatives</td>
</tr>
<tr>
<td></td>
<td>• Business area attendance as required</td>
<td>• Supplier representatives</td>
</tr>
<tr>
<td>Weekly</td>
<td>Technical Lead Meeting</td>
<td></td>
</tr>
<tr>
<td>(Level 3)</td>
<td>Attendees:</td>
<td>Attendees:</td>
</tr>
<tr>
<td></td>
<td>• Design Lead (Chair)</td>
<td>• Work Stream Lead (Chair)</td>
</tr>
<tr>
<td></td>
<td>• Supplier representatives</td>
<td>• Team members</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Partner representatives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Supplier representatives</td>
</tr>
</tbody>
</table>
3.1.3 **Steering Group**

**KASM Steering group**

**Responsibility:**
For setting the direction and guiding the KASM Project. Is the ultimate escalation point for assessing changes to the KASM project, risk and issue resolution and budget approval. It has ultimate authority and accountability for the successful delivery of the project.

**Inputs:**
- Change requests
- Project Plans
- Business Case
- Associated risks and issues identified
- Agenda and support material
- Project Costs

**Decisions:**
- Assess Change Requests
- Review impact on Business case
- Assessing impact of change request on Project Plan
- Identifying Risks and issues associated with change requests

**Outputs:**
- Approve / Reject Change Request
- Communicate risks and issue associated with Change Request to Steering Group.
- Circulated minutes to project team.
- Communicate outputs to the partner group.
- Minutes and actions

**Delegated Authority:**
Responsible for the project and will make decisions that have an overall impact on the benefits and outputs that the project will deliver.

**Attendees:**
Project Sponsor (Chair), Senior Responsible Officer, Project Lead, Project Manager, Design Authority Chair, Key internal users, Partners as required

**Frequency:**
The meeting will occur monthly.
3.1.4 Project Board

**KASM Project Board**

**Responsibility:**
For the operational management of the project, reviewing it progress against the plan, resolving risks and issues that has the potential to impact on planned progress. Reviewing resolutions and plans and also considering the impact of changes to the plan that have been approved by the steering group.

**Inputs:**
- KASM Plan
- Business Case
- Work streams weekly reports
- Risks & issues identified
- Change Control approvals
- Agenda & supporting material

**Decisions:**
- Assess progress
- First level issue resolution or escalation
- Proactive risk control
- Change control implications on project delivery

**Outputs:**
- Risk & Issue resolution, where appropriate, escalation to the Project Steering Group
- Minutes, actions and communications to:
  - Steering group
  - Work Stream(s)
  - Partner(s)

**Delegated Authority:**
To deliver the project to time, cost and quality as defined in the business case and agreed by the Project Board, with a tolerance of +/- 5%.

**Attendees:**
Project Lead (Chair), Project Manager, Work Stream Leads & Design Authority Members.

**Frequency:**
The meeting will occur fortnightly and will act as input into the steering group.
3.1.5 Work Stream Meetings

KASM Work Stream Meetings

Responsibility:
Forms part of the operational management of the work stream and will review its progress against the work stream plan with the focus to resolve risk, issues that may impact progress. Risks and issues that cannot be risk solved within the work stream are to escalated to the Project board in a timely manner.

Inputs:
• Work stream Plans
• Work streams weekly reports
• Risks & issues identified
• Approved Change Control
• Agenda & supporting material

Decisions:
• Assess progress
• First level issue resolution
• Proactive risk control
• Assessing impact on a work stream plan of approved change control

Outputs:
• Update work stream plans
• Issue resolution, where appropriate escalation
• Risk resolution, where appropriate escalation
• Commutation upward to the Project Board
• Minutes & Actions

Delegated Authority:
To deliver the work stream scope to time and cost as defined by the Project Board, within the delegated tolerance +/- %. Tolerance can be revised as appropriate.

Attendees:
Work Stream Leads, all relevant partners and project manager (where required).

