SIF Beta Round 5 Project Registration

Date of Submission

Aug 2026

Project Reference Number

10191889

Initial Project Details

Project Title

FastPress

Project Contact

innovation@neso.energy

Challenge Area

Whole system optimisation

Strategy Theme

Whole energy systems

Lead Sector

Gas Transmission

Project Start

01/07/2026

Project Duration (Months)

22

Lead Funding Licensee

National Grid Electricity System Operator

Funding Mechanism

SIF Beta - Round 5

Collaborating Networks

National Gas Transmission PLC

Technology Areas

Modelling

Resilience

Gas Transmission Networks

Project Summary

FastPress is an analyst‐in‐the‐loop decision‐support tool designed to improve long‐term planning for the GB gas transmission network. It combines hydraulic simulation with advanced AI/ML optimisation to explore complex, constraint‐heavy network scenarios at scale. FastPress enables NESO and NGT to assess resilience, demand uncertainty, and infrastructure reconfiguration options more efficiently than existing tools. Evolving from earlier NIA projects, FastPress has shifted from solving individual scenarios to supporting whole‐system risk assessment. The project supports evidence‐based decisions on asset repurposing, reducing cost, risk, and uncertainty for energy consumers.

Add Preceding Project(s)

NIA2_NGESO077 - FastPress

NIA2_NESO110 - FastPress Alpha+

Add Third Party Collaborator(s)

Faculty Science Ltd

Project Budget

£5,096,709.00

SIF Funding

£4,534,364.00

Project Approaches and Desired Outcomes

Animal testing (not scored)

- ○ Yes
- ◉ No

Solution statement and solution focus

Problem

The GB gas network faces a critical juncture where planning quality directly affects long-term resilience and cost. Within their whole-system planning remit, NESO and NGT face critical decisions whether to maintain, decommission, or repurpose a multi-billion-pound asset base, with individual compressor or pipeline interventions often exceeding £100m.

Maintaining security of supply day-to-day requires sufficient pressure to be achieved across c.120 distribution NTS offtakes. To mitigate potential risks, NESO conducts comprehensive scenario modelling to assess how interdependent conditions impact network limits. This is a deeply complicated process that involves exploring a large, non-linear and constraint-heavy solution space across many interacting variables.

Long-term reconfiguration decisions (e.g. staged decommissioning) demand a broader assessment of scenarios, demand, resilience, and asset availability than current workflows can deliver. Existing tools are resource intensive to calibrate/run, constraining stress-testing capability when planning complexity, risk and uncertainty are growing, amid ageing infrastructure. If this capability gap persists, NESO and NGT risk taking high-value, whole-system decisions with incomplete evidence, increasing the financial and resilience risks borne by energy consumers.

Solution

FastPress is an analyst-in-the-loop decision-support tool that combines hydraulic simulation with novel AI/ML optimisation techniques. This includes a bespoke genetic algorithm, accelerated by historical solution data, enabling efficient, scalable search across multiple levels of analysis for feasible, near-optimal configurations that would be impossible to reliably identify at scale through manual analysis or traditional methods. It will inform long-term infrastructure planning by enabling NESO and NGT to:

- Assess and compare a wider range of demand days, network configurations, resilience cases, and asset-availability scenarios
- Identify critical constraints, edge cases, and failure modes earlier
- Systematically assess the impact of removing or repurposing individual assets
- Optimise sequencing and timing of infrastructure changes, supporting coordinated decommissioning/repurposing plans
- Develop a standardised decision framework that translates semi-automated scenario runs into network planning decisions, through an interpretable front-end.

Problem Evolution

FastPress Discovery focused on reducing analyst effort to solve individual scenarios. However, engagement with NGT/NESO planners highlighted a fundamental challenge - current planning tools constrain their ability to assess whole-system risk at the scale required. FastPress has subsequently evolved to augment system planning capability, enabling adaptation of network strategies across a wider range of plausible futures.

Project Evolution

Prior work (NIA Discovery/Alpha, Alpha+) evolved FastPress from a Proof-of-Concept into an integrated scenario planning platform, automating 'static' scenario solving, de-risked cloud deployment, and validating feasibility/value.

Beta will deploy this capability to NESO/NGT by:

- Developing critical step-changes in functionality
- Extending scenario solving to transient, dynamic problems, enhancing the solution from a static point in time to a full simulated day, and underpinning compliance with gas transmission licence obligations

- Introducing infrastructure timeline optimisation to sequence multi-year asset removal/ repurposing decisions while preserving system resilience and transforming point-in-time analysis into dynamic, system-wide optimisation.

International Collaboration (not scored)

No

Trusted Research And Innovation

FastPress does not relate to UKRI's TR&I Principles.

Innovation justification

FastPress addresses Round 5, Innovation Challenge 7 (Whole System Optimisation) by enabling NESO and NGT to assess future gas network capability, resilience, and infrastructure configuration at a scale, consistency and level of integration that is not achievable using current manually intensive approaches. By automating scenario solving, flow analysis, and infrastructure timeline optimisation (while retaining analyst oversight), FastPress enables a whole system assessment of trade-offs between operability, cost, resilience, and transition pathways. This supports integrated, evidence-led whole-system planning rather than isolated, asset-level decision-making.

