Innovate UK

CATAPULT Energy Systems

CATAPULT Digital

# GridFlex

# Accelerating deep tech innovation in energy flexibility



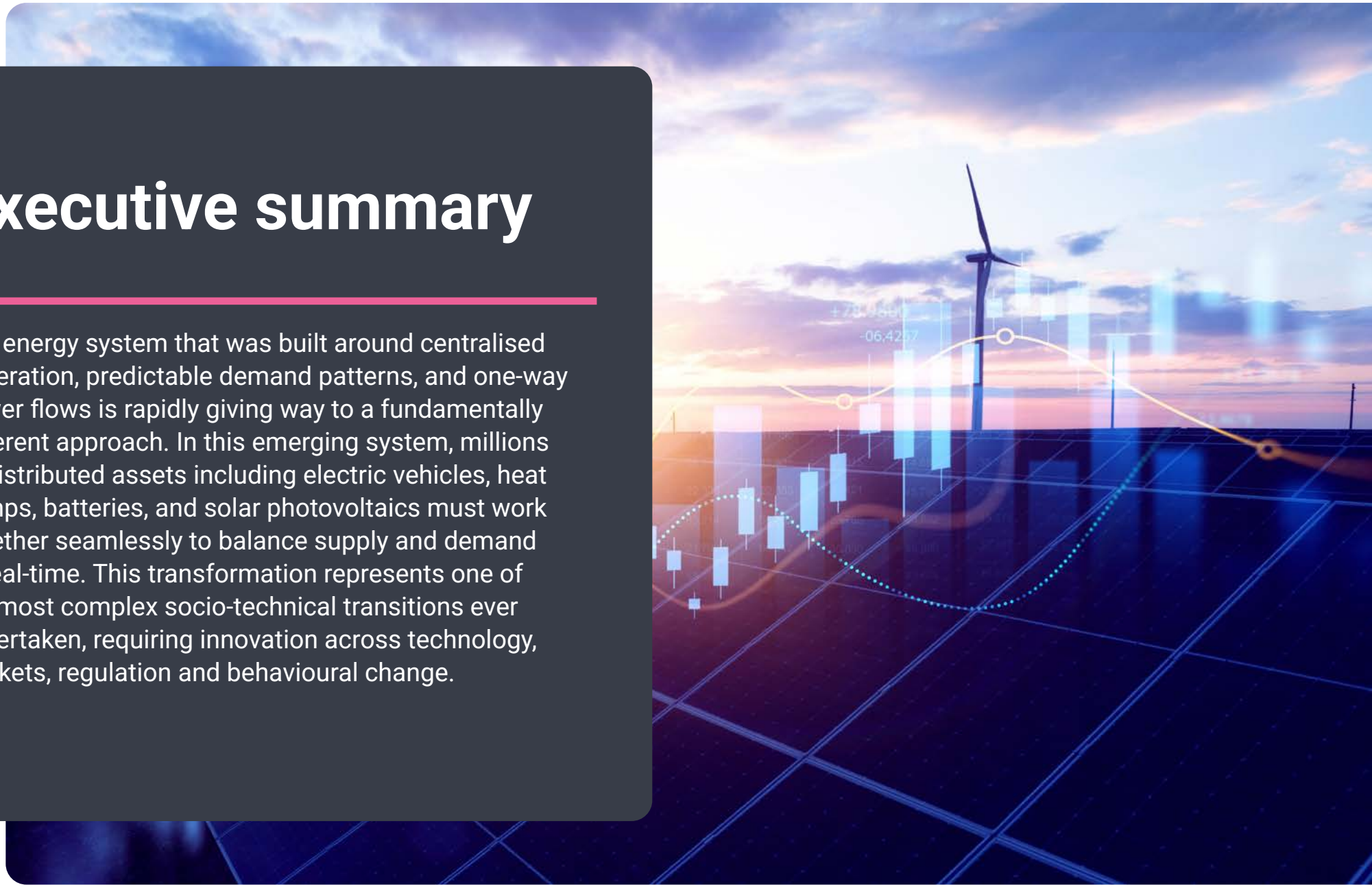
# Contents


| | |
|---|---|
| Executive summary | 3 |
| Energy system transformation | 5 |
| Systemic barriers to innovation | 10 |
| Programme design | 14 |
| Impact and benefits | 24 |
| Mobilising systems change | 28 |




# Executive summary

The energy system that was built around centralised generation, predictable demand patterns, and one-way power flows is rapidly giving way to a fundamentally different approach. In this emerging system, millions of distributed assets including electric vehicles, heat pumps, batteries, and solar photovoltaics must work together seamlessly to balance supply and demand in real-time. This transformation represents one of the most complex socio-technical transitions ever undertaken, requiring innovation across technology, markets, regulation and behavioural change.



The urgency of this transition has been crystallised by the government's Clean Power 2030 commitment, which sets an unprecedented timeline for decarbonising the electricity system within this decade. Achieving this ambitious target demands a step change in how the UK approaches energy flexibility, creating the ability to adjust generation and demand to maintain system balance whilst accommodating increasing levels of variable renewable generation. Traditional approaches to innovation, focused on individual technologies or isolated market segments, will not suffice for challenges of this scale and complexity.



The GridFlex programme represents a strategic response to this systems-level challenge. Developed through a collaboration between Energy Systems Catapult and Digital Catapult, and funded by Innovate UK, the programme seeks to harness the transformative potential of deep tech innovation to accelerate the deployment of energy flexibility solutions. The UK is a leading entity in deep tech innovations such as AI, Internet of Things, and quantum technologies; applying these to the challenge of energy flexibility represents a significant opportunity for energy and digital innovators alike.

Drawing on extensive stakeholder engagement with innovators, investors, and policymakers, the programme adopts a comprehensive systems change approach that addresses the interconnected barriers preventing effective flexibility deployment at scale. This report presents the evidence base and strategic rationale for a four-year programme designed to unlock the innovation potential needed to support Clean Power 2030 objectives.

The programme builds on significant existing public and private sector investments in digitalisation, positioning the UK to capture first-mover advantages in global markets for energy flexibility technologies whilst addressing domestic system transformation requirements. An independent economic assessment found that the programme would deliver notable value, achieving a benefit-cost ratio of 5.8 that exceeds government value-for-money thresholds. The conservative modelling estimates 1,500 megawatts of additional system flexibility (by 2037) capacity from four successful innovators, whilst supporting 11,720 high-value job-years.

The programme's systems-based approach addresses the fundamental reality that Clean Power 2030 success depends not on isolated technological breakthroughs, but on coordinated transformation across innovation, investment, policy, and market structures. By creating sustainable innovation infrastructure that adapts to evolving challenges, the programme establishes lasting capabilities for energy flexibility acceleration that extend far beyond immediate outcomes.

The window for action is narrow. With foundational development activities commencing over the next nine months and programme launch anticipated for 2026, industry leaders, innovators, investors, and policymakers have immediate opportunities to shape this transformation.

# Energy system transformation

The energy system that has powered the nation for over a century is undergoing its most fundamental transformation since the advent of the National Grid. What was once a predictable, centralised system built around fossil fuel generation and steady demand patterns is evolving into something fundamentally different, a decentralised network where energy flows in multiple directions and millions of devices coordinate automatically.



This transformation has created the need for energy flexibility, the ability to adjust generation and demand according to system needs, to ensure we can match energy supply with consumption across various times and locations whilst maintaining physical system constraints. Historically, most flexibility came from the supply side through dispatchable fossil fuel generation, where operators could simply increase or decrease output to match demand fluctuations. The future Net Zero energy system will require both supply and demand to be flexible, with distributed flexibility playing increasingly critical roles.

