

RIIO GD2 Business Plan Appendix

Fleet

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1 Overview

Scope of this appendix

The infrastructure that supports our ability to manage and run our networks is, in many ways, as critical to our efficient operations as the pipes and components that make up the network. This appendix sets out our investment proposals for our commercial fleet, including our company car scheme. It covers both the capital and operational expenditure (capex & opex) requirements for GD2.

Impact

Timely investment in our fleet enables us to maintain an effective, reliable and efficient capability for the networks.

Our customers and other stakeholders have told us that the environment is important to them. Therefore, as part of our Environmental Action Plan (EAP), we are proposing to accelerate the replacement of our commercial vehicles from an 8-year to a 6-year cycle and to aim for 50% of those replaced during GD2 to be Ultra Low Emissions Vehicles (ULEVs).

Stakeholders have also told us that maintaining current levels of safety is very important to them, as is reliability. The proposed investment in our fleet will ensure its safety and reliability is maintained during GD2.

Approach to GD2

Our commercial fleet is made up of several different categories of vehicle, especially chosen and configured to optimise performance and efficiency for our teams involved with first call emergency response, maintenance and repair, and other support functions that use specialised equipment.

Our largest investment consideration is the cost of replacing our current commercial fleet as vehicles come to the end of their working lives. Our investment plan for GD2 uses current vehicle costs, taking into account manufacturers' discount terms and our costs to convert the vehicles to meet operational requirements. Our plan also factors any resale value we achieve from our retiring fleet.

Rather than simply replace a vehicle once it has come to its designated retirement age, our proposed replacement strategy will be weighted to take into account age, condition, mileage, maintenance spend, and its critical role in operations. That will give us the flexibility to replace critical vehicles which have become unreliable or require expensive major repairs, in preference to an older vehicle that is low mileage, less critical and in good condition.

The other significant consideration in our strategy concerns payload: the ability of the vehicle to safely manage additional weight or load on the engine. In real terms, this means vehicles that are the right shape and size to carry and give easy access to parts and tools necessary for the job; that have the power to pull heavy plant equipment such as trailers, generators or excavators, and can provide the necessary power for specialist on-board equipment, such as air compressors, pullies and lighting rigs. Making these necessary changes to manufacturers' specifications adds varying degrees of additional costs to all our vehicles.

The trend in new vehicles is to become heavier as standard. This is mainly because of additional components to reduce harmful engine emissions, such as catalytic converters and AdBlue tanks on new diesels. ULEVs are also heavier but have a lower payload. Significant work has been carried out to counter this extra weight so our teams can still carry the necessary equipment. The cost impact per vehicle based on current prices is approximately £1,800, and we expect weight to be an ongoing challenge.

Forecast investment

We carried out an initial cost benefit analysis (CBA) comparing three replacement scenarios against a ‘do nothing’ baseline. The three scenarios were:

- Option 1: Maintain the fleet at or close to its current age profile, would require an 8-year replacement strategy;
- Option 2: Reducing investment and therefore retaining an older fleet, on a 10-year replacement cycle, will have an operational impact on both costs and efficiency; and
- Option 3: Increase investment to a 6-year replacement programme.

An increased investment in replacement reduces both the maintenance cost and the reliance on short term hires. It will also have a significant impact on operational efficiency, with less breakdowns which will then reduce the retention of older vehicles to support the (lower) aged fleet with a knock-on reduction in maintenance costs. In addition, the fleet would operate with fewer spare vehicles.

The Engineering Justification Paper (EJP) and CBA for this initial assessment are attached (see Section 2).

However, as part of our EAP we have looked at (6-year cycle). We also looked at investing in Electric Vehicles (EVs), other alternate fuelled vehicles and supporting infrastructure during GD2 on a ‘no regrets’ basis. These initiatives involve an additional incremental investment of £21m over the 5 years of GD2, above the option of maintaining the fleet around its current age profile. It would mean that 50% of the vehicles replaced in GD2 would be ULEVs, such that by the end of GD2 42% of our commercial fleet would consist of ULEVs.

The EJP and CBA for this, our preferred option, are also attached and referenced in Section 2 below. However, recognising that technology and associated costs will continue to change, we are proposing a ‘use it or lose it’ uncertainty mechanism for £9.7m which is discussed further in Section 6.