Innovation

FastPress represents a radical step-change in gas network planning through the novel application of AI-driven optimisation to physically validated, deterministic hydraulic simulation within a regulated environment. The innovation goes beyond incremental efficiency gains by fundamentally changing how planning problem spaces are explored. Key innovative aspects include:

- Bespoke genetic AI algorithm to optimise over large, non-linear, constraint-heavy solution spaces, where discrete decisions and continuous variables must be solved simultaneously. Solves are accelerated using machine learning (ML) approaches on historic solutions.
- Automated solving of static and time-coupled transient scenarios, transforming a stagnant workflow which struggles with the complexities of transient scenarios.
- Smart solving of entry and exit flow analysis that finds novel solutions using adaptive ML methods.
- Infrastructure timeline optimisation, enabling sequential identification of assets that can be removed/repurposed (and when), without compromising system resilience.
- Presenting novel visualisations of results in a custom frontend that gives analysts a better understanding of solutions and brings most disparate activities into a streamlined, user-friendly space.
- Encoding analyst knowledge, enabling advanced heuristics to ensure validity, safety, and speed improvements.
- FastPress is platform-agnostic, where suitable integration can be applied to other physics-based solvers, mitigating SIMONE lock-in.

Compared to current practice, FastPress enables scalable scenario analysis (demonstrated in Alpha+) by delivering 100+ overnight static solves where none are currently possible, with consistent, repeatable outputs not available in existing planning tools.

Counterfactuals

The approach to FastPress was chosen because it balances innovation, technical ambition, and operational realism.

Several alternative approaches were also considered and rejected:

- Business-as-usual process optimisation does not address fundamental scalability limits.
- Generic optimisation tools lack integration with gas-specific physics, topology and operational constraints.
- Standalone modelling approaches approximate physical outputs instead of integrating with deterministic simulations and cannot meet operational requirements.

Learning and stakeholder engagement

FastPress Beta will build directly on prior NIA projects (equivalent to SIF Discovery and Alpha), that demonstrated the feasibility of core features, progressed these to Proof-of-Concept, and de-risked cloud deployment.

The below lessons learned informed the Beta focus on innovative transient solving and infrastructure timeline optimisation:

- Automation must be analyst-in-the-loop to ensure trust/adoption.
- Algorithmic solving matches (or exceeds) analyst performance while enabling scale.
- Performance varies by scenario type, requiring adaptive AI optimisation strategies.
- Deployment considerations must be addressed early.

The current solution has been iteratively refined through engagement with NESO via user testing, ensuring it goes beyond incremental innovation and addresses existing pain points.

Readiness levels

This phase represents clear progression:

TRL: 5-6 to 7 (from validated components to system prototype in operational environment)
IRL: 4-5 to 6-7 (from partial to full workflow integration into NESO workflows)
CRL: 2-3 to 4-5 (from no defined BAU adoption to clear route to operationalisation)

Scale

At Beta, deployment within NESO gas planning delivers transformational system-level capability while managing risk, focusing on high-value features to ensure evidenced adoption within the timeframe.

SIF funding

FastPress cannot be funded through price control or BAU mechanisms because it:

- Involves material technical and adoption risk.
- Delivers system-wide benefits, not attributable to a single function.
- Explores AI approaches with uncertain outcomes.

SIF Beta funding is therefore requested to responsibly develop, validate, and de-risk this innovation.

Impacts and benefits selection (not scored)

Financial - future reductions in the cost of operating the network

Impacts and benefits description

Financial: future reductions in the cost of operating the network

Total benefits: £88m gross lifetime.

1. FTE cost equivalent of increased productivity

Current position: NESO/NGT incur material operating expenditure on gas planning workflows. Analysts' effort concentrates on manual static/transient scenarios iteration, constraining the number of assessed demand days and network configurations without increasing headcount.

Baseline metrics:

- Analyst hours/scenario
- Number of demand days analysed
- Cost of incremental analyst/FTEs to expand scenario coverage

Forecast BAU benefits: Automation of static/transient solving, flow adjustments, batch runs, and Infrastructure Timeline Optimisation (ITO) increases scenario throughput, freeing analyst time for higher-value planning activities. FastPress expects to

deliver productivity gains equivalent to at least 12 additional FTEs, avoiding up to £1.1m/yr (£18m gross lifetime) labour costs.

Benefits already realised: Alpha+ demonstrated that automated static solving achieves analyst-comparable results while also enabling unattended overnight/weekend batch execution (e.g. \>100 scenarios per night), showcasing order-of-magnitude throughput increases and decreased manual effort.

2. Decreased CAPEX spend via pipeline repurposing / avoided new build

Current position: Future hydrogen/CO2 transport networks require significant pipeline investment. Without robust evidence, the default solution is new-build pipeline, driving high capital expenditure.

