Gas Networks Ireland

Management Case

April 2024

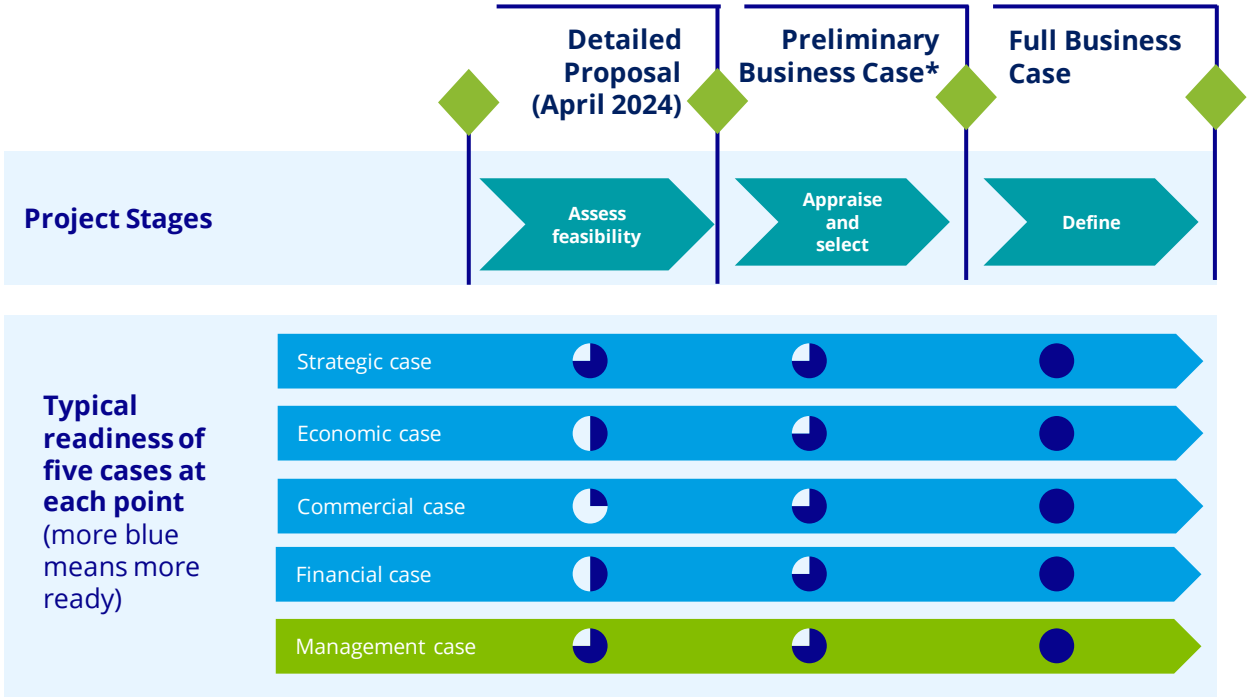
Private & Confidential

Management Case: Table of Contents

5.1 Introduction

Business Case structure:

- The business case has been prepared in compliance with both the Infrastructure Guidelines: Strategic Assessment and Preliminary Business Case, December 2023 [1] and the Infrastructure and Projects Authority's Infrastructure Business Case five-cases model[2]. The business case includes: strategic, economic, commercial, financial and management cases – the five dimensions of the case.
- The Project is currently at the Preliminary Business Case stage, which if approved, will enable the Project to proceed to Final Business Case, where detailed design and procurement activities will determine the final scope, cost and schedule for the project.
- At Preliminary Business Case stage the Management Case should:-
  - Demonstrate that appropriate governance has been put in place;
  - Develop initial thoughts on the project delivery plan including schedule, risk management, stakeholder management, change management, and benefits realisation;
  - Develop initial thoughts on the Asset Management Plan;
  - Present the proposed approach to the Regulatory framework and legal compliance.



Source: Infrastructure Project Authority (2022) Project Routemap[3]

*Target for Government submission in June

[1]Department of Public Expenditure NDP Delivery and Reform (2023), Infrastructure Guidelines: Strategic Assessment and Preliminary Business Case. Available here
[2]Infrastructure and Projects Authority (2022), Infrastructure Business Case: International Guidance. Available here
[3]Infrastructure and Projects Authority (2022), Project Routemap. Available here

5.1 Introduction

The purpose of the Management Case is to demonstrate that robust arrangements are in place for the delivery, monitoring and evaluation of the project. The Management case explores how the emerging preferred option can be successfully delivered using best practice methodologies. In addition, it sets out the necessary arrangements for independent assurance, change control, benefits realisation and risk management.

At the Preliminary Business Case stage, the Management Case provides an initial view on delivery arrangements, and the resources required to deliver the emerging preferred option(s). The below project management arrangements are considered in this document:

- **Delivery Management Approach** – Overview of best practice delivery methodologies that have been selected to ensure project success.
- **Governance Approach** – Overview of the governance approach taken by the project, highlighting structures that have already been established.
- **Asset Management Plan** – Outline of steps to develop an asset management plan as part of the preliminary business case, required for handling, developing, operating and sourcing organisational assets.
- **Project Plan** - Overview of indicative project schedule for the delivery of the preferred option, based on assumptions, to be refined as the business case progresses.
- **Project Delivery Costs** – Outline of key advisors and assumptions to develop delivery costs estimates
- **Change Control Approach** – Overview of change control procedure to ensure changes to baseline cost, schedule and scope are impact-assessed and appraised appropriately.
- **Benefit Realisation Plan** – Outline of how the project intends to put arrangements in place for planning, modelling and tracking of identified benefits.
- **Risk Management Plan** – Outline of how the project intends to manage risk by leveraging best practice across Routemap[1], ISO31000[4] and APM PRAM[5] methodologies
- **Regulatory & Legislative Compliance** – Legislative changes and Regulatory decisions will be needed across several areas to support the delivery of a Strategic Gas Emergency Reserve that is State-led via GNI within a regulatory framework that is overseen by CRU.
- **Sustainable Development** – Outline of how the project intends to comply with relevant Sustainable Development Goals, adopted by all United Nations member states.

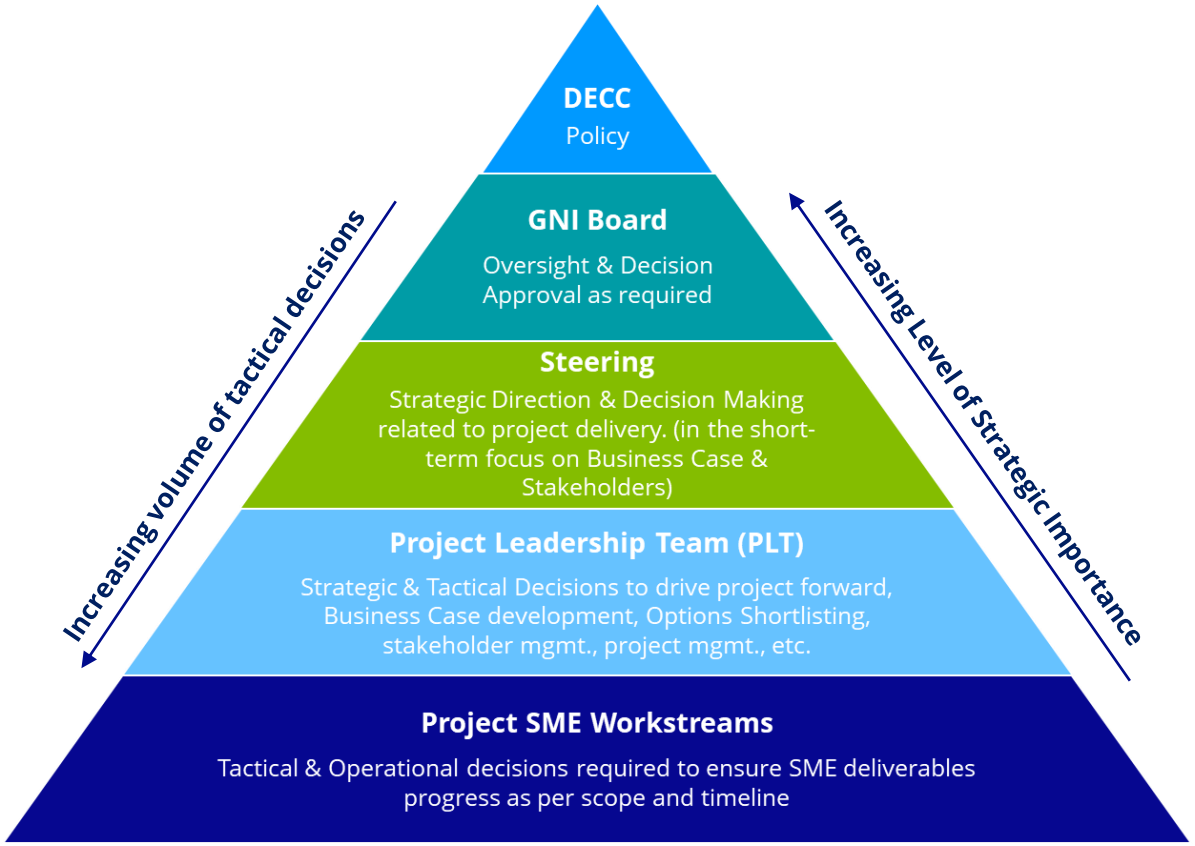
[3]UK Government Infrastructure and Projects Authority (2021),Project Routemap Handbook. Available here.
[4]nternational Standard, ISO 31000, Risk Management Guidelines (2018).Available here.
[5]APM Publication (2010), Project Risk Analysis and Management Guide. Available here

5.2 Delivery Management and Governance

5.2 Delivery Management – Governance Framework

Governance Model Overview

The Project Governance Framework, approved by the GNI Board, delivers specific responsibilities for review and challenge at each level of the organisation. The governance pyramid below highlights a key governance design principle; increased volume of tactical decisions made in lower levels, with increased volume of strategic decisions made in higher levels of the structure. Setting out clear lines of accountability, and defined roles and responsibilities will be crucial to the successful delivery of the Project. Further detail is provided in Appendix M2.



DECC – Accountable to the Minister for the delivery of the Project as part of the Energy Security Package.

GNI Board – Responsible to stakeholders, government, and the public. Approvals of key milestone deliverables as required.

GNI Steering Committee – comprised of Executive level staff from GNI together with the Project Director. Chaired by SRO (CEO) and works on behalf of the Board to ensure the requirements of the Project are delivered safely, on time, and to budget.

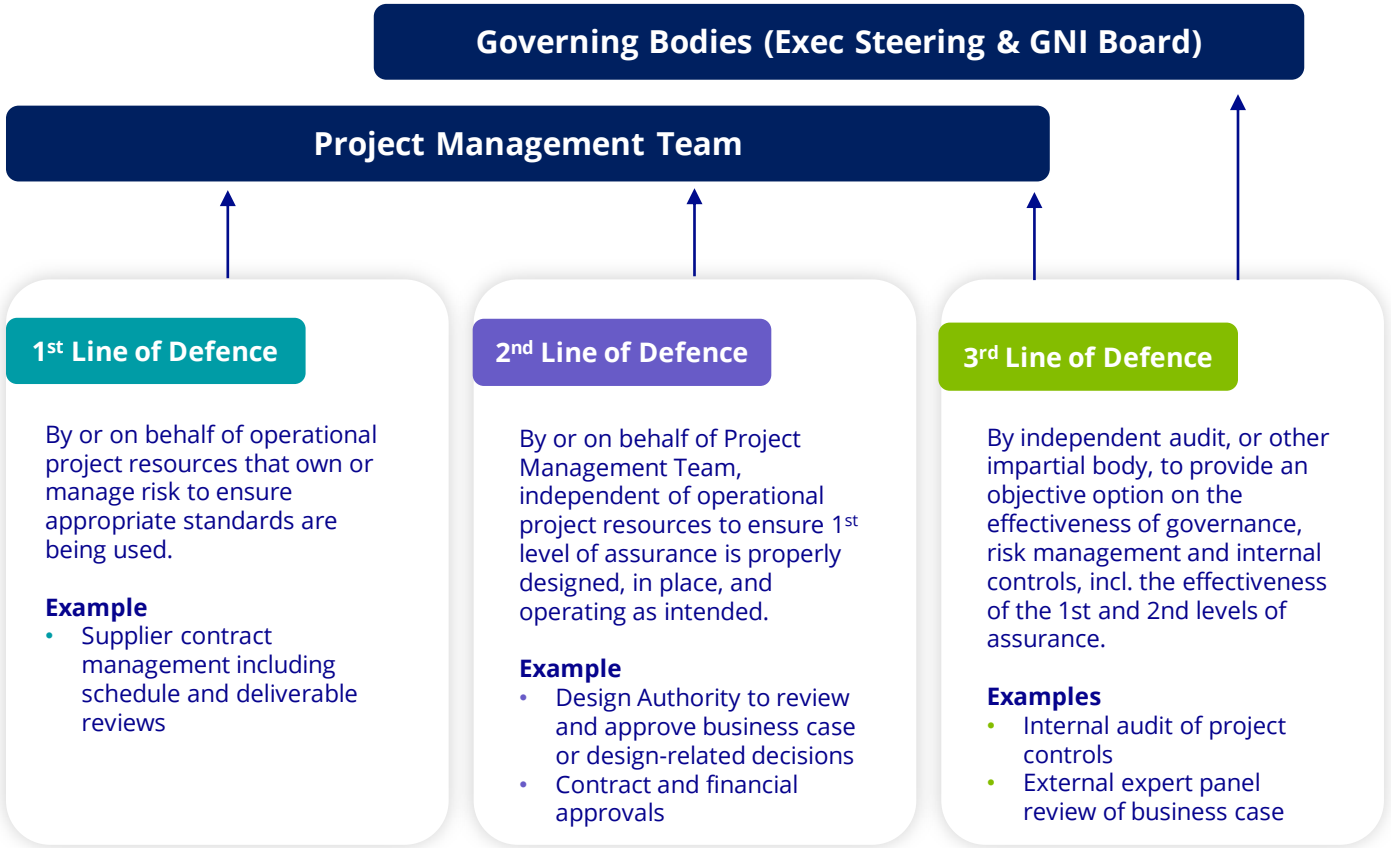
Project Director – Subject to oversight from the Project Steering Committee. Responsible for the delivery of the Project in line with a defined scope and in accordance with the requirements.

Project Management Team – Acting as Design Authority within the Project team, escalation point for Project workstreams with a focus on planning, risk, business case and engineering design deliverables.

5.2 Delivery Management – Governance Framework

Integrated Assurance & Approvals Plan (IAAP)

Integrated assurance and approval is defined as the planning, coordination and provision of assurance activities and approval points throughout the lifecycle of a Project. Project assurance, in conjunction with formal approval points, will support the risk management of the project and improve project delivery confidence with key stakeholders. The Project's IAAP (included in Appendix M2) is based on the three lines of defence approach as outlined below. See appendix M2 for more information on the Project's IAAP.



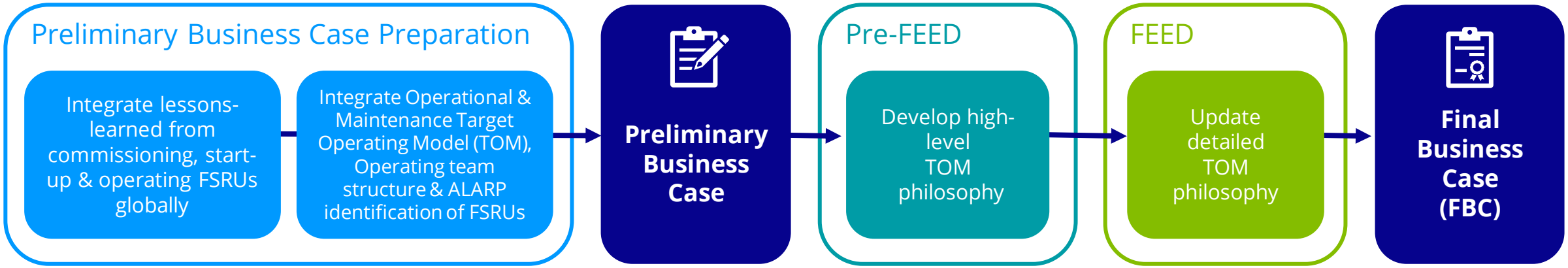
Assurance Level	Assurance Review
1st Line of Defence (Level 1 – Operational Management by Project Resources)	• Risk management reviews • Schedule management reviews • Budget forecasting • Supplier contract management • Business case deliverables QA • Engineering deliverables QA
2nd Line of Defence (Level 2 – Senior Project Leadership Team)	• Project Steering Committee & Board updates • ESG & Action 17 DECC updates • Design Authority for business case and engineering design approvals • Financial reporting • Risk management reporting
3rd Line of Defence (Level 3 – Independent Audits or other impartial bodies)	• Peer review for business case submission • Internal audit of project controls and performance • External audit of project controls and performance

5.3
Asset Management Plan

5.3 Asset Management Plan: Development of the Plan

As outlined below, the Asset Management Plan will continue to evolve up to submission of the final business case, before it is ultimately enacted throughout project delivery and operation. Further detail is provided in Appendix M3.