Our proposed investment plan (not including the EAP) for GD2 is therefore £68.5m, split over opex and capex as follows:

Table 1: Table of GD2 investment forecasts (capex and opex)

GD1 Actuals /Forecast	Actual						Forecast/Budget		Total
	2014	2015	2016	2017	2018	2019	2020	2021	
Scotland Capex (£m)	2.81	10.42	3.68	1.43	1.82	2.61	1.74	0	24.52
Southern Capex (£m)	3.44	10.99	6.01	0.62	1.98	4.41	3.35	3.49	34.29
Capex (£m) Total	6.25	21.41	9.69	2.05	3.8	7.02	5.09	3.49	58.81
Opex (£m) Total	4.46	4.25	4.28	4.23	4.32	5.17	4.82	4.93	36.46
Totex (£m) Total	10.71	25.66	13.97	6.28	8.12	12.19	9.91	8.42	95.27

Table 2: 6 year replacement cycle

GD2 (6yr replacement cycle)	2022	2023	2024	2025	2026	Total
Capex (£m) Scotland	6.03	4.07	3.32	3.16	2.49	19.08
Capex (£m) Southern	4.15	6.77	5.63	6.73	7.1	30.38
Capex (£m) Total	10.18	10.85	8.95	9.89	9.59	49.45
Opex (£m) Scotland	1.77	1.64	1.47	1.21	1.15	7.24
Opex (£m) Southern	2.89	2.68	2.39	1.98	1.88	11.82
Opex (£m) Total	4.67	4.32	3.86	3.19	3.03	19.06

Table 1 represents vehicle repairs and maintenance, fuel and other related costs are accounted for in our Operational Units’ costs. It should also be noted that there is also vehicle capex (£9.53m) requirement detailed in our EAP to support the additional cost of EV’s and installation of charging infrastructure.

2 Fleet within the business plan

In this appendix we have set out our investment against allowance for our commercial fleet during GD1, along with our proposals for GD2. As can be seen from Figure 1 below, our fleet assets are used across the breadth of the business.

Figure 1: Appendix structure

	Distribution Mains & Services	Distribution (Governors & Crossings etc)	Transmission	Other Assets	Cost Efficiency, Financeability, Procurement, Stakeholder Engagement
Management	Work Management & Business Support				
	Environmental Action Plan				
Systems	IT & Cyber Resilience		Electrical & Instrumentation		
	Energy Futures: Whole Systems & Scenarios, Energy System Transition, Innovation				
People	Workforce Management				
Other Assets	Property, Fleet, Plant & Equipment				
Customers	Customer Service & Vulnerability				
Emergency Service	Emergency Service			SIUs	
	Repair Service				
Inspection/ Maintenance		Asset Maintenance			
Repair & Revalidation	Repex	Integrity	Integrity & Compliance		
Refurbishment / Replace / Rebuild					
Growth/Resilience	Connections				
	Capacity Management				
Removal		Maintenance	Integrity & Compliance		

Note: our GD2 strategy for our fleet of LNG and LPG fuel tankers serving the five Statutory Independent Undertakings (SIUs) networks is included in chapter 16 of our business plan and the SIU appendix (017).

3 GD1 performance and learnings

There are three principal vehicle types in the commercial fleet: repair and maintenance; emergency; and support vehicles.

Repair and maintenance team vehicles

The standard vehicle is a short wheelbase, high roof rear wheel driven (RWD) van, the RWD being necessary to operate the required power take-off to drive the electric and air systems. The onboard system also makes the team more efficient and eliminates the requirement to tow compressors or operate with a second vehicle. This size and type of vehicle represents the best value for money while maximising the available payload, helping manage the risk in vehicle overloading.

The assessment of value for money has been tested through regular tendering activities, to measure both costs and operational suitability. There is a trend in newer vehicles on increased kerb weight: that is, the inherent weight of the vehicle itself before any company-specific equipment is added. This in the main is a result of additional components such as catalytic converters and AdBlue tanks that assist in reducing harmful engine emissions. To help offset the reducing available payload, significant work has been carried out in reducing the weight of the fitout components, such as racking, power take off and vehicle linings.