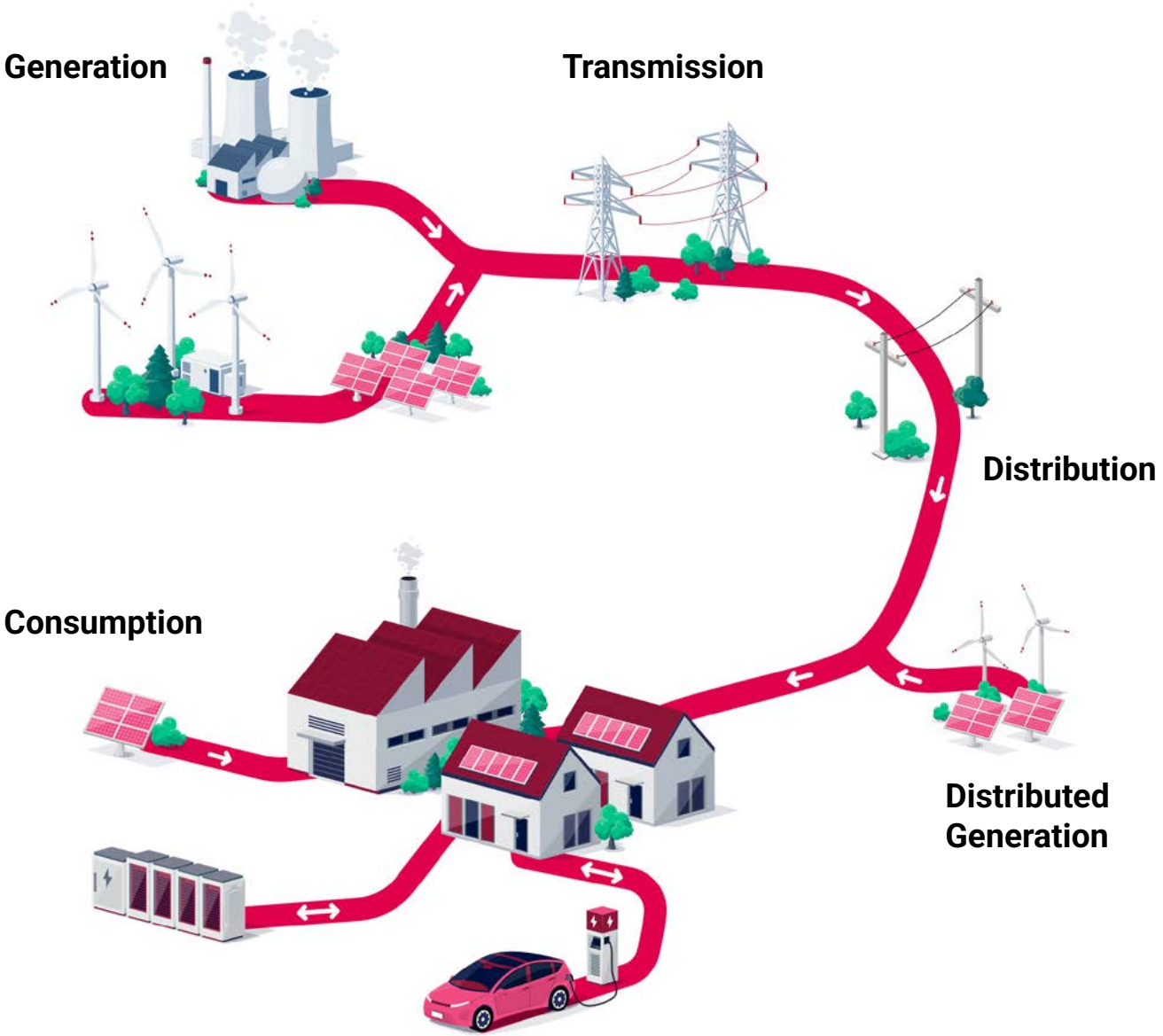



Figure 1: Diagram showing how distributed generation, batteries and EVs are requiring the bi-directional management of energy and data.

## The energy flexibility gap

The urgency surrounding energy flexibility development stems directly from the government's ambitious decarbonisation targets. The Net Zero commitment by 2050 has been supplemented by the more pressing Clean Power 2030 target, which requires the electricity system to be fully decarbonised within this decade. These targets drive the need for substantially greater levels of flexibility to manage increased levels of intermittent renewable generation.

The Clean Power 2030 Action Plan[1] identifies the requirement for a step change in new forms of energy flexibility within the GB energy system. This represents a massive, economy-wide challenge and productivity opportunity that will require substantial innovation and digital infrastructure to realise.

[1] Clean Power 2030 Action Plan – A new era of clean electricity, DESNZ, www.gov.uk, 2024

**Consumer-led flexibility**
Current installed capacity compared to the DESNZ 'Clean Power Capacity Range' in 2030 (GW)

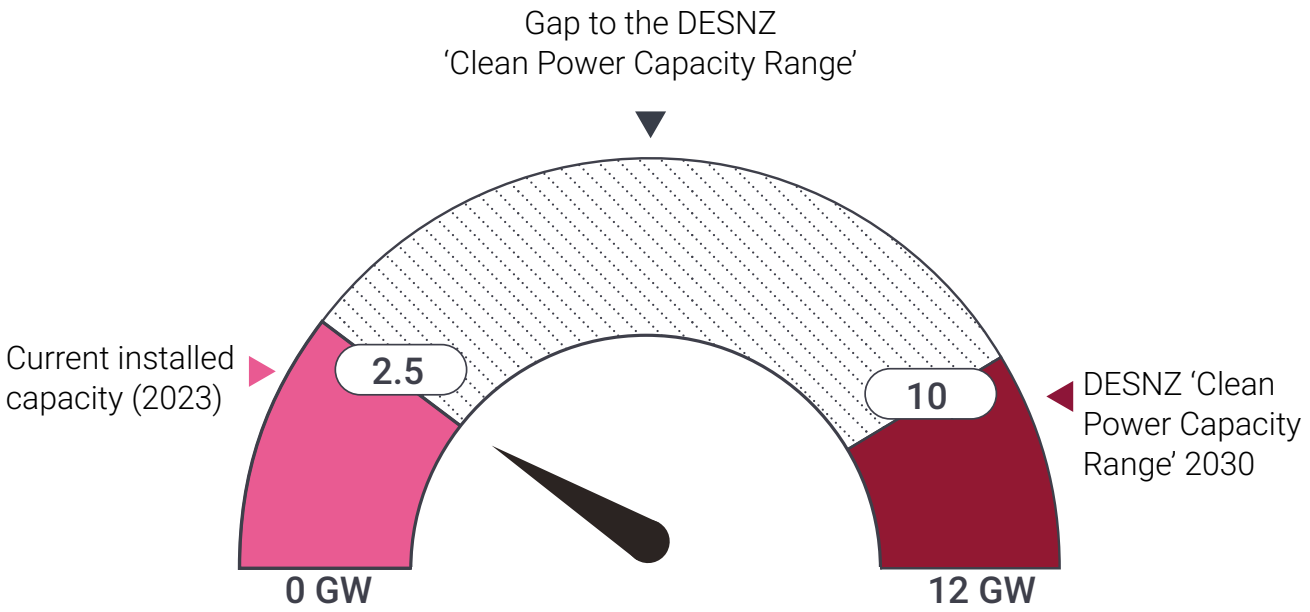



Figure 2: Current, and target consumer-led flexibility capacities required to hit CP2030 decarbonisation targets. Source: DESNZ assets.publishing.service.gov.uk

The National Energy System Operator's (NESO) Clean Power 2030[2] advice has outlined specific innovation requirements that must be addressed to achieve these targets. Enabling more automated system optimisation is essential in coordinating millions of distributed devices if we are to access more flexibility without overwhelming system operators or consumers. Advanced forecasting capabilities are also essential for predicting both renewable generation patterns and flexible demand availability.

However, the delivery of energy flexibility at scale represents more than a technical challenge. It requires alignment across commercial offerings, policy frameworks, regulation, and digital interoperability. The fragmented nature of current approaches means that potential flexibility providers face uncertainty about market participation requirements, unclear revenue stacking opportunities, and varying service terms across different platforms; this creates barriers to moving between markets, increases data duplication and reduces qualification process efficiency.



[2] Clean Power 2030 – Advice on achieving clean power for Great Britain by 2030, National Energy System Operator, www.neso.energy, 2024

# Enabling deep tech through digitalisation

The transition to a flexible energy system is fundamentally dependent on digitalisation. Distributed flexibility requires coordinating millions of devices and actions across the energy system through automation, making digital technologies essential for realising this objective.

**Digitalisation** is the act of using digital technologies to change the way a system operates, with the goal of increasing efficiency, supporting decision making or enabling new or better ways of doing things.