Baseline metrics:

- Project Union ambition: 2400km of hydrogen transmission pipeline
- Conservative build assumption (20% of ambition): 480km
- New-build cost: £3.74m/km
- Conservative repurposing cost: £0.52m/km

Forecast BAU benefits: ITO identifies candidate assets for repurposing and validates feasibility under capability and resilience constraints. Assuming FastPress enables just 5% of the pipeline requirement (1.2km/yr, or equivalently a 12km section-of-pipe every 10yrs) for repurposing vs. new-build, this conservatively delivers £3.82m/yr (£61.1m gross lifetime) CAPEX savings. Though not quantified, this also supports associated emissions reduction and increased alignment with whole-system energy vector planning.

Benefits already realised: Alpha+ pipe removal and asset importance analysis demonstrated the feasibility of narrowing asset sets for further evaluation, providing evidence of potential CAPEX savings.

3. Reduced decommissioning spend via evidence-based identification

Current position: NGT plans £56.1m of decommissioning spend in RIIO-GT3 to remove redundant assets. However, redundancy classification is uncertain -- e.g. during RIIO-GT2, the Redundant Assets Price Control Deliverable (PCD) reduced from 80 to 70 (12.5% decrease) following updated operational evidence, demonstrating that improved evidence materially alters decommissioning scope/timing.

Baseline metrics:

- Planned RIIO-GT3 decommissioning spend: £56.1m
- Historical redundancy change: 12.5% reduction

Forecast BAU benefits: FastPress enhances the upstream "redundancy check" process via timely and quantified capability/resilience evidence feeding into targeted decommissioning decisions. Assuming a conservative reduction of misclassification-driven scope churn of 20% of the historical reference (i.e. 2.5% of spend), this results in a £0.28m/yr (£4.4m gross lifetime) savings through more targeted, evidence-based decommissioning and reduced mis-timed works.

Benefits already realised: Alpha+ demonstrated the ability to assess asset removal feasibility under different operating scenarios, providing early evidence of potentially more accurate decommissioning plans.

4. Reduced maintenance spend, improved resilience

Current position: NGT plans £180m of "Other Non-Load" spend in RIIO-GT3, of which £123.9m relates to maintainability, network capability and security of supply (excluding decommissioning). Planning uncertainty (e.g. via limited scenario coverage), can lead to precautionary or mis-timed interventions, increasing maintenance, resilience, and asset-health expenditure.

Baseline metrics:

- Planned RIIO-GT3 "Other Non-Load" spend (excl. decommissioning): £123.9m
- Frequency/timing of maintenance- or resilience-driven interventions

Forecast BAU benefits: FastPress directly tests network resilience/capability through broader scenario analysis under asset use restrictions to evaluate resulting network capability reduction. This enables more targeted, sequenced or deferred interventions, avoiding unnecessary maintenance. Assuming a conservative 1% improvement, this equates to £0.25m/yr (£3.9m gross lifetime) savings through improved asset-health and resilience planning.

Benefits already realised: Alpha+ demonstrated scalable capability and resilience analysis across RIIO zones (National Transmission System regional planning groupings) and demand scenarios, providing evidence to inform resilience-driven decisions.

Teams and resources

The FastPress Beta phase will be delivered by a consortium comprising NESO (Lead Network), Faculty (Delivery Partner), and National Gas Transmission (NGT). The core delivery team remains largely unchanged from NIA Discovery/Alpha, and Alpha+, preserving domain knowledge, technical expertise, and ways of working. The key change for Beta is that NGT becomes a formal project partner, reflecting the increased focus on infrastructure planning, asset decommissioning, and repurposing decisions.

This continuity preserves domain knowledge reduces delivery risk while enabling closer coordination between NESO and NGT on high-impact planning use cases. No new delivery partners are required, as all core capabilities are already in place.

In Beta, there will be a greater focus on software engineering and cloud deployment, with continued close collaboration between domain and technical specialists to deliver new features (e.g. transient solving) at pace.

NESO

NESO is the Lead Network and system owner for FastPress. NESO provides strategic direction, governance, and access to gas network planning workflows, data, and systems. NESO is responsible for requirements definition, output validation, user acceptance testing, and determining post-Beta business-as-usual adoption (alongside NGT).

NESO brings deep expertise in gas network planning / system analysis, SIMONE-based hydraulic modelling, regulatory reporting, BAU deployment, and whole-system planning. NESO analysts were actively involved throughout prior phases, shaping requirements, validating outputs, and informing the Beta roadmap. Key NESO roles include gas network planning analysts (primary users), senior analysts and reviewers (governance and audit), and cloud and IT teams supporting secure deployment within the NESO Azure environment.

Faculty

Faculty is responsible for the technical delivery of FastPress. This includes technical human-centred design, AI and optimisation development, machine learning application, backend engineering, cloud architecture (e.g. Azure), user experience, and benefits evaluation. Faculty will also support product formalisation and readiness for adoption beyond Beta.