Development of Asset Management Plan



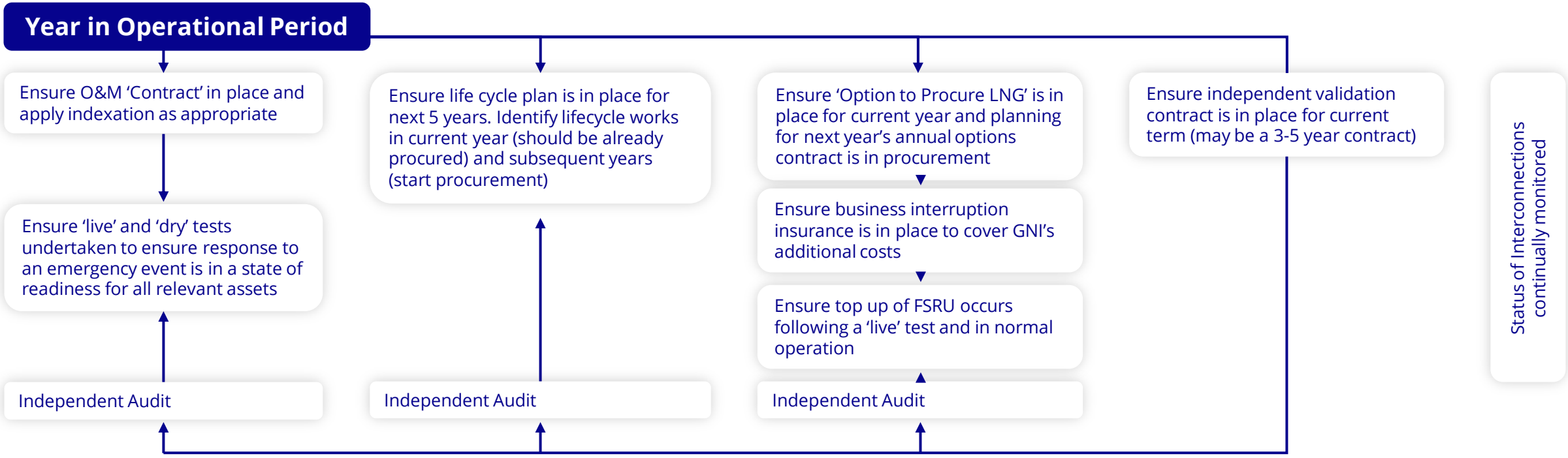
When developing an Asset Management Plan, it is critical that it can be adapted during the project lifecycle, with the aim of increasing visibility to improve performance across the following areas:

1. Equipment downtime
2. Inventory control
3. Resource management
4. Cost savings
5. Regulatory compliance
6. OPEX analysis

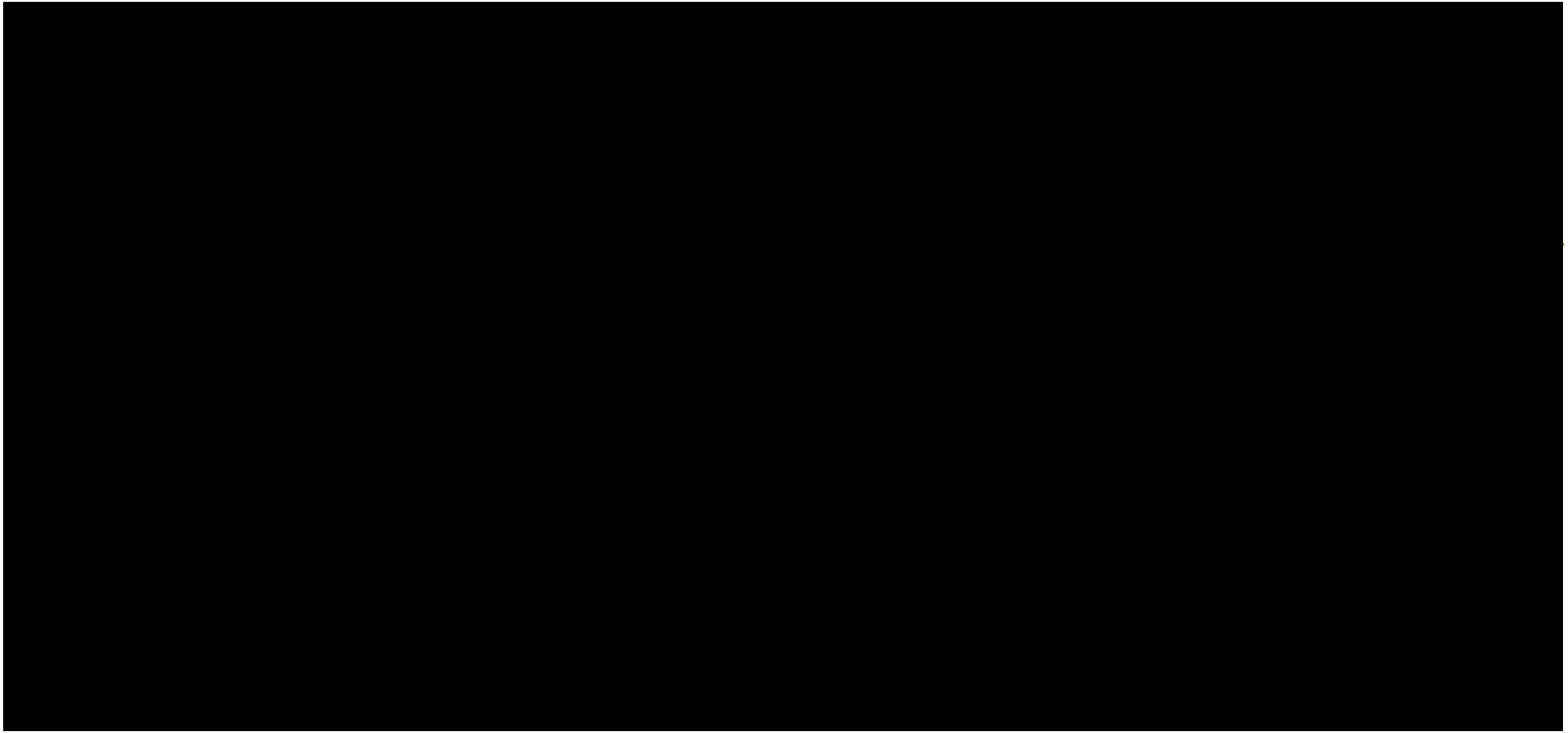
5.3 Asset Management Plan: Standby Operational Arrangement

Operational Arrangements During Standby (i.e. Non-Emergency Condition)

- FSRU will be permanently on station and operating in standby or minimum gas send out mode
- Plan LNG vessel deliveries to maintain inventories within minimum bands
- Offset send-out from existing natural gas entry flows to avoid a net increase in supply to Ireland
- The Asset Management Plan will outline service delivery / efficiency / maintenance / upgrade procedures for the project lifecycle
- On-going operational / service contracts to maintain FSRU in a state of readiness are indicated below.



5.3 Asset Management Plan: Emergency Event Operational Arrangement



5.3 Asset Management Plan: Ultimate Removal / End-use

The Ultimate Removal of Non-Enduring Infrastructure

The Asset Management Plan will consider this issue in detail. The following is indicative of what may be included in the plan:

- Trigger actions for removal:
  - Peak demand for natural gas falls such that the N-1 infrastructure standard is met without the Strategic Gas Emergency Reserve.
  - Alternative long-term storage is in place.
  - End of the contract (asset is removed by its owner).
  - A change in legislation which affects the need for N-1 storage.
  - Change in technology or energy supply mix which would make infrastructure redundant
- The action depends on the ownership of the non-enduring asset:
  - If GNI, divest / decommission / disposal / transition to renewable gas storage in particular hydrogen.
  - If not GNI, disposal would be the responsibility of the owner (e.g. lease of a vessel).
- Further consideration will be given to facilitating the potential transition to renewable gas storage for each solution as part of the FEED.

5.4
Project Delivery Plan

5.4 Project Delivery Plan - Overview

Project Lifecycle Overview

To draft a multi-year programme plan for the full lifecycle of this project (i.e. accounting for the identification, selection, design and implementation of a gas reserve solution in line with DECC's criteria and requirements), the project team undertook the following steps:

Analyse
best planning practice using Routemap framework

Define
project goals and associated metrics to measure successful delivery

Identify
potential planning risks and issues, and define corresponding mitigating actions to minimise potential negative impact

Group
dependent activities and milestones to form project phases

Establish
reporting discipline to identify discrepancies between programme plan and actual delivery

We are now at the stage of the programme whereby the Detailed Proposal / Preliminary Business Case (of which this Management Case comprises one part) has been submitted in Q2 2024, after which the Government will review and, if suitable, approve the proposal. Following Government approval of the proposed solution within the Preliminary Business Case, the subsequent project stages, e.g. site selection, procurement, etc, will be implemented to ultimately facilitate the implementation of the approved gas reserve solution.

5.4 Delivery Timescales – Assumptions for Schedule Acceleration

Accelerated

Accelerated (High Risk)

Emergency Status* (Very High Risk)

Business As Usual

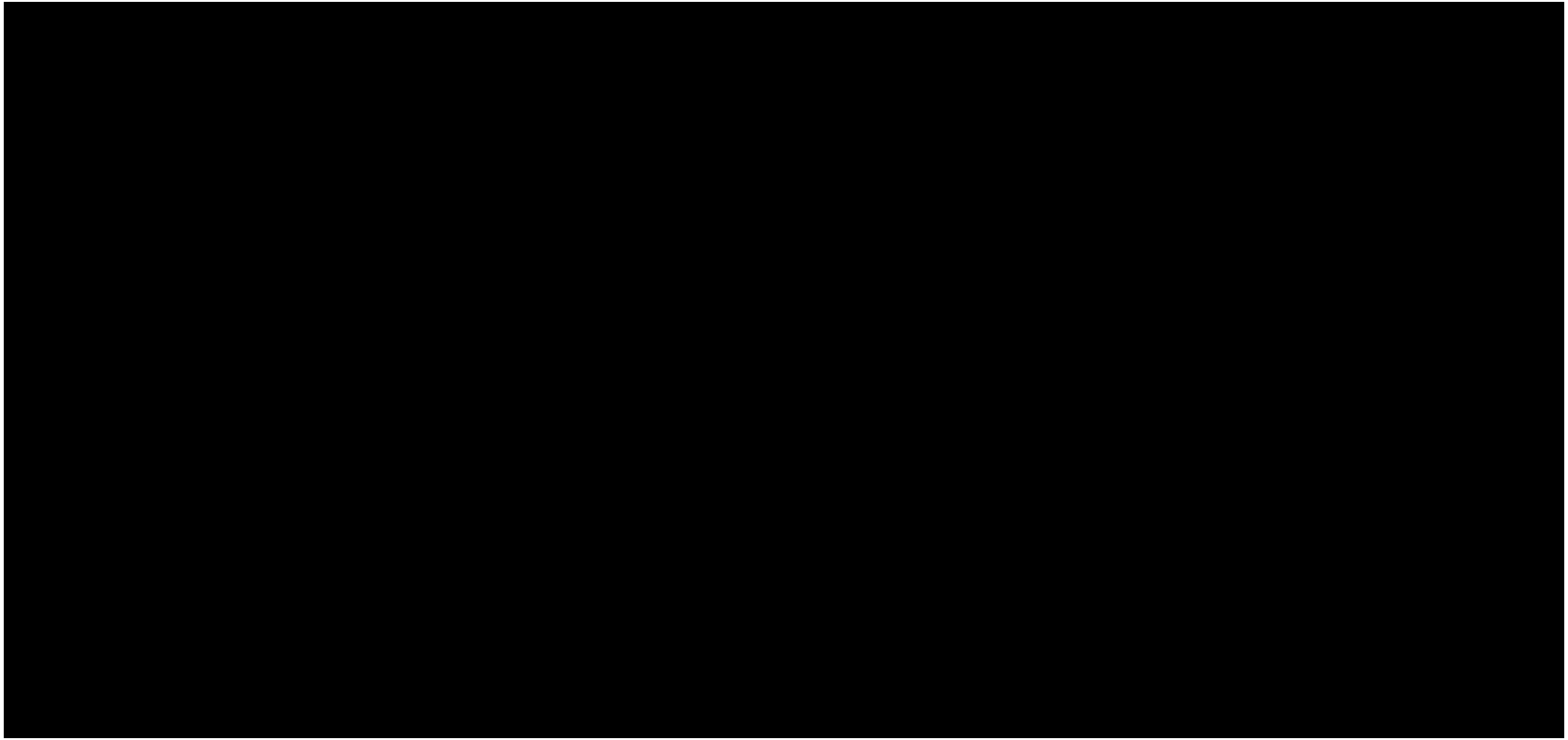
[redacted]

[4]Government of Ireland (2022), Development (Emergency Electricity Generation) Act 2022. Available here

*Emergency Status means that an outage has not occurred but an emergency has been declared.

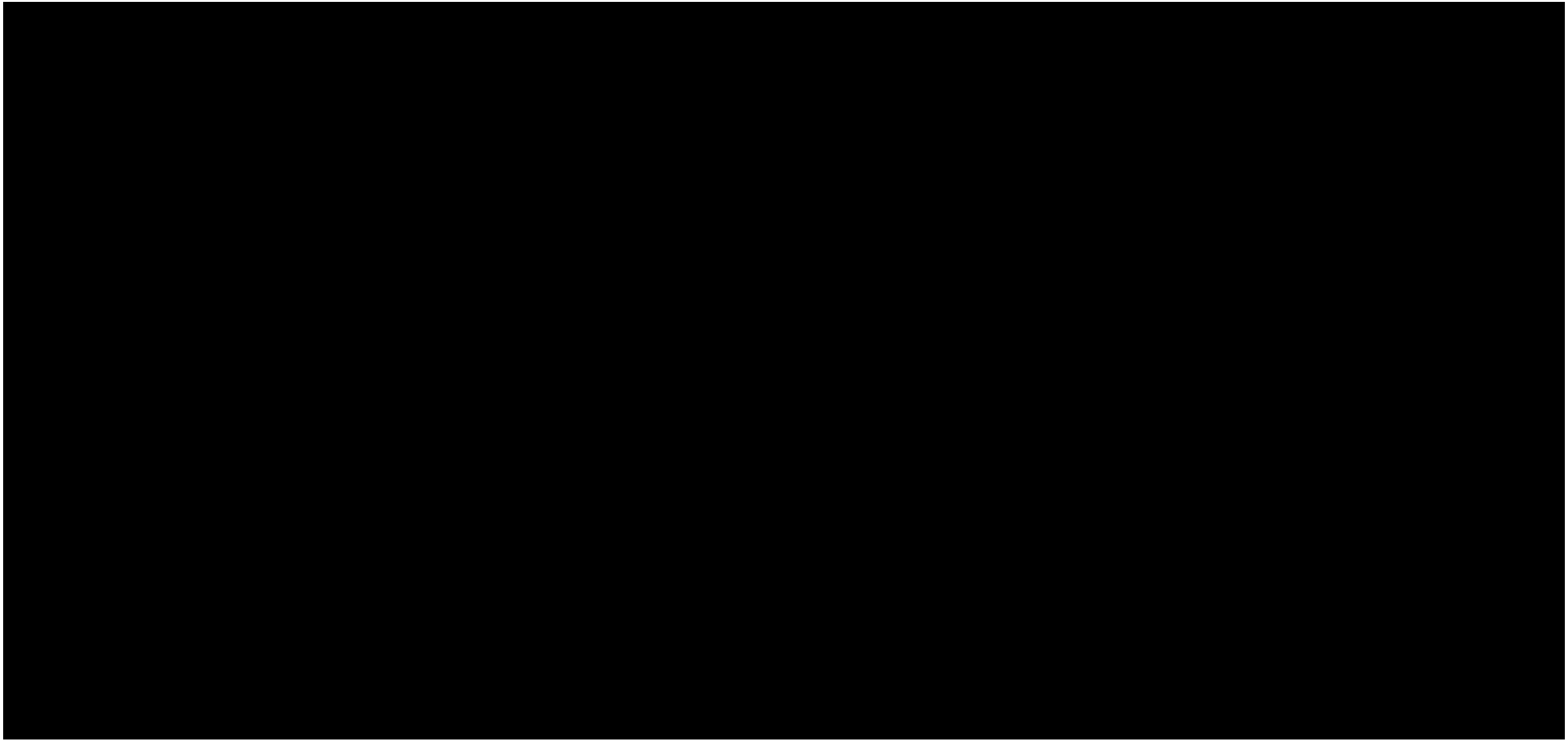
5.4 Delivery Timescales for Emerging N-1 Solution: FSRU

5.4 Delivery Timescales for Emerging Full-Outage Solution: Salt Cavern + FSRU



5.5
Project Delivery Cost

5.5 Project Delivery Costs - Summary of Key Advisors



5.6 Stakeholder Management

5.6 Stakeholder Management - Principles of our Approach

Throughout the development of the Project, the Project team will adopt and adhere to a series of key principles that guide our stakeholder engagement activities. We will:

Listen to communities and stakeholders and engage with integrity and respect.