In general terms, for repair and maintenance vehicles when they are replaced, the specification will be enhanced in line with emerging safety features such as:

- onboard weighing system;
- rear reversing cameras; and
- lowered rear step.

Emergency service vehicles

The standard vehicle used is a short wheel based high roof van. These vehicles do not require the power take-off of the repair and maintenance vehicles, so can be front wheel driven. This means they are less expensive and have a better payload. The vehicles require sufficient storage capacity that allows engineers to easily enter, while standing, to access all tools and fittings.

Support vehicles

These fall into two categories:

- Sub 3.5 tonne which include 4x4, small vans, drop-sides and tippers. These are typically standard vehicles in SGN livery; and
- HGVs that, except for Core and Vac vehicles, are relatively standard vehicles to SGN specification. The Core and Vac vehicles are in the replacement schedule on a like for like basis. However, we have experienced reliability issues with the current vehicle and an enhanced MKII version is in development.

All commercial vehicles are speed limited to 62mph for driver safety and this also helps to reduce emissions. Telematic units are fitted, which report on driving and speeding events. These are actively used to help improve driver safety. The units, along with the introduction of other safety devices such as dashcams, are used to effectively manage the safety of the fleet.

3.1 Overview of service delivered

The GD1 investment programme was based on a planned replacement schedule, using an age and condition profile: light commercial vehicles being replaced at 8 years or 150,000 miles; vehicles with on-board power were to be assessed at 5 years; and HGV replaced at 10 years or 150,000 miles.

The intention of this planned replacement schedule was to more evenly spread the age of the fleet, reduce its overall age and have a better-balanced age profile, giving the benefits of more evenly spread maintenance

costs and improved reliability. Additional benefits of this replacement schedule were considered to be:

- a modern younger more reliable fleet;
- reduced emissions and impact on the environment; and
- improved safety features in the newer vehicles.

3.2 Legislative background

Our commercial vehicle fleet operates within and complies with vehicle legislation. There is a significant amount of legislation that applies, the primary ones being the Construction and Use Regulations, the Health and Safety Act and the Road Traffic Act, which is supported by the highway code. The main responsibilities imposed by this legal framework fall on the shoulders of road users and vehicle owners.

It is important to note that the vehicle is considered to be a place of work.

Health and safety at work act 1974

No matter what size or type of business, employers have a duty of care for the safety of employees at work, as well as others who may be affected by business activities. In case of fleet drivers, this means all other road users.

The road vehicles (construction and use) regulations

This act sets out the standards for vehicles on UK roads. It ensures that they are maintained to a certain standard to ensure that they are following safety procedures and the vehicles are suitable for their use and safe. All converted SGN vehicles undergo type approval for modifications, with signage and markings that comply with chapter 8 vehicle markings.

The workplace (health, safety and welfare) regulations 1992

This act covers the variety of regulations which cover basic health, safety and welfare issues including traffic routes for vehicles. It helps to assist with keeping drivers safe on the road and minimise travel times.

The provision and use of work equipment regulations 1998

These regulations make sure work equipment is suitable for its intended use, safe, regularly inspected and properly maintained. They also require that those using the equipment are properly trained.

Road traffic acts - supported by the highway code

The main responsibilities under the road traffic acts are on the driver of the vehicle. They are responsible for driving a safe vehicle, adequately maintained and insured, in a safe manner having due regard to other road users and pedestrians. The employer has a duty towards providing a safe vehicle. It is an offence to set driver schedules that may cause drivers to break speed limits and/or have reward schemes which incentivise them to do so. The Highway Code is essential reading for everyone and reinforces the legal obligations of drivers.

3.3 GD1 output delivery

GD1 expenditure against allowances are provided in section 3.4 below. The phasing of the allowance provided for GD1 was uneven, and we sought to spread the spend more evenly across GD2 to better manage age and condition of the fleet. Nevertheless, the average age of the fleet is forecast to increase from c. 4 yrs. at the start of GD1 to 5 yrs. at the end.

Our GD1 capex spend is forecast to fall under our allowances, as shown in tables 3 and 4 below.

