

PROCESS EVALUATION OF THE RAPID CHARGING FUND PILOT FROM INCEPTION TO JANUARY 2025

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Glossary of acronyms

Table 1 **Glossary of acronyms**

Acronym	Full Term	Description
BNG	Biodiversity Net Gain	BNG is mandatory in England under Schedule 7A of the Town and Country Planning Act 1990 (as inserted by Schedule 14 of the Environment Act 2021). ¹ Developers must deliver a BNG of 10%. This means a development will result in more or better-quality natural habitat than there was before development.
CMA	Competition and Markets Authority	An independent non-ministerial department. It helps people, businesses and the UK economy by promoting competitive markets and tackling unfair behaviour.
CPO	Chargepoint Operator	A company that installs and operates EV chargepoints.
DfT	Department for Transport	UK ministerial government department. It works with its agencies and partners to support the transport network that helps the UK's businesses and gets people and goods travelling around the country. It plans and invests in transport infrastructure.
DNO	Distribution Network Operator	Licensed companies that own and operate the network of towers, transformers, cables and meters that carry electricity from the national transmission system and distribute it throughout Britain.
ESO	Electricity System Operator	Now known as the National Energy System Operator (NESO), responsible for balancing electricity supply and demand on the grid. ESO was owned by National Grid, whereas NESO is publicly owned.
EV	Electric Vehicle	A vehicle with an electric motor rather than an internal combustion engine.
GFA	Grant Funding Agreement	A contract setting terms and conditions for grant funding recipients.

¹ UK Government (2021). Environment Act 2021: Schedule 14. Available at: <https://www.legislation.gov.uk/ukpga/2021/30/schedule/14/enacted>

Acronym	Full Term	Description
GRS	Green Recovery Scheme	Ofgem initiative running between 2021 and 2023 to support grid upgrades for green technologies.
kV	Kilovolt	Unit of electrical voltage (1,000 volts).
MSA	Motorway Service Area	A roadside facility located off motorways providing a rest area and services for motorway users, including fuel and charging.
MSAO	Motorway Service Area Operator	A company that owns or operates MSAs.
NAO	National Audit Office	The UK's independent public spending watchdog.
NESO	National Energy System Operator	Successor to ESO, responsible for strategic planning of the electricity grid. ESO was owned by National Grid, whereas NESO is publicly owned.
OZEV	Office for Zero Emission Vehicles	A joint unit between the Department for Transport and the Department for Energy Security and Net Zero, working to support the transition to zero emission vehicles (ZEVs).
RCF	Rapid Charging Fund	Government fund to enable a comprehensive ultra-rapid charging network by funding prohibitively expensive grid connections.
SAU	Subsidy Advice Unit	Part of the CMA, providing non-binding advice to public authorities on compliance with the Subsidy Control Act 2022. It also monitors and reports on the effectiveness of the subsidy control regime.
SRN	Strategic Road Network	Motorways and major A-roads in England.
TNUoS	Transmission Network Use of System	Charges for using the high-voltage electricity transmission network.

Source: Frontier Economics

Executive summary

Scope of the RCF pilot process evaluation

The Rapid Charging Fund (RCF) was announced in 2020 as a £950 million government initiative designed to accelerate private sector investments in ultra-rapid chargepoints on the Strategic Road Network (SRN) ahead of growing demand. The RCF was designed to subsidise the cost of the work to increase electricity network capacity at key sites to enable chargepoint delivery, where it was not commercially viable for the private sector to do so alone.

The policy was the responsibility of the Office for Zero Emission Vehicles (OZEV), a joint unit of the Department for Transport (DfT) and the Department for Energy Security and Net Zero (DESNZ).

Before launching the main RCF, a £70 million RCF pilot was launched in December 2023. This was to test the feasibility and implementation of the fund's objectives, and to extract lessons to inform future policy. The eligible applicants for pilot funding were motorway service area operators (MSAOs) for motorway sites in England. The Delivery Body was National Highways.

Frontier Economics and SYSTRA were commissioned by DfT to carry out a rapid, independent process evaluation of the RCF pilot from inception to January 2025. This aimed to generate evidence-based learning on how the pilot was implemented, what worked well and less well, and to enable improvements in the design of the RCF. This work also aimed to generate insights on the important ingredients likely to be needed as part of future policy to accelerate the roll-out of ultra-rapid chargepoints on the SRN. The insights summarised in this report are based on a series of 10 semi-structured interviews and document review, completed between December 2024 and May 2025. Stakeholders providing input into the evaluation included individuals representing DfT, National Highways, MSAOs, distribution network operators (DNOs) and chargepoint operators (CPOs).

Lessons learned from the RCF pilot

The RCF pilot encountered several challenges, ultimately leading to the withdrawal of all applicants and no funding being allocated. Navigating through these challenges, however, helped stakeholders build system-wide capability and foster strategic relationships to support future EV chargepoint delivery.

The RCF pilot was launched into a developing market. No single party had a complete understanding of what infrastructure would be needed, where it was required, how it could be delivered in practice, or what it would cost. This was why a funding-limited pilot was launched, instead of the full RCF programme. The complexity of this newly emerging market led to challenges in the design and implementation of the pilot resulting in no funding being allocated.

Despite this, the RCF pilot generated a significant amount of learning about what is needed to upgrade the electricity network to support future electric vehicle (EV) charging infrastructure on the SRN. This includes building a richer understanding of barriers and enablers to delivery in the evolving chargepoint ecosystem. The pilot also acted as a strategic testbed for delivery arrangements, enabling government and delivery partners to better understand how to coordinate effectively across the system.

National Highways, in its role as Delivery Body for the pilot, developed new capabilities and internal expertise to support this work. The pilot strengthened relationships between DNOs, MSAOs and National Highways, which are likely to benefit wider grid upgrades and future initiatives. In particular, the pilot prompted many MSAOs to adopt a longer-term view of their power infrastructure needs and engage more proactively with DNOs.

As part of the pilot, a set of guidance was developed along with an accompanying workbook to support MSAOs in forecasting future EV charging demand. Most MSAOs are continuing to use elements of this to inform their own EV infrastructure planning. DNOs also gained a clearer understanding of MSAOs' likely future power requirements.

For DfT, the pilot played an important role in revealing how standard processes and grant funding arrangements may need to be adapted when intervention takes place in an emerging market context, involving cross-sector regulatory frameworks and a small number of strategically important market participants with different sizes and business models.

The experience also highlighted the value to DfT of working closely with the Delivery Body from the outset of programme design. Industry stakeholders suggested a key point of learning was that engagement with government was vital to help build capacity to navigate grid connection processes and ensure delivery models align with commercial and regulatory realities (see Section 3.4 for further details of the impact of the pilot on governance and stakeholder relationships).

Stakeholders highlighted the practical barriers resulting from the interplay between commercial and policy objectives.