Frequency:
The meeting will occur weekly and will provide input into the Board and Steering Group.
3.1.6 Project Design Authority

**KASM Project Design Authority Board**

**Responsibility:**
Review and approve all the key KASM deliverables, this group will also review progress, provide advice and support to the Project Board on any risks and issues highlighted for escalation. Providing advice for any evolving solution design.

**Inputs:**
- Deliverables
- Weekly work stream reports
- Papers on specific risks and issues
- Evolving solution designs
- Agenda & supporting material
- Proposed changes to scope

**Decisions:**
- Provide feedback on draft deliverables
- Approval deliverables
- Make decisions based on recommendations made by the Project Board
- Agree recommendations to be made to the Steering Committee

**Outputs:**
- Approved deliverables
- Feedback on draft deliverables
- Agree recommendations for escalation to Project Board
- Notes of agreed actions and key decisions
- Endorsements for changes to scope to be escalated to Project Board

**Attendees:**
Project Manager, Technical Lead, Design Authority Members, Partners, and Works Stream Leads (where required).

**Frequency:**
Meeting will occur on a monthly basis, or as required.
3.2 The Right Way to Work

The project structure, reporting and governance mechanisms will provide the necessary means of managing the project, successful delivery will come down to the quality and attitude of the people. UK Power Networks are the lead organisation on the project and are ultimately responsible for its successful delivery. As a result the UK Power Networks team need to lead by example, demonstrating the principles, outlined below, on a daily basis and demanding the same of their colleagues and partner organisations. These principles are in line and build upon the key UK Power Networks values, they are:

- **Integrity** – to behave at all times with honesty, integrity and in the best interests of the project, UK Power Networks and partner organisations
- **Continuous Improvement** – demand the best from yourself and each other, prepare in advance of meetings/decision items, attend meetings on time, deliver on actions by the due dates
- **Diversity** – acknowledge and respect the value of different perspectives and ensure they are considered in the best interests of the project
- **Responsibility** – ensure all actions and deliverables have an individual who is responsible for their successful delivery
- **Respect** – create a culture where people are encouraged to respect each other but challenge inappropriate behaviour and people who do not adhere to these principles
- **Unity** – support each other individually and collectively, particularly where another member needs help
- **Project perspective** – consistently manage/debate and decide on the basis of the “big picture” forward-looking project perspective
- **Meetings** – It should be everyone’s start position to attend meetings in person. When this is not the case, and when appropriate, a representative should attend instead or dial in where possible.

3.3 Knowledge Sharing

The project is exploring technical aspects to enable better network planning and efficient network operation over a wide network area. As a result, the project involves multiple internal and external stakeholders who bring skills and expertise in their specialist areas. Key to the success of the project is the willingness and desire of these stakeholders to share their expertise with others to ensure the project is best placed to achieve its objectives.

3.3.1 Between KASM team and UK Power Networks business

Access to UK Power Networks resources and information will be a key driver of success within the project and should be sought at appropriate times. UK Power Networks project members should help facilitate the timely introduction of partner organisations to their UK Power Networks colleagues and act as enablers to this resource.

It should be remembered that non-project resources will have their day job to do and requests for their time should be in the context and understanding of this. Advanced notice of people’s time should be given and planned in at the earliest opportunity and through the appropriate channels.

In the first instance UK Power Networks KASM project members should act as the facilitator to UK Power Networks non-project resources.

3.3.2 Between KASM project team and partner organisations

The KASM Project Lead will act as the relationship manager for all KASM partners and will be the single point of contact for escalation.

All KASM partners will also be required to provide a single point of contact for the KASM project and provide details of their escalation process.
3.3.3 Between KASM project team and external stakeholders

The KASM project will come into contact with numerous external stakeholders including Ofgem. The success and perception of the project will be partly down to how these external relationships are managed which will require careful consideration and coordination. As a result of this the responsibility for managing these relationships will fall with the Project Lead.