3.4 GD1 allowances and expenditure

Table 3: GD1 allowances

GD1 Ofgem Allowance	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	Total
Capex (£m) Scotland	9.75	0.03	-0.7	2	3.74	3.94	-0.14	-0.45	18.16
Capex (£m) Southern	19.22	1.11	-0.27	4.88	8.29	8.74	0.83	0.22	43.03
Capex (£m) Total	28.97	1.14	-0.97	6.88	12.03	12.68	0.69	-0.23	61.2

Table 4: GD1 forecast expenditure

GD1 Actuals /Forecast	Actual						Forecast		Total
Capex (£m) Scotland	2.81	10.42	3.68	1.43	1.82	2.61	1.74	0	24.52
Capex (£m) Southern	3.44	10.99	6.01	0.62	1.98	4.41	3.35	3.49	34.29
Capex (£m) Total	6.25	21.41	9.69	2.05	3.8	7.02	5.09	3.49	58.81
Opex (£m) Total	4.46	4.25	4.28	4.23	4.32	5.17	4.82	4.93	36.46
Totex (£m) Total	10.71	25.66	13.97	6.28	8.12	12.19	9.91	8.42	95.27

Our GD1 opex allowance was wrapped up as part of a wider allowance for general operating expenditure, given the relevant size and materiality of the expenditure.

3.5 GD1 lessons learned

The key lesson learned from GD1 is to agree an even replacement schedule, giving a better spread of critical vehicles across the age profile of the fleet. The benefit of this would be to have the ability to schedule newer more reliable vehicles on the most critical jobs; along with a more even spread of ages across the fleet to better manage the breakdown and repair cost and operational impact of vehicles as they age.

The fleet operational data has been better captured during GD1. This will facilitate more informed decision making during GD2 and allow a more evenly spread investment profile, the benefit of both being to avoid large numbers of our critical support vehicles reaching a critical age for breakdown and repair at the same time, impacting both cost and operational efficiency.

3.6 Decarbonisation and innovation in GD1

To investigate the feasibility of moving our fleet to alternative vehicle types/fuel sources, we identified and initiated a CNG trial in relation to a vehicle used within our maintenance activities.

This vehicle was identified as appropriate for such a trial as its use and geographical location is not dependent upon a long mileage range and there is an accessible refuelling station. Furthermore, the additional weight of the fuel tanks (150kg) does not adversely impact the overall payload of the vehicle, as it is not required to carry a substantial amount of heavy equipment. While the engine torque associated with CNG is insufficient to drive a power unit, such an activity would not be required of a maintenance vehicle.

If this trial is successful, further adoption could be investigated. However, there are considerations to be made, such as the towing capacity. Legislation changed in 2018 which allows alternate fuel vehicles, without

the restriction of a heavy goods vehicle operator's licence, to operate at 4.2t. However, these vehicles are heavily restricted on towing capacity, being unable to tow equipment that is critical for efficient and cost-effective operations for the repair teams, who are often required to tow mini-diggers or traffic management systems.

A further consideration would be the refuel arrangements. At present, our fleet is refuelled from the existing filling station network on the way to or from a job. Furthermore, if refuelling is required during a job, filling stations are rarely more than two or three miles away. In contrast, a CNG vehicle would be required to either return to base to refuel, or to make a specific journey, incurring additional mileage, to a CNG filling station.

The limited towing capacity and the need to travel to refuel means that the time spent out of 'on the job time' could be significant and could occur at a critical time.

While the trial could inform our future replacement decisions, we are also looking at converting some of our existing, older vans, to dual fuel (diesel/hydrogen). This is subject to similar challenges as the CNG vehicle, for example in relation to the weight of the fuel tank and the lack of a robust hydrogen refuelling infrastructure. While the conversion per vehicle may be costly (tens of thousands per vehicle, the emissions benefit is believed to be a 70% reduction in CO₂).

4 Stakeholder insight

We have undertaken a comprehensive programme of engagement and research with customers and stakeholders in developing our business plan. This is described in more detail in chapter 4 of our business plan and the Enhanced Engagement appendix (022).