The transformative potential of this approach is evident in other sectors' digitalisation journeys. The financial services sector demonstrates how digitalisation creates the foundations for deep tech innovation to thrive. Clear policy directives established expectations for increased interoperability and coordination between organisations. Mobile technology and digital infrastructure, combined with significantly increased availability of process information, became foundational drivers of fintech innovation, enabling entirely new service delivery platforms. Cloud computing provided cost-effective, scalable infrastructure for rapid service deployment, whilst Application Programming Interfaces facilitated seamless integration between different services. These foundations enabled subsequent innovation in artificial intelligence (AI), such as machine learning, which now power sophisticated fraud detection systems, investment management assistants, and personalised financial recommendations.

The energy sector is well underway on its own digitalisation journey. The Energy Data Taskforce[3] and Energy Digitalisation Taskforce[4] initiated industry-wide programmes to address data and digitalisation challenges. Ofgem have defined Data Best Practice and Digitalisation Strategy Action Plan[5] regulatory requirements, whilst the Department for Energy Security and Net Zero (DESNZ) have funded innovation programmes developing foundational digital infrastructure through the Net Zero Innovation Portfolio fund[6]. Additionally, numerous digital technology projects have been explored by energy networks through the Energy Networks Association's Open Networks programme[7], and Ofgem's innovation funding.



[3] Energy Data Taskforce, Energy System Catapult, es.catapult.org.uk, 2019
[4] Energy Digitalisation Taskforce, Energy Systems Catapult, es.catapult.org.uk,2022
[5] Data Best Practice Guidance and Digitalisation Strategy and Action Plan Guidance, Ofgem, www.ofgem.gov.uk, 2023
[6] Net Zero Innovation Portfolio, Department for Energy Security and Net Zero, www.gov.uk, 2024
[7] Open Networks, Energy Networks Association, www.energynetworks.org

# Deep tech innovation potential

As the industry undergoes digitalisation, there is growing understanding of areas where deep tech can be harnessed to accelerate decarbonisation goals or open entirely new ways of operating the system.

**Deep tech** refers to advanced technologies that require significant research and development investment before commercialisation, characterised by high technical risk and the generation of hard-to-reproduce intellectual property.

Several technologies have clear, near-term potential to accelerate flexibility.

AI technologies such as machine learning and reinforcement learning offer opportunities for forecasting and assisted system operation, enabling automation of flexibility actions and customised flexibility offerings.

Internet of Things (IoT) technologies provide advanced sensing capabilities and models to drive control systems, creating the visibility needed for effective flexibility coordination.

Quantum technologies present longer-term opportunities for complex optimisation problems inherent in energy system management.

The convergence of established digitalisation progress with urgent decarbonisation requirements makes focused investment in deep tech applications not merely desirable but essential for industry, innovators, and consumers alike.



# Systemic barriers to innovation

The GridFlex programme emerged from the combined experience and expertise of Energy Systems Catapult and Digital Catapult, who identified the opportunity to accelerate deep tech innovation in the energy flexibility sector. Supported by Innovate UK, the Catapults developed the programme concept and tested it through extensive stakeholder engagement with innovators, investors, and policymakers, which revealed persistent, interconnected barriers constraining innovation across the UK's energy flexibility ecosystem. Four critical barrier themes emerged from this collaborative development process that collectively create a reinforcing cycle of underinvestment and missed opportunities in flexibility solutions.



## 1 Strategic fragmentation and market uncertainty

The most fundamental challenge facing the sector is the absence of clear, coordinated strategic direction for distributed flexibility deployment. Stakeholders consistently highlighted the fragmented nature of policy development across multiple organisations including the Department for Energy Security and Net Zero, Ofgem, and the National Energy System Operator, creating uncertainty about long-term goals and implementation pathways.

This fragmentation manifests as overlapping mandates, slow consultative processes, and a proliferation of isolated proof-of-concept projects that rarely scale to operational maturity. One established energy technology innovator captured this frustration:

*"I want an organisation, a group of organisations, to come out and say, this is the end goal, these are the pieces that are going to get us there, these are the gaps, and this is the timeline, and this is how we make sure that it's in place by 2030."*
**Energy flexibility innovator**



## 2 Domain knowledge and market access barriers

The complexity of the UK energy system creates substantial barriers for organisations seeking to enter flexibility markets, particularly those from non-energy sectors. The regulatory environment requires extensive domain knowledge that takes years to acquire, favouring incumbent organisations with established relationships and resources.

This knowledge barrier extends beyond regulatory complexity to encompass market structures, technical standards, and industry processes that are often under-documented or accessible only through informal networks. These accessibility challenges particularly affect potential flexibility providers such as electric transportation service providers or heat pump operators, who could contribute to system flexibility but lack the resources required to navigate market participation requirements.

## 3 Coordination and collaboration challenges

While technical integration capabilities exist, the social and commercial aspects of collaboration present significant obstacles to innovation deployment. The energy flexibility ecosystem suffers from limited visibility of who is doing what, making it difficult for potential partners to identify alignment opportunities and develop effective collaborations.

Integration challenges are predominantly organisational rather than technical, with most effort spent on negotiating agreements and building relationships rather than solving technical problems.

*"Most of the coordination challenge is in agreeing on where to interface and the communication method to use. E.g. 90% of the effort is in agreeing to use an API, once that is done the integration is straightforward."*
**Energy flexibility innovator**



## 4 Policy and regulatory pace mismatch

A persistent pace mismatch exists between rapid digital innovation cycles and slow, risk-averse policy development processes. Regulatory frameworks struggle to keep pace with technological developments, whilst consultation processes often occur too late to meaningfully influence policy direction.

Small innovators face structural challenges in accessing policy processes that are frequently less accessible to innovators or dominated by incumbent voices. This creates a reinforcing cycle where innovative organisations lack influence to shape the regulatory environment that constrains their market participation.

## Programme response

The proposed GridFlex programme directly addresses these barriers through its systems-based approach. The programme supports innovators through the provision of domain knowledge tools for non-energy organisations and technical upskilling for energy incumbents. Investor engagement will focus on risk mitigations and facilitating connections to investment-ready innovators with validated commercial pathways.

Through its comprehensive stakeholder engagement approach, the programme will establish feedback loops between innovators, investors, and policymakers that enable upstream policy influence rather than reactive consultation responses. Finally, the modular innovation framework addresses funding gaps by supporting different innovator types across technology readiness levels, whilst the challenge-led approach ensures industry alignment and commercial viability.