A primary objective of the RCF pilot was to generate learning about how best to design policy to accelerate the delivery of future-proofed grid capacity to support chargepoint delivery where grid connection costs are a barrier to meeting future EV charging demand.² The evidence from this evaluation suggests that, while the commercial viability of these investments is an issue for some MSAOs at specific sites, which the RCF pilot was intended to help, there are also practical barriers to navigate:

- **Planning horizons and risk appetites.** The upgrades that DfT intended to part-fund with the pilot were proposed to meet demand at least to 2035, and would allow proposals for upgrades to meet 2050 demand ('future-proofing'). However, under normal business

² DfT and OZEV (2021). Rapid Charging Fund: Guidance. Available at: <https://committees.parliament.uk/publications/42550/documents/211537/default/>

planning, MSAOs generally make more incremental investments with shorter planning horizons (3-5 years). Therefore, because the RCF design would involve upfront capital layout for longer term major investments, the evidence suggests that, in many cases, MSAOs considered the scale of the investments required as part of the RCF pilot to be infeasibly large and risky in the context of uncertain future EV demand and government policy (see Section 3.1.3).

- **Commercial risks for applicants in the Grant Funding Agreement (GFA).** MSAOs were asked to sign a GFA which was based on standard Cabinet Office terms. This defined the terms under which funding would be provided to MSAOs. MSAOs perceived this as offering them limited scope for mitigating commercial risks. In particular, the clawback clauses were identified as an unacceptable risk for MSAOs. This was because it left potential for MSAOs to be exposed to incurring costs, or grant monies could be recovered (partially or in full), if delivery were delayed, even if the delays were out of their control, e.g. due to issues faced by the DNO.³ The GFA also stipulated that increases in delivery costs could be borne by the applicant (MSAOs). Although variations in funding could be requested, government retained discretion over these decisions. This was seen by some MSAOs as a barrier to continuing with the pilot funding application (see Section 3.1.3).
- **Internal capacity constraints.** Some MSAOs noted that their internal teams are typically small and focused on site operations, rather than managing large infrastructure upgrades. While the pilot helped build knowledge and organisational capability (see Section 3.4), it did not fund additional dedicated project-management resource within MSAOs. This limited capacity made it difficult for some operators to take on the level of project management required by the works if they were to go ahead (see Section 3.1.3).
- **Competition requirements.** In response to policy recommendations made by the Competition and Markets Authority (CMA), the GFA included requirements for at least two open-access CPOs at each MSAO site. In addition, there were safeguards in place requiring some MSAOs acting as CPOs to structurally separate their MSAO and CPO activities to be eligible for RCF pilot funding, which interviewees indicated was not feasible within their existing operating model (see Section 3.1.2).
- **Challenges related to DNO regulation and connection processes.** Several issues linked to DNO processes and regulatory frameworks were raised by MSAOs as impacting the viability and predictability of pilot applications (see Section 4.2):
 - **Connection application process timelines.** DNOs operate within a regulatory framework that requires them to follow standardised procedures and manage demand across sectors. As a result, they cannot prioritise MSAO requests over those

³ Note that there was a variation request process in place to address potential delays. However, applicants did not have certainty over whether DfT would accept or reject the request.

from all other organisations that need power. Therefore, in some cases, DNOs could not accommodate MSAOs' requests within the timelines stipulated by the pilot.

- **Payment structures and lag on investment returns.** The pilot funding process was such that once a DNO quote is accepted by the MSAO to confirm they would like to go ahead with the work, applicants would make staged payments in advance of the works. Given that infrastructure delivery can take several years, this would create a lag between investment and when a return would be generated. This would have affected the commercial viability of projects from the MSAO perspective. Therefore, the MSAOs were not inclined to embark upon these investments, even with RCF pilot funding.
- **Changing connection costs.** During the pilot period, there were instances where once more detailed design was undertaken, it resulted in connection cost reductions because of DNO decisions to build new primary substations in the relevant areas. This occurred where, for example, a tipping point in demand had been reached (where requests for power enhancements were forthcoming from multiple local parties, not just the MSAO). The costs could then be distributed across the various parties who would be connected, which for some MSAOs meant the pilot funding would no longer be needed.⁴
- **Land use and planning constraints.** Two issues were raised by MSAOs in relation to planning. The first is that motorway service areas (MSAs) are generally located in areas surrounded by privately owned land (e.g. farmers' fields). This can cause delays to power infrastructure upgrades as easements/wayleaves must be agreed before being able to deliver the cabling or other infrastructure on that private land to provide power to the MSA. The second is that for MSAs to offer chargepoints, they must provide charging bays. However, bays for EVs are larger than standard parking bays so fewer can be provided within an existing site area. Under planning and operational requirements associated with Traffic Signs Regulations and General Directions (TSRGD) signage eligibility, MSAs must provide a minimum number of parking bays in order to retain official signage on the SRN.⁵ This means that MSAOs may face challenges in meeting signage requirements unless they expand their site to accommodate the charging bays, which could cause additional planning issues. One MSAO representative explained that, for some particularly constrained sites, there is no room for expansion at all. The RCF pilot funding did not address these material barriers (see Section 4.2.3).

⁴ In 2023, regulation was introduced that allowed DNOs to socialise upstream costs across various parties. See Ofgem (2023). Distribution Connection and Use of System Agreement (DCUSA) DCP406A – Access SCR: Changes to CCCM (DCP406A). Available at: <https://www.ofgem.gov.uk/sites/default/files/2023-02/DCUSA%20DCP406A%20Authority%27s%20Decision1675939095375.pdf>

⁵ See Highways England (2013). Guidance: Roadside facilities signing for motorists in England. Available at: <https://www.gov.uk/government/publications/roadside-facilities-signing-for-motorists-in-england>. Signage rights refer to the legal and commercial agreements that allow MSAOs to have their facilities signposted from motorways and major roads. These rights are crucial for directing traffic to their service areas and impact their visibility, footfall and revenue.

Stakeholders suggested that, subject to feasibility, funding for power infrastructure upgrades could be channelled directly to those who own or manage it.

During the stakeholder engagement for this evaluation, there were views expressed by several parties about who was eligible to apply for RCF pilot funding. The RCF pilot design invited only MSAOs to apply for funding which, in turn, would pay DNOs (or independent DNOs, iDNOs) for the connection upgrades. This placed delivery risk on MSAOs when it was DNOs who would deliver the upgrades. A repeated suggestion by MSAOs was to instead provide funding directly to DNOs instead of MSAOs (see Section 5). Several reasons for this were suggested:

- Allocating funds to DNOs would **improve efficiency** as DNOs would be the final recipients of the funds under the current pilot process (i.e. once MSAOs pay them for the upgrades). MSAOs also felt DNOs had stronger expertise around planning infrastructure investments, as well as the project management capabilities needed for these projects.
- Preliminary findings from this evaluation suggest MSAOs **have the commercial incentive to install chargepoints** if the power is available. They consider EV chargepoints to be a commercially viable way to replace future lost revenue from fuel and have active plans to grow their provision. This indicates that power infrastructure availability, rather than commercial appetite to deploy chargepoints, may be a binding constraint, which helps explain why some stakeholders suggested that funding could instead be directed towards the parties responsible for delivering grid upgrades.
- Most MSAOs interviewed for this evaluation referred to the **Green Recovery Scheme** (GRS) as an effective mechanism for enhancing power infrastructure. This initiative was launched by Ofgem in 2021 to support the acceleration of ‘shovel ready’ green infrastructure projects. However, the GRS was not a government-funded scheme. Instead, it enabled DNOs to reallocate their own network underspends from the Covid-19 pandemic period towards upgrading and reinforcing the electricity network near green infrastructure projects.⁶ MSAOs felt that the GRS “worked” and allowed them to increase chargepoint provision quickly where it was needed, and demonstrated how DNOs could deliver upgrades directly.