Our customers and stakeholders have told us that exploring future energy solutions is an area they would like to see prioritised for investment.¹² They have also told us that we need to reduce the environmental impact of operating our business now and in GD2, for example by reducing our business carbon footprint, waste and resource use, and the impact of our supply chain.³

Carbon emissions from our commercial fleet of vehicles represent the biggest part of our controllable operational carbon footprint. As noted in section 3.6 above, we have initiated a CNG trial in GD1 to investigate the feasibility of moving our fleet to alternative fuel sources; and we are looking at the possibility of converting some of our fleet to dual fuel.

At our Shared Future stakeholder workshop in August 2019, stakeholders agreed that many large companies had begun to decarbonise their vehicle fleets, and they would expect us to do the same.⁴ Some stakeholders also felt that given our involvement in hydrogen studies to decarbonise heat, we should also look more closely at opportunities relating to hydrogen-fuelled vehicles. Recognising that there are barriers to full-scale roll-out of alternative-fuelled vehicles for our fleet at this stage, stakeholders, including the Scottish Government, indicated they would welcome further collaborative work during GD2 to investigate how barriers could be overcome.

Customers also exhibit a high ambition for us to decarbonise our operational fleet, but during qualitative customer workshops held in August 2019, indicated that they were also keen to ensure this would not be at the expense of safety and reliability, or contribute too much additional cost to their bills⁵. Customers want us to not only consider the type of vehicles we use, but also how they are used. Examples suggested by customers included reviewing logistics/planning and testing whether more passengers in each vehicle would be possible (i.e. larger vehicles for more employees rather than smaller cars that only one member of the team uses). Most felt that increasing the proportion of alternatively fuelled vehicles in our fleet was necessary. Some felt it may become unavoidable if the government takes steps to remove petrol and diesel vehicles from UK roads.

Customers surveyed during our first wave of willingness-to-pay research, conducted in summer 2019, showed highest appetite for measures aimed at reducing our environmental impact. Results showed that customers would be willing to pay up to £5.21 to achieve a 20% reduction in our operational carbon footprint. This indicates that, relative to other parts of our business, customers would like us to prioritise investment in this area.⁶ Our second wave of customer willingness-to-pay research demonstrated that attributes to improve our environmental performance consistently attract the highest values from both domestic and SME business customers.^{7 8} Domestic customers would be willing to pay an additional £5.05 on their gas bills for the best improvement of making 100% of our fleet (where possible) ultra-low emission vehicles such as hybrid,

¹ Stage 1: Explorative Qualitative Workshops and interviews (ref 002)

² Stage 2: Max Diff Prioritisation Phase (ref 003)

³ SGN Sustainability Roundtable - London & Glasgow (ref 065,066) Share Net Zero Future round table event – Scotland (ref 090) Shaping the Business Plan Qualitative workshops - Environmental Action Plan (ref 084)

⁴ Share Net Zero Future round table event – Scotland (ref 090)

⁵ Shaping the Business Plan Qualitative workshops - Environmental Action Plan (ref 084)

⁶ Stage 3: Conjoint & WtP Summary report (ref 005)

⁷ Qualitative workshops - Environmental Action Plan (ref 084)

⁸ Valuation Phase (Conjoint & WtP) summary report (ref 094)

hydrogen-powered or electric cars and vans by 2026. In our quantitative acceptability testing customers were asked a question in relation to the additional business plan element of reducing our carbon footprint by 25%. Southern customers gave this element an acceptability score of 78% in total, which was 3% lower than customers in Scotland, who gave this element a score of 81%. This element attracted highest acceptability from domestic customers in Scotland (81%), and lowest from Scottish SMEs (76%).⁹

Our customers have also told us that safety and reliability are priorities for them, and they expect us to keep our costs down¹. Infrastructure such as fleet that supports our ability to manage and run our networks is essential for their safe and efficient operation. Replacing end-of-life assets, and a comprehensive maintenance regime, helps to ensure we make cost-effective decisions without compromising overall reliability.