Set out the Project's principles openly and transparently.

Build strong relationships through cooperation, commitment and trust.

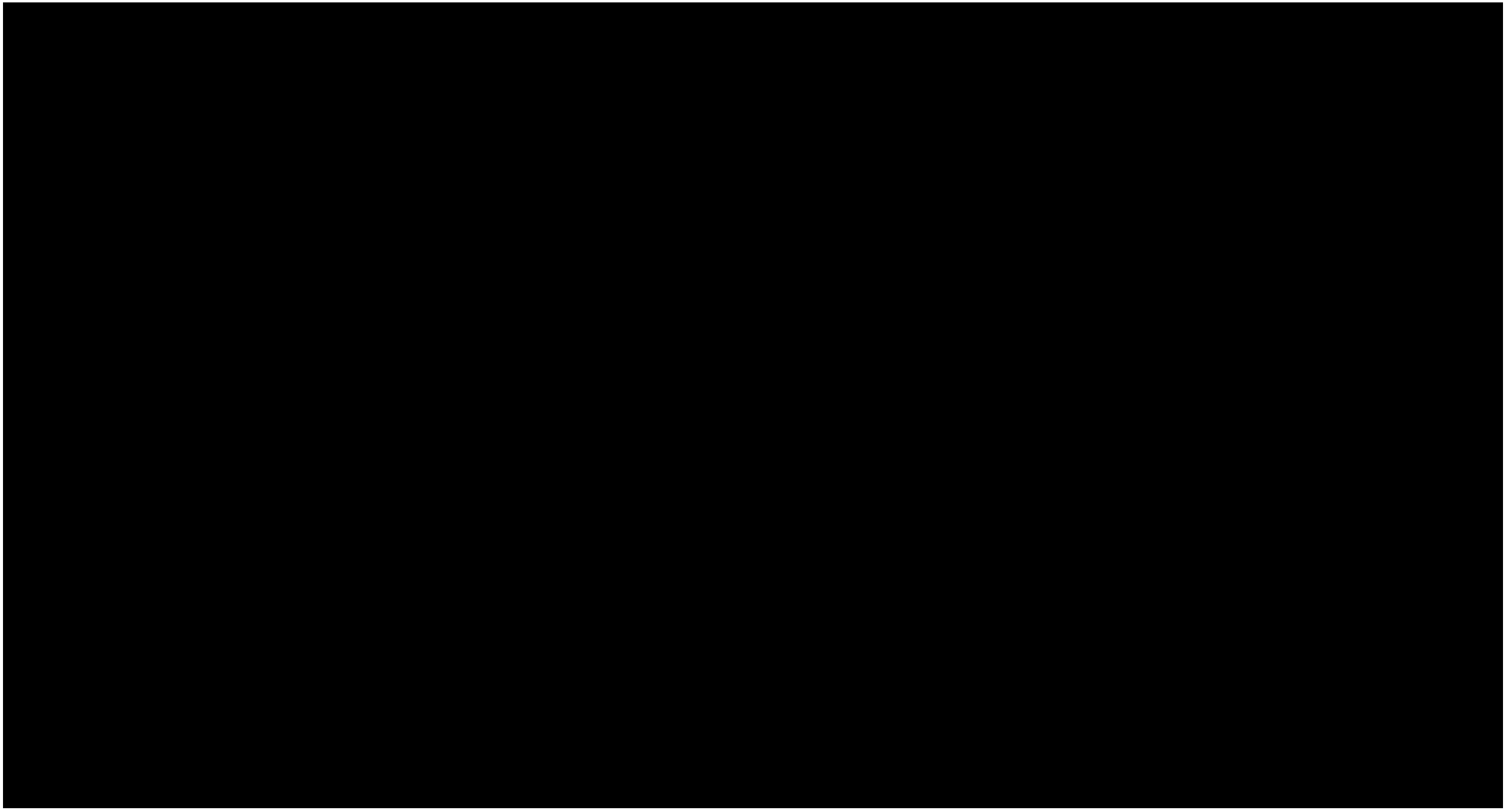
Recognise differences and work together to find mutually acceptable solutions that are reasonable and proportionate to the Project's impact and strategic value.

The Project will achieve these principles through a set of common standards adhered to by the project team:

Members of the team with a responsibility to engage with a stakeholder will be provided with the appropriate level of training and support.

The team will have a clear understanding of what can and cannot change as a result of engagement with stakeholders.

The team will have clear understanding of the key messages to deliver when engaging with stakeholders and the wider community.



5.7
Change Control

5.7 Change Control

Change Control Process to Maintain the Established Baseline

As the project progresses it is important to ensure a process is in place to maintain the baseline estimates for business requirements, scope, cost, schedule, risk and benefits. The Project Control Team is responsible for ensuring a robust change control process is in place and implemented to manage proposed changes to the baseline. Where a proposed change has been brought to the project management team, it will be impact-assessed against a closely controlled set of baseline documents before it can be appraised. The change control process is embedded as part of the overall project governance and risk management approach, as highlighted by the wide range of risk and governance considerations below that must be addressed when assessing the change. Further information is provided in Appendix M7.

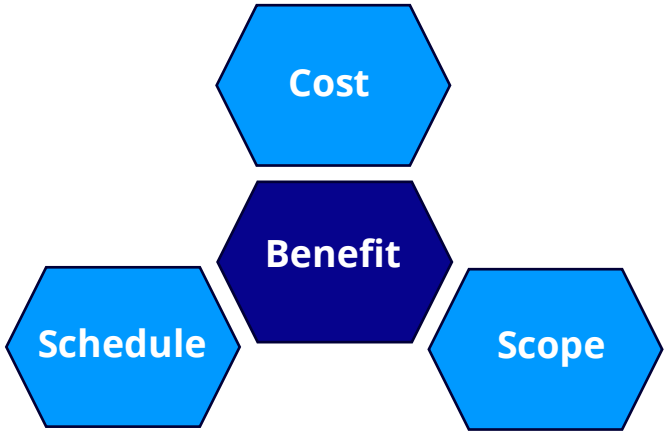
If a proposed change is approved, the project management team will ensure baseline documentation is updated accordingly and the project proceeds as agreed with the change. Relevant stakeholders will be informed of the change through existing project governance and reporting structures.

Controlled Baseline Documents must be used for assessment of Change*

- Baseline Delivery Schedule
- Baseline Cost Model
- Baseline Operational Cost Model
- Baseline Benefits
- Sponsor's Requirements
- Functional Response
- Baseline Business Case

***** Note: At the Gate 1 stage of the project, the established baseline is the Preliminary Business Case until a more defined scope, cost and schedule can be delivered based on the approved preferred option.

Changes to Scope, Cost or Schedule may impact on Project Benefits



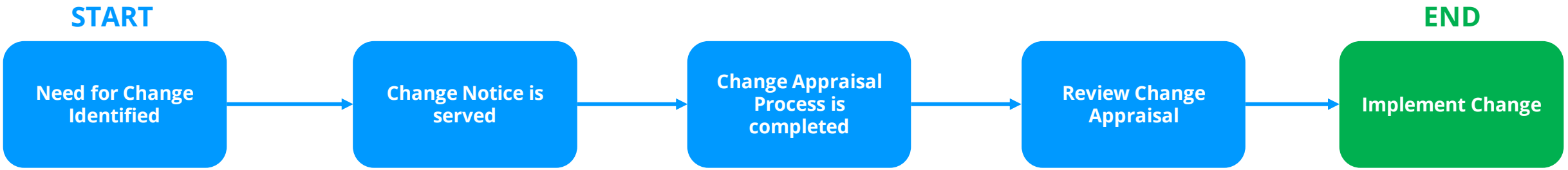
Changes must be assessed against a wide range of considerations

- Strategic Fit
- Technical Feasibility
- Cost Envelope and potential offsets
- Baseline Delivery Schedule
- Baseline Cost Model
- Baseline Operational Cost Model
- Benefits Baseline
- Baseline Business Case
- Sponsor's Requirements
- Value for Money to Sponsor
- Land & Property
- Planning & Legal
- Risk Register
- Risk Mitigation or New Risk Creation
- Operations & Maintenance
- Stakeholder Implications

5.7 Change Control

Change Control Process to Maintain the Established Baseline

The below process flow summarises the key steps in the project change control process, which is managed by the Project Control Team.



- Internal or external source to the project identifies a need for change
- Project Controller initiates the change appraisal process
- Project Controller collaborates with requester to draft Change Notice

- Change Notice is served to Project Management Team
- High level description of change and potential impacts are provided
- Project Management Team conduct initial evaluation
- If change is feasible, requester proceeds with further evaluation
- Project Control supports with a plan to impact assess the Change

- Detailed Change Appraisal template completed
- Key stakeholders identified and workshop scheduled to conduct impact assessment
- Project Controller reviews completed Change Appraisal

- Change Appraisal reviewed by Project Management Team at Design Authority Forum
- Clarifications addressed and appraisal updated.
- Finalised Change Appraisal submitted for approval

- Change Confirmation Notice Issued
- Relevant stakeholders informed via project governance structures
- Action Plan to implement change agreed
- Project Team implements approved change
- Amendments made to baseline documents to reflect change
- Change Control Register updated

5.8
Benefits Realisation Plan

5.8 Benefits Realisation Plan

An Initial Benefits Realisation Plan has been completed

- The main benefits of the Project have been documented in the Strategic Case and assessed as part of the Cost Benefit Analysis (CBA) in the Economic Case within the overall preliminary business case and will be developed in further detail in the Final Business Case.
- Aligned to the main benefits, an Initial Benefits Realisation Plan has been developed to ensure the necessary arrangements are in place for the Project to deliver its anticipated benefits throughout the project lifecycle. This plan includes arrangements for planning, modelling and tracking identified benefits.
- The GNI CEO, as the Senior Responsible Owner (SRO), and Chair of the Project Steering Committee, will be responsible for the realisation of benefits and the transfer of benefit ownership to an appropriate owner after the project has been completed.
- The Initial Benefits Realisation Plan outlines the high-level activities necessary for achieving planned benefits. It makes a preliminary assessment of how each proposed benefit will be achieved, and how realisation of benefits can be monitored and measured appropriately in future phases.
- An Initial Benefit Realisation Plan for the project will establish the following:

5.8 Initial Benefits Realisation Plan

Category	Benefit	How could the benefit be delivered?	How could we measure the benefit?	[redacted]	Relevant CSF(s)
Economic and Social	Avoids the economic and social consequences of failing to meet gas demand in the event of an outage.	By delivering a solution that is fit-for purpose to meet, as a minimum, gas supply deficit in an N-1 scenario with 1:20 demand	Quantitative - We measure this benefit as part of the CBA. The benefit is quantified as the gas demand that would not be satisfied in the event of an outage without the solution being implemented, considering the probability of the outage occurring.		Ability to meet Strategic Need.
Economic	Avoids or reduces the costs of alternative strategies for improving security of electricity supply for electricity customers.	Additional sources of gas supply, or gas storage, would decrease or obviate the need for a secondary fuel obligation scheme, and significantly decreases the risk of an electricity supply outage, which reduces the compensation to be paid to generators. [redacted]	Quantitative – secondary fuel obligation costs are a combination of pass-through costs from gas-fired electricity generators and the TSO's ancillary services budget		Ability to meet Strategic Need. Delivers the Highest Value for Money.
Economic	Protects the reputation of Ireland as an energy-secure economy, making it more attractive for foreign direct investment.	By delivering a strategic gas reserve that is fit-for purpose to meet, as a minimum, gas supply deficit in a N-1 scenario with 1:20 demand	Quantitative		Ability to meet Strategic Need.

5.8 Initial Benefits Realisation Plan

Category	Benefit	How could the benefit be delivered?	How could we measure the benefit?	Relevant CSF(s)
Economic and Social	Benefit to local community (excluding direct employment).	Potential for Community Benefit Fund Improved local productivity due to increased spending in the local area. Public realm improvements due to road and other infrastructure that will service the site.	Community benefit fund based on pro rata disruption. Approach for determining disruption to be developed (e.g. % of project cost). Economic Impact Assessment may consider productivity improvements and attempt to quantify the multiplier effect. Public realm improvement assessment of baseline existing against proposed. Captured qualitatively through Population and Human Health EIA.	Benefits Local Community.
Economic and Social	Employment opportunities will be created.	The strategic gas reserve will lead to local job creation in proximity to the facilities and additional job creation at the management centre of the Operator in Ireland. This will not only directly create jobs but also indirectly through the supply chain. Opportunities to specify a requirement to hire a % of the employment needs from the local community could be explored.	Quantitative – The Project Delivery Plan will assess the scale of construction related activity and this will allow for an estimate of the construction jobs. It will also define the Organisation Design that will define the number of permanent roles to be created. Indirect jobs cab be estimated using type 1 multipliers published by CSO.	Delivering Value for Money Benefits Local Community Public Acceptance.

5.8 Initial Benefits Realisation Plan

Category	Benefit	How could the benefit be delivered?	How could we measure the benefit?	[redacted]	Relevant CSF(s)
Economic & Social	Develop skills required for the energy transition and other infrastructure projects.	Opportunities to specify a requirement to train/upskill a % of the employment needs from the local community could be explored.	Qualitative – identify those skills and qualifications that can be used in the energy transition.		Benefits Local Community Public Acceptance.
Environmental	Reduce the use of more carbon intensive fossil fuels (secondary fuels) in electricity generation during an outage	A Gas Reserve could mitigate gas supply outages so gas-fired electricity generators would not need to switch to secondary fuels (i.e. distillate) which are less efficient and have higher carbon-emissions	Quantitative – We measure this benefit as part of the CBA. The benefit is quantified by taking into account the lower efficiency and higher emission factors of the alternative fuels.		Avoids lock-in to Fossil Fuels. Lowest GHG emissions.
Environmental	Supports the delivery of renewable electricity generation through a secure back-up gas supply	By delivering a strategic reserve that gives confidence to the electricity sector that gas will be a secure back-up source	Qualitative		Avoids lock-in to fossil fuels. Lowest GHG emissions
Environmental	Supports the transition to renewable gases	By supporting the conversion of IC1 or IC2 to hydrogen, or by providing green gas-enabled permanent infrastructure that supports transition to renewable gases. Provision of infrastructure in advance of demand for renewable gas may encourage earlier transition to renewables by the market.	Quantitative - the asset will have a residual value at the end of the period where it will be needed to support SoS and/or renewable gases. Qualitative – Measure the development of Renewable gas hubs in proximity to the facility(s).		Compatible with long term hydrogen storage (Action 14).
Regulatory	Enables meeting of EU Infrastructure Standard.	By delivering a solution that satisfies the EU N-1 requirement	Qualitative – reporting by the EU will confirm compliance, and there will be no related infringement notices issued to Ireland.		Ability to meet Strategic Need.

5.8 Benefits Realisation Plan – Next Steps

- The Infrastructure and Projects Authority (IPA) guidance is explicit in what is required in a finalised benefits realisation plan. This includes a framework that assigns responsibility for the realisation of benefits through key phases of the project. This work, which will be completed in the next phase of the project should it proceed, will provide a more formal route map as to how the project benefits will be evaluated.
- Benefits captured in the plan are linked to the critical success factors as outlined in the economic case. In the event of a proposed change to cost, schedule or scope that impacts the Final Business Case, a detailed impact assessment of the benefits plan will be required to ensure benefits are adjusted if required.
- The benefits realisation plan to be included in a Final Business Case submission will include:

A list of benefits	Benefit category and class	Which aspect of the project will give rise to the benefit	The links between benefits and prioritised goals / targets	A Carbon Optimisation Plan
Potential costs incurred required to realise the benefit	Activities required to secure the benefit and by which party	An owner for the delivery of each benefit, and its monitoring	How the benefit will be measured	How long it will take to realise the benefit

5.9
Risk Management Strategy and Plan

5.9 Risk Management Plan – Delivery Update

Development of the Risk Management Plan

The project has made significant progress in the development of a risk management approach and is aligned to Routemap guidance, the GNI Risk Management Framework (ISO31000) as well as the APM PRAM guide[3]. The below outlines progress to date and immediate next steps. See appendix M9 for more information relating to risk management.