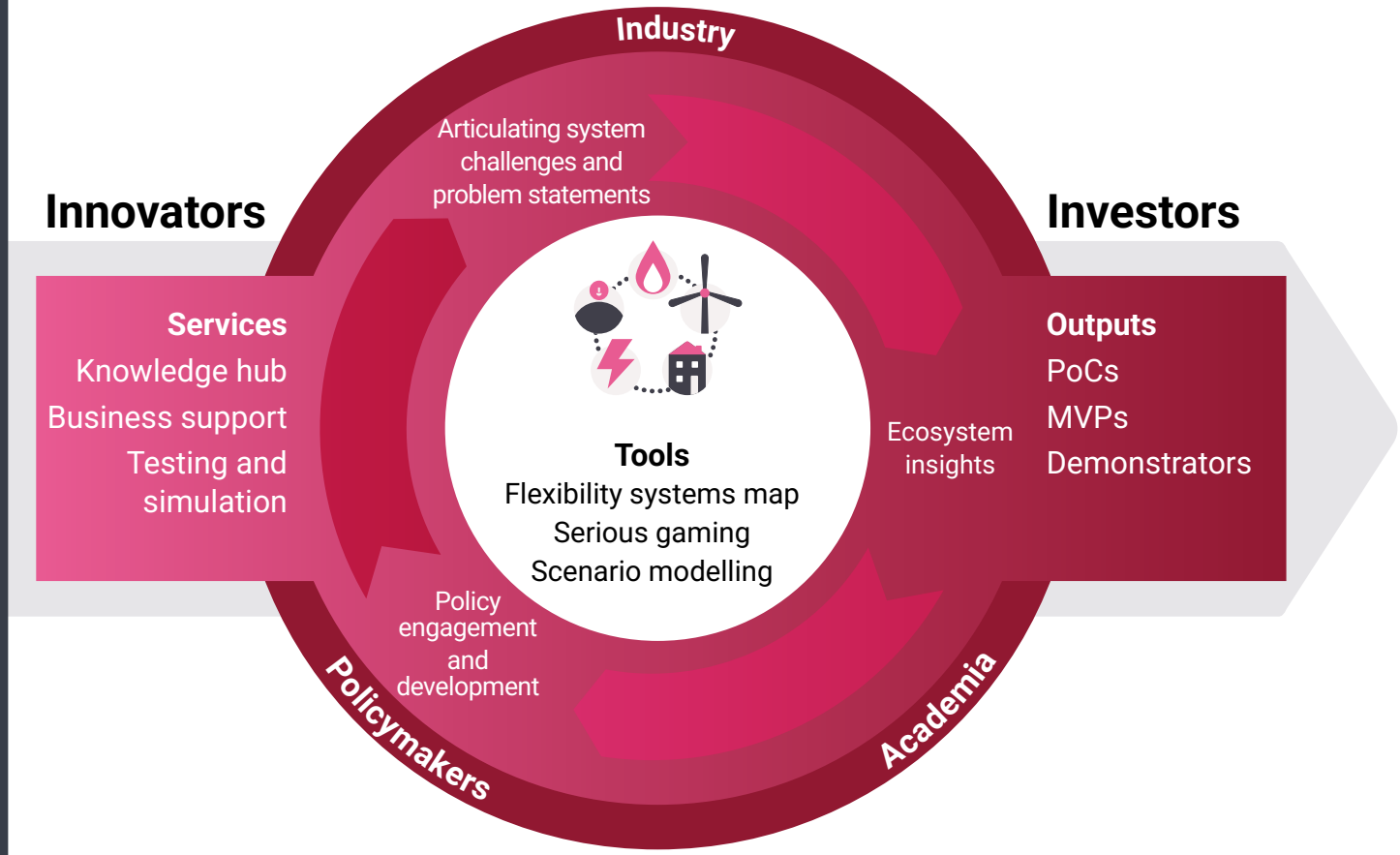
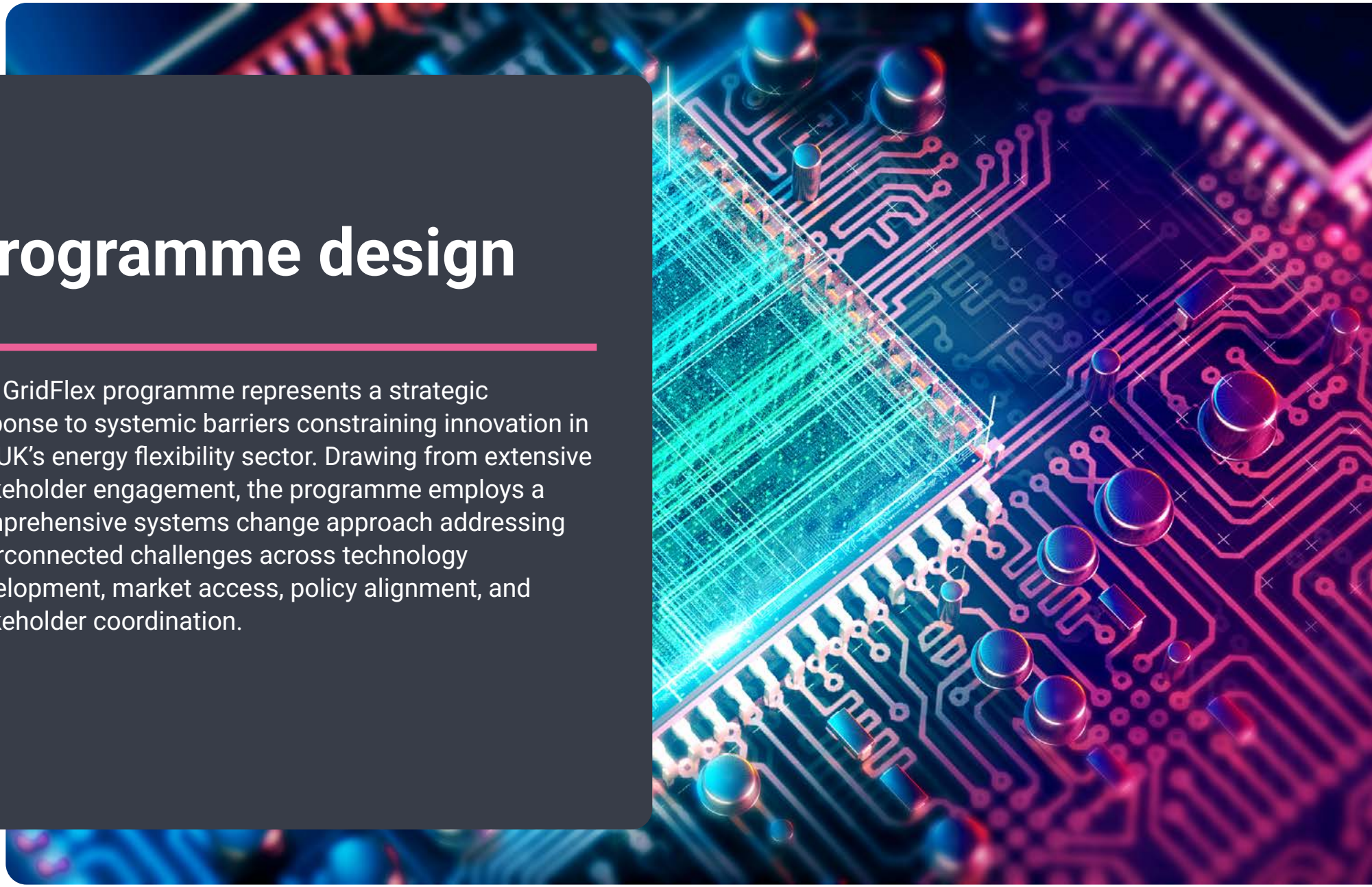



Figure 3: High level overview of the proposed GridFlex methodology. The programme will create tools and mechanisms to establish feedback loops, whilst supporting businesses and investors to innovate in a more productive ecosystem.



# Programme design

The GridFlex programme represents a strategic response to systemic barriers constraining innovation in the UK's energy flexibility sector. Drawing from extensive stakeholder engagement, the programme employs a comprehensive systems change approach addressing interconnected challenges across technology development, market access, policy alignment, and stakeholder coordination.

# Systems-based theory of change

The complexity and interconnected nature of these challenges demands a fundamentally different approach to programme design. Traditional linear approaches fail to capture the complex dynamics of real-world change processes. The energy flexibility challenge emerges from interactions across technological, regulatory, economic, and social domains rather than single causes. Systems thinking provides a framework for seeing interrelationships rather than isolated components, focusing on patterns of change rather than static snapshots.