Considerations for future policy

Given this evidence, and the context of policy being designed within a rapidly evolving and emerging chargepoint ecosystem, several implications emerge for future policy design (see Section 5 for further details):

- **Private incentives alone are unlikely to deliver future-proofed grid capacity ahead of need.** Ultra-rapid chargepoints are reported by MSAOs to be generally commercially

⁶ Ofgem (2021). Decision: RIIO-ED1 Green Recovery Scheme. Available at: https://www.ofgem.gov.uk/sites/default/files/docs/2021/05/dno_green_recovery_scheme_decision.pdf

viable where sufficient power is available. MSAOs therefore typically invest incrementally in response to demonstrated short-term EV charging demand. Upgrading grid capacity ahead of need would require committing to upfront expenditure under conditions of uncertainty around future EV uptake and utilisation. This will be particularly challenging where adding new grid capacity involves significant reinforcement works and associated high upfront costs. In the absence of intervention, investment in grid capacity at MSAs is therefore likely to occur incrementally rather than at the scale and pace required to meet strategic objectives for the SRN. This suggests that the case for intervention remains.

- **Future interventions will need to be tailored to the RCF's objectives and informed by lessons from other schemes.** The RCF pilot was launched into a continuously developing market with the objective of supporting power enhancements ahead of need. This differs from schemes such as the GRS, which was referred to by stakeholders. The GRS focused on relatively smaller scale, 'shovel ready' projects addressing immediate energy infrastructure needs. While some characteristics of the GRS may be relevant, future interventions will need to reflect the specific objective of future-proofing capacity ahead of demand and the interaction between transport policy and energy regulation. Any model will also need to incorporate Subsidy Control Act requirements from the outset.
- **Effective delivery will require co-design across relevant stakeholders.** Delivering sufficient ultra-rapid chargepoints on the SRN involves multiple parties, including MSAOs, DNOs and IDNOs, the National Energy System Operator (NESO), CPOs, National Highways and government. Early and sustained engagement across these parties is required to align forecasts of EV charging demand with power capacity, reflect commercial and regulatory realities, and ensure that funding complements rather than displaces private investment. Co-design may therefore support alignment of perspectives and facilitate effective implementation.
- **Early engagement with the CMA at the policy design stage would support appropriate and early consideration of competition issues.** The market for ultra-rapid chargepoint delivery is evolving quickly in terms of business structures, market participants, supply chains, products and services, infrastructure interdependencies and the degree of international influence. Designing policy and interventions within this context is therefore challenging, as there is little precedent to draw on, and change is happening quickly. This suggests that working closely with the CMA at the design stage could help ensure that emerging market characteristics and potential competition issues are identified and considered early in the policy development process.
- **Future funding terms may benefit from greater flexibility to be suitable for emerging markets and to reflect sector interdependencies.** Standard terms and processes were found to create challenges for the RCF pilot, given the nascent and evolving sector and the interdependency across transport, commercial and energy markets.

1 The Rapid Charging Fund (RCF) and the RCF pilot

1.1 Government's ambition is to decarbonise road transport

Prior to launching the RCF pilot, the UK government at the time set ambitious targets to achieve net zero carbon emissions by 2050, positioning the decarbonisation of the transport sector as a central pillar of this commitment. Improving the charging infrastructure along England's Strategic Road Network (SRN) is a vital step towards mass electric vehicle (EV) adoption and achieving net zero.

1.2 The RCF was announced in 2020 to accelerate the shift towards EVs

Announced in 2020, the RCF was a £950 million⁷ government initiative intended to ensure that the private sector can install ultra-rapid chargepoints (chargepoints capable of 150kW and higher speeds) on the Strategic Road Network (SRN) to meet and stimulate growing demand for EVs. The fund was intended to subsidise the cost of increasing electricity network capacity at key sites, where it is not commercially viable for the private sector to do so alone. It was administered by the Department for Transport, via the Office for Zero Emission Vehicles.

As set out in the RCF scheme design consultation, the RCF objectives were to:

- Enable the market to provide sufficient charging infrastructure at strategic locations to support the government's vision for the ultra-rapid chargepoint network and the transition to zero emission vehicles
- Increase consumer confidence in en-route charging so that the lack of charging infrastructure is no longer a key barrier to purchasing and using an EV for long-distance journeys⁸

The consultation document explains that the RCF was required to:

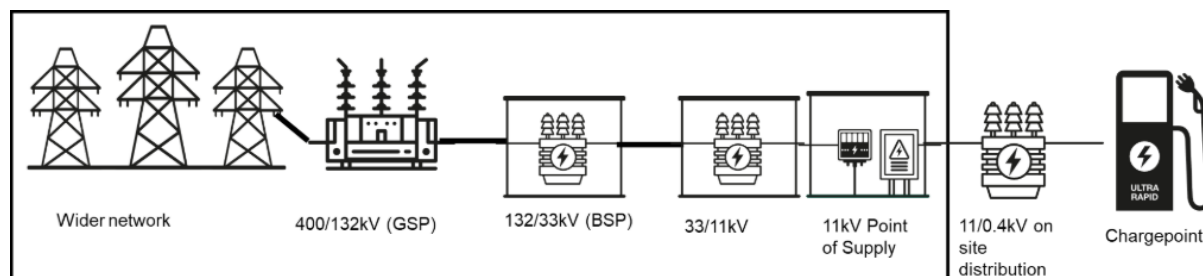
- Supplement private sector investment where the cost of a grid connection at strategic locations is too high to be commercially viable
- Ensure that grid capacity is future-proofed, allowing for adequate provision of ultra-rapid chargepoints as demand increases, minimising the need for future incremental upgrades to connections that lag demand

⁷ HM Treasury (2020). Spending Review 2020. Available at: <https://www.gov.uk/government/publications/spending-review-2020-documents/spending-review-2020>

⁸ DfT and OZEV (2023). Rapid charging fund: Scheme design. Available at : <https://www.gov.uk/government/consultations/rapid-charging-fund-scheme-design/rapid-charging-fund-scheme-design>

The RCF was intended to part-fund electricity grid connections, with the scope shown in Figure 1. On-site distribution below 11 kilovolts (kV) and chargepoints themselves were to be funded by the private sector.

Figure 1 Scope of the RCF-funded connections



Source: DfT and OZEV (2023). Rapid charging fund: Scheme design. Available at : <https://www.gov.uk/government/consultations/rapid-charging-fund-scheme-design/rapid-charging-fund-scheme-design>

1.3 The RCF pilot was launched in 2023 to generate learning on policy processes and design to inform the design of the main RCF

The £70 million RCF pilot opened for applications in December 2023 and was intended to test the key aspects of fund policy, processes and design, and to secure learning to inform future policy. In addition to the objectives of the main fund, the RCF pilot aimed to:

- Generate an improved understanding of the likely barriers to the delivery of core objectives of the fund
- Identify opportunities to address these barriers through the design of the fund and its delivery mechanisms
- Accelerate the delivery of future-proofed connections at motorway service areas, where connection costs are a barrier to meeting EV charging demand⁹

It was focussed on upgrading connections at MSAs only (SRN A-roads were not in scope), and the eligible applicants for pilot funding were motorway service area operators (MSAOs). The Delivery Body for the pilot was National Highways.