Progress to date

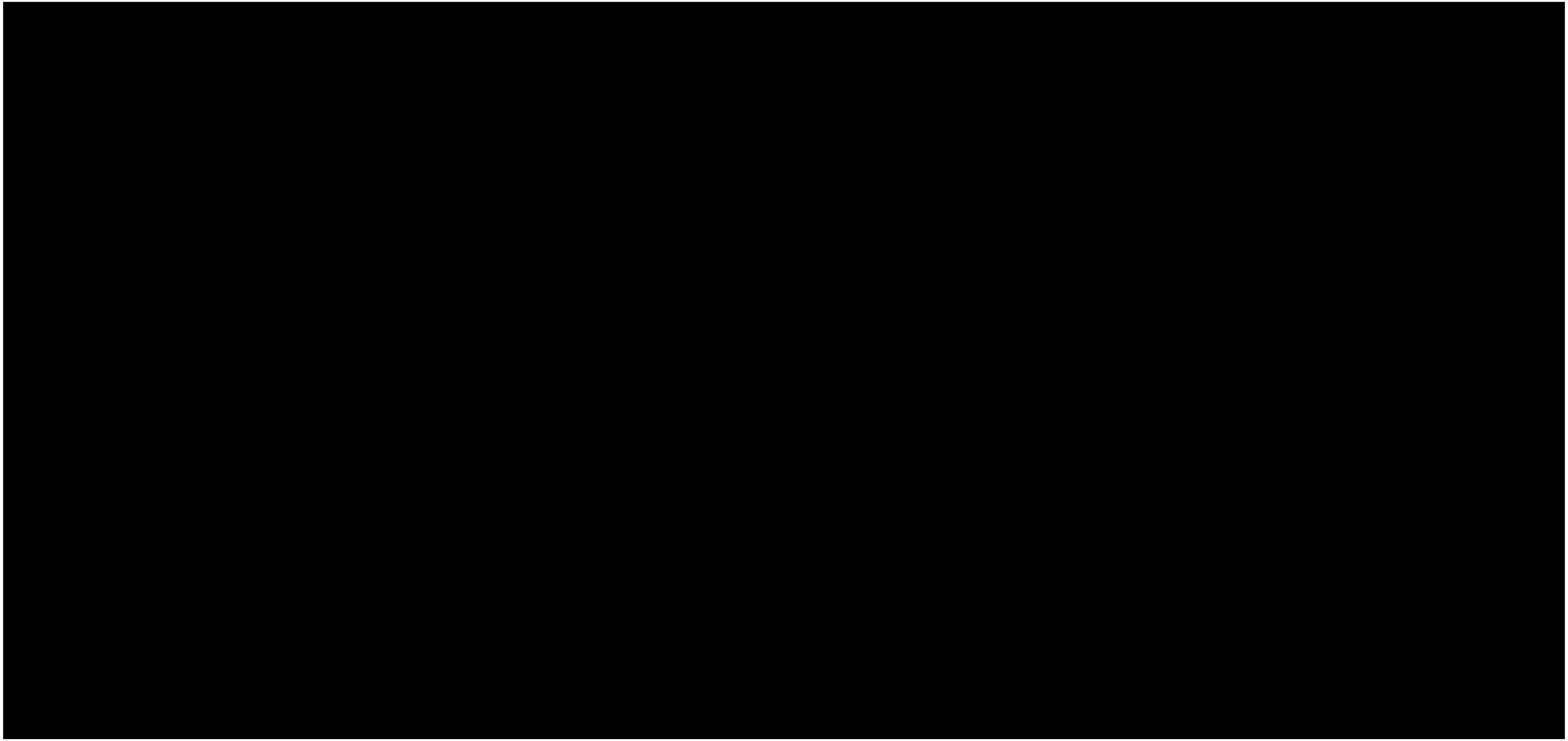
- **Risk Management Team –** Formation of Risk Management team integrated across internal project team and service providers (ESP in particular)
- **Risk Management Plan** – Documented approach to risk management for the project, describing all the fundamental components of risk management.
- **Risk Categorisation and Scoring** – Adoption of a 5x5 matrix scoring methodology which aligns to GNI and DECC. Risk categories and impact threshold designed specifically to fit the scope and scale of the project.
- **Risk Ownership & Allocation –** guiding principles to assign risk ownerships and expectations outlined in relation to their duties
- **Risk Register** - Monthly review sessions at workstream level to identify new risks and update existing risks.
- **Risk Escalation** is reviewed at fortnightly Project Leadership Team meetings
- **Risk Dashboard** reporting at Steering & Board meetings.

Next Steps

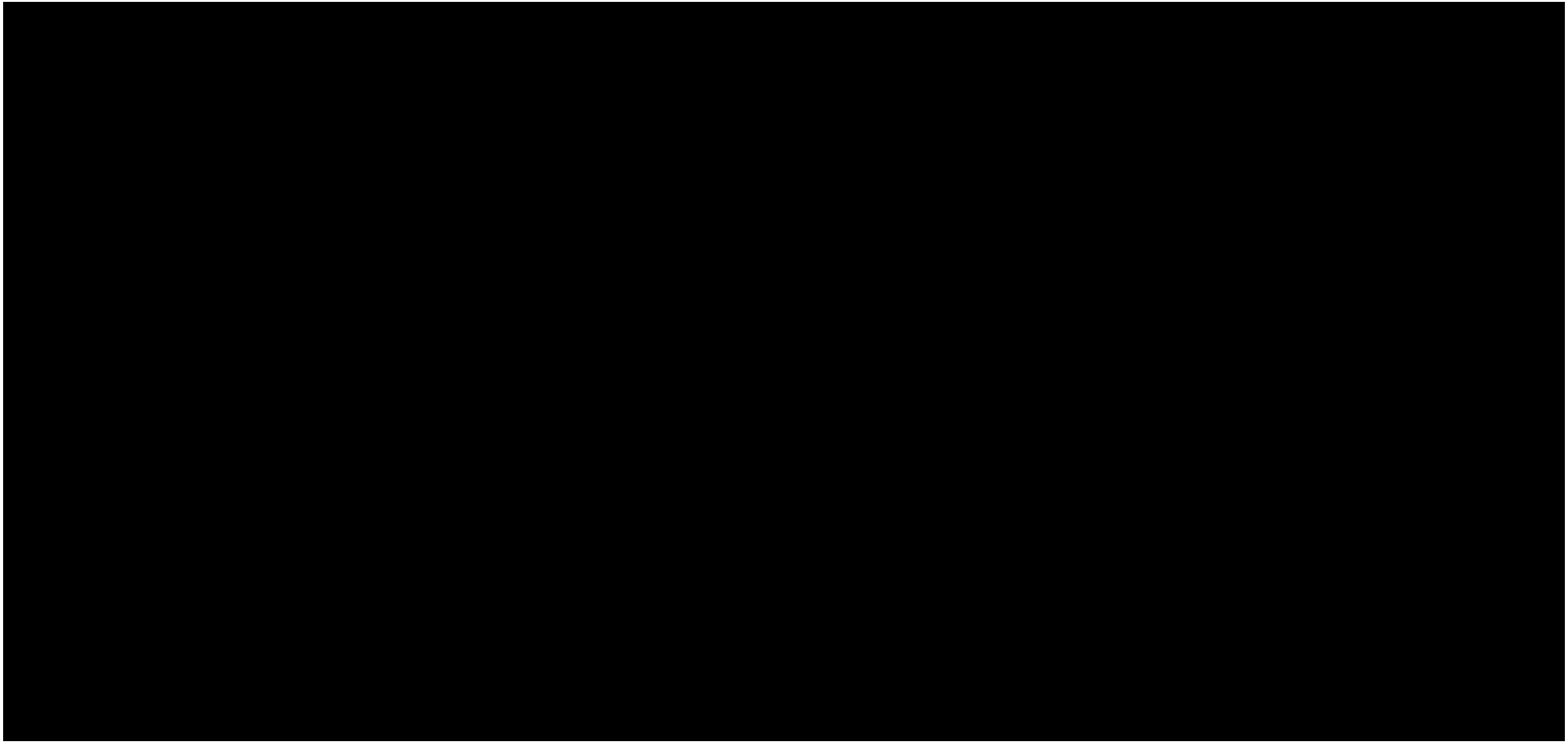
- **Preferred Option Selection** – Will enable the project to move forward with identification of risks against the defined scope of the project. At present risks are defined only against business and strategic benefits and requirements.
- **Risk Identification and ownership** – Further definition of contractor risk register is required along with agreement on ownership and risk transfer between client and contractor.
- **Risk Assessment** – Quantification of all identified risks to enable QSRA at later phases. Three-point ranges for cost and time impacts as a minimum with rationale for impact ranges.
- **Risk Evaluation** – Agreement on the strategy for managing each risk, and definition of key responses to enable management and drive accountability in the team for risk management activities.
- **Risk Reporting** – Run monthly reviews of our Risk Register, reviewing ratings, progress against responses and any risks for escalation/ de-escalation.

[3]APM Publication (2010), Project Risk Analysis and Management Guide. Available here

5.9 Risk Management Plan – Current Highest Rated Risks



5.9 Risk Management Plan - Current Highest Rated Risks



5.10 Regulatory Framework, Legislative Compliance and Legislative Amendments

5.10 Introduction

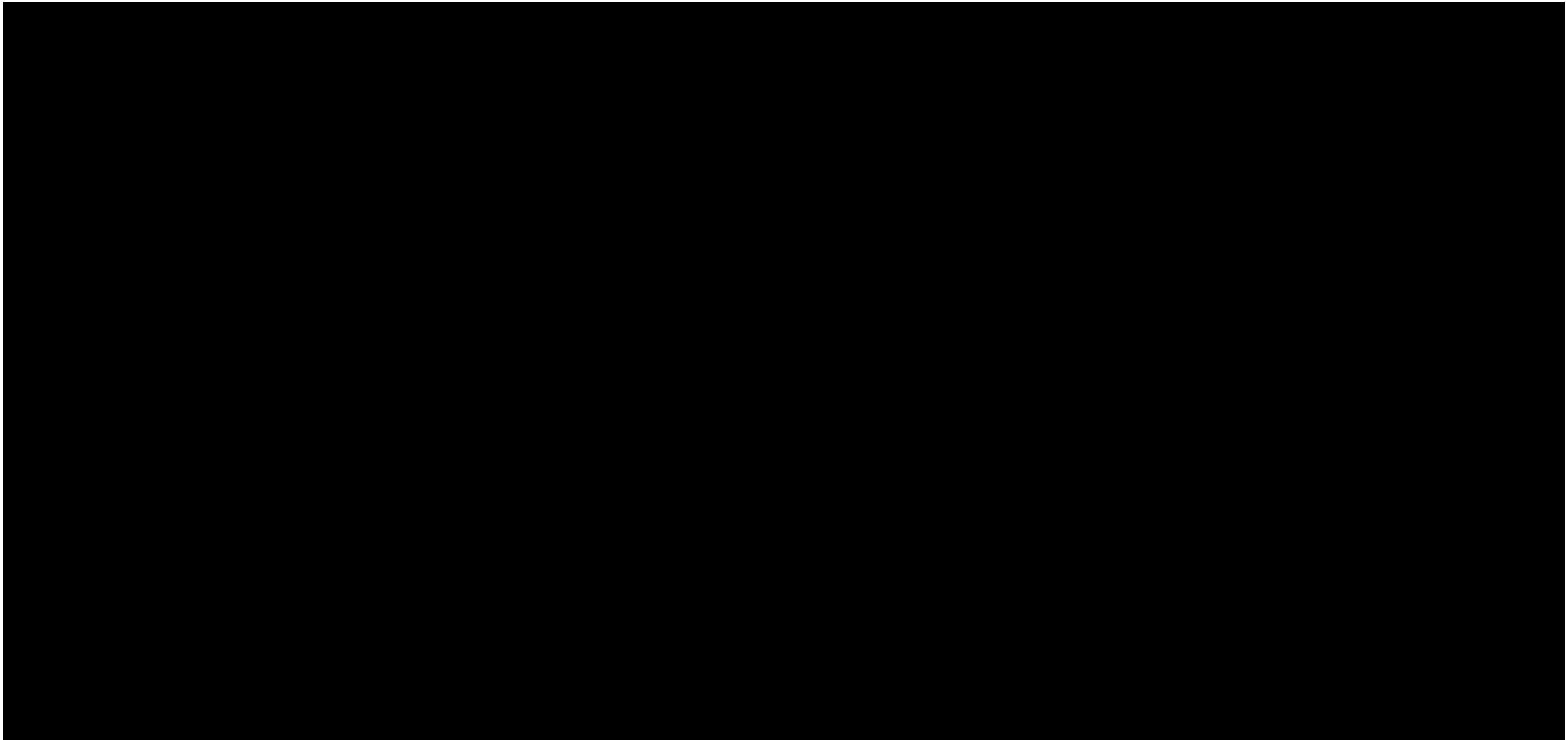
GNI has carried out engagement with the relevant stakeholders to identify the required regulatory framework and legislative compliance vital to the success of the Project. Failure to identify and comply with regulatory and legislative requirements could impede project delivery or impact on the project timelines.

The work items identified include:

- Several pieces of existing EU and national legislation & policy that this project must comply with.
- Regulatory decisions will be needed across several areas to support the delivery of a Strategic Gas Emergency Reserve that is State-led via GNI within a regulatory framework that is overseen by the CRU.
    - Some of these regulatory decisions will be enabled through new/amended legislation.
    - Appropriate market arrangements must be in place to enable the Operator to deliver the solution under the regulatory framework.
- The introduction of a Strategic Gas Emergency Reserve in Ireland will need to be appropriately funded in the short and long term with the correct regulatory mechanisms in place for efficient revenue recovery.
- The Project will deliver a Strategic Gas Emergency Reserve that will comply with all relevant safety legislation.

Consideration should be given to developing the required amendments to primary legislation while DECC is reviewing the Preliminary Business Case.

5.10 Overview of Regulatory Arrangements



Agreed in principle – detail to be specified as the project progresses

5.10 Comparison of potential Regulatory Frameworks

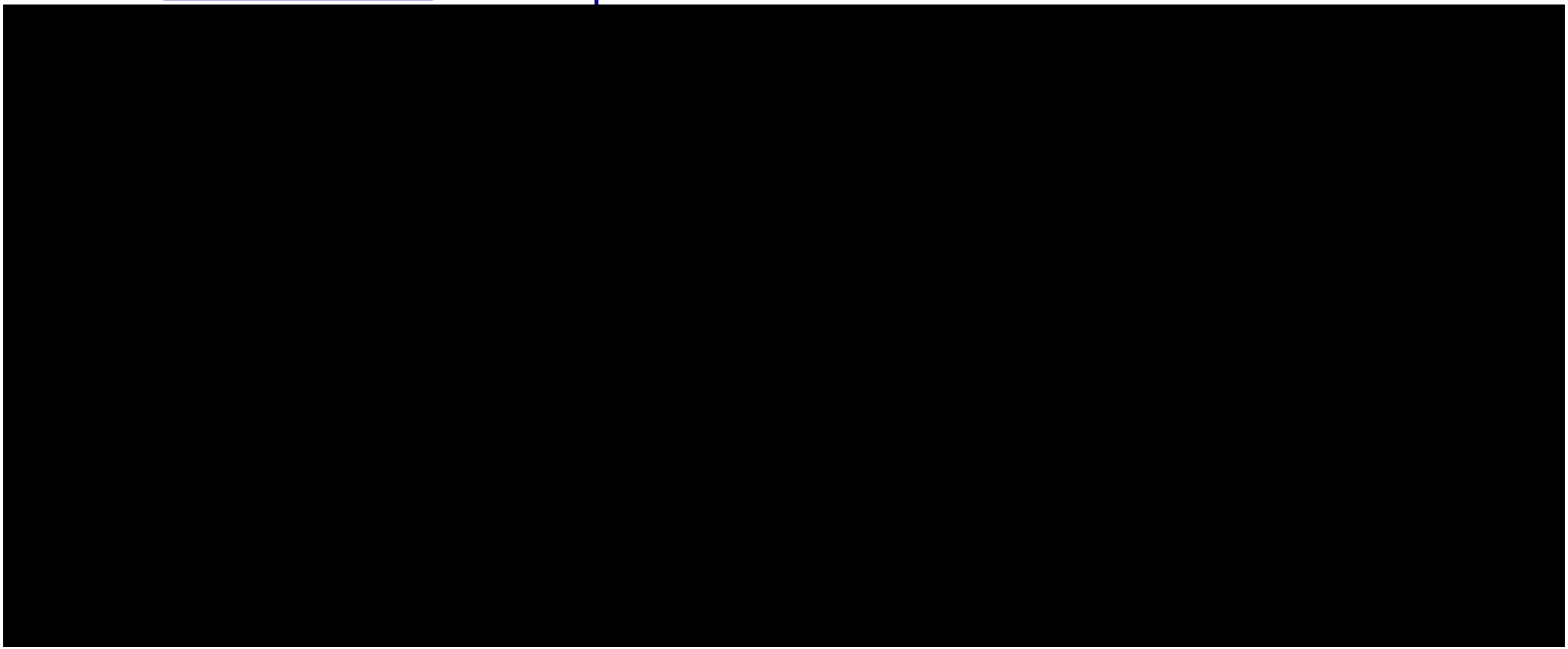
Scenario	N-1	Full GB Outage
Technology	[redacted]	
Gas Send-out		
Subsidiary		
Licence		
TPA		
Market Arrangements		
Revenue		
Revenue Recovery		

5.10 Business As Usual: High-level illustrative operating processes

FSRU N-1
(lease standard)

FSRU*
(lease standard)