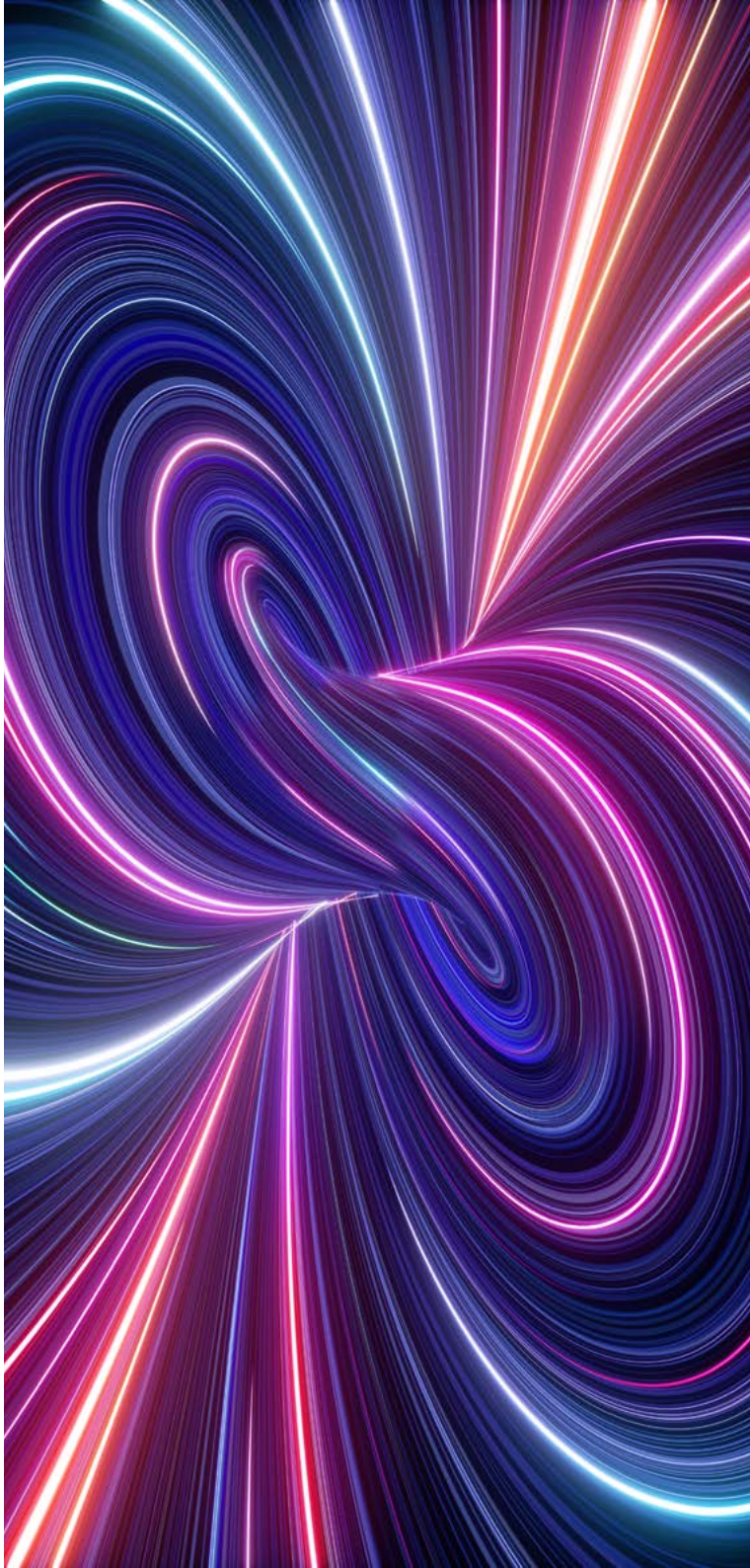
A systems-based theory of change accounts for contextual factors, time lags, feedback loops, and interdependencies between system variables rather than focusing solely on programme activities and direct outputs. As noted in recent analysis of climate policy effectiveness[8],

*"Governments that can recognise these patterns – as well as the ways they can be harnessed or sidestepped – are likely to be better equipped to manage structural change."*

The energy flexibility transformation presents precisely these complex patterns, where technological innovation, market dynamics, and regulatory frameworks interact in ways that can either accelerate or constrain system change.

The programme specifically enables this pattern recognition by creating structured feedback loops between innovators experiencing market realities and policymakers shaping regulatory frameworks, ensuring policy development becomes responsive to emerging system dynamics rather than reactive to past challenges. A successful demonstration of a deep tech application increases investor confidence, leading to significant investment from diverse sources (such as blended finance, Growth Equity, and pension funds), thereby providing the critical capital for market adoption. This investment enables faster deployment of transformative solutions, creating a virtuous cycle that incentivises further research and development.

[8] How 'feedback loops' and 'non-linear thinking' can inform climate policy, Carbon Brief, www.carbonbrief.org, 2025



The programme employs this systems-based theory of change to create market transformation in the UK energy flexibility sector, mapping interventions onto the broader system context and targeting strategic outcomes that address key leverage points: bridging markets with deep tech, increasing availability of net-zero goods and services, enhancing business adaptiveness and resilience, creating policy development avenues, driving private investment, and building narratives of value for energy flexibility.

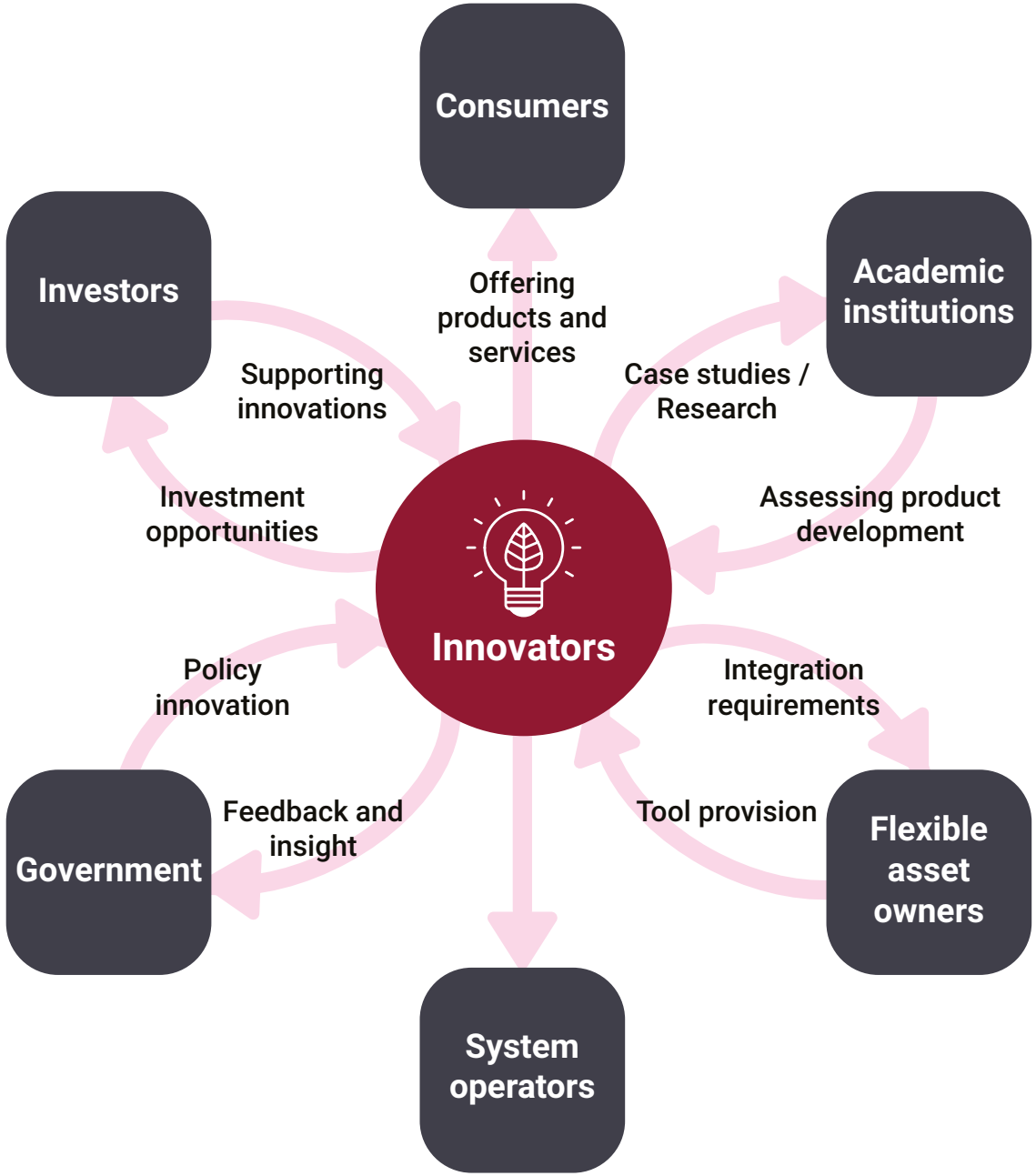
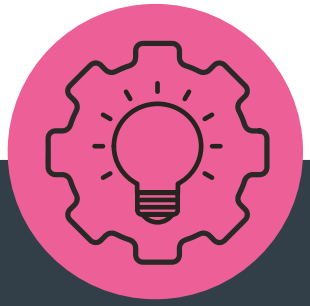



Figure 4: Illustration of a systems analysis showing the interactions between interventions, leverage points and feedback loops in the GB energy system.