⁹ Business Plan Acceptability Testing Phase 2 (Ref 079)

5 GD2 cross sector issues

5.1 Decarbonisation & whole system

We are very mindful of the environmental impact of operating a large fleet of vehicles and plant equipment. While the short term (2-3yrs) opportunities are limited, with the anticipated advances in vehicle technology, data capture and refuelling infrastructure, it is believed there is an opportunity in the medium term (4-10yrs) and more so for the longer term (10yrs+) to significantly reduce the emissions generated by our fleet. Our ambition is to evaluate every opportunity in our operational and procurement process to reduce the environmental impact of our fleet, while being ever mindful of our responsibility to deliver safe and efficient service to our customers. The investment required to update the fleet, and to introduce alternate fuelled vehicles with the supporting refuelling infrastructure is significant; and to accommodate alternate fuelled vehicles will likely require changes to operational methods, which again may have a cost impact.

As discussed in our business plan and the EAP appendix (003), the long-term ambition in developing the fleet strategy is to assist us in becoming carbon neutral by 2045. The fleet management strategy will be a living document, regularly reviewed and updated in the light of changing requirements and changing vehicle technology. The introduction of monitoring processes that are central to sustainable fleet management will help identify where the opportunities for future improvement lie. This would require the support of a dedicated environmental fleet specialist to deliver the higher level of ambition. Our current fuel usage for commercial vehicles and plant equipment is c.6m litres per annum, which equates to approximately 16,080 tons of CO₂.

5.2 Innovation

It is anticipated there will be significant changes in vehicle and tooling technology during GD2. To properly evaluate those changes, ensure compliance with legislation and that they are operationally safe and suitable it is proposed to follow the appraisal process/strategy outlined below. Where a suitable alternative vehicle is identified that we believe will deliver operational and environmental benefits, we intend to use the Network Innovation Allowance (NIA) in GD2 to acquire and evaluate it.

Alternative fuel appraisal process/strategy

Operational suitability

For each vehicle type, the minimum operational requirement will be reviewed annually. The review panel will be led by the fleet team and include at least four representatives from our operations teams (Scotland x2 and Southern x2) and representatives from our sustainability teams. The review panel will initially look at the functions a vehicle is required to support, consider and review if this is still the case, explore alternative ways of working that allow the inclusion of low emission vehicles without significant operation impact.

Following the annual operational appraisal described above for the commercial vehicle types, the alternate fuelled vehicle will be required to meet the minimum operational function for that vehicle type. i.e. a repair vehicle 2019 requirement includes but is not limited to:

- Operate a power take off unit (rear wheel drive)
- Power a compressor with a minimum of 100CFM at 10 Bar, continuous operation
- Electrical power at 6KVA at 110v for uninterrupted sustained periods of 5 minutes
- Minimum payload of 850kgs after fitting out (racking, beacons etc.)
- Towing capacity of 2.5tonne
- Support onboard drying and refreshment facilities
- Carry two passengers
- Able to refuel within 10 minutes travel of work site.

Each element of the specification is rated by operational importance in terms of the absolute requirement i.e. carrying two passengers is important, but the ability to power an on-board compressor is critical. The process will apply to:

- Car policy
- Repair vans
- FCO vans
- Maintenance vans
- Large support vehicles (tipper & dropsides)
- Small support vehicles (4x4 & car-derived vans)
- HGV fleet

Financial appraisal

The financial appraisal process will be based on the whole life cost to operate on an operational life of 6 years, using the following criteria (all costs are exclusive of VAT).

- Total cost to purchase the vehicle including all ancillary equipment, minus manufacturer discount and expected residual value, any variance of more than 10% on residual values between vehicle fuel types should be supported by an external benchmark such as delta point.
- Capital cost write down value over 7-year period. (vehicle cost – manufacturer discount + ancillary equipment cost – residual value = capital cost to write down).
- If a vehicle lease is being considered for comparison purposes it will be based on a 6-year lease, 100,000 miles with inclusive maintenance.
- Maintenance cost of both vehicle and ancillary equipment.
- Annual mileage of 15,000 a year.
- Fuel cost at the review time will be applied, for both diesel and alternative fuel types.
- Cost to operate will include the cost of fuel.

5.3 Resilience

Our condition-based approach to maintaining our commercial fleet (discussed in section 6 below) will ensure a more reliable and cost-effective fleet. This, in turn, enables us to maintain an effective, reliable and efficient capability for the networks.