Salt Cavern



Agreed in principle – detail to be specified as the project progresses

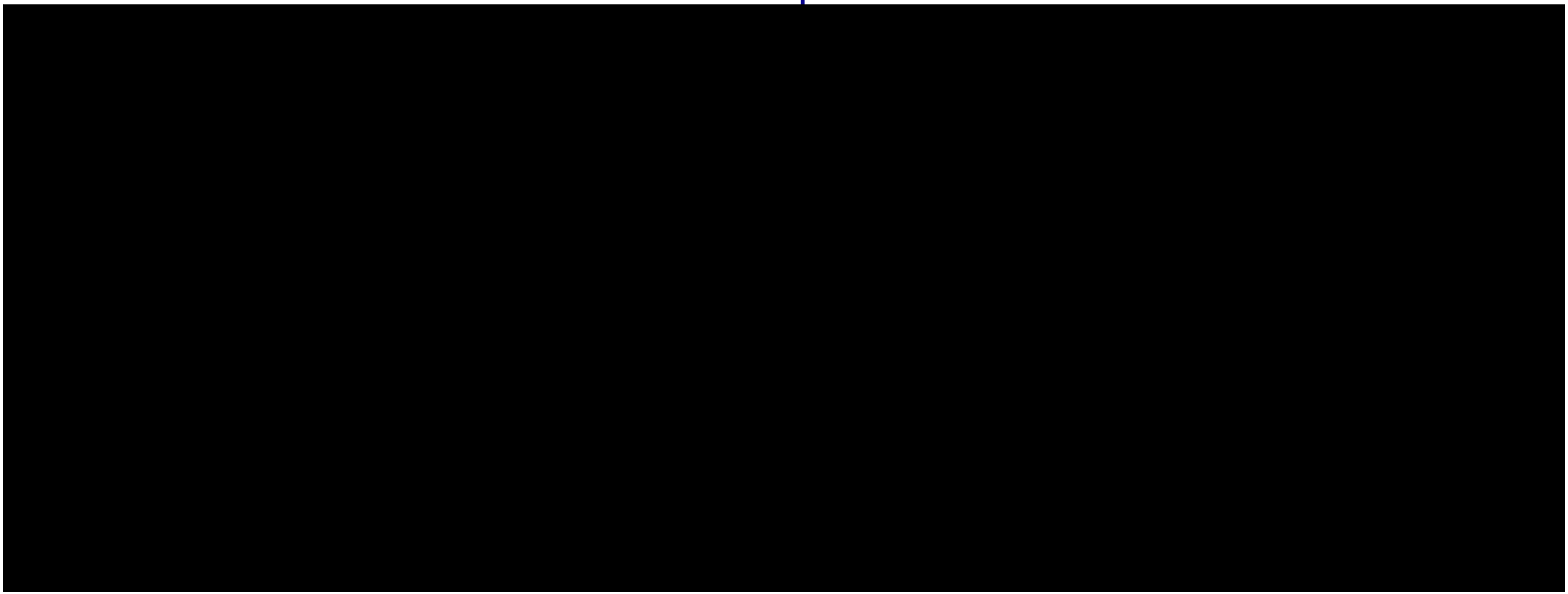
5.10 Business As Usual: High-level illustrative operating processes

Scope	N-1	Full GB outage
Technology	[redacted]	
Fill		
Gas Send-out		
TPA		
Market Arrangements		
Refill		

5.10 TSO declares emergency: High-level illustrative operating processes

FSRU N-1
(lease standard)

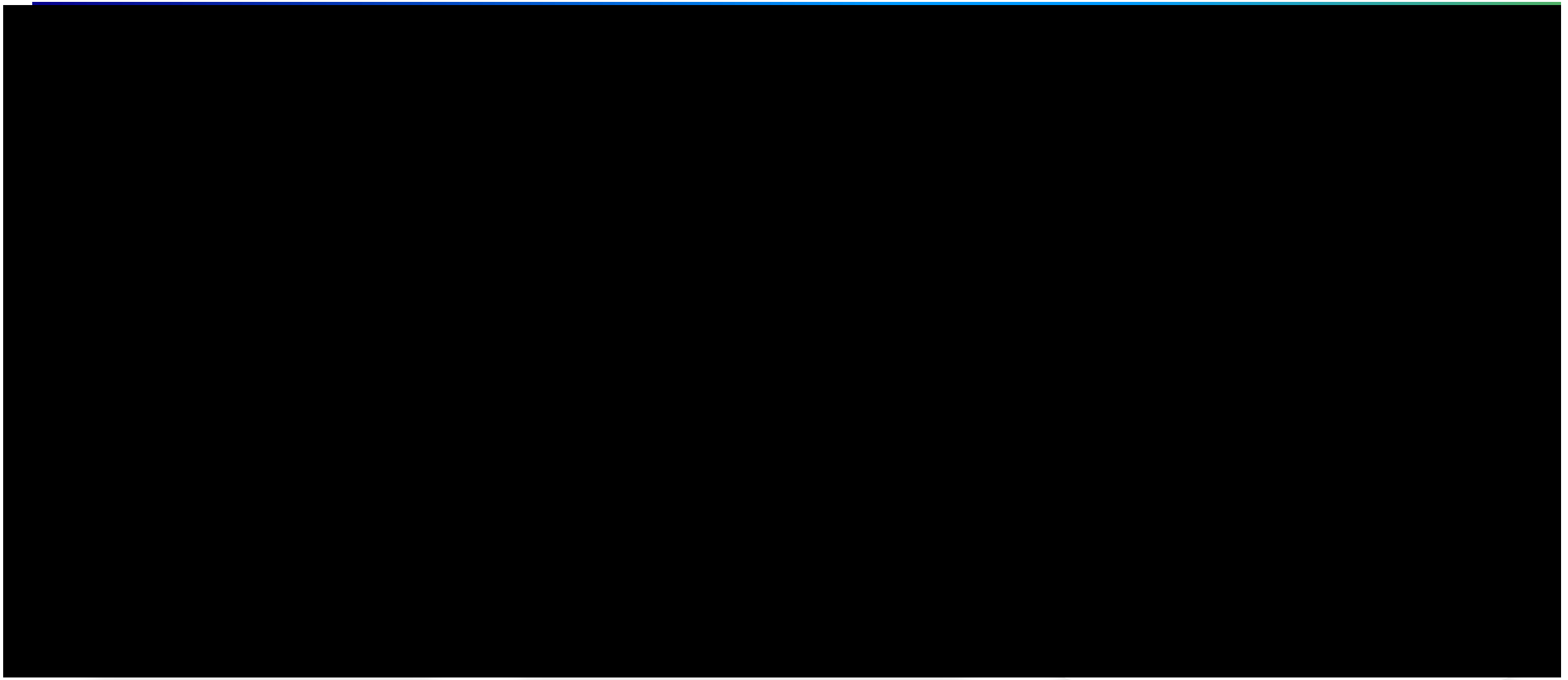
Salt Cavern & FSRU Full GB Outage



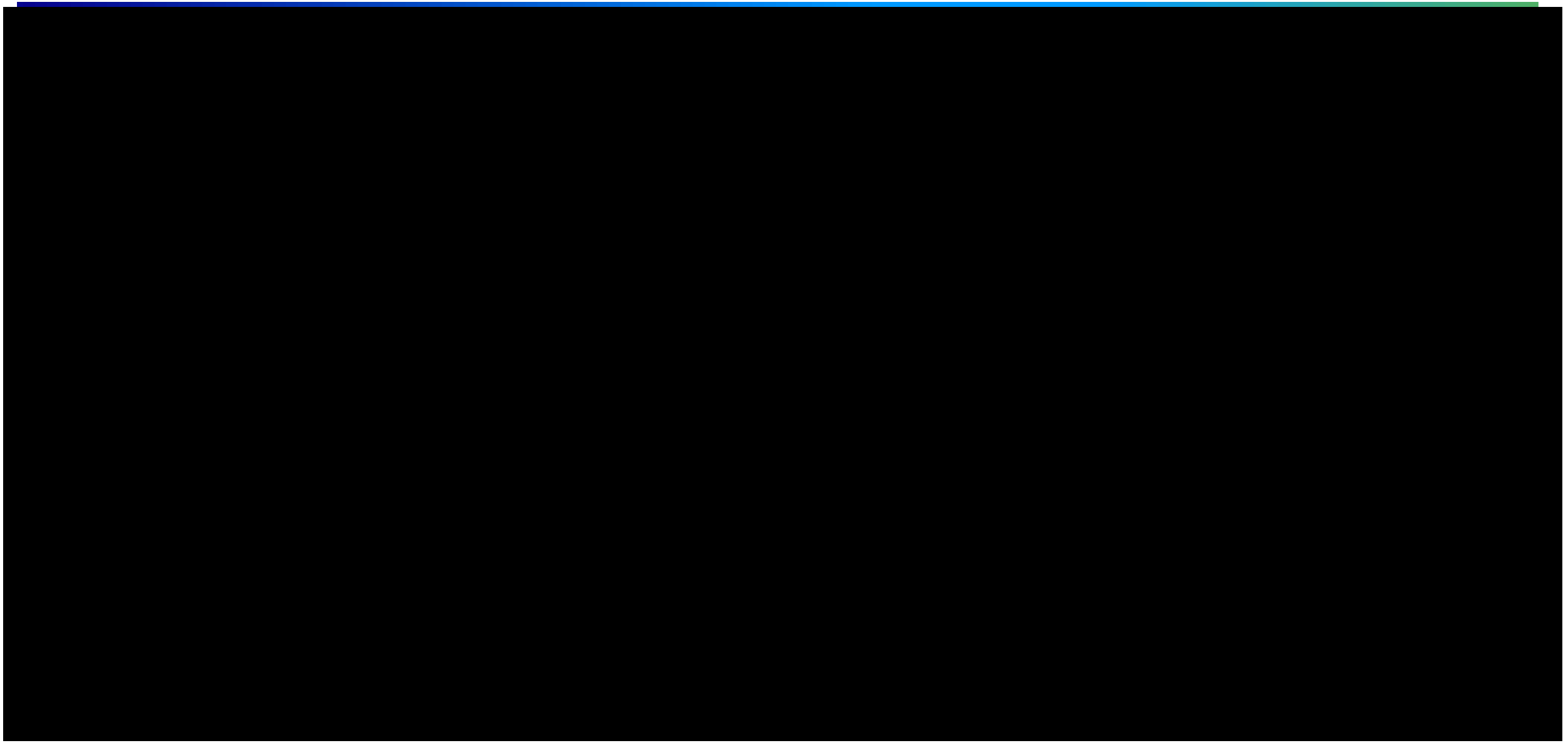
5.10 TSO declares emergency: High-level illustrative operating processes

Scope	N-1	Full GB outage
Technology	[redacted]	
TPA		
Market Arrangements		
Gas Send-out		
Refill		

5.10 Revenue Recovery – selecting a funding mechanism



5.10 Licencing & Subsidiary set-up



5.11 Sustainable Development

5.11 Sustainable Development

- The 2030 Agenda for Sustainable Development[6], adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future.
- At its heart are the 17 Sustainable Development Goals (SDGs), which apply to all countries – both developing and developed.
- The following SDGs have been identified through this and other studies as the key focus for the Project:
  - Goal 7 Ensure access to affordable, reliable, sustainable and modern energy for all
  - Goal 8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
  - Goal 12 Ensure sustainable consumption and production patterns
  - Goal 13 Take urgent action to combat climate change and its impacts
  - Goal 14 Conserve and sustainably use the oceans, seas and marine resources for sustainable development

[6] *United Nations (2015), The 2030 Agenda for Sustainable Development. Available here.*

5.11 Sustainable Development

- At the national level, a key element in delivering sustainable development is alignment with the Infrastructure Guidelines: Strategic Assessment and Preliminary Business Case. The Strategic Assessment & Preliminary Business Case Stage is the first stage of the project lifecycle and is critical for developing the strategic case for the project, deciding whether a project has a case for proceeding.
- Section 1.8 of the Infrastructure Guidelines provide a clear requirements in terms of Climate and Environmental Performance. As part of the Preliminary Business Case, each specific project or programme is assessed from a climate perspective.
- This requires an assessment of the impact of the project on greenhouse gas emissions and the resilience of a project/programme to the impacts of climate change. As noted, information can be presented qualitatively where it is not feasible to quantify the impact.
- An initial qualitative assessment of GHG emissions has been undertaken for the project options with clear link to CSF8 and CSF9. This has been reported separately.

Goal		Description	Associated Critical Success Factor (CSF)
	3	Good Health & Well-being	'Minimise Environmental Impact' CSF
	5	Gender Equality	'Benefits Local Community' CSF
	6	Clean Water & Sanitation	'Minimise Environmental Impact' CSF
	7	Affordable & Clean Energy	'Strategic Need' CSF
	9	Industry, Innovation, Infrastructure	'Sustainability" CSFs
	11	Sustainable Cities & Communities	'Safety' CSFs
	12	Responsible Consumption & Production	'Sustainability" CSFs
	13	Climate Action	'Does not contribute to an increase in fossil fuel use" CSFs
	14	Life Below Water	'Minimise Environmental Impact' CSF
	15	Life on Land	'Minimise Environmental Impact' CSF

Appendix M1 Introduction

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Appendix M2
Delivery Management & Governance

M2: Delivery Management – Governance Framework

Application of Routemap Best Practice for Project Governance

The Project will apply the Routemap methodology for governance[8] throughout the lifecycle of the Project. The guidance summarises the characteristics of effective governance into four pillars as outlined below. The four pillars address key considerations in relation to accountability, empowered decision making, maintaining strategic alignment, and implementing effective reporting and assurance processes.

The Project has developed a Governance Framework that aligns to the Routemap's best practice guidelines, and internal governance structures of GNI to ensure the project complies with internal policies where required such as risk management, financial approval and procurement.

Pillar 1: **Allocating and exercising accountability** — 1

- Clearly defining and agreeing the accountability of individuals and organisations for:
  - Defining the project's objectives
  - Ensuring the objectives align to corporate strategy, and to regulatory and statutory requirements
  - Successfully delivering the objectives and managing the associated risks and opportunities

Pillar 2: **Empowering decision-making** — 2

- Assigning authority to empower and facilitate effective decision-making
- Decision-makers have sufficient capability to make timely and appropriate decisions (or can seek advice to help them)
- Sufficient autonomy to allow decisions to be made at the lowest possible level to enable efficient delivery
- A collaborative culture and effective working relationship across the organisations involved

Pillar 3: **Maintaining alignment with strategy and stakeholder interests** — 3

- Checking ongoing alignment between corporate strategy, objectives and standards and those of the project
- Recognising and responding to any areas of misalignment, especially with key stakeholders and jointly sponsored projects
- Ensuring that any relevant ESG criteria are met

Pillar 4: **Reporting effectively and embedding assurance** — 4

- Defining and embedding the disclosure of information to assure stakeholders that the project is set to meet its objectives and its environmental, social and economic responsibilities
- A determined process for reporting and other communications between all organisations
- A defined system for assurance

[8] UK Government Infrastructure and Projects Authority (2021), Project Routemap Handbook, Governance UK Model. Available here

M2: Delivery Management – Governance Framework

Addressing Key Considerations in relation to Routemap Governance Best Practice

The Project has developed a Governance Framework that addresses all the key considerations outlined in the Routemap Governance module[8] under the four pillars of expected behaviour. Summarised below are the key project structures that are in place to ensure appropriate governance and enable timely project delivery.

1 Accountability

- ✓ Governance Framework developed by the Project and approved by GNI Board.
- ✓ Project Steering Committee established at Executive level, accountable to the Board for project delivery.
- ✓ Senior Responsible Owner (SRO) role assigned to GNI CEO.
- ✓ Asset Manager Role Assigned to GNI COO.
- ✓ A RACI for all key senior stakeholders has been documented and approved by Board.
- ✓ Reporting structures to DECC Action 17 Project established.

2 Empowered Decision Making

- ✓ Key project roles assigned to senior management resources in GNI to enable effective decision making.
- ✓ Regular cadence of Steering Committee and Board engagements delivering timely decisions.
- ✓ Decision authority levels for Project team, Steering Committee and Board approved.
- ✓ Escalations process established with Project Management Team, Steering Committee and Board.
- ✓ Decision Register established for key decisions to ensure good governance and transparency.

3 Strategic Alignment & Stakeholder Interests

- ✓ Project Stakeholder Engagement Strategy in place.
- ✓ Regular engagement with key stakeholders in DECC and CRU.
- ✓ DECC Action 17 Project structure in place with GNI resources assigned to workstreams.
- ✓ Regular GNI updates to Action 17 Steering and ESG meetings.
- ✓ Engagement with industry stakeholders as required.

4 Effective Reporting & Assurance

- ✓ Phases & gates approval process in place for key project milestones.
- ✓ IAAP in place to ensure all required governance structures are adhered to.
- ✓ Internal and external project reporting processes in place to ensure transparency on project performance.
- ✓ Project controls in place for scope, cost, schedule, risk, benefits etc.
- ✓ Independent reviews will be conducted as required.