⁹ DfT and OZEV (2021). Rapid Charging Fund: Guidance. Available at: <https://committees.parliament.uk/publications/42550/documents/211537/default/>

2 Scope of the RCF pilot process evaluation

Frontier Economics and SYSTRA were commissioned by DfT to carry out an independent, rapid process evaluation of the RCF pilot from inception to January 2025. This has two key elements:

- **Lessons learned from stakeholders' experiences of the RCF pilot (Section 3).** This aims to understand what has worked well, less well and why in relation to the design of the pilot; the pre-application, application and assessment processes; and the overarching governance, including stakeholder engagement.
- **Key ingredients of future funding options that would increase the likelihood of achieving the government's aims (Section 4).** This includes the opportunities and barriers associated with delivering grid capacity to support the provision of EV charging infrastructure on the SRN at a pace and scale consistent with the government's ambitions for EV transition.

The insights summarised in this report are based on a series of ten semi-structured interviews/focus groups, completed between December 2024 and May 2025. Stakeholders providing input into the evaluation included individuals representing DfT, National Highways, MSAOs, DNOs and chargepoint operators (CPOs). The evaluation also involved a desk review of documents related to the design, administration and processes of the pilot, and an internal National Highways "lessons learned" report.¹⁰ Further details of the methodology can be found in Annex A.

¹⁰ National Highways (2024). Rapid Charging Fund pilot. Delivery Body lessons learned: strategic report. Version 1.0.

3 Lessons learned from the RCF pilot

The key lessons learned from stakeholders' experiences of the pilot to January 2025 are summarised in this section of the report. The discussion is structured by the four key stages/features of the pilot, which are set out in Table 2.

Table 2 Summary of RCF pilot processes

Stage	Description	Responsible organisation
Pilot design	This included determining the applicant eligibility, scope and timelines; designing the overall pilot framework (including the demand framework and connection surgery model); and setting the legal terms and conditions (Heads of Terms, and later, the Grant Funding Agreement (GFA)).	DfT
Pre-application	This included MSAOs, in collaboration with DfT and National Highways, completing Demand Frameworks, a set of guidance with an accompanying workbook that allowed MSAOs to forecast future EV charging demand at their sites. The Demand Frameworks informed the connection surgeries, which were a series of meetings between potential applicants (MSAOs) and distribution network operators (DNOs), facilitated by National Highways. These were used to determine the technical requirements (and associated costs) to upgrade the grid capacity at MSAO sites.	National Highways
Application	MSAOs were invited to submit applications to National Highways, incorporating the outputs of the connection surgeries. The applications were requested to include: ■ Capacity information, financial information and strategic site information, including level of existing EV charging infrastructure ■ Demand forecasts of future EV charging demand ■ Technical proposal (the preferred option for upgrading grid connections, and evidence of the optioneering process) ■ Financial proposal (demonstrating that the requested funding is proportionate) ■ Commercial proposal (the commercial approach to delivering EV chargepoints) ■ Demonstration of the deliverability of technical, financial and commercial proposals DfT had responsibility for one element of the application process: the Commercial Viability Assessment – an additional check to ensure HMG subsidy would not displace any planned private sector investment. MSAOs were required to make a series of declarations to satisfy this requirement.	National Highways
Assessment	The pilot included a two-stage assessment process. Applications were progressed in different streams, based on application readiness. For the first stream, the initial application assessment, assurance and recommendation process took place between the end of February and	National Highways

Stage	Description	Responsible organisation
	end of April 2024. If successful at this stage, the MSAO progressed to final application stage. Final assessment of applications took place between the end of August and end of September 2024, with recommendations and governance approvals scheduled for October.	
Governance and stakeholders	National Highways assessed MSAO applications and led assurance and recommendations. Whilst NH put forward recommendations, final award decisions were made by DfT.	National Highways/DfT

Source: Frontier Economics

3.1 Pilot design

3.1.1 Only MSAOs were eligible to apply for the pilot, which created some risks

For simplicity and to enable the feasibility of the mechanism to be assessed as quickly as possible, the only eligible applicants for the RCF pilot were MSAOs in England, who could apply for funding to upgrade EV charging infrastructure at MSAs. Other applicants, for future policy interventions could then be consulted on. Although agreements with DNOs and CPOs formed part of MSAO bids, neither type of organisation was eligible for direct funding from the RCF pilot. The small size of the potential applicant pool for the pilot created a risk around the appetite and capability of applicants (there are five large multi-site MSAOs in the UK). This small number led policy teams to be responsive to the specific needs of each individual applicant, which increased complexity. Additionally, the limited number of eligible applicants meant there was a risk of reduced competition in the funding process, as only a small number of firms could bid for and deliver the upgrades.

3.1.2 The dynamic policy environment and competition issues created challenges for the design of the pilot

In the design of the RCF pilot, DfT was operating in a shifting policy and market environment, which created challenges. In particular, the Competition and Markets Authority (CMA) published a study of the EV charging market in 2021, highlighting concerns about limited competition at motorway service areas (MSAs), where long-term exclusive agreements between CPOs and MSAOs restricted market entry. This report recommended that the RCF pilot should attach conditions to any funding allocation to enable competition between CPOs at MSAs.¹¹

The CMA's advice to DfT about the RCF pilot led to a redesign of the pilot terms to satisfy its competition concerns. One DfT official suggested this added complexity through an "...entanglement of net zero and competition policy". They also explained that DfT is

¹¹ CMA (2022). Investigation into the supply of electric vehicle chargepoints on or near motorways. Available at: <https://www.gov.uk/cma-cases/investigation-into-the-supply-of-electric-vehicle-chargepoints-on-or-near-motorways>

supportive of interventions aimed at preventing market distortion and ensuring fairness for consumers. However, accommodating CMA's advice (particularly the inclusion of certain conditions in the GFA – see Section 3.1.3) made policy design and delivery more complex and led to delays.

Separately, under legal obligations set out in the Subsidy Control Act 2022, which came into force during January 2023, DfT was required to refer the RCF pilot to the Subsidy Advice Unit (SAU) – a function within the CMA that assesses a public authority's own assessment of compliance with UK subsidy control principles. This was a new process and not a known requirement when the RCF was announced. The requirements took longer to fulfil than anticipated. The RCF pilot was referred to the SAU in May 2023, then the SAU published its report in June 2023. The report found that DfT's assessment of the RCF pilot was generally well-structured, with clear policy objectives and a well-evidenced market failure assessment. However, the SAU advised that the analysis could be strengthened in several areas, including the assessment of subsidy proportionality, potential misalignments between beneficiaries' incentives and policy objectives, and the scheme's impact on competition and investment between funded and non-funded sites and between MSAOs and CPOs.¹²

DfT stakeholders believe that during early policy development the department was not resourced with the required capacity and specialist skills to navigate the scale and complexity of policy, legal and commercial issues. Following an internal governance review, external experts were brought in to advise on corporate finance, legal matters and competition. These were considered to be very helpful, given the need for specialist input.