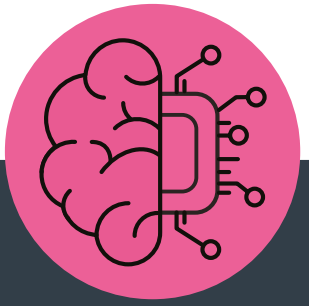
# The GridFlex programme

The programme supports two distinct innovator types, each bringing different capabilities and facing unique challenges in accessing energy flexibility markets.



### Energy sector innovators

Companies with experience in the broader energy sector who wish to extend their capabilities into flexibility solutions using deep technology, bringing sector knowledge but requiring deep tech capabilities.



### Transferable Deep Tech Innovators

Deep Tech innovators from other sectors who bring transferable capabilities that can be adapted to address challenges and opportunities in the energy flexibility market.

The innovator journey encompasses five key stages: upskill, ideate, develop, validate, and grow spanning different levels of organisational maturity. Organisations at different stages of their development will be supported by tailored interventions that address specific barriers at each stage whilst maintaining continuity across the innovation lifecycle.

However, to support the delivery of the Clean Power 2030 objectives, the programme needs to work with innovators that will be able to directly impact the targets by 2030; as such, it will be more focussed on scaling up the deployment innovators of more mature innovators. Depicted in figure 5 below.

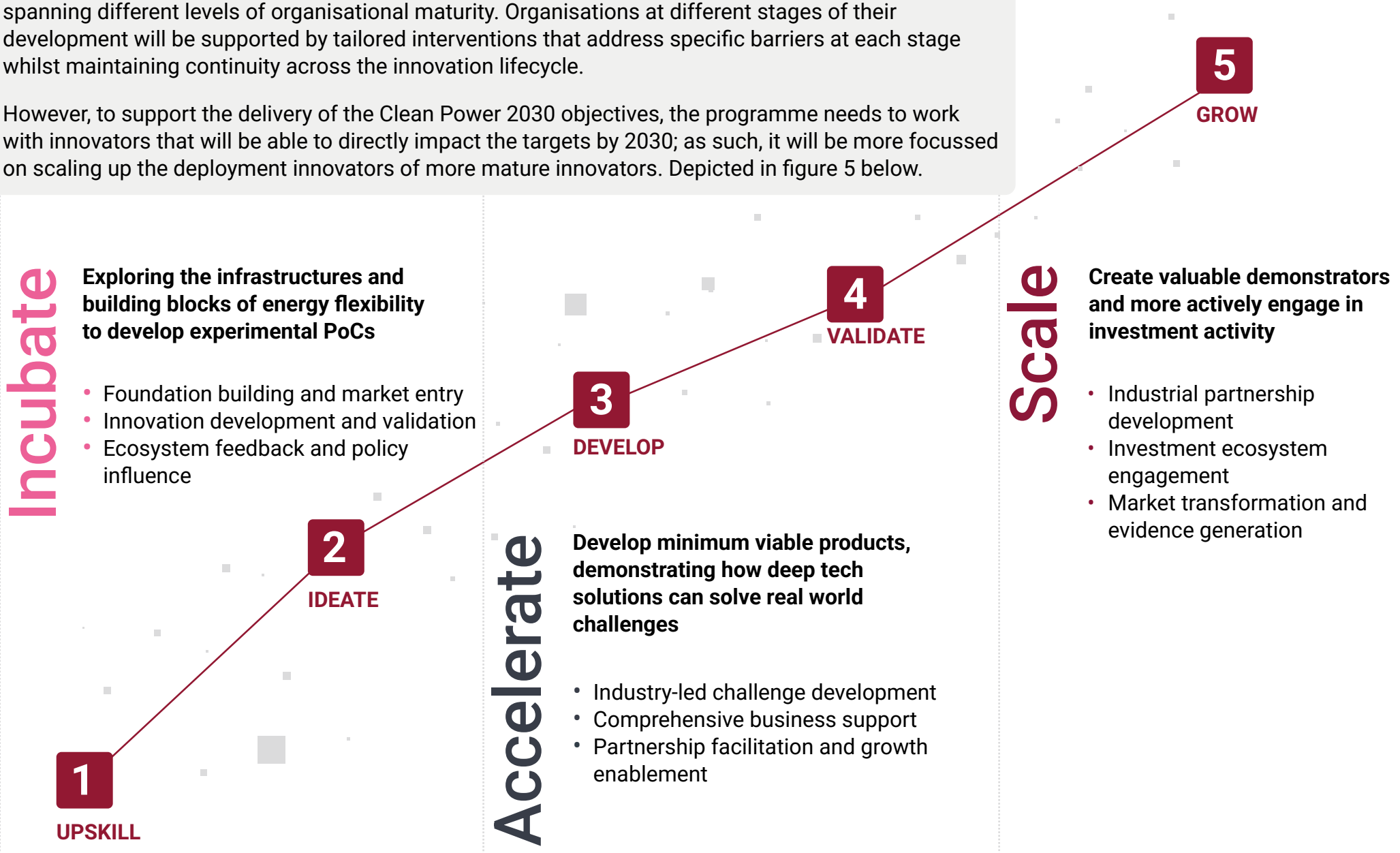



Figure 5: Innovator Journey from ideation through scale, showing support mechanisms at each stage.

## Incubate

**Exploring the infrastructures and building blocks of energy flexibility to develop experimental PoCs**

**Foundation building and market entry:** Comprehensive masterclasses and mentorship programmes provide essential energy flexibility market knowledge, enabling companies to make informed decisions about market entry whilst developing experimental proof of concepts

**Innovation development and validation:** Structured business support workshops and cohort networking sessions guide participants through proof of concept refinement, creating investment-ready demonstrations that showcase technical feasibility and commercial potential

**Ecosystem feedback and policy influence:** Regular assessment of cohort progress generates market insights whilst establishing direct feedback channels to policymakers and regulators, ensuring innovation barriers and requirements inform future policy development

## Accelerate

**Develop minimum viable products, demonstrating how deep tech solutions can solve real world challenges**

**Industry-led challenge development:** Companies receive targeted funding to develop minimum viable products that address real-world challenges defined by industry partners, ensuring solutions meet genuine market needs and operational requirements

**Comprehensive business support:** Wraparound workshops covering business proposition development, design support, and product refinement, combined with promotional showcase events that connect innovators with potential adopters, investors, and strategic partners

**Partnership facilitation and growth enablement:** Funding enables job creation, hardware investment, and promotional activities whilst fostering partnerships between SMEs and established industry organisations, creating pathways for future commercial collaboration and scaling opportunities

## Scale

**Create valuable demonstrators and more actively engage in investment activity**

**Industrial partnership development:** Funded collaborative partnerships between mature SMEs and large-scale energy flexibility organisations, creating industrial demonstrators that showcase real-world technology applications and validate commercial viability in operational environments

**Investment ecosystem engagement:** : Investor showcases, feedback sessions, and bespoke support provision that drives wider investor engagement and increased investment into the energy flexibility ecosystem, demonstrating the commercial potential of deep tech solutions

**Market transformation and evidence generation:** Development of refined, industrially mentored market entrants with demonstrated evidence that deep tech integration effectively addresses current market challenges, creating sustained growth and development across the energy flexibility sector

Figure 6: High level overview of the different innovator tracks through the programme, which will support innovators.

# Programme structure

The programme operates through seven interconnected work packages designed to create comprehensive ecosystem transformation.

1. **Ecosystem and market engagement** builds pipelines of innovators and partners whilst creating accessible knowledge resources and lowering entry barriers for non-energy organisations.
2. **Foresight lab and research** ensures programme relevance to future energy system requirements through strategic foresighting and scenario modelling.
3. **Foundational technology development** creates novel tools, testbeds, and toolkits including a continuously updated flexibility systems map and user-friendly software tools that help innovators navigate the complex energy flexibility ecosystem.
4. **Ideation and incubation** delivers funded innovation programmes enabling experimentation through proof-of-concept development, masterclasses, networking events, and mentorship activities.
5. **Acceleration and scale** provides challenge-led acceleration programmes enabling innovators to develop minimum viable products through industry engagement and facilitated partnerships between SMEs and established energy organisations.
6. **Commercialisation and investment** focuses on building commercialisation roadmaps, investment readiness programmes, and internationalisation opportunities through ecosystem mapping and investor connections.
7. **Programme governance and impact evaluation** ensures effective management, risk oversight, and validated outcomes delivery through comprehensive evaluation frameworks and strategic advisory oversight.