[8] UK Government Infrastructure and Projects Authority (2021), Project Routemap Handbook, Governance UK Model. Available here

M2: Delivery Management – Applying Phases & Gates

Phases & Gates

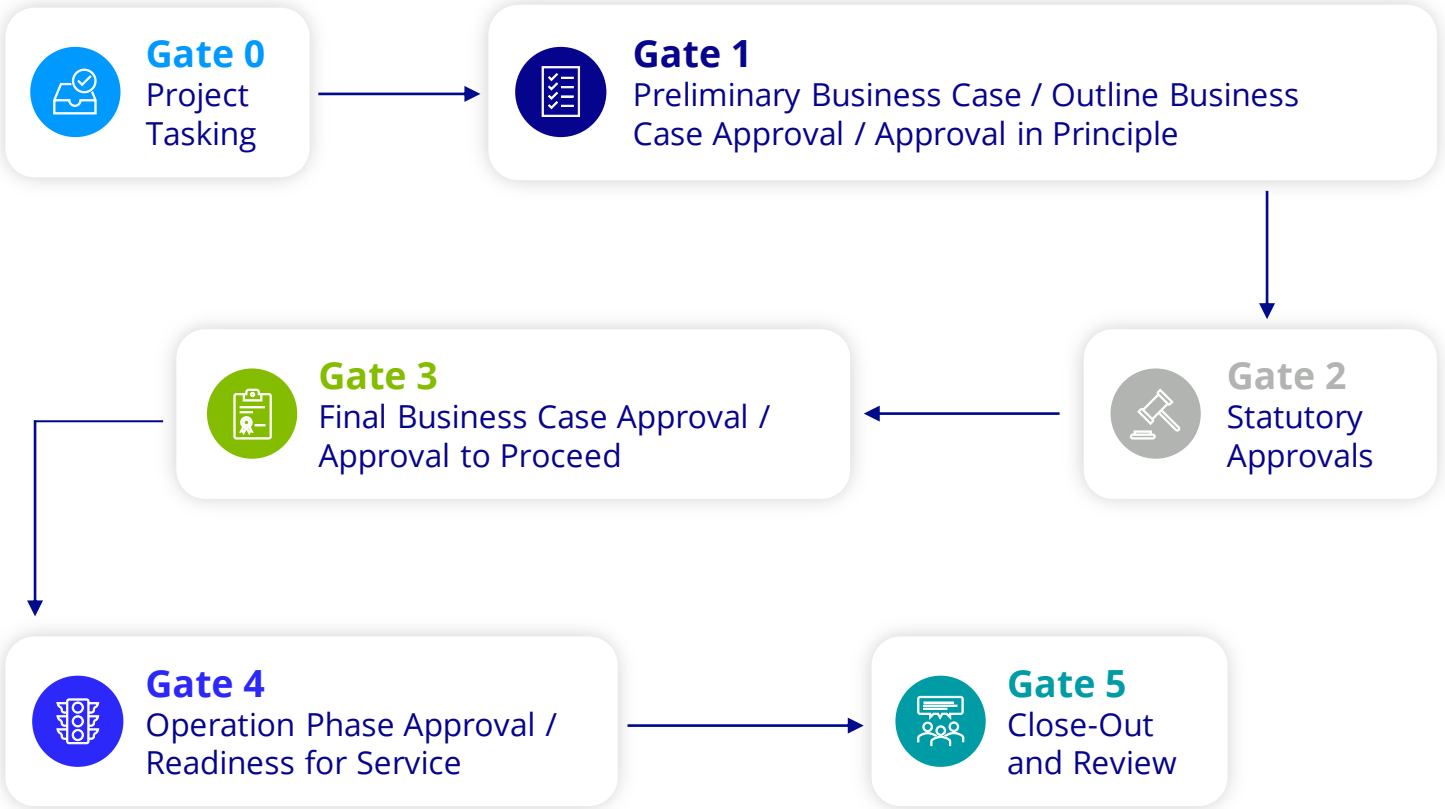
Stage gates will be used to divide the evolvement of the Project into distinct phases with defined gateways. The gateways will align with the end of the development phases of the Project lifecycle.

The purpose of the gateways is to ensure that a project has met certain requirements before it can proceed to the next phase. Requirements include a level of certainty achieved in relation to scope, cost, quality and time, as well as value / outcomes and benefits.

The gateways have been mapped in the Project's 'Integrated Assurance and Approvals Plan' (IAAP). The Project's governance process will map the various internal (GNI) and external stakeholder approval flows including any Project-specific 'Hold Points'.

GNI has structures in place for carrying out internal reviews, health checks and audits of projects. The gate review process provides a snapshot of progress at a point in time and, therefore, should be seen as complementary to these internal processes, and not a replacement for them.

At a high level, the gateways for the Project will be as shown on this slide.



M2: Delivery Management – Developing a Delivery Strategy

Application of Routemap Best Practice for Delivery Planning[9]

Delivery Planning

DP

The project will apply the Routemap methodology for delivery throughout the lifecycle of the project. The guidance summarises the characteristics of effective delivery into four pillars as outlined below. The four pillars address key considerations in relation to delivery strategy, stakeholder engagement, establishing a baseline and optimising performance.

1. **Demonstrate a clear Delivery Strategy**
2. **Build Engagement & Champion your Project**
3. **Establish a Baseline**
4. **Optimise Performance**

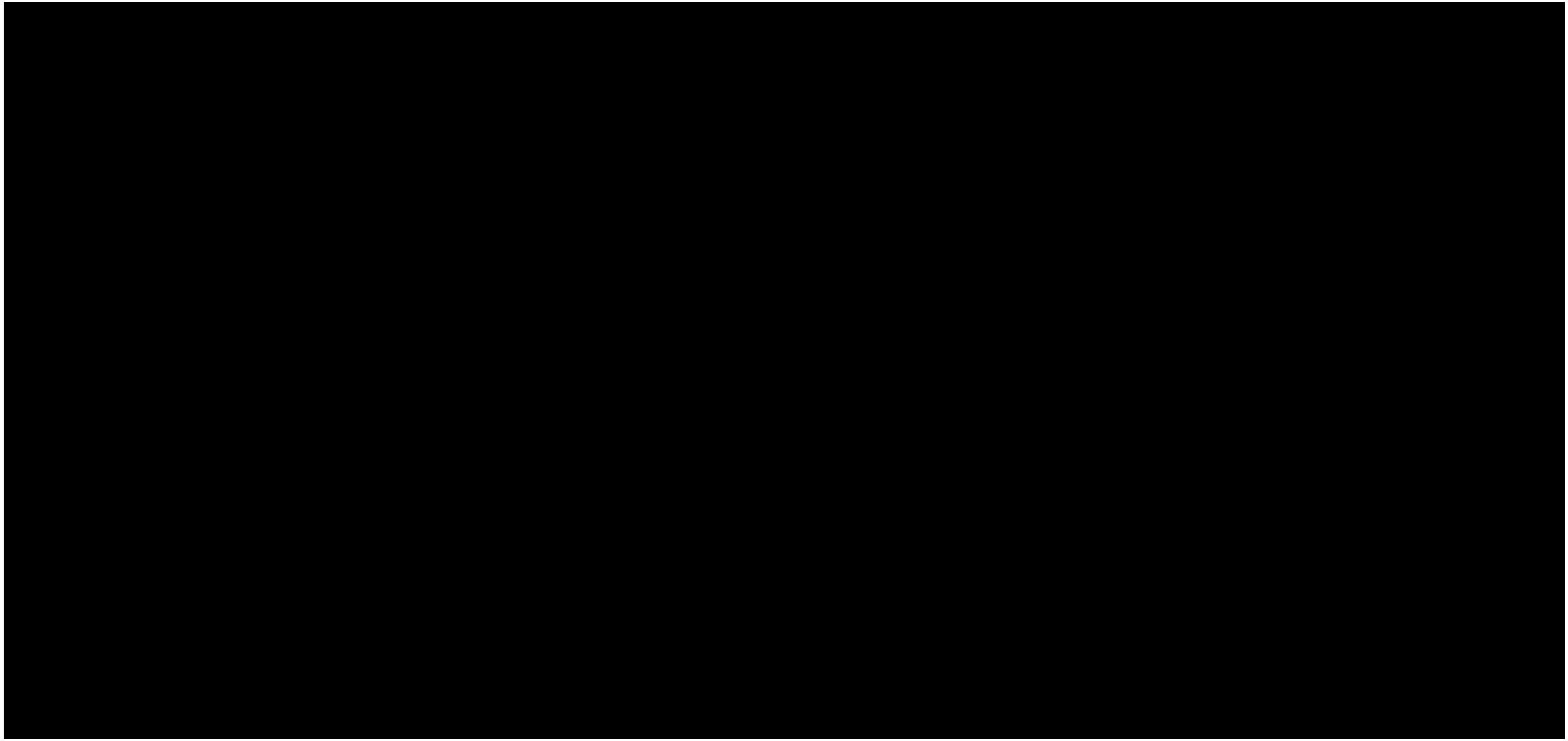
The Project Management Team will develop a clear delivery strategy for the project, with the following considerations:-

- Alignment with all key Project deliverables, for example the delivery strategy, the business case, client model and organisational design.
- Alignment to necessary corporate governance structures and project delivery methodologies such as phases and gates.
- Identification and planning for required capabilities (including people, processes and tools) to deliver the project.
- Seek assurance that the capabilities are in place ready for transition and secure the necessary approvals, for example via an agreed plan for transition.
- In support of an agreed delivery strategy, the Project must also ensure that a baseline is established, achieved by the preliminary business case, ensuring there is alignment across the baseline business requirements, the baseline budget and the baseline schedule / delivery plan to deliver the sponsor's requirements. To ensure the delivery strategy is executed correctly, a system to collect, interrogate and report on performance metrics will be implemented to assess and adjust delivery strategy as required. The delivery strategy is to be reviewed at each gate transition point to ensure it is appropriate for the current and future phase of work.

[9]UK Government Infrastructure and Projects Authority (2021), Project Routemap Handbook, Delivery Planning UK Model. Available here

M2: Delivery Management – GNI Project Organisational Structure

M2: Integrated Assurance and Approvals Plan (IAAP)



Appendix M3
Asset Management

M3: Asset Management Plan

Pillar 1: **Aligning project outcomes with the asset management strategy** — 1

- Be clear how the asset management strategy and portfolio of assets contribute to the organisational goals, business strategy and sustainability targets.
- Involve the asset manager upfront and start planning early to develop the operational capability and competence required for when the project has been completed and the asset handed over.
- Consider the whole context (internal and external) within which the project is delivering, including how it will eventually integrate with existing systems.

Pillar 2: **Optimising whole life value** — 2

- Base decision-making on the whole life cycle, including the economic, environmental and social value the asset will bring.
- Understand the total cost of ownership of the asset by undertaking whole life cost benefit analysis, as an integral part of the business case development.
- Balance capital and operational costs and risks when setting the project's requirements. Consider how choices made in delivery will impact operations.

Pillar 3: **Leveraging asset performance data** — 3

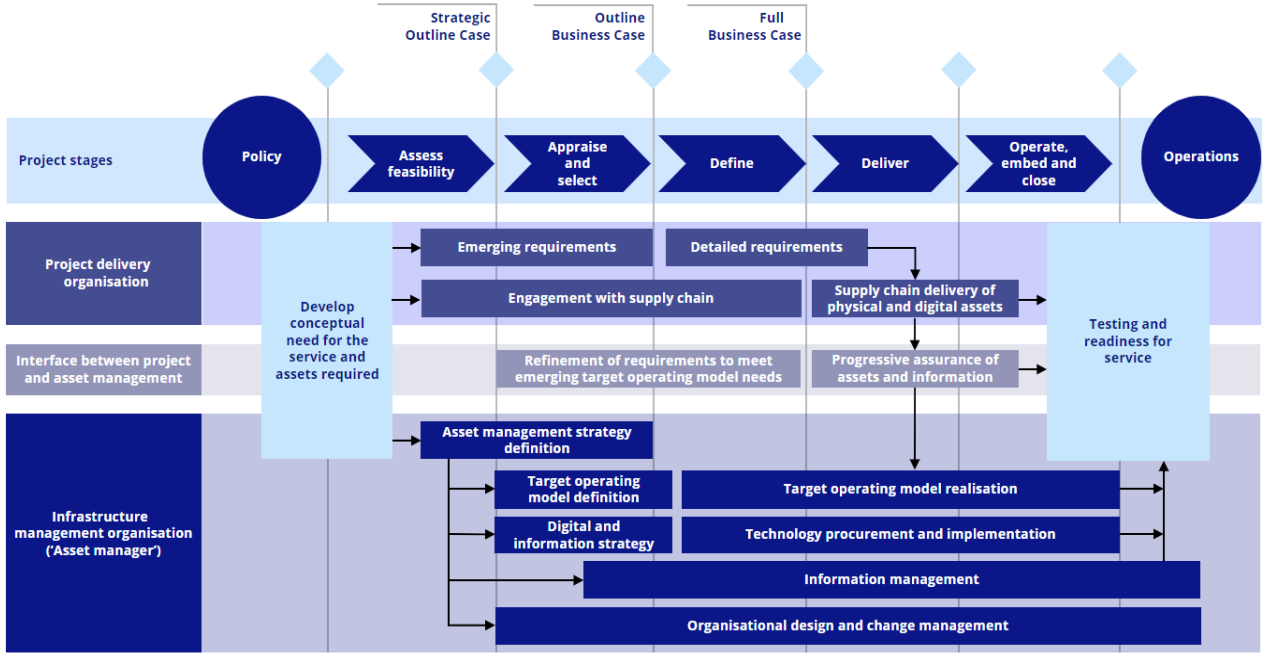
- Ensure that performance data aligns to industry standards, supports decision-making and provides progressive assurance on route to handover.
- Secure value for money by understanding the drivers of whole life cost. Use asset performance data to support periodic assessment of these costs and look for efficiencies.
- Set explicit whole life parameters in requirements, for example availability and reliability. Capture and report on these metrics regularly as the project progresses.

Pillar 4: **Leading asset management** — 4

- Work to align the behaviours, values and objectives of the organisations involved in the creation and management of the asset, both physically and digitally.
- Collaborate to understand the interdependencies between the new and existing assets. Involve those who will own the end-state asset upfront to ensure their voices are heard.
- Consider how future trends and policy directions will influence the use of the asset, and its impact on end users and wider society long after the project has closed.

The four pillars of effective Asset Management, as defined in the IPA Project Routemap[10] will underpin the asset management framework.

- Asset Management Strategy is in development and will be included with the Outline Business Case
- Preliminary Target Operating Model has been defined for the concepts
- Next steps will address information management strategy and Organisation Design



[10]UK Government Infrastructure and Projects Authority (2021), Project Routemap Handbook, Asset Management UK Model. Available here.

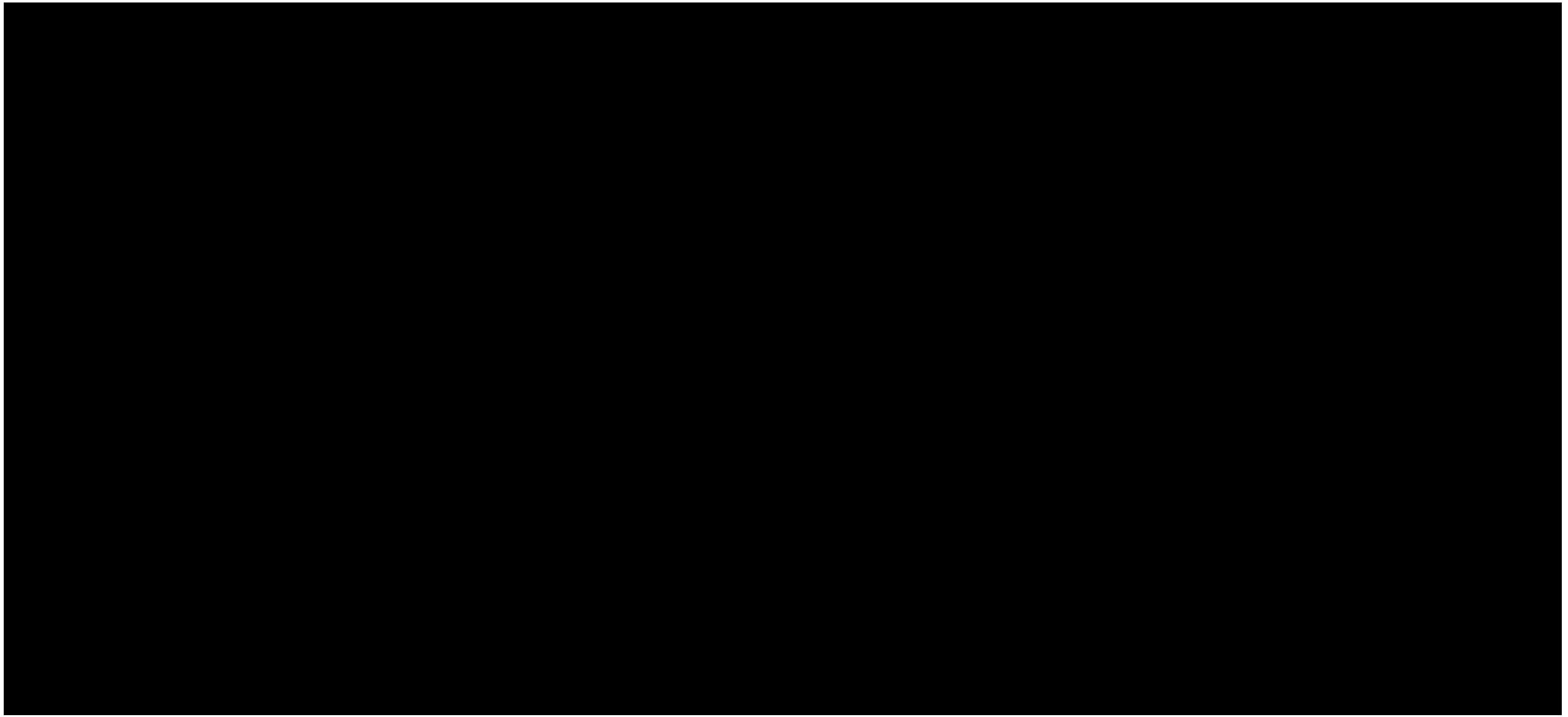
M3: Asset Management Plan

Asset management is a process that involves devising a plan for handling, developing, operating and sourcing organisational assets. In doing so, these assets have the potential for enhanced delivery, at a lower cost and with a reduced risk of waste. This leads to an increased chance of project success.