3.1.3 The commercial model, funding terms and delivery expectations created barriers for MSAOs to participate

A core element of the pilot design was a Grant Funding Agreement (GFA) between DfT and the grant recipient, which set out the terms and conditions under which the grant was provided and was based on a standard Cabinet Office template. The terms stipulated that MSAOs would be paid grant funding in arrears of them paying the DNO, as is standard practice for HMG grants.¹³

Heads of Terms were issued to MSAOs in 2023 and were subject to ongoing discussion and iteration. Stakeholders reported that significant time was spent between 2023 and 2024 engaging on the detailed drafting of the GFA, with changes made in response to feedback. As a result of this iterative engagement, some MSAOs noted that clarity on the final position on certain terms emerged relatively late in the process, which contributed to uncertainty about the overall risk allocation.

¹² CMA (2023). Report on the Rapid Charging Fund Pilot Scheme. Available at: <https://www.gov.uk/government/publications/report-on-the-rapid-charging-fund-pilot-scheme>

¹³ Note that the GFA terms stipulate that MSAOs would largely be paid in advance of the works being delivered (final grant payment is subject to connection energisation).

From the perspective of some MSAOs, elements of the GFA posed significant risk. In addition to this, the terms were not seen as offering sufficient potential return on investment to justify the risks involved. Key concerns included clawback clauses that allowed grant recovery in cases of delay, even where delays were outside the MSAO's control, such as issues arising on the DNO side. The GFA created uncertainty for MSAOs if there was an increase in delivery costs. While it was possible to request variations in grant funding, approvals were automatic only where cost increases were within 10% of the original grant amount. For increases above this threshold, outcomes were discretionary and uncertain, adding to perceived financial risk.

In line with policy aims, the RCF pilot was designed to follow a 'dig once' approach. Upgrades subsidised by the pilot were required to be energised by the end of 2028¹⁴ and were intended to meet demand through to 2035. Proposals could also include future-proofing elements (e.g. cables), enabling capacity to be expanded to meet 2050-level demand through simple and low-cost works. In practice, this required MSAOs to commit to large-scale, upfront grid capacity investments (partially subsidised by the RCF pilot) designed to serve projected future demand rather than immediate or near-term needs. This was counter to the typical business model of MSAOs, who generally take an incremental investment approach over shorter (3–5 year) planning horizons. Engagement with MSAOs suggests many viewed this long-term exposure as an unacceptable commercial risk, particularly considering uncertainties around future EV uptake and the possibility of changes to government policy.

A further issue related to the payment mechanism. Although DfT secured special HMT approval to allow grant payments aligned with DNO invoice milestones – meaning MSAOs would be reimbursed shortly after incurring costs – this still introduced short-term cashflow pressure. This did not appear to be a fundamental barrier to participation, but in combination with the other risks, it contributed to a broader view among some MSAOs that the pilot's funding model was commercially unviable for their organisations.

In addition, views expressed by MSAOs revealed they typically have relatively small management teams that are primarily focused on site operations rather than large-scale infrastructure projects or capital investments. From the perspective of one MSAO, as the pilot applicant, they were expected to be the project managers of the grid connection upgrade works. The MSAO representative explained that they did not have the resources or the expertise to do this.

DfT and National Highways were aware of the MSAOs' concerns through regular engagement with stakeholders. These concerns were challenging to navigate. A representative from National Highways emphasised that, despite these challenges, the pilot was strategically important, particularly as a learning opportunity to test delivery models and inform future policy in a rapidly evolving market.

¹⁴ "Energisation" is the point at which the upgraded electrical infrastructure is operational and supplying power to the motorway service area (MSA) – there was no minimum level of capacity required.

3.1.4 Timelines for the complex applications were considered too tight, and some investments could not be delivered in time to be eligible

The pilot was launched in December 2023. The year-end is typically a busy period for MSAOs due to increased holiday travel and hence usage of their sites, and winter weather conditions which can create challenges on the road network. This exacerbated the issues with the complexity of the application process (see Section 3.3). As DfT intended to award the RCF pilot funds before the end of the financial year (March 2025), MSAOs were given a tight window to apply (eight weeks, later extended to twelve weeks, including the winter holiday period). National Highways representatives noted that changes made during the later stages of policy design contributed to time pressure in establishing the Delivery Body function. DfT indicated that these changes reflected the need to respond to legal and policy considerations during the design process.

Another challenge raised with timelines was a risk that the quote provided by the DNO would no longer be accurate/valid by the time the application assessment process had finished. Under standard practice, DNOs have 90 days to produce quotes, which are then valid for 90 days only. The representative of DNOs interviewed for this evaluation stressed that not keeping to their standard 90-day validity period would be potentially treating RCF pilot applicants differently to others, which could raise regulatory or competition issues (note that within the pilot, this scenario never materialised).

Separately, given a primary aim of the pilot was to accelerate grid connections at MSAs, to be eligible for the pilot grid upgrades, sites were required to be energised by the end of 2028. However, engagement with MSAOs suggests that this timeline was perceived as infeasible for many due to the high demand on DNOs for grid upgrades across multiple sectors. With DNOs processing a large volume of requests from various organisations, the timelines for when a MSAO's grid upgrade could be energised often extended beyond 2028, making it difficult for some projects to meet the pilot's eligibility criteria (see Section 4.2).

3.2 Pre-application

3.2.1 Prior to the application, MSAOs were interested in the RCF pilot and had positive previous experiences with the Green Recovery Scheme

The evidence from this evaluation suggests that MSAOs see themselves as an important partner for government in achieving its ambitions for decarbonisation. MSAO representatives consistently suggested that increasing charging infrastructure for EVs is a strategic priority for them, and MSAOs were therefore interested in the RCF pilot when it was first announced. For example, one MSAO mentioned that they had received an infeasibly high quote from a DNO for an upgrade at one of their sites, and they were enthusiastic to explore whether part of these costs could be funded by the RCF pilot. In addition to the possibility of receiving funding,

another motivating factor for involvement in the pilot (for one MSAO) was the desire to be perceived as a government partner, including in negotiations with DNOs.

Several MSAOs mentioned positive experiences with the Green Recovery Scheme (GRS), which motivated them to engage with the RCF pilot. The GRS was an initiative launched by Ofgem in 2021 to support the acceleration of ‘shovel ready’ green infrastructure projects. It enabled DNOs to reallocate underspend from the Covid-19 pandemic period towards upgrading and reinforcing electricity networks. The intention was to unlock the uptake of green technologies where demand (including but not limited to EVs) was expected to grow, by delivering sufficient power capacity.¹⁵

3.2.2 The connection surgeries and demand framework were viewed positively by all stakeholders involved

The connection surgeries were an activity that involved data development and exchange via a series of meetings between individual MSAOs and the relevant DNOs, commissioned by DfT and facilitated by National Highways. These were intended to provide an improved understanding of future demand, power upgrades, potential costs and technical options. Pre-pilot connection surgeries (attended by the largest five MSAOs, DNOs and National Highways) were held over spring/summer 2023 and were intended to accelerate the application process.

At a high level, the connection surgeries were viewed positively by all stakeholders involved (MSAOs, DfT, National Highways and DNOs), with one MSAO describing them as “extremely helpful.” DfT’s view was that the RCF pilot (and the connection surgeries, specifically) has led to MSAOs taking more ownership about their plans to provide ultra-rapid chargepoints on their sites.