Faculty has extensive experience delivering high-impact applied AI in innovation in regulated energy systems, including SIF Discovery, Alpha, and Beta projects (e.g. FastTrack, Intelligent Gas Grid, Artificial Forecasting). Faculty led FastPress NIA Discovery, Alpha and Alpha+, delivering the core components (including optimisation capabilities) and de-risking cloud deployment, which directly informs the Beta approach. During Beta, Faculty will provide commercial, data science, machine learning engineering, and backend engineering capability to deliver transient solving, infrastructure timeline optimisation, and scalable deployment.

NGT

NGT provides critical operational and asset-level expertise to ensure FastPress is grounded in real transmission network constraints. NGT supports governance, technical workshops, testing, and implementation planning, particularly for decommissioning, repurposing, and long-term asset strategy.

NGT analysts bring deep experience in manual hydraulic workflows, asset management, and strategic planning, all which FastPress aims to augment. NGT will provide benchmarks, validation, and assurance. NGT also has a strong track record of delivering NIA and SIF projects, supporting effective collaboration and delivery.

Additional external parties and stakeholders

There are no direct consumer representatives involved, as the project focuses on upstream planning capability. Consumer benefits are delivered indirectly through improved efficiency, resilience, and cost avoidance.

Additional resources, equipment, and facilities

The Beta phase will require additional resources beyond Alpha+, including:

*SIMONE licences and extensions (e.g. SIMONE-API) to support transient solving and infrastructure changes.

*Cloud compute resources within NESO's Azure environment.

*Developer-grade hardware for development and testing of computationally intensive features.

*Secure data storage and access controls aligned with NESO governance.

All resources will be accessed via existing NESO systems and approved processes. No additional specialist equipment or facilities are required.

Stakeholder participation and delivery assurance

Stakeholders across planning, technical, and governance functions will be engaged throughout delivery. Regular reviews, demonstrations, and user testing will continue during Beta to ensure the solution meets user needs and is ready for adoption.

Project Plans and Milestones

Project management and delivery

Project management approach

This project will be delivered using a structured, stage-gated model combining formal programme governance (e.g. technical design authority review, change management, NESO.AI technical workflow) with agile practices (e.g. user engagement, module/feature development, sprints, rapid iteration). This balances innovation with delivery assurance, ensuring risks are actively managed and outcomes align with SIF objectives.

Day-to-day delivery will follow agile, sprint-based working, enabling rapid iteration, user feedback, early identification of technical and adoption risks. Progress will be tracked through defined work packages, milestones, deliverables, and success criteria set out in the Project Management Template.

Formal controls include:

- A clear work breakdown structure with accountable leads
- Regular milestone and budget reporting
- Maintained risk and decision logs with named owners
- Scheduled stakeholder reviews

Project plan

This phase is structured into interdependent work packages, each with defined objectives and outputs, as detailed in the PMT:

- WP1: Project Management and Governance: programme oversight, financial control, risk management, and SIF compliance.
- WP2: Network Transition: transition FastPress to the current common gas network model and establish a repeatable update process.
- WP3: Start Point Finder (SPF) Update: enable automated incorporation of newly solved scenarios to improve solver performance over time.
- WP4: Transient Solving: deliver scalable, automated transient gas network solving to replace manual, time-intensive workflows.
- WP5: Infrastructure Timeline Optimisation (ITO): evidence-based sequencing of asset repurposing, removal, and investment decisions.
- WP6: Cloud Infrastructure: provide secure, scalable cloud infrastructure within NESO environment to support Beta (and prior) feature deployment and operation.
- WP7: Transition to BAU & Commercialisation: Deploy the full FastPress tool into the target environment.

Key dependencies include availability of network models, access to SIMONE licences and cloud environments, and timely engagement with NESO and NGT users. These will be secured before development begins to minimise delivery risk.

Aligned work packages and milestones will ensure progress tracks against overall Beta objectives. The project will move from early technical demonstrations of network transition, Start Point Finder (SPF) updates, and transient solving concepts, through establishment of core backend and cloud infrastructure and development of ITO and SPF features to pre-production level. This will be followed by user testing and validation, initial deployment of FastPress (including transient solving and ITO), and full deployment to NESO and NGT users, concluding with project close-out and the final report.

Stage gates and other review points

Formal stage-gate reviews will be held at key decision points to control risk and protect unnecessary consumer spend:

- Stage Gate 1 (wk 26): Demonstration of transient solving feasibility and initial user validation.
- Stage Gate 2 (wk 52): Evidence of technical performance, user value, and delivery readiness for new features.

Advancement beyond each stage gate depends on meeting predefined success criteria, ensuring funding aligns with value and risk reduction.

Risk management and dependencies

1. Data Risks (Access, Quality): Delays, poor formats, or low-quality data may impact modelling and AI performance. Mitigation: Early data specification, partner-led quality assessment, upfront validation checks, clear delivery deadlines, alternative/synthetic sources, contingency buffers, and reprioritisation if needed. Unresolved issues are logged with recommended actions.

2. Technical & Security Risks (Technology, Infrastructure, Privacy): Integration, modelling, or security challenges may delay deployment. Mitigation: Early architecture assessment, staged feasibility reviews, agreed deployment pathways, strict access controls, and system monitoring.