The benefits of effective asset management planning are presented below.

Appendix M4
Project Delivery Plan

M4: Emerging N-1 Solution (Leased FSRU Plus Jetty) High Level Plan On A Page*



*Based on BAU Schedule Scenario

M4: Emerging Full Outage Solution – Leased FSRU Plus Jetty with Onshore Salt Cavern Storage - High Level Plan On A Page*

Appendix M5
Project Delivery Cost

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Appendix M6 Stakeholder Management

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Appendix M7
Change Control

M7: Change Control

Key Roles for Change Control

The following outlines some of the key project roles that will ensure a robust change control process is in place for the duration of the project.

Project Control Team

- Design and implementation of project controls for schedule, risk and cost management
- Oversee project change control process ensuring proposed changes are appraised appropriately against baseline cost, schedule, risk and benefits etc.
- Manage action plans to implement agreed changes
- Maintain change control register
- Manage relevant project stakeholders in relation to approved changes for implementation

Project Finance Team

- Maintain baseline cost estimate and project delivery budgets, ensuring all proposed changes to scope, cost or schedule are impact assessed from a financial perspective
- Manage approved adjustments to cost estimates and project delivery budgets in line with change control process, ensuring all key stakeholders are informed of the change

Project Management Office

- Ensure change control process is adhered to for all proposed changes, responsible for ensuring all baseline documents are maintained and considered as part of the change control process
- Review proposed changes and work with key project stakeholders to impact assess the changes.
- Review and approve change appraisals within approval thresholds, manage escalation process to steering for decisions above thresholds

Project Scheduler

- Maintain baseline project schedule and ensure all proposed changes to scope, schedule, or budget, are impact assessed appropriately from a schedule perspective
- Manage approved schedule adjustments in line with change control process, ensuring that all approved schedule changes are reflected in the project plans and communicated to key stakeholders

Risk Management Team

- Maintain baseline risk register, risk management plan and risk mitigation plans. Ensure all proposed changes to cost, schedule and scope are assessed from a risk perspective
- Manage approved changes, ensuring all risk management registers and plans are updated accordingly and key stakeholders are informed of any

Project Steering Committee

- Provide review and guidance to the project team for high impact proposed changes to cost, scope and schedule
- Review and challenge proposed changes and support the team to implement approved changes, with a focus on senior stakeholder engagement

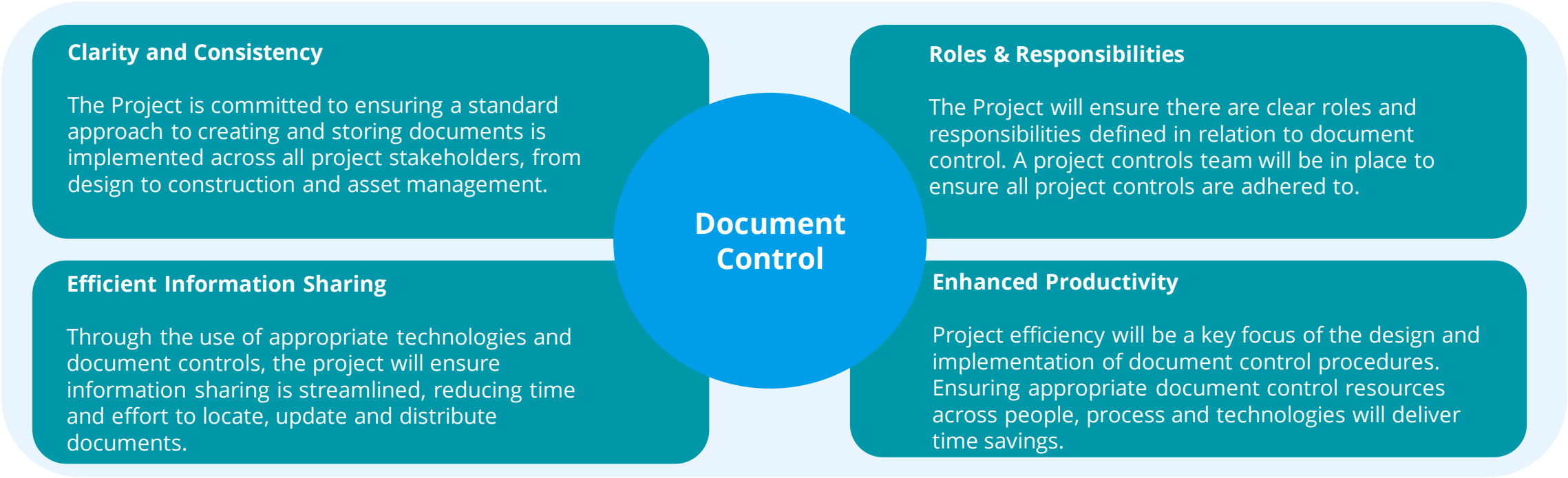
M7: Change Control – Document Control Approach

Document Control Approach

The Project will implement a standardised document control procedure for the duration of the project. The team are currently reviewing the ISO 19650 International Standard for Building Information Management and will develop an approach based on its guiding principles.

ISO 19650 is a globally recognised set of standards designed to facilitate the organisation and management of data created during construction projects. The standard clarifies common problems when managing information effectively, namely the lack of clarity, proper structure, and processes necessary for project success. At a high level, it provides guidance on how models and data must be stored and managed to improve accessibility and coordination between different disciplines and sectors involved in the process. This helps streamline up-to-date design decisions and enables informed decision-making throughout the project lifecycle.

Key considerations that will be addressed by the projects document control procedure:



Appendix M8
Benefits Realisation Plan

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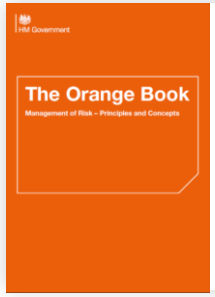
Appendix M9
Risk Management

M9: Risk Management Plan – Best Practice

The Project has produced a comprehensive risk management strategy which takes best practise from multiple integrated, internationally recognised leading documents for the application of successful and value-added risk management. The IPA Project Routemap[1] is the link between its predecessors ('HMG Orange Book'[12] and 'ISO 31000'[13] which have defined the principals of what has become the Routemap), and the "how" defined in the APM Project Risk Analysis and Management Guide.[17]

IPA Project Route map – Module 6 - Risk Management. Used for establishing context and defining requirements for the overall risk management approach.

APM Project Risk Analysis and Management (PRAM) Guide – Used to define the discrete activities required to establish an effective and value-added risk management service on the project.



HMG Orange Book - Management of Risk – Used to establish the principles for most effective and appropriate risk management on the project, recognising the need for governance, assurance and accountability.

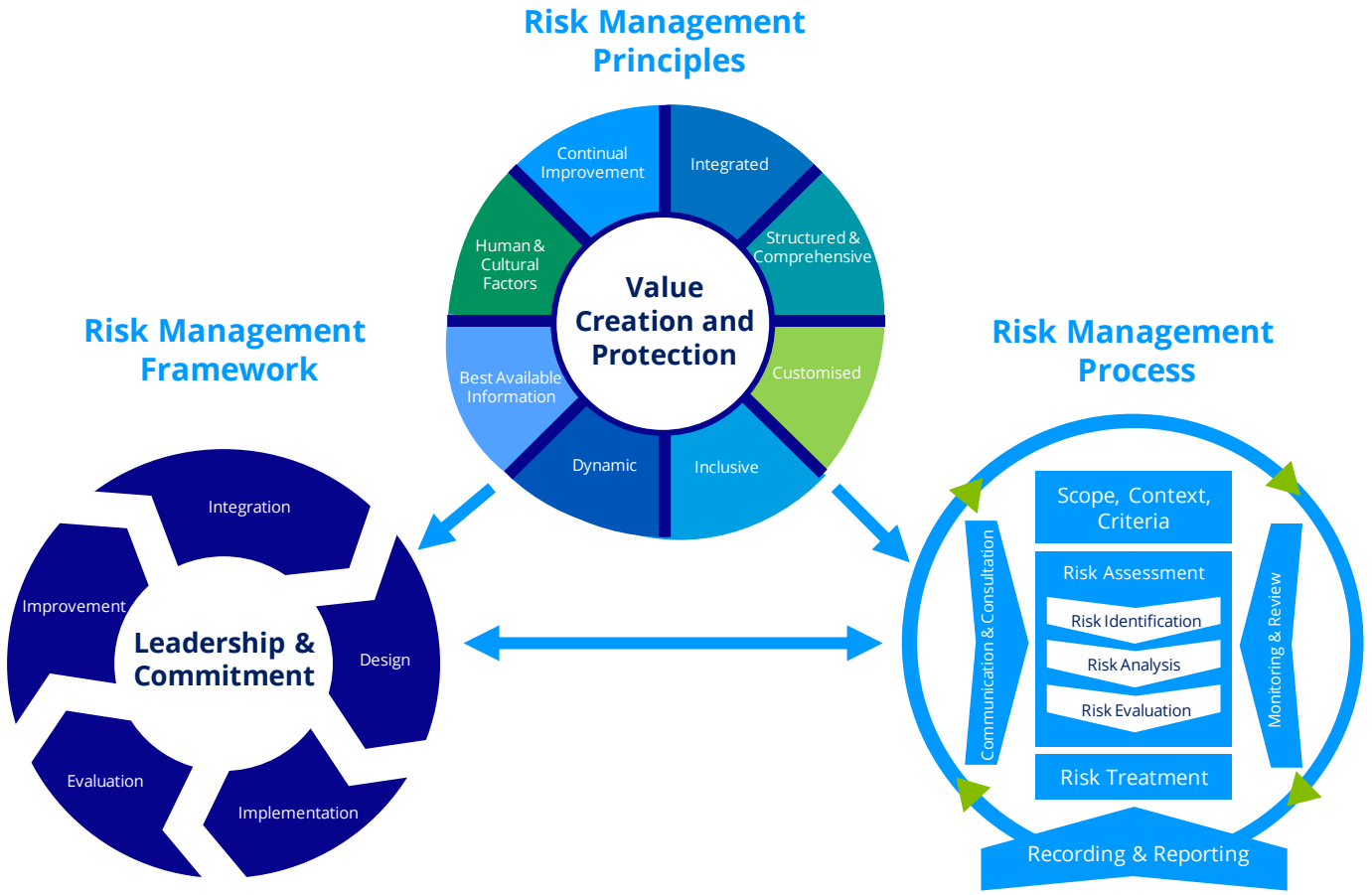
ISO 31000 – International Standard in Risk Management – Used to establish the key steps required in a successful risk management process.

[1]UK Government Infrastructure and Projects Authority (2021),Project Routemap Handbook. Available here
[3]APM Publication (2010), Project Risk Analysis and Management Guide. Available here
[12]UK Government (2020) ,The Orange Book, Management of Risk Principles and Concepts. Available here
[13]International Standard, ISO 31000, Risk Management Guidelines (2018). Available here

M9: Risk Management Plan – Risk Strategy

Effective risk management is crucial on major project delivery. It provides confidence in achievement of outputs to time, cost and quality requirements.

If the correct behaviours and culture are not instilled, or collaboration in missing in its deployment, risk management can fall flat, offering little value.



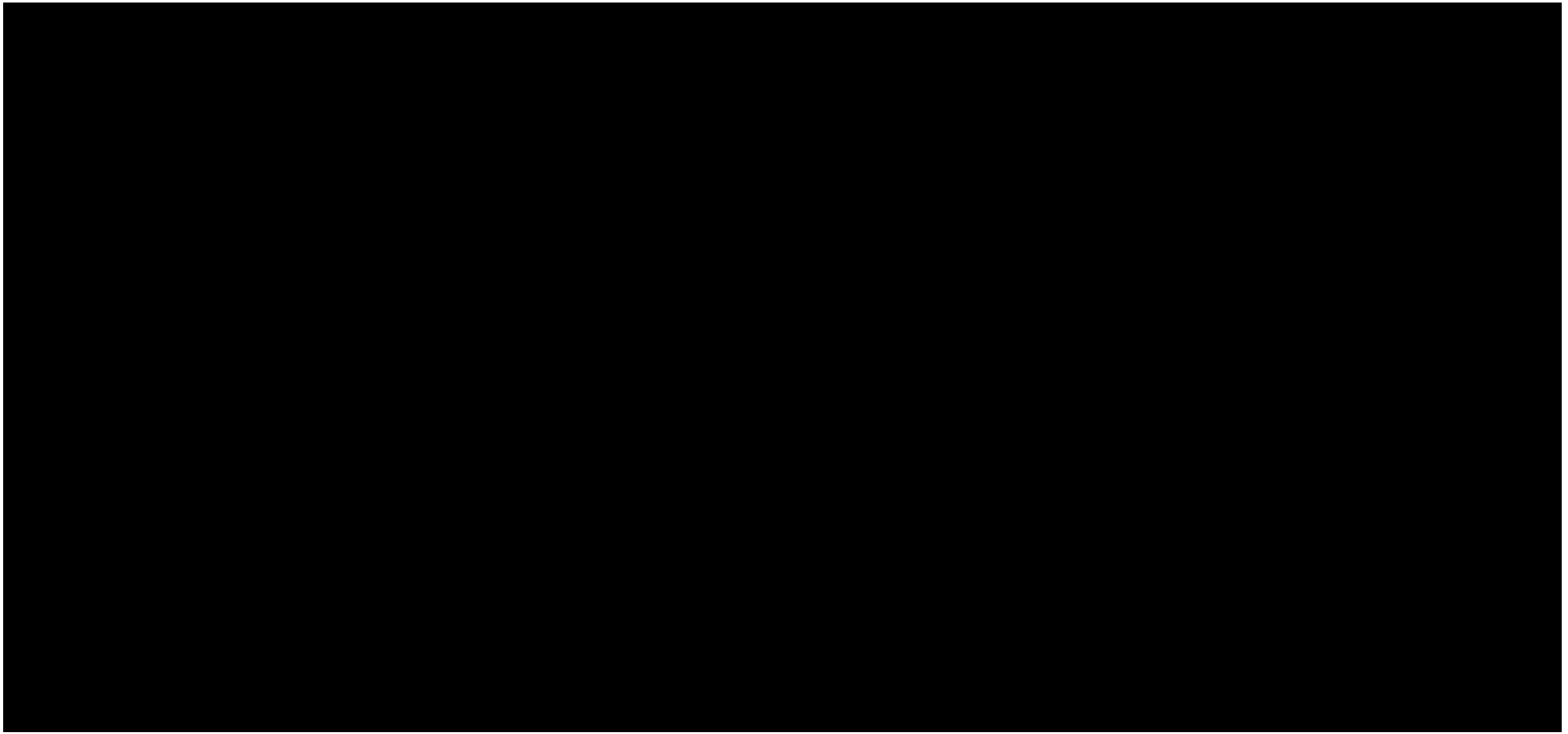
The **framework** used must be continuously improved and bought into by the senior teams from all organisations involved, and the time required to deliver effective risk management supported and prioritised by all.

The **principles** around its deployment must be embedded into the integrated project team and shared as common behaviours and expectations across all project professionals.

The **process** must be followed and tailored to the specific needs of the project and the businesses it supports, always striving to add maximum value for proportional effort.

The **continuous feedback between framework, principles and process** should be captured to ensure relevant enhancements are made to each as we journey through project delivery, to get the best from the team and provide the best for the business.