From the National Highways perspective, the intensive schedule of meetings between DNOs and MSAOs moved both groups’ understanding of the required grid upgrades from “...theoretical to practical”. National Highways and several MSAOs agreed that engaging with the RCF pilot, and particularly the connection surgeries, has developed MSAOs’ understanding of future EV chargepoint demand and the infrastructure required to meet this demand. Representatives from all groups agreed the surgeries helped to build relationships between DNOs, MSAOs and National Highways, which are continuing today. One National Highways representative noted that the process also helped MSAOs develop new capabilities in engaging with DNOs – a stakeholder group they had limited prior experience working with.

One MSAO suggested that a key benefit of the connection surgeries, as opposed to just applying to a DNO and getting a quote, is that they allow the DNO to suggest different options depending on the MSAO’s needs, e.g. a short-term versus a long-term solution before submitting a formal quote.

¹⁵ Ofgem (2021). Decision: RIIO-ED1 Green Recovery Scheme. Available at: https://www.ofgem.gov.uk/sites/default/files/docs/2021/05/dno_green_recovery_scheme_decision.pdf

MSAOs generally felt that the Demand Framework provided by DfT was helpful, despite some small practical issues with using the spreadsheets. Some MSAOs are continuing to use elements of this resource (e.g. assumptions) as part of their planning around long-term demand.

It was highlighted in the interviews with MSAOs that all DNOs offer connection surgeries with customers as part of standard business practice, and some were therefore happening with MSAOs before the pilot started. Any DNO customer can attend a session with a DNO to discuss what connection opportunities might look like for their business and the processes and options for connections. However, the evidence suggests that the RCF pilot increased MSAO engagement in connection surgeries and led to a greater understanding of their process and structure. In addition, one MSAO mentioned that the connection surgeries that took place as part of the pilot involved more senior DNO stakeholders, which was perceived as helpful for bringing greater attention to the MSAO's connection issue and ensuring it was considered at a more strategic level within the DNO.

While the surgeries were viewed positively, some stakeholders noted that the delay between these sessions and the application window meant some of the information became outdated. To build on the success of the approach, it was suggested that future rounds would benefit from closer alignment in timing.

3.3 Application and assessment

3.3.1 The complexity of application requirements presented a significant barrier for MSAOs

The requirements of the funding applications were perceived by the MSAOs as highly complex. They included charging demand forecasts, a technical proposal, a financial proposal and a commercial proposal, as well as evidence of their deliverability. Views shared by MSAOs revealed they are operationally focused businesses that generally do not have significant experience with applying for government funding and the processes involved. They found it difficult to allocate resources to completing the applications, particularly in a short timeframe and during a busy business period. MSAOs reported that feedback from the assessment process was often extensive and required significant revisions, and that the compressed timetable made it challenging to respond.

To help navigate the complex requirements, National Highways provided support to MSAOs, creating tools and notes, which National Highways representatives said worked well. At least one MSAO employed an external contractor to help, which resulted in a substantially better-quality application according to feedback they received from National Highways (albeit at significant cost to the MSAO). National Highways (2024)¹⁶ suggested that providing clearer templates and structured guidance earlier in the process could have improved submission

¹⁶ National Highways (2024). Rapid Charging Fund pilot. Delivery Body lessons learned: strategic report. Version 1.0.

quality and reduced delays. From the DNO representative's perspective, the application process would have benefited from better central coordination and support for MSAOs to create the required business case.

3.4 Governance and stakeholder relationships

3.4.1 The pilot helped build capability across the chargepoint ecosystem

National Highways were appointed by DfT as the Delivery Body for the RCF pilot. The evidence suggests the pilot contributed to delivery capability across government, National Highways, MSAOs and DNOs. Through engagement in connection surgeries, demand forecasting and the application process, organisations involved in the pilot reported that they developed a clearer understanding of grid constraints, demand forecasting and delivery processes.

Interviewees highlighted the connections surgeries in particular were helpful as they offered a structured, trilateral forum bringing together MSAOs, DNOs and National Highways. These relationships and planning capabilities were seen as essential to progressing EV infrastructure on the SRN. Several stakeholders noted that the communication channels established through this process continued beyond the pilot period and supported more informed future engagement.

The pilot accelerated organisational learning within National Highways. They reported that as the organisation had not previously played a delivery role in EV infrastructure, the pilot provided practical experience in coordinating stakeholders, managing technical inputs and overseeing complex delivery processes, capability that may be relevant for future infrastructure or funding initiatives of a similar nature.

3.4.2 Constructive working relationships developed between DfT and National Highways despite early role uncertainty

The RCF pilot involved close collaboration between DfT and its Delivery Body, National Highways. As a new delivery arrangement, the early stages of the pilot involved clarifying roles, responsibilities and governance processes between the two organisations.

National Highways representatives reported that uncertainty around their formal status in the early stages of the programme, created challenges in establishing governance arrangements and recruiting permanent staff. National Highways also noted that elements of policy design were evolving during this period, which required adjustments to delivery planning and internal processes.

Engagement with MSAOs was initially structured primarily through DfT-led forums to ensure policy consistency. National Highways representatives reported that clearer delineation of

roles and responsibilities over time enabled more direct technical engagement with MSAOs and DNOs.

Despite these early challenges, interviewees described the working relationship between DfT and National Highways as constructive as the pilot progressed. Stakeholders noted improved clarity regarding respective roles, with DfT retaining overall policy oversight and National Highways focusing on delivery and assurance functions.

4 The ultra-rapid chargepoint ecosystem: opportunities and barriers for expansion

The ultra-rapid chargepoint market is developing quickly and has changed significantly since the RCF was announced in 2020. Market developments, and the experiences of all stakeholders involved in the pilot, mean that the challenges to increasing ultra-rapid chargepoint provision on the SRN in 2025 are not necessarily the same as those perceived in 2020.

4.1 Opportunities around expanding and accelerating the EV chargepoint infrastructure on the SRN

4.1.1 If sufficient power is available, chargepoints are seen as commercially viable for MSAOs who can deploy EV charging infrastructure quickly

Engagement with MSAOs indicates that, where sufficient power is available, building and operating ultra-rapid chargepoints is generally commercially viable for them. MSAOs also described themselves as an important partner for government in achieving its ambitions for decarbonisation and they too see delivering charging infrastructure as a strategic priority.

Engagement with MSAOs indicated that building and operating EV chargepoints on their sites is, in many cases, commercially viable where sufficient power is available. Several MSAOs explained that they have adapted their business models to include chargepoints to replace lost revenue from fuel going forward (as petrol and diesel vehicles are phased out). They have also developed their capability to forecast the pace of this transition, in some cases building on the RCF Demand Framework materials provided by DfT, which supported more structured long-term planning. MSAOs reported monitoring utilisation rates and indicated that average utilisation of around 20-25% over a 24-hour period would typically trigger additional chargepoint provision to prevent queuing at peak times.

Where demand exists and power is available, MSAOs reported that additional chargepoints can often be deployed within approximately 12 months. However, investment in power infrastructure itself is approached more cautiously, reflecting the higher costs and longer-term risks associated with grid upgrades.

4.2 Barriers to meeting government ambitions around the provision of ultra-rapid chargepoints on the SRN go wider than grid connection costs

The RCF pilot was designed to accelerate the delivery of future-proofed connections at MSAs, where connection costs are a barrier to meeting EV charging demand. However, there are

other barriers to increasing ultra-rapid chargepoint provision within the timeframes required by government as part of its net zero ambitions.