## Unique intervention tooling

The programme distinguishes itself through innovative digital tools that enable stakeholders to visualise and navigate the entire GB energy system whilst testing assumptions and exploring collaboration opportunities.

The **Flexibility Systems Map** is a logical representation of the UK's energy flexibility ecosystem, capturing the complex web of relationships and interactions between actors, infrastructure, and processes that enable distributed flexibility across the electricity system. This mapping capability serves as the foundational data source for user-friendly tools designed to help innovators navigate market complexity, identify challenges, and test novel energy system innovations in support of Clean Power 2030 objectives.

Subsequent phases will continue to explore and develop support tools that address challenges identified in the seed programme, utilising the underlying systems map data and other innovative mechanisms such as playable systems.

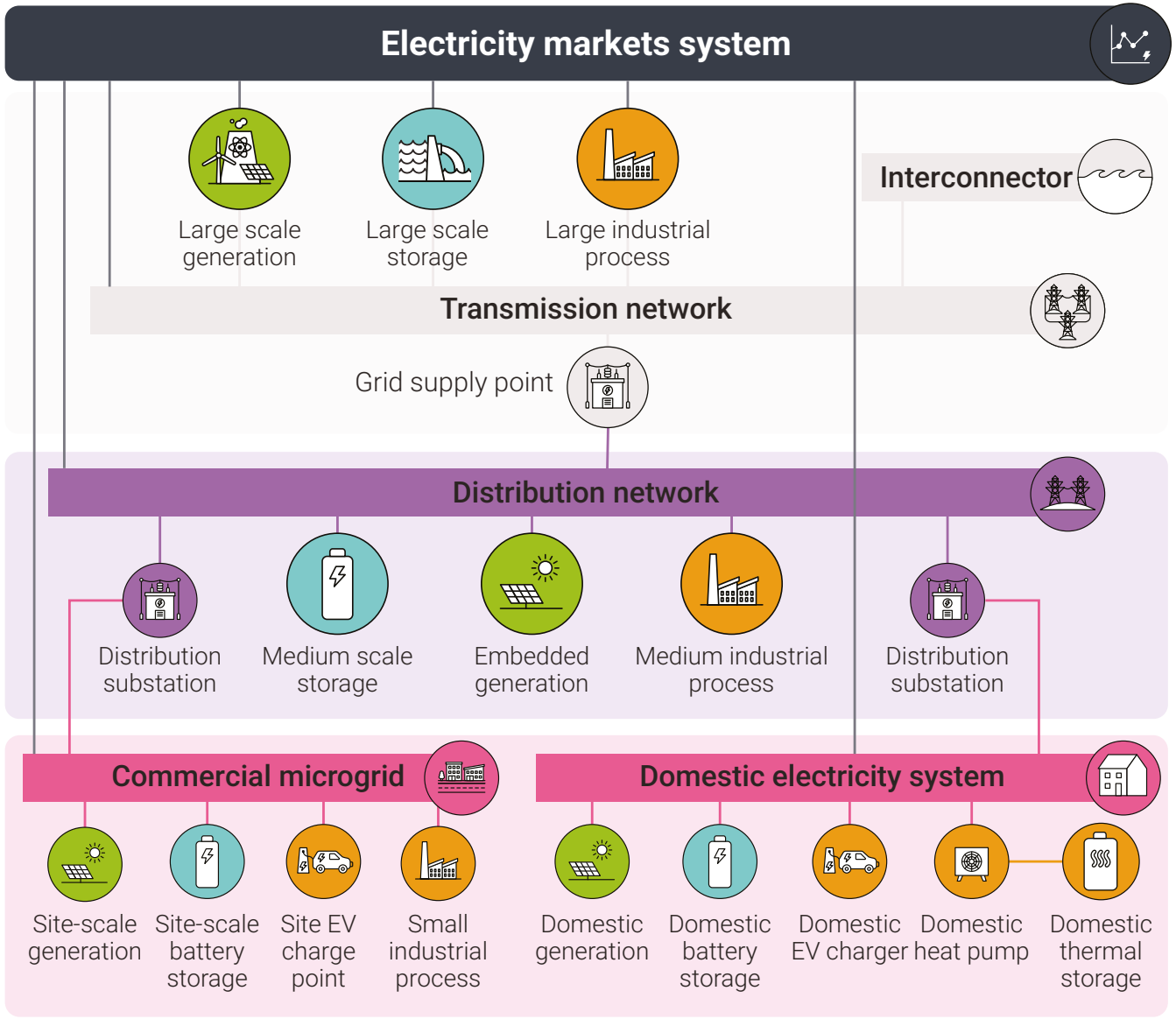



Figure 7: A systems overview of the GB electricity infrastructure generated from the Flexibility Systems Map.

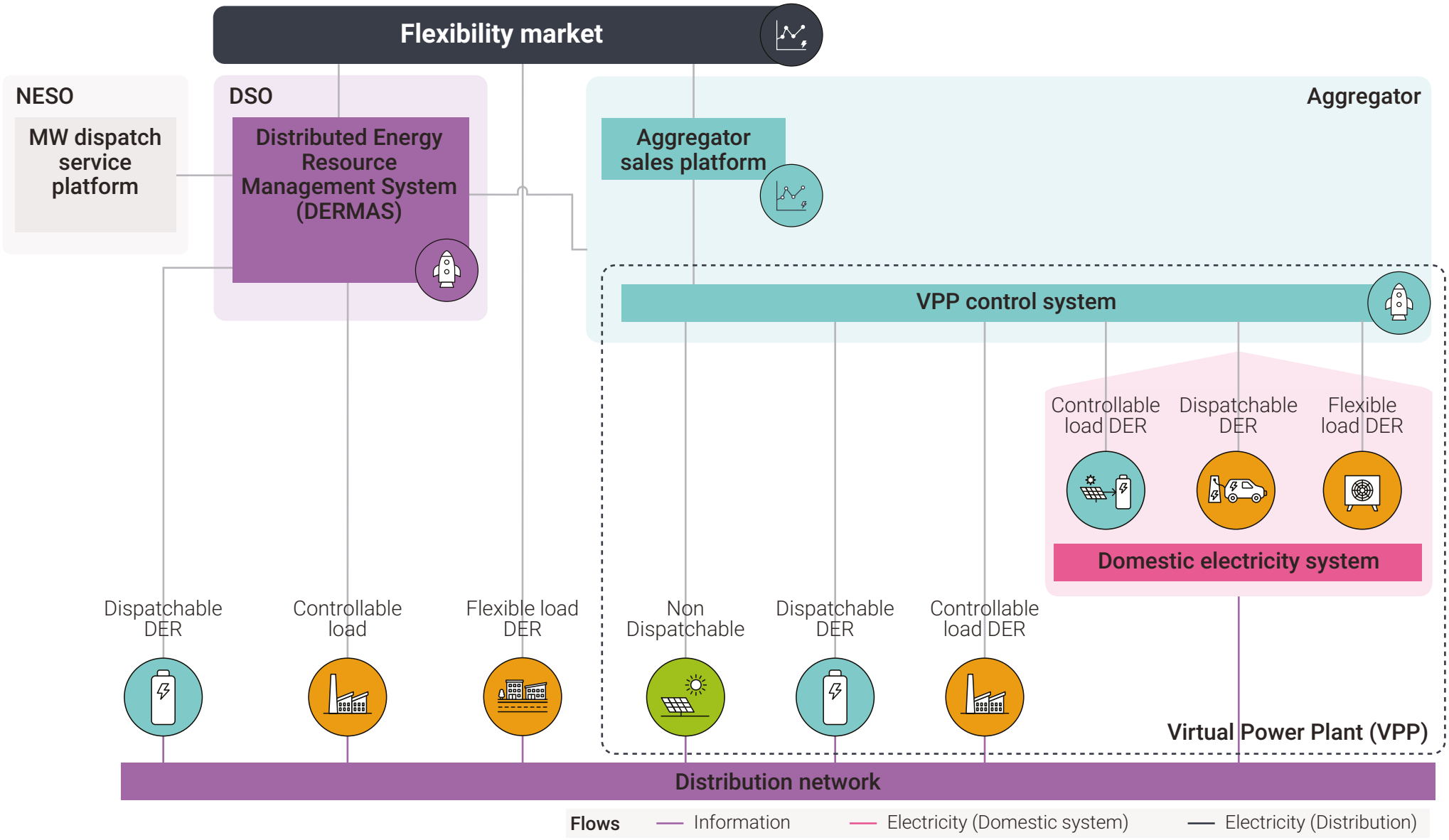



Figure 8: Schematic from the Flexibility Systems Map, detailing the logical structure of flexibility markets, flexibility service provides and different types of flexible assets.