3.4 Project Control Process

To manage and control the project scope, cost and schedule the KASM project will implement a number of effective mechanisms. These defined processes and document controls should help the project board and steering committee to agree the work stream initiation documents, plans and designs and then maintain control of the project to ensure it delivers to the overall aims, as defined in the project proposal. These processes are defined below:

1. Review Process: All formal outputs from the project must follow the formal review process. The Project Library within the KASM project drive will hold all formal documents and outputs from the project.

Each output must go through the formal KASM specialist or management product review. A product is not deemed completed until it has passed this review process. It is the responsibility of the Work Stream Leads and Project Lead to ensure all products are placed under review.

Where the document or equipment is in electronic form the file itself must be placed under review. If the output is a physical piece of equipment or something witnessed, an Acceptance Certificate for the output must be created, signed and scanned with the image of the certificate placed into the review process.

2. Approval & Sign off Process – This process will be implemented to ensure all deliverables are adequately approved before they are agreed as complete and released. The governance boards will check to ensure each deliverable is completed to the quality, cost and time levels as agreed in the initiation documents and detailed plans and designs for each work stream.

3. Risk and Issue Management – This process allows for the communication and escalation of key risks and issues within the project and defines where decisions will be made and how these will be communicated back to the work stream where the risk or issue has arisen.

4. Change Management – The purpose of this process is to control and agree any changes to the agreed baseline of the project, whether the change relates to time, cost or quality. A key interaction in this process is between the Design Authority Board and the Project Board to check and approve proposed quality changes. Approvals for changes will have to be within the board’s delegated authority; otherwise the change will need to be escalated further up the governance structure.
3.4.1 The Approval Process

**Project Governance**

**Steering Group**
- Steering Group review or discuss a key deliverable at the request of the Project Lead and refer queries back down to the Project Board if they believe the deliverable to be incomplete.
  - Monthly

**Project Board**
- Project Lead reports to the Project Steering Group that a key deliverable has been achieved.
  - Fortnightly

**Design Authority Board**
- The key deliverable is reviewed to ensure it achieves the quality requirement as per the specification. All queries are passed back to the Work Stream Lead for rectifying.

**Work Stream Progress Meeting**
- Key deliverable(s) completed as per the work stream plan. The Work Stream Lead will submit the deliverable for approval by the Project Board as part of the WS report.
  - Weekly

**Design Leadership Meetings**
3.4.2 Risk & Issue Management

<table>
<thead>
<tr>
<th>Project Governance</th>
<th>Risk &amp; Issue Management</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Steering Group</strong></td>
<td>Steering Group authorises or initiates mitigating actions</td>
<td>Monthly</td>
</tr>
<tr>
<td><strong>Project Board</strong></td>
<td>Mitigation activities within delegated authority or escalate if required.</td>
<td>Fortnightly</td>
</tr>
<tr>
<td><strong>Work Stream Progress Meeting</strong></td>
<td>Work stream reports delivered to Project Manager. Consolidated into key risks &amp; issues that require attention by the Steering Group.</td>
<td>Weekly</td>
</tr>
<tr>
<td></td>
<td>Risks &amp; Issues consolidated into work stream fortnightly report by work stream lead. Work Stream Lead implements mitigating actions as authorised.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Work stream RAID Log</td>
<td></td>
</tr>
</tbody>
</table>
3.4.3 Change Management

**Steering Group**
Steering Group authorises or rejects the change request based on the information provided by the Project Board and Work Stream Lead

**Project Board**
Project Board assesses the request for change ensuring it has been approved by the DA, if it impacts the solution, and approves/rejects, if within delegate authority. It will be escalated to the Steering Group if it is outside the remit of the Project Board or if the change request is initiated by the board.

**Work Stream Progress Meeting**
A formal request is submitted to the Project Manager detailing:
- Reason for Change
- Detail of Change
- Impact of Change (time, cost & quality)
- Risk of not implementing the change

**Frequency**
- Monthly
- Fortnightly
- Weekly

A formal request is submitted to the Project Manager detailing:
- Reason for Change
- Detail of Change
- Impact of Change (time, cost & quality)
- Risk of not implementing the change

Work Stream Lead updates project documentation to reflect agreed change(s).
3.5 Reporting

To support the governance structure and provide clear and accurate information so good decisions can be based, it is critical that the KASM project collects and disseminates the information accurately and in a timely manner from the work stream upwards.