4.2.1 Demand for power network upgrades from different parties and sectors is already high and increasing

Regardless of the costs or commercial incentives, a barrier to increasing chargepoint provision on the SRN highlighted by MSAOs was demand for power and limited DNO resources to meet this demand. One MSAO representative described DNOs as being “bombarded by requests” for grid connection upgrades. DNOs follow standardised processes for all customers and therefore cannot prioritise MSAO requests over those coming from other organisations that request quotations. This reflects broader system-wide pressures on electricity networks, which have been recognised by government and regulators. From the DNO perspective, they see themselves as ready and able to respond to requests, but they must operate within regulatory constraints and manage high demand across multiple sectors. Stakeholders noted that electricity infrastructure demand is rising across multiple sectors, prompting the introduction of new planning and delivery processes across the energy system.

An additional complexity experienced by MSAOs is that other organisations in the locality may also join the DNO queue before obtaining planning consent. MSAOs described instances where these organisations would then drop off the list because they were not able to proceed when they reached the top of the queue (the types of organisations were not specified). This means power could become available at short notice, adding unpredictability to the process.

During the RCF pilot application period, several MSAOs reported they were given quotes for upgrades that they were told could not be completed until the late 2030s. Two MSAOs suggested that supply chain issues for equipment needed for the grid infrastructure works were exacerbating the delays. They noted that this specialist equipment often must be shipped in from overseas, at a time when the global demand for such equipment is also increasing. This had implications for the eligibility of those projects for RCF pilot funding (given the 2028 energisation date for eligibility).

MSAOs reported that delays can be particularly long when the required power upgrades involve the high-voltage transmission network, rather than the local distribution network. This happens when an MSA’s power demand exceeds what the local DNO network can provide, requiring reinforcement from National Grid’s transmission system, which is a more complex process. The waiting times have led some MSAOs to explore other solutions to maximise existing power supply at their sites, such as batteries.¹⁷ However, they also reported that there are mixed views from DNOs on connecting batteries to their networks.

¹⁷ For more details of government’s leadership in this space, see UK Government (2021). Energy Storage Systems to support EV drivers rapidly charging on England’s motorways. Available at: <https://www.gov.uk/government/news/energy-storage-systems-to-support-ev-drivers-rapidly-charging-on-englands-motorways>

In specific cases, high demand in a local area can *reduce* grid connection waiting times and costs. Two MSAOs provided examples of sudden reductions in connection costs because of DNO decisions to build new primary substations in the relevant areas due to a tipping point in demand being reached (where requests for enhancements were from multiple parties, not just the MSAO). The costs could then be distributed across the various parties who would be connected.¹⁸ MSAO representatives suggested that this possibility could, in some cases, provide an incentive for MSAOs to delay their larger scale investments and wait and see if costs will be reduced by the DNO building a substation in the area. This could suggest that a strategic view across the DNO networks as to where upgrades are planned could be useful to determine where costs may be most likely to change and hence reduce the need for government intervention.

4.2.2 Regulatory frameworks in the energy sector could pose challenges if not strategically considered

The challenges of increasing power supply to MSAs are exacerbated by the fact that transport policy for EV charging infrastructure intersects with policy, regulatory and legislative frameworks in energy. For example, DNOs are regulated by Ofgem and are not typically able to select or prioritise certain customers or markets over others.¹⁹

Furthermore, until recently, DNOs have not typically been permitted to expand the network ahead of need. However, the regulatory environment is evolving. Ofgem's Access SCR, which came into effect on 1st April 2023, includes provisions for anticipatory investment, allowing DNOs to invest in network upgrades ahead of need.²⁰ Policy related to the chargepoint ecosystem would therefore need to account for these changes to regulation.

4.2.3 Planning regulations were also identified by MSAOs as potential constraints on chargepoint delivery

To increase chargepoint provision, MSAOs need to increase the number of charging bays, which are around 50 percent larger than standard parking bays, reducing the space available for parking bays. Under planning and operational requirements associated with Traffic Signs Regulations and General Directions (TSRGD) signage eligibility, MSAs must provide a minimum number of parking bays to retain eligibility for official signage on the SRN (this

¹⁸ In 2023, regulation was introduced that allowed DNOs to socialise upstream costs across various parties. See Ofgem (2023). Distribution Connection and Use of System Agreement (DCUSA) DCP406A – Access SCR: Changes to CCCM (DCP406A). Available at: <https://www.ofgem.gov.uk/sites/default/files/2023-02/DCUSA%20DCP406A%20Authority%27s%20Decision1675939095375.pdf>

¹⁹ This is, however, an aspect of the ongoing TMO4+ connection reforms. See <https://www.ofgem.gov.uk/blog/connections-reform-our-minded-decisions>

²⁰ See Ofgem (2024). Open letter on the reformed regulatory framework on connections. Available at: https://www.ofgem.gov.uk/sites/default/files/2024-09/Open_letter_on_the_reformed_regulatory_framework_on_connections_16.9.24.pdf

number is based on estimated traffic volume)²¹ meaning that MSAOs may be required to expand their sites. This can cause costs and delays, depending on the ownership and use of the land surrounding MSAs. One MSAO stated that it can cost around £1 million to get through the planning process for expansion. Another MSAO representative explained that, for some particularly constrained sites, there is no room for expansion at all.

Several MSAOs expressed the view that the Biodiversity Net Gain (BNG) regulations could also be a constraint, as there may be no physical space to provide biodiversity on the site to meet the regulations. Therefore, they would need to consider alternative permissible ways to meet the regulations such as by making off-site biodiversity gains on their own land outside the MSA, or buy off-site biodiversity units on the market. If the latter is not feasible then they would be required to buy statutory biodiversity credits from the government.²²

Planning and consents also affect costs and timelines if privately owned land is needed to make the infrastructure upgrades, e.g. if cables must pass through farmers' fields. The DNO representative gave an example of an MSA that required a cable reinforcement to be delivered to the site. There was a single metre of privately owned land between the network infrastructure and National Highways land. The landowner restricted access and charged a large sum to the network, which slowed delivery.

²¹ See Highways England (2013). Guidance: Roadside facilities signing for motorists in England. Available at: <https://www.gov.uk/government/publications/roadside-facilities-signing-for-motorists-in-england>. Signage rights refer to the legal and commercial agreements that allow MSAOs to have their facilities signposted from motorways and major roads. These rights are crucial for directing traffic to their service areas and impact their visibility, footfall and revenue.

²² Defra (2024). Understanding biodiversity net gain. Available at: <https://www.gov.uk/guidance/understanding-biodiversity-net-gain#ways-to-achieve-bng-on-site-units-off-site-units-and-statutory-biodiversity-credits>

5 Considerations for future policy

Sections 3 and 4 set out the lessons learned from the RCF pilot and the wider opportunities and barriers for SRN chargepoint delivery in the context of a rapidly evolving ultra-rapid chargepoint ecosystem. Drawing on this analysis, this section offers some considerations to inform future policy design to support SRN chargepoint delivery.

5.1 The evidence indicates that private sector decision-making alone is unlikely to deliver future-proofed grid capacity on the SRN

The objective of the RCF pilot was to ensure that grid capacity at MSAs is upgraded ahead of need, so that ultra-rapid chargepoint provision can expand to support long-term EV transition ambitions. The evidence from this evaluation indicates that the commercial drivers facing MSAOs do not naturally support grid capacity upgrades of this scale without some form of intervention.