3. Delivery & Governance Risks (Stakeholders, Timeline, Scope, Estimation): Limited engagement, overruns, scope creep, or misestimation may disrupt progress. Mitigation: Structured engagement plans, flexible scheduling, stage gates, project transparency and regular governance oversight.

All risks are tracked in the Risk Register.

Interruption and customer impact

FastPress does not interact with live network operations and poses no risk of supply interruption; all development and testing take place in offline planning environments.

Key outputs and dissemination

Beta objectives

The core objective is to move from demonstrated Alpha+ capability to a formalised production-ready solution with confirmed performance, user validation, and clear evidence to support business-as-usual (BAU) adoption.

Specifically, Beta will deliver the following:

- **Deployed FastPress tool:** demonstrated functionality/performance of features (including Transient Solving and Infrastructure Timeline Optimisation (ITO)), with the tool deployed in NESO's AI/cloud environment in use by NESO/NGT analysts.
- **Structured documentation pack:** technical architecture and functional documentation, user guidance, governance recommendations, CBA-aligned benefits evaluation, and a lessons-learned report.
- **Beta Close-Out Report:** suitable for SIF reporting and wider industry learning.
- **BAU transition roadmap:** setting out deployment, scaling options, ownership, and next-step investment decisions.

At close-out, NESO will have sufficient technical and governance evidence to take a transparent and well-informed decision on the BAU roadmap.

Key outputs and ownership

These outputs, and lessons learned, could be shared with UK gas distribution networks to scale impact and benefits. NESO will own all external dissemination planning and outputs.

Deployed FastPress Tool

- Ownership: Faculty (technical delivery), NESO and NGT (testing, validation, adoption).
- Dissemination: Internal demonstrations, structured user testing sessions, gas analyst handover/training sessions, SIF reporting technical evaluation summaries, published on the Smarter Networks Portal, and relevant industry briefings.

Structured Documentation Pack

- Ownership: Faculty (documentation), NESO (governance lead), NGT (operational input).
- Dissemination: Formal documentation submitted through SIF reporting, with learning shared across NESO, NGT, and other GB gas networks.

Beta Close-Out Report:

- Ownership: Faculty (drafting), NESO (endorsement, submission, wider dissemination).
- Dissemination: Submitted to Ofgem under SIF requirements, published on the Smarter Networks Portal, and used as the basis for wider sector knowledge-sharing.

BAU Transition Roadmap:

- Ownership: NESO (decision lead), supported by Faculty and NGT.
- Dissemination: Internal governance approval and summary outputs suitable for sector awareness.

Lessons Learned and Transparency

Lessons learned will be systematically captured as a formal project output, including:

- Technical feasibility, transient solving and ITO limitations.
- AI-assisted planning tools user adoption considerations.
- Governance, auditability, and assurance requirements.
- Integration challenges within regulated network environments.

These lessons will be documented and shared through the dissemination approach below.

Dissemination approach

FastPress has been developed transparently across Discovery/Alpha and Alpha+ phases through structured stakeholder engagement, demonstrations, and documented feedback loops, with documentation transparently published on the ENA's Smarter Network Portal. This collaborative approach will continue in Beta to ensure learning is shared responsibly.

Dissemination will occur at three levels:

1. **Internal (NESO and NGT):** Regular demonstrations, analyst testing/training sessions, technical deep-dives, and written reports will ensure adoption readiness and network/gas planning learning.

2. **Annual Progress & Final Project Report:** Project outputs will also be disseminated across the public domain, including the 60-second project launch and completion videos, and end-of-phase show-and-tell.

3. **Wider Industry:** Participation in the annual SIF Community Forum and where possible Energy Innovation Summit.

Reports will be shared on ENA Smarter Networks Portal and learning promoted to the sector.

Competitive markets

FastPress does not undermine competitive markets. It delivers planning capability via decision-support tools and methods rather than exclusive operational services and creates no supplier lock-in. Additionally, while it is integrated with SIMONE-based workflows, the optimisation methods developed are not limited to a single modelling platform and could, with appropriate integration, be applied to other physics-based solvers.

Foreground IP generated will be owned by NESO, with full and unlimited usage rights for both NESO/Faculty in line with agreed SIF arrangements, including royalty-free access for GB energy networks. Documentation and methodological transparency produced during Beta will enable informed competitive procurement of future support or enhancement services.

By strengthening planning evidence rather than prescribing infrastructure vendors or market participants, FastPress supports fair competition.

Commercials

Intellectual Property Rights (IPR), procurement and contracting (not scored)

Intellectual Property Rights (IPR)

For the FastPress Beta phase, the project will adopt an alternative IPR arrangement, agreed in principle between the parties.

Foreground IP generated during the Beta phase will be owned by NESO. Both NESO and Faculty will retain full and unlimited rights to use, exploit, adapt, and further develop the outputs, subject to contractual arrangements consistent with SIF funding requirements. NGT, as a project partner and operational beneficiary, will have appropriate usage rights aligned with its role in GB gas transmission.