There are three types of reports that form the basis of the reporting required for the KASM project, these will be supported as the project progresses by the development of project plans, detailed design documents and financial tracking.

1. Risk and Issue log – A Risk, Assumption, Issue and Dependency (RAID) log for each work stream will be maintained and managed by the Work Stream Leads, as per the information provided via the fortnightly reports with the information being detailed and as complete as possible. The Project Manager will incorporate project level risk and issue information through the fortnightly project reporting process and other project level information.

2. Work stream Report – Produced for each work stream, by the Work Stream Lead on a fortnightly basis, these will form the basis of discussions at the Project Board meeting and be the method for passing management information up to the project level.

3. Project Report – This will be produced by the Project Manager to be reviewed and updated by the Project Lead based on information from the work stream report and project board discussions. This document forms the basis of discussions at the steering committee level and will be produced and distributed monthly.

These templates have been developed to ensure information only needs to be collected once at the work stream level and then refined down by the Project Manager, depending on the criticality or relevance of the information, for the steering committee meeting. The Project Manager will be responsible for ensuring the integrity and quality of the information is consistently high and that the reports are issued at the required frequency and distributed to the correct individuals.

Every 6 months the project is required to compile a report for Ofgem to track progress and provide an overall update on the project. The fortnightly and quarterly reports produced by the project will form and support the creation of the Ofgem report.
The Reporting Process

**Project Governance**

- **Steering Group**
  - Steering Group minutes and actions
  - Prepared by Project Manager
  - Monthly

- **Project Board**
  - Project Monthly Report
  - Project RAID Log
  - Prepared by Work Stream Lead
  - Fortnightly

- **Work Stream Progress Meeting**
  - Fortnightly Work Stream Report
  - Work Stream RAID Log
  - Prepared by Work Stream Lead
  - Weekly
3.6 Document Classification & Report Writing

3.6.1 Document Classification

As the KASM project has a number of partners there will be some commercial sensitivities, it is essential that all documents are clearly categorised with one of the four classifications below and include version control.

- **Unrestricted**: No restrictions on circulation
- **Classified**: Available to internal and external stakeholders
- **Restricted**: Available only to the project team members/partners
- **Confidential**: Available only to specific people/stakeholders

When saving documents to ensure consistency and version control they should be saved in the same format, as follows: `KASM[WS#].[ID] DeliverableName_v1.0.doc`

Minor versions of products should be maintained and saved locally by the work stream as they are developed i.e. 0.1, 0.2 etc. When the product is at final stage (i.e. v1.0 Final), this should be saved in the central project library, with a new major version number and evidence that the product has been approved. Please provide evidence that the product has been approved. If this is a newer version of an already approved product the original will be moved to an archive and the new version given the next major version number.

3.6.2 Report Writing

To ensure consistency throughout all of the products produced by the KASM project, regardless of author, the best practice methods below should be followed:

- All products i.e. reports, change request, technical queries, etc. must be UK Power Networks-branded, and written in the third person only, i.e. words such as “I”, “we”, “us” or “our” are not to be used.
- Do not make any sole, unqualified references to named individuals in any written report/log entry/change request make reference instead to their job title and qualify that if needed, by the name of the person (in brackets).
- All documents must be saved as outlined in the document classification section above and an indication in the header of whether the document is draft or final.
- Any document that is to be issued must have a version of “v1.0 final” only, and not, for example, “v4.15 final” – and this is to be used in both the filename and in the header/footer where the version is described.
- Formal and official documents should be issued in PDF format only –
- The “Arial” font 10 should be used on all written text.
- Page numbers must be used on every document or PowerPoint presentation.
- The source files must be supplied for any images/visuals used in final documents.