MSAOs invest on a commercial basis and typically take an incremental approach aligned to short-term demand. As set out in Section 4, ultra-rapid chargepoints are generally seen as commercially viable where sufficient power is available. However, upgrading grid capacity ahead of demand requires committing to large, upfront expenditure. Engagement with MSAOs suggests that uncertainty around future EV uptake, utilisation levels and policy direction reduces their willingness to commit to this scale of long-term investment. In the absence of intervention, MSAOs are therefore likely to expand provision in response to demonstrated demand rather than invest in future-proofed capacity significantly ahead of need.

Grid upgrades require coordination across multiple parties, and MSAOs are just one of many actors seeking power network upgrades in local areas. DNOs operate within a regulatory framework that requires them to manage demand across sectors within an area and follow regulated procedures. Individual MSAOs, the same as any other customers, are therefore unable to secure prioritisation of upgrades, even where there is a strategic case for accelerating provision on the SRN. This leads to uncertainty around what can be delivered and when, and the associated financial risk. Practical constraints such as planning requirements, easements and land access can further increase delivery risk and cost uncertainty.

Taken together, these factors indicate that investment in grid capacity at MSAs is likely to occur incrementally and in response to short-term commercial signals, rather than at the scale and pace required to future-proof the network ahead of demand. This suggests that intervention is required if strategic objectives for ultra-rapid chargepoint provision on the SRN are to be met.

5.2 Future interventions will need to be tailored to the RCF's objectives and informed by lessons from other schemes

The issues noted above support the case for government intervention to enable grid reinforcement that would facilitate subsequent chargepoint delivery. Designing such intervention requires tailoring it to the specific objective of future-proofing capacity ahead of demand, while navigating a complex and evolving regulatory landscape. DNOs are regulated by Ofgem and are not typically able to select or prioritise certain customers or markets over others. Until recently, they have not typically been permitted to expand the network ahead of need, although the regulatory environment is evolving. MSAOs also operate within regulatory conditions associated with their operation on the SRN, alongside broader commercial and investor pressures.

Stakeholders highlighted the Green Recovery Scheme (GRS) as an example of a policy that addressed related infrastructure constraints within this regulatory framework. The GRS was introduced to accelerate relatively smaller-scale, 'shovel ready' energy infrastructure projects addressing immediate network needs, with delivery led by DNOs. While some characteristics of the GRS may be relevant – including DNO-led delivery of upgrade works and collaborative identification of network needs – the RCF's objective of future-proofing capacity ahead of demand differs in scope and timing. Future interventions will therefore need to draw on relevant lessons from such schemes without directly replicating them, reflecting both the regulatory environment and the specific objective of supporting capacity ahead of need.

Any future funding model would also need to align with the requirements of the 2022 Subsidy Control Act and incorporate compliance considerations from an early stage of design.

5.3 Effective delivery will require co-design across the relevant parties

Delivering sufficient ultra-rapid chargepoints on the SRN involves multiple parties with distinct roles and responsibilities. MSAOs typically have authority for the land needed for delivering chargepoints; DNOs and iDNOs manage the local distribution networks; the National Energy System Operator (NESO) is responsible for strategic planning of the electricity grid; CPOs deliver and operate chargepoints; National Highways are responsible for the SRN (including motorway operations and safety); and government defines policy objectives.

The pilot experience highlights the importance of early and sustained engagement across these parties to align forecasts of EV charging demand with power capacity and to identify constraints that may hinder delivery. It also demonstrates the value of DfT working closely with the Delivery Body from the outset of programme design and engaging with market participants to ensure delivery models align with commercial and regulatory constraints.

Maintaining consistent communication with MSAOs (including their financial backers) can support a clearer understanding of market appetite, risk tolerance and investment plans, helping to ensure that funding complements, rather than displaces, private capital.

Co-design of future policy may therefore provide a structured means of reflecting differing stakeholder perspectives and supporting effective implementation, including through improved stakeholder buy-in at the point of delivery.

5.4 Engaging with the CMA at the policy design stage can support appropriate account of competition issues in this emerging market

The market for ultra-rapid chargepoint delivery is rapidly evolving in terms of business structures, market participants, supply chains, products and services, infrastructure interdependencies and international influence. Designing policy in this context is therefore challenging, particularly where precedent is limited and market characteristics continue to develop.

Because funding conditions can shape site-level delivery models and influence market structure, early engagement with the CMA may help ensure that competition considerations are incorporated appropriately and proportionately, drawing on the CMA's expertise.

In the RCF pilot, CMA advice was incorporated after key elements of the scheme design had been developed. Accommodating this advice – particularly through the inclusion of competition-related conditions in the GFA – added complexity and extended the policy development process, with implications for stakeholders involved in the pilot.

5.5 Future funding terms will need to reflect where delivery risk and commercial incentives sit in practice

The pilot experience highlighted the challenges of designing policy in a rapidly changing market characterised by infrastructure interdependencies. Policy design required balancing commercial operating models, regulatory constraints, cross-sector engagement and public accountability requirements. This complexity meant that some standard approaches used in other policy contexts were not readily transferable.

For example, while the GFA reflected standard government terms, MSAOs perceived aspects of the RCF pilot GFA as exposing them to risks they were not comfortable bearing. Clawback clauses were viewed as creating unacceptable risk in the event that infrastructure delivery delays were outside of the MSAO's control, for example due to issues faced by the DNO. Stakeholders also perceived uncertainty in the event that delivery costs outside of their control increased, as government retained discretion over variations in funding above defined thresholds. Although DfT secured special HMT approval to align grant payments with DNO invoice milestones, MSAOs were still required to incur expenditure upfront, creating short-term cashflow pressure.

More broadly, the pilot structure placed financial risk on MSAOs when delivery of grid upgrades was the responsibility of the DNOs. A consistently repeated suggestion by MSAOs was to instead provide funding directly to DNOs rather than to MSAOs.

Future funding models may therefore benefit from greater flexibility in adapting standard approaches to emerging markets and sector interdependencies, so that risk allocation and commercial incentives align more closely with delivery responsibilities in practice.

Annex A – Methodology

The insights summarised in this report are based on a series of ten semi-structured interviews/focus groups, completed between December 2024 and May 2025. Stakeholders providing input into the evaluation included individuals representing DfT, National Highways, MSAOs, DNOs and chargepoint operators (CPOs).

There were two key sessions with DfT:

1. A workshop to discuss the experiences and lessons learned from the RCF pilot across all stages of the process
2. A workshop to explore illustrative policy scenarios to gain an understanding of the trade-offs and potential pros and cons of different options for the future of the RCF.

The sessions for non-DfT stakeholders explored:

- Stakeholders' understanding of the government's ambitions for chargepoint rollout on the SRN
- The chargepoint ecosystem/context/market, including:
 - The organisations involved in the delivery of chargepoints and the associated grid capacity
 - The development of the ecosystem/market over the next 5-10 years
 - Opportunities and challenges associated with the development of the market
- Experiences of the RCF pilot and the impact of the pilot on future decision-making
- Looking ahead to future opportunities for chargepoints on the SRN, including:
 - The risks that could hinder the delivery of chargepoints at the scale and pace government would like to see
 - The main commercial and technical challenges associated with accessing the necessary power for chargepoints
 - The most effective role of government in the chargepoint market



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