This arrangement reflects NESO's position as a government-owned, not-for-profit organisation with a mandate to deliver innovation for the benefit of the whole GB energy system. The agreed structure ensures:

- Royalty-free access for GB energy networks in line with SIF governance.
- Sufficient transparency and documentation to support fair and open competitive procurement of future support or enhancement services.
- The ability for Faculty to reuse and adapt underlying optimisation methodologies and software components in other contexts, ensuring no artificial restriction of innovation or competition.
- The ability of NESO to utilise the IP and build upon this with any third party of its choosing, ensuring no monopoly of suppliers providing analytical services in the context of gas network simulation.

This model addresses prior Ofgem feedback on other projects regarding competitive markets by avoiding disproportionate control by any single commercial partner, while preserving the incentives and capability required to deliver the innovation successfully.

Procurement and contracting approach

For the Beta phase, the project does not anticipate running any formal procurement events, tenders, RFIs, or RFPs.

Where computing resources, software tools, or cloud services are required, these will be accessed through:

- Publicly available, commercially standard products and services
- Existing enterprise agreements held by NESO or Faculty
- NESO-approved procurement and contracting routes

No specialist or proprietary third-party technology requiring competitive procurement is anticipated during the Beta phase.

If, during delivery, a need for additional specialist services is identified (for example, targeted security assurance or user research), any procurement would be conducted in accordance with NESO's internal governance and procurement policies and would not alter the fundamental scope or objectives of the project.

Subcontractors

For the Beta phase, no subcontractors are currently planned.

Should subcontracting become necessary at a later stage, this would be:

- Limited in scope.
- Justified based on specific expertise requirements.
- Procured through NESO-approved routes to ensure value for money accountability.
- Fully disclosed and governed in line with SIF requirements.

Commercialisation, route to market and business as usual

Commercialisation plan and route to market

The primary route to market is internal adoption by NESO and NGT following successful Beta validation and transition into business-as-usual (BAU) as a decision-support capability for gas network planning, rather than a standalone commercial product. At project close, an agreed BAU transition roadmap will set out deployment options, ownership, scaling milestones, and investment decisions, informed by demonstrated technical performance, quantified benefits, and governance readiness.

Beyond NESO/NGT, the proposed scaling pathway is reuse across GB gas distribution networks (GDNs) and planning bodies that utilise deterministic hydraulic modelling. While FastPress is integrated with SIMONE-based workflows, the optimisation methods and AI techniques developed are not intrinsically limited to a single modelling platform and could, with appropriate integration, be applied to other physics-based solvers.

Commercialisation/reuse may occur through structured knowledge transfer, methodological documentation, collaborative adaptation, or competitively procured support and integration services.

Partner commercial readiness

NESO (Lead Partner)

NESO's readiness centres on operational adoption rather than revenue generation. NESO has the governance, digital, and planning functions required to host, operate, and govern FastPress within BAU, subject to formal approval. Future investment decisions will align with internal business planning and regulatory processes.

National Gas Transmission (NGT)

NGT is a formal project partner and a direct operational beneficiary. NGT's planning and asset management teams will play a key role in scaling FastPress for infrastructure reconfiguration, resilience testing, and repurposing decisions.

Faculty (Delivery Partner)

Faculty has established capability to support scaling, enhancement, integration, change management, and knowledge transfer. Future support arrangements would be subject to NESO/NGT procurement processes. Documentation and architectural transparency delivered during Beta will enable informed competitive procurement where appropriate.

No additional external capital investment is required to enable initial BAU transition beyond internal governance approvals.

Senior sponsorship

The project benefits from active senior sponsorship within NESO, including strategic direction, prioritisation, and oversight from their Head of Gas and Whole Energy Network Development and senior leaders within gas planning and digital functions. This sponsorship ensures alignment with NESO's strategic priorities and regulatory timelines. This will continue in Beta, with the addition of formalised sponsorship from NGT as well.

Path to BAU

Engagement with commercial, finance, and procurement teams

NESO's commercial, finance, and procurement teams have been engaged during earlier phases to shape the deployment approach, cost assumptions, and governance model. This engagement will continue through Beta to ensure that BAU options are viable and aligned with internal governance.

Integration strategy

FastPress is designed to integrate with, rather than replace, existing workflows and NESO's Azure cloud environment. Key integration considerations include licence management, data governance, access controls, and alignment with reporting cycles. These risks were partially de-risked during Alpha+ through representative cloud deployment and will be formalised in Beta.

Scaling and timelines

Scaling is expected to follow a phased approach:

- **0--6 months post-Beta:** targeted BAU use for priority planning activities

- **6--12 months:** expansion to additional planning teams and asset strategy use cases within NESO and NGT
- **Beyond 12 months**: structured knowledge sharing and potential reuse across other UK gas networks (e.g. Cadent, NGN, SGN, WWU)

Change management

NESO will lead change management, supported by Faculty/NGT. This includes analyst training, onboarding documentation, workflow integration guidance, and formal embedding of governance processes to ensure sustainable adoption.