M9: Risk Management Plan - Governance Overview



M9: Risk Management Plan – Categories and Impact Thresholds

M9: Risk Management – Project Risk Scoring & Escalation Level

Appendix M10 Regulatory Framework and Legislative Compliance

M10: Overview of BOG/Minimum Send-out Requirements (FSRU)

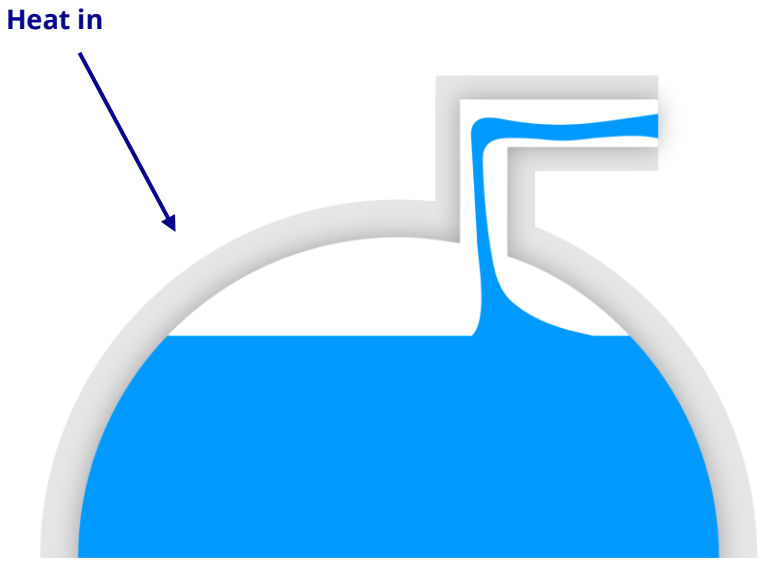
Engineering Challenges

Boil-Off Gas (BOG) – Evaporation of (cold) LNG caused be normal tank insulation imperfections resulting from heat transfer from exterior.

Minimum Send Out – the lowest level at which plant can operate.

Weathering – LNG is made up of several components. As boil-off occurs, the make up of the LNG in a tank changes: the concentration of methane decreases causing gas quality to move towards limits of acceptance.

Quality ("Wobbe") – standard setting acceptable range of gas specification.



Illustrative Calculations

Typical LNG BOG daily loss c.0.15%

But this is surpassed by Minimum Send Out requirements which have a daily range of c.10 – 30 GWh (Note: still being verified, Mar 2024)

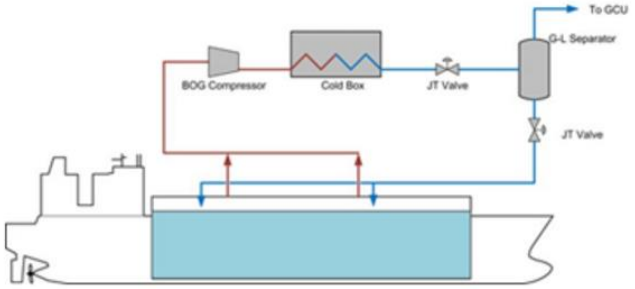
Therefore, for illustration purposes we assume a midpoint of 20 GWh...

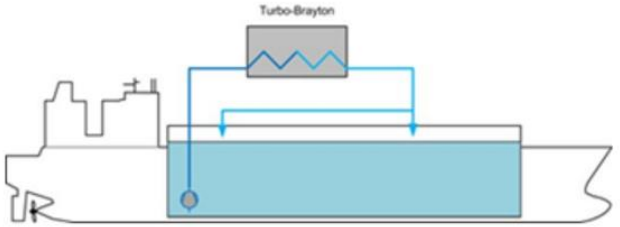
LNG Tank Capacity 1.2TWh (1,200 GWh):

=> c.60 Days between Refills
=> c.6 shipments per annum = 7.2TWh (or 13% of Current Annual Demand of 55TWh)

M10: Potential Technology Solution

Direct Liquefaction vs Subcooling



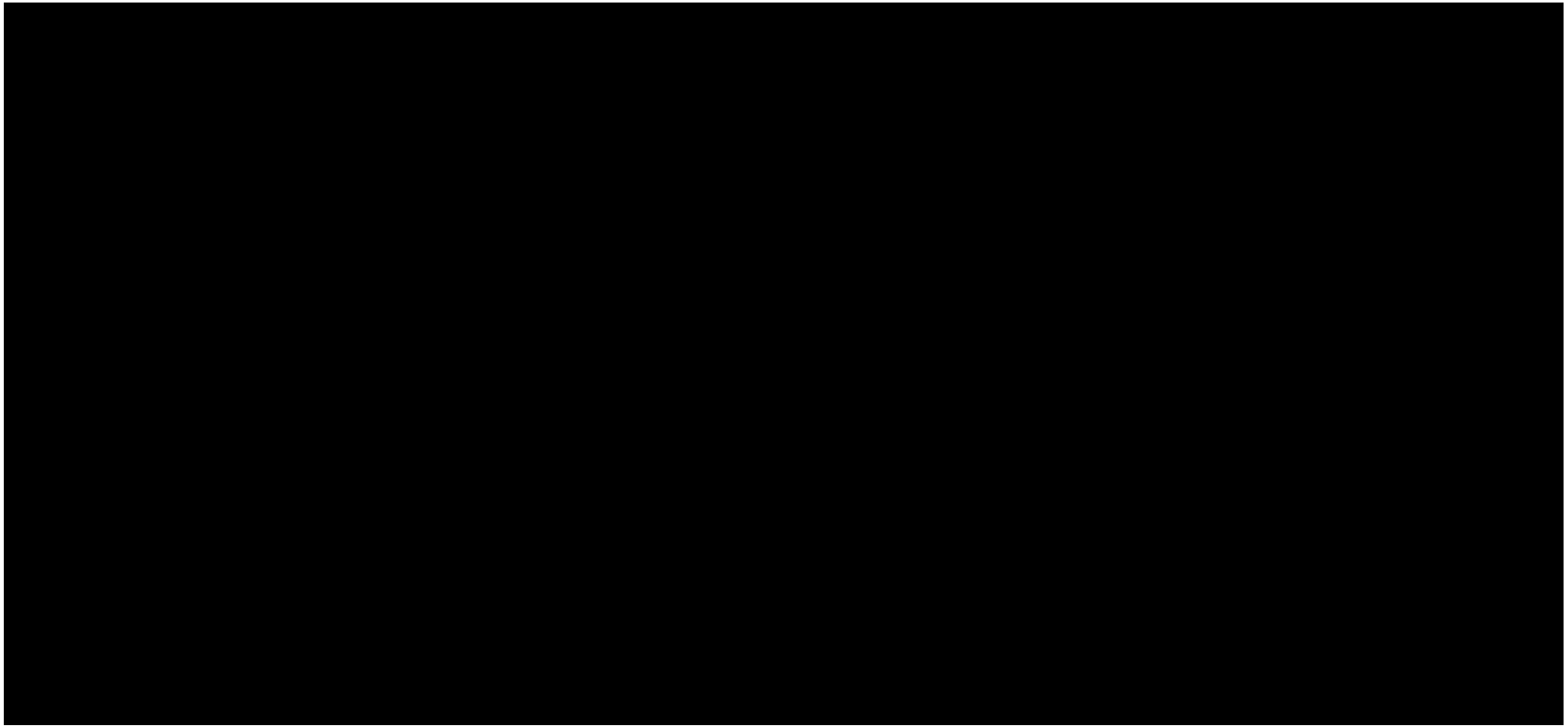


- **Direct Liquefaction**
  - Electrical consumption
    - Liquefier
    - BOG compressor
  - Operation depending of engines consumption

- **Subcooling**
  - Electrical consumption
    - Subcooler
    - Spray pump
  - Operation independent of engines consumption

[redacted]

M10: High Level Regulatory Task and Owners (FSRU)



M10: Leased FSRU: Send-Out Market Arrangements – BAU

Appendix M11 Sustainable Development

M11: 17 Sustainable Development Goal of the United Nations

#	Sustainable Development Goal	Relevance to Project
1	End poverty in all its forms everywhere	Not currently deemed applicable at the project level.
2	End hunger, achieve food security and improved nutrition and promote sustainable agriculture	Not currently deemed applicable at the project level.
3	Ensure healthy lives and promote well-being for all at all ages	Project aligns with CSF Community – benefits local community. Social and socio-economic impacts will be assessed and mitigated as part of the EIA process. Opportunities to provide positive benefits will be explored through the EIA process.
4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	Not currently deemed applicable at the project level.
5	Achieve gender equality and empower all women and girls	Project will be developed in line with Ireland's gender equality laws ensuring alignment with SDG5.
6	Ensure availability and sustainable management of water and sanitation for all	Project aligns with CSF Community – minimises environmental impact. Potential impacts on water and sanitation will be assessed and mitigated as part of the EIA process.
7	Ensure access to affordable, reliable, sustainable and modern energy for all	SDG aligns with CSF Strategic Need – Ability to meet strategic need. Project aims to address potential shocks in gas supply ensuring energy availability for consumers.
8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	Project aligns with CSF Community – benefits local community. Social and socio-economic impacts will be assessed and mitigated as part of the EIA process. The project will consider ways to contribute to sustainable economic growth as can be achieved at the project level. The project also aligns with CSF Financial – minimises costs to Irish consumers.
9	Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation	The project will align with a number of CSFs that will contribute to development more resilient infrastructure through CSF Sustainability – avoid lock to fossil fuels and compatible with long term hydrogen storage (Action 14). Therefore the infrastructure will be designed for the future transition from natural gas to hydrogen.

M11: 17 Sustainable Development Goal of the United Nations

#	Sustainable Development Goal	Relevance to Project
10	Reduce inequality within and among countries	The objective of the project is to ensure the long-term strategic gas reserve should there be interruption on supplies that has been experienced. This ensures that Ireland is not at risk of energy scarcity that may have a detrimental effect on it's economic wellbeing in comparison to other energy rich countries.
11	Make cities and human settlements inclusive, safe, resilient and sustainable	This aligns with CSF Safety – minimises safety risk and public acceptance, ensuring that the project is designed to ensure the full safety of nearby human settlements.
12	Ensure sustainable consumption and production patterns	Project aligns with CSF Sustainability – does not contribute to increase in fossil fuel use at the national level and avoids lock-in to fossil fuels. Project will not result in a net increase of fossil fuel use and aims to allow future sustainable energy use associated with long term hydrogen.
13	Take urgent action to combat climate change and its impacts	Project aligns with CSF Sustainability – does not contribute to increase in fossil fuel use at the national level and avoids lock in to fossil fuels. Project will not result in a net increase of fossil fuel use at the national level.
14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	Project aligns with CSF Community – minimises environmental impact. Potential impacts on marine resources will be assessed and mitigated as part of the EIA process.
15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	Project aligns with CSF Community – minimises environmental impact. Potential impacts on terrestrial ecosystems will be assessed and mitigated as part of the EIA process.
16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	Not currently deemed applicable at the project level.
17	Strengthen the means of implementation and revitalise the Global Partnership for Sustainable Development	Not currently deemed applicable at the project level.

Appendix M12
Miscellaneous

M12 - References

1. Department of Public Expenditure NDP Delivery and Reform (2023), Infrastructure Guidelines: Strategic Assessment and Preliminary Business Case. Available here
2. Infrastructure and Projects Authority (2022), Infrastructure Business Case: International Guidance. Available here
3. Infrastructure and Projects Authority (2022), Project Routemap. Available here
4. UK Government Infrastructure and Projects Authority (2021),Project Routemap Handbook. Available here
5. International Standard, ISO 31000, Risk Management Guidelines (2018). Available here
6. APM Publication (2010), Project Risk Analysis and Management Guide. Available here
7. Government of Ireland (2022), Development (Emergency Electricity Generation) Act 2022. Available here
8. Government of Ireland (1976), The Gas Act. Available here
9. Government of Ireland (2022), Development (Emergency Electricity Generation) Act. Available here
10. United Nations (2015), The 2030 Agenda for Sustainable Development. Available here
11. UK Government Infrastructure and Projects Authority (2021), Project Routemap Handbook, Governance UK Model. Available here
12. UK Government Infrastructure and Projects Authority (2021), Project Routemap Handbook, Delivery Planning UK Model. Available here
13. UK Government Infrastructure and Projects Authority (2021), Project Routemap Handbook, Asset Management UK Model. Available here
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Appendix M12: Project Acronyms (1/2)

Acronym	Description
ABP	An Bord Pleanála
ACER	Agency for the Cooperation of Energy Regulators
AGI	Above Ground Installation
ALARP	As Low As Reasonably Practicable
AMP	Asset Management Plan
ARC	Audit & Risk Committee
BAT	Best Available Techniques
BAU	Business as Usual
BIM	Building Information Management
BIMCO	Baltic and International Maritime Council
BOG	Boil Off Gas
CAP	Climate Action Plan
CAPEX	Capital Expenditure
CBA	Cost Benefit Analysis / Assessment
CBCA	Criteria Based Content Analysis
CEPA	Cambridge Economic Policy Associates
CLO	Community Liaison Officer
CoDG	Cost of Disruption of Gas
COMAH	Control of Major Accident Hazards
CPO	Compulsory Purchase Order
CRU	Commission for Regulation of Utilities
CSF	Critical Success Factors
CSO	Central Statistics Office
D&A	Depreciation & Amortisation
DAERA	Department of Agriculture, Environment and Rural Affairs
DB+OM	Design Build + Operate Maintain

Acronym	Description
DECC	Department of the Environment, Climate and Communications
DG COMP	Directorate General for Competition
DHLGH	Department of Housing, Local Government and Heritage
DofE	Department of Energy (Northern Ireland)
DofF	Department of Finance (Northern Ireland)
DPENDR	Department of Public Expenditure, NDP Delivery and Reform
DPER	Department of Public Expenditure and Reform
EAC	Expenditure Approvals Committee
EC	European Commission
EGIG	European Gas Pipeline Incident Group
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EP	Equator Principles
EPA	Environmental Protection Agency
EPC	Engineer Procure Construct
EPO	Emerging Preferred Option
EPRS	Emergency Pipeline Repair System
ESBN	ESB Networks
ESG	Environmental Social and Governance
ESG	Energy Security Group
ESP	Engineering Services Provider
FBC	Final Business Case
FEED	Front End Engineering Design
FFO	Funds From Operations
FID	Final Investment Decision

Acronym	Description
FIDIC	International Federation of Consulting Engineers
FSRU	Floating Storage and Regasification Unit
FTE	Full Time Equivalent
GB	Great Britain
GDP	Gross Domestic Product
GHG	Greenhouse Gas
HSA	Health and Safety Authority
HVO	Hydrogenated Vegetable Oil
IAAP	Integrated Assurance and Approvals Plan
IBP	Integrated Business Planning
IC	Interconnector
IChemE	Institution of Chemical Engineers
IEA	International Energy Agency
IED	Industrial Emissions Directive
IoM	Isle of Man
IPA	Infrastructure and Projects Authority (UK)
ISO	International Organisation for Standardisation
KPI	Key Performance Indicator
LNG	Liquefied Natural Gas
LNGC	Liquefied Natural Gas Carrier
LSO	LNG System Operator
MAC	Maritime Area Consent
MARA	Maritime Area Regulatory Authority
MSCM	Millions of Standard Cubic Metres
MSm	Mega Standard Cubic Metres

Appendix M12: Project Acronyms (2/2)

Acronym	Description
NDP	National Development Plan
NEC4	New Engineering Contract 4
NGEM	Natural Gas Emergency Manager
NGEP	National Gas Emergency Plan
NI	Northern Ireland
NPF	National Planning Framework
NPV	Net Present Value
NPWS	National Parks and Wildlife Service
NSO	National Strategic Objective
O&M	Operation & Maintenance
OJEU	The Official Journal of the European Union
OOM	Order Of Magnitude
OPEX	Operating Expenditure
PDA	Planning and Development Act 2000 (as amended)
PID	Piping Instrumentation Diagram
PLT	Project Leadership Team
PMO	Project Management Office
PP JV	Public-Private Joint Venture
PPP	Public-Private Partnership
PRAM	Project Risk Analysis and Management
PSO	Public Service Obligation
QA	Quality Assurance
QRA	Quantitative Risk Assessment
QSRA	Quantitative Schedule Risk Analysis
RAB	Regulated Asset Base
RACI	Responsible Accountable Consulted Informed
RAG	Red, Amber, Green
RCF	Reference Class Forecasting
RED	Renewable Energy Directive (EU) 2023/2413
RES	Renewable Energy Source
ROI	Republic of Ireland
RPE	Real Price Effect
RTP	Route to Procurement
S&P	Standard & Poor's
SBC	Strategic Business Case
SCRT	SCR + CRT (Selective Catalytic Reduction + Continuous Regenerating Technology)
SDG	Sustainable Development Goal
SEM	Single Electricity Market
SGER	Strategic Gas Emergency Reserve
SGERP	Strategic Gas Emergency Reserve Project
SGR	Sustainable Growth Rate
SID	Strategic Infrastructure Development
SME	Small and Medium-sized Enterprises
SNIP	Scotland-Northern Ireland Pipeline
SNP	South North Pipeline
SoLR	Supplier of Last Resort
SoS	Security of Supply
SRO	Senior Responsible Owner
SWOT	Strengths, Weaknesses, Opportunities, Threats
TBC	To Be Completed
TEG	Temporary Emergency Generation (Act)
TOC	Table of Contents
TPA	Third Party Access
TPER	Total Primary Energy Requirement
TSO	Transmission System Operator
UGS	Underground Gas Storage
VfM	Value for Money
VoLL	Value of Lost Load
WACC	Weighted Average Cost of Capital