6 GD2 activity breakdown

6.1 Approach to GD2

The existing combined fleet has been assessed based on averages, for both age and operational cost impact. In order to determine the optimal fleet make-up at the commencement of GD2, we have continued the current age-based replacement programme to forecast the number of replacement vehicles for the last two years of the GD1 price control, as 158 and 201 vehicles respectively. Assuming the planned replacement schedule is completed during the remainder of GD1, the average age of the commercial fleet at April 2021 will be approximately 5 years old, with almost 1,000 vehicles at 5 years old or older.

For GD2, in line with our EAP, we are planning to replace our fleet on a 6-year replacement cycle. To achieve this, we have divided the number of vehicles in the fleet by 6 and for cost purposes then replaced that number of the oldest vehicles each year irrespective of regional location, the variation in replacement cost of the different vehicle types, is reflected in the capex requirement in each year and also contribute to the Scotland and Southern in capex requirement variation. In addition, as part of the EAP, we are aiming for 50% of the vehicles replaced during GD2 to be ULEVs.

ULEV is used to describe any vehicle which uses low carbon technologies, emits low CO₂ and can operate in a zero-tailpipe emission mode. They can be electric, hydrogen, compressed natural gas (CNG) or hybrids.

6.1 (b) Policy

It should be noted that our proposed investment, and ambition, rely heavily on the availability of suitable vehicles and the wider refuelling infrastructure being robust enough to support them. Both the technology and infrastructure will need to advance during GD2 if we are to meet our ambitions. Changes in wider government policy, such as its proposed heat policy, could change the rate of advancement and directly impact the volume of ULEVs we are able to deploy in GD2.

6.2 (c) Scenarios and sensitivities

Following stakeholder feedback, we have moved from a 'business as usual' 8-year replacement programme to an accelerated 6-year one. Both options were part of our original scenario planning process, with further sensitivities developed as part of our EAP, including replacing various proportions of our vehicles with ULEVs.

The level of uncertainty surrounding the availability of technology and infrastructure has driven our proposal for a 'use it or lose it' uncertainty mechanism for £9.7m, which is discussed further in section 6.8 below.

6.3 (d) Fleet ambition

As discussed in our EAP appendix (003), stakeholders have provided a strong message that we should be ambitious in how we green our fleet. We have therefore developed a longer-term fleet environmental goal to significantly reduce GHG emissions and air pollutants from vehicles used in all SGN operations to 100% zero emission vehicles by 2045. Section 5.2 above discusses our proposal to utilise the NIA to appraise new vehicle types.

6.4 GD2 outputs and price control deliverables

Our condition-based approach to maintaining our commercial fleet in GD2 builds on our approach from GD1 but provides a better managed schedule to ensure we are not left with critical vehicles that cost more to repair than they are worth.

As part of our EAP initiatives we are proposing an accelerated replacement programme of our commercial fleet from an 8 to 6-year cycle; 50% of the vehicles replaced during GD2 will be ULEVs; and we will install EV charging points/refilling stations for other ULEVs. In addition, we will seek to optimise vehicle use and operate

smarter; and we will develop alternative methods of tooling and operating in collaboration with our operations teams.

Our ambition to green our fleet leads to the bespoke outputs described in section 6.5 below.

6.5 Bespoke outputs

We are proposing two bespoke outputs for our fleet investment during GD2 based on our accelerated fleet replacement programme and the ambition that 50% of our replacements will be ULEVs.

Increased fleet replacement rate

We will move from an 8-year replacement cycle to a 6-year replacement cycle in GD2 at a cost of £2.16m per year.

An increased investment in replacement reduces both the maintenance cost and the reliance on short term hires. It will also have a significant impact on operational efficiency, with less breakdowns which will then reduce the retention of older vehicles to support the (lower) aged fleet with a knock-on reduction in maintenance costs. In addition, the fleet would operate with fewer spare vehicles.

The full impact of this investment scenario will not be felt until the later part of GD2, when the age and maintenance effect of the new vehicles will improve reliability and reduce maintenance cost. From an environmental perspective, the additional benefit of this replacement profile will be to remove older polluting vehicles at an earlier opportunity, with a positive environmental impact and a saving of ULEZ