Competitive markets

FastPress has been designed to not undermine competitive markets. The project:

- Does not create exclusive supplier arrangements (with NESO owning IP).
- Enables future competitive procurement of support and development

Detailed documentation and methodological transparency will enable informed competitive procurement of future support and adaptation, and the underlying optimisation approach is transferable beyond a single modelling platform.

Policy, standards and regulations (not scored)

Regulatory, policy, and standards considerations

There are no regulatory, policy, or standards requirements that would prevent successful delivery of the FastPress Beta phase (or its subsequent embedding into BAU).

FastPress is a planning and decision-support tool used in offline analytical environments. Since FastPress does not directly control, dispatch, or operate physical gas network assets, nor does it alter operational procedures in real time, it sits upstream of regulated operational activities and supports, rather than replaces, existing compliance processes.

Government policy considerations

No changes to government policy are required for the FastPress project to progress into business as usual.

The project supports, and is aligned with, existing policy objectives relating to:

- Efficient and coordinated energy system planning
- Improved evidence for regulatory decision-making
- Decarbonisation and transition planning
- Consumer affordability and system resilience

FastPress enhances NESO's ability to deliver its statutory planning and advisory functions and does not introduce policy conflicts or dependencies on future policy decisions.

Standards and safety regulations (HSE, GSMR, ESMR)

FastPress does not require changes to:

- Health and Safety Executive (HSE) standards
- Gas Safety (Management) Regulations (GSMR)
- Electricity Safety (Management) Regulations (ESMR)

We do not expect FastPress to necessarily drive any changes to NGT's Safet Case, nor to drive change to NGT's Transmission Planning Code, although it might provide an opportunity for improving safety planning.

Work to identify or mitigate potential barriers during Beta

Although no barriers are currently foreseen, the Beta phase includes activities to ensure continued compliance and readiness for business-as-usual adoption. These include:

- Engagement with NESO governance, assurance, and risk functions.

- Validation of outputs within existing planning and audit processes.
- Documentation of assumptions, limitations, and appropriate use cases.
- Review of integration with existing systems and reporting cycles.

These activities are embedded within the project work packages and governance arrangements to ensure any emerging regulatory or standards considerations are identified early and managed appropriately.

Derogations or exemptions

The Lead Network does not consider that any derogation or exemption from regulatory requirements will be required in the Beta phase or in any currently anticipated future phase.

Summary

- No regulatory, policy, or standards barriers are currently identified.
- No changes to policy or standards are required.
- No derogations or exemptions are anticipated.
- Beta delivery includes proportionate work to confirm compliance and readiness.

This position is appropriate for the scope and maturity of the Beta phase and will be kept under review as part of standard NESO governance.

Consumer impact and engagement

Consumer needs and preferences

FastPress is an upstream **gas network planning and decision-support tool** and does not interact directly with consumers or consumer premises. However, it has been designed to address core consumer needs that are expressed indirectly through regulatory and system planning objectives, including **affordability, reliability, resilience, and fairness.**

Consumers require:

- Secure and reliable energy supply
- Affordable energy bills
- Protection from unnecessary infrastructure costs
- Fair treatment across regions and customer groups

FastPress addresses these needs by improving the quality, consistency, and scale of planning evidence used to make decisions that ultimately determine network investment, operational strategy, and long-term costs passed through to consumers.

Benefits to consumers

- **Indirect financial benefits:** By enabling NESO and network operators to analyse more futures, demand days, and resilience scenarios, FastPress supports better-informed decisions on where and when investment is required. This reduces the risk of over-investment in gas infrastructure and avoids reactive constraint costs, which would otherwise be recovered from consumers through network charges.
- **Service reliability and resilience:** FastPress enables systematic stress-testing of the gas network under outages and future uncertainty. This improves resilience planning and reduces the likelihood of service disruptions, benefiting consumers through improved reliability.
- **Long-term customer experience:** While consumers do not interact with FastPress directly, they benefit from more proactive and transparent system planning. Improved planning reduces emergency interventions and supports a smoother energy transition, enhancing overall consumer experience over time.
- **Equitable distribution of benefits**: FastPress supports equitable outcomes through consistent, evidence-based planning across the GB gas network, reducing the risk that regions or customer groups are disproportionately affected by sub-optimal investment decisions.

Consideration of vulnerable and low-income consumers

FastPress supports the needs of vulnerable and low-income households by reducing the likelihood of unnecessary cost increases and by supporting a reliable energy system.

These households are often least able to absorb:

- Increases in network charges
- Costs arising from reactive interventions
- Service disruptions during peak demand

By improving long-term planning accuracy and enabling more efficient use of existing assets, FastPress helps limit upward pressure on bills and supports system resilience, which disproportionately benefits vulnerable consumers.

Accessibility needs are also considered indirectly, as FastPress does not introduce new consumer-facing interfaces or processes, it does not create new accessibility barriers.

Consumer engagement approach

Given the nature of the innovation, **direct consumer engagement is not proportionate or appropriate** for the Beta phase. FastPress does not change consumer behaviour, tariffs, or service interfaces.