# Multi-stakeholder benefits and engagement

The programme creates value across the entire energy flexibility ecosystem through targeted interventions for different stakeholder groups.



**Innovators** receive support in learning technical requirements, navigating regulatory barriers, accessing knowledge tools and digital testbeds, obtaining grant funding for proof-of-concept development, and establishing pathways to commercialisation.



**Energy sector organisations** gain access to scalable solutions for flexibility asset utilisation, cost reduction through validated flexibility services, and opportunities to monetise assets via new business models developed through programme collaboration.



**System operators** benefit from improved understanding of flexibility solutions for grid challenges, access to validated solutions ready for integration, and identification of use cases aligned with operational priorities and decarbonisation goals.



**Government and regulators** receive evidence-based insights to inform national energy strategies, clearer understanding of policy support requirements, and access to testbed insights that address regulatory gaps and inform future policy development.




**Consumers** benefit from lower energy costs through more efficient grid operations, increased energy security and reliability, and improved access to clean energy solutions.

# Impact and benefits

The GridFlex programme represents a strategic investment with far-reaching implications for the UK's energy transformation and economic competitiveness. We commissioned an independent economic assessment in accordance with HM Treasury Green Book methodology to model and validate programme benefits; the analysis demonstrates that **every £1 invested in the programme returns £5.80 in benefits to society,** delivering a benefit-cost ratio of 5.8 that significantly exceeds government value-for-money thresholds. This strong return reflects both the programme's strategic targeting of critical system leverage points and its conservative approach to estimating potential impacts.



The programme's rationale stems from addressing fundamental market failures that currently constrain innovation across the UK's energy flexibility sector. The complexity and fragmentation of flexibility markets create substantial barriers for innovators and investors, whilst regulatory uncertainty and domain knowledge requirements deter new entrants who could contribute transformative solutions.



## Accelerating energy system transformation

Central to the programme's impact is its contribution to the Clean Power 2030 Mission's requirement for substantial increases in energy flexibility capacity. The economic assessment conservatively estimates that four successful innovators emerging from the programme will each enable 200 megawatts of flexible energy capacity at maturity, contributing approximately 1,520 megawatts of additional system flexibility (by 2037).

Beyond these direct capacity contributions, the programme's systems-based approach creates multiplier effects throughout the energy ecosystem. Knowledge developed by supported innovators benefits the broader market through spillover effects, leading to cost reductions and adoption of similar approaches by other companies. These spillovers extend the programme's impact far beyond its direct participants, creating lasting transformation in how the UK approaches energy flexibility deployment and innovation acceleration.

## Economic growth and employment creation

The programme generates substantial employment benefits in high-value sectors, with economic modelling predicting 11,720 additional job-years supported over the appraisal period. These positions primarily concentrate in deep technology and energy flexibility sectors, offering high-wage employment opportunities that contribute to human capital development in critical Net Zero industries.

This employment creation aligns with government priorities for developing green skills and building capabilities in emerging technology sectors. The programme's focus on cross-sector collaboration particularly benefits regions with existing digital technology capabilities whilst extending these skills into energy applications, creating new career pathways and strengthening the UK's overall innovation ecosystem.

**11,720**

additional job-years predicted

## International competitiveness and export potential

Programme innovations position the UK to capture first-mover advantages in global markets for energy flexibility technologies. The economic assessment estimates additional revenue to UK flexibility innovators through accelerated export scale-up over the appraisal period. Export activities are modelled to begin once domestic operations reach maturity, with export revenue potentially reaching 40% of domestic revenue for fully scaled innovators.

This export potential builds on the UK's existing strengths in digital services and artificial intelligence sectors, where export revenues represent substantial portions of total sector value. The programme's emphasis on deep technology innovation creates hard-to-reproduce intellectual property that strengthens the UK's competitive position in international markets.

## Policy coherence and system integration

The programme addresses fragmented policy environments that create structural barriers for innovation deployment. Through industry roundtables, policy working groups, and knowledge transfer mechanisms, the programme provides policymakers with evidence-based insights that facilitate better policy coherence. The programme allows policy makers to convey clear policy direction, whilst also testing potential developments with innovators. This creates feedback loops between innovators and policymakers that ensure regulatory development accounts for flexibility impacts in specific and nuanced ways rather than through generic approaches.



# Sustainable innovation infrastructure

Perhaps most significantly, the programme establishes comprehensive innovation infrastructure that adapts to evolving market needs and technology developments. The modular innovation framework targets different innovator types across technology readiness levels whilst maintaining continuous engagement with industry stakeholders to ensure real-world validation throughout the innovation process.

This sustainable approach recognises that energy flexibility challenges emerge from complex interactions between multiple stakeholders, requiring coordinated interventions across leverage points rather than isolated solutions. By establishing new models for cross-sector collaboration, stakeholder engagement, and systems change, the programme creates lasting capabilities for innovation acceleration that support the UK's broader Net Zero objectives and energy security requirements.



# Mobilising systems change

The challenges facing the energy flexibility sector are complex, interconnected, and urgent. Clean Power 2030 demands unprecedented coordination of millions of distributed devices whilst maintaining system reliability and affordability. Traditional innovation approaches are insufficient for this scale of systems transformation.

The programme's systems-based methodology targets multiple leverage points simultaneously, from technology development and market creation to policy coherence and investment mobilisation, creating conditions for sustainable transformation beyond immediate innovation outcomes.



Over the next nine months, Energy Systems Catapult and Digital Catapult will complete foundational development activities including challenge area definitions, digital toolsets, systems mapping capabilities, governance frameworks, and stakeholder engagement mechanisms. The programme is anticipated to launch in 2026, subject to funding confirmation.

## How to get involved

Programme success depends on active participation across the energy ecosystem. Immediate opportunities exist through the Bridge programme commencing over the next six months.

**Lighthouse pilots:** Selected innovators will participate in intensive programmes demonstrating emerging business models whilst highlighting real-world challenges. Participants receive digital innovation roadmaps, feasibility assessments, deep tech expertise, targeted mentoring, and funding support. Industry leaders can engage in challenge definition activities and provide validation environments.

**Early adopters and toolkit development:** Innovators from energy and non-energy sectors can participate as early adopters developing the comprehensive toolkit. Through masterclasses, roundtables, and matchmaking events, participants will shape educational resources, digital tools, and support pathways whilst contributing to collaborative knowledge development.

Investors can shape investment readiness programmes through targeted sessions, accessing early-stage opportunities informed by lighthouse pilot insights. Policymakers contribute to evidence-based policy development through structured feedback mechanisms. Academic institutions engage through research collaborations advancing systems change methodologies.

**Programme updates:** Organisations interested in participating should register to receive updates as the programme progresses. Early engagement ensures access to foundational activities and positions participants to maximise benefits from full programme launch.



## Positioning the UK as a global leader

The UK can establish global leadership in energy flexibility innovation whilst delivering Clean Power 2030 objectives. By combining world-class deep tech capabilities with comprehensive energy sector expertise, the programme positions the UK to capture first-mover advantages internationally whilst creating resilient, cost-effective domestic energy systems.

The energy transformation challenge demands fundamental re-purposing of how we generate, distribute, and consume electricity. Through coordinated systems change harnessing deep technology innovation, the UK can lead this transformation whilst creating lasting economic value and environmental benefits for current and future generations.

Innovate UK

CATAPULT Energy Systems

CATAPULT Digital

## Get involved now

Be the first to hear about upcoming funding opportunities and resources in the GridFlex programme.

https://digicat.org.uk/GridFlex