Instead, consumer interests are represented through:

- NESO's statutory planning and advisory role
- Existing regulatory scrutiny by Ofgem
- Engagement with consumer bodies and stakeholders through established NESO channels

These mechanisms ensure that consumer needs are reflected in planning decisions informed by FastPress outputs. FastPress information will be available in the public domain post adoption, if consumers are interested. Additionally, decisions that impact network planning will be included within public-facing regulatory reports aligned to standard practice.

Communication of benefits, risks, and impacts

Communication with consumers will occur via:

- Regulatory reporting and publications informed by improved planning evidence.
- Transparent reporting of planning assumptions and outcomes.
- Ofgem-led consultation and oversight processes.

FastPress does not introduce direct risks to consumers. Any limitations or uncertainties in planning outputs will be transparently documented and subject to existing governance and assurance processes before informing decisions that affect consumers.

Summary

FastPress delivers consumer value by improving the planning decisions that shape long-term network costs and reliability. While it does not engage directly with consumers, it strengthens the evidence base used to protect their interests, particularly for vulnerable and low-income households, ensuring benefits are delivered equitably and cost-effectively across the GB gas network.

Value for money

Project costs and funding balance

Total cost: £5,097,434

SIF Funding: £4,534,980 (89%)

Partner Contribution: £562,454 (11%)

Lead Partner: NESO

Total cost: £1,054,198 (21% of total)
SIF funding requested: £896,068
Contribution: £158,130 (15%)

Delivery Partner: Faculty

Total cost: £3,991,050 (78% of total)
SIF funding requested: £3,591,945
Contribution: £399,105 (10%)

Partner: NGT

Total cost: £52,186 (1% of total)
SIF funding requested: £46,967
Contribution: £5,219 (10%)

This split reflects NESO's role as system owner, adopter and benefits evaluation, Faculty's delivery partner responsibility for technical development and integration, and NGT as the knowledge holder of the gas National Transmission System.

Contribution

The project contributes 11%, **exceeding the minimum 10% compulsory contribution from private funds,** as required by SIF.

Partner contributions will be funded as follows:

NESO & NGT will fund their contributions through existing network innovation budgets.
Faculty will provide its contribution through a combination of reduced commercial rates for innovation delivery and investment of Director time free of charge.

Subcontractors and additional funding

No subcontractors are planned for Beta. All core activities will be delivered by the existing Project Partners, which reduces cost, complexity, and delivery risk.

No additional funding from other innovation funds has been sought for this project. The Beta Phase would be solely funded through SIF and partner contributions.

Use of pre-existing assets and facilities

The project will utilise existing SIMONE licences, NESO cloud infrastructure/environments, and existing development tooling, avoiding additional spend to improve value for money.

No physical assets will be created that require decommissioning. Any software artefacts produced will either be transitioned into business-as-usual or archived in line with NESO governance.

Proportionality and value for money for consumers

The scale and cost of the FastPress Beta project are proportionate to the complexity, risk, and potential system-wide impact of the innovation. The project:

- Targets structural cost drivers in gas system planning, not short-term efficiencies.
- Enables targeted interventions and avoidance or deferral of unnecessary expenditure.
- Reduces reliance on incremental analyst headcount growth as planning demands increase.
- Builds on significant investment from NIA Discovery/Alpha and Alpha+ phases, maximising return on Beta SIF funding.

The CBA demonstrates that even conservative assumptions about productivity increases, pipeline repurposing, decreased decommissioning spend, and reduced maintenance costs result in a positive net present value (NPV) over time (£61m NPV, 3-year payback period). While still using conservative assumptions, the 'enhanced performance option' (option 2 modelled in the CBA) illustrates further value for money with a £190m potential lifetime NPV. Additionally, the benefits have the further potential to scale with increased use or wider application to GDNs within GB, improving the benefit-cost ratio over time without proportionate additional expenditure.

The largest consumer benefits arise from better planning decisions. Given that individual transmission interventions can exceed £100m, even marginal decision improvements materially outweigh project cost.

Funding protections

To ensure sufficient funding protections and de-risk delivery, we have included Stage Gates at months 6 and 12 of our delivery plan, timed at key progress points for in the Beta feature development plan; these give UKRI the ability to pause work, should the innovation not deliver upon its objectives.

Stage Gate 1: Technical demonstration of the Transient Solving feature - occurs in month 6, after 28% of funding has been invoiced (protects 72%).

Stage Gate 2: Proven technical feasibility, capability and value of new features (including Infrastructure Timeline Optimisation) - occurs in month 12, after 58% of funding has been invoiced (protects 42%).

Cost competitiveness

Faculty's delivery costs are competitive with comparable specialist providers and reflect a discount on standard commercial rates in recognition of the innovation context. NESO & NGT rates are benchmarked against approved pay frameworks.

Associated Innovation Projects

- (•) Yes (please remember to upload all required documentation)
- ( ) No (please upload your approved ANIP form as an appendix)

Supporting documents

File Upload

SIF Beta Round 5 Project Registration 2026-08-21 11_00 - 132.7 KB

Documents uploaded where applicable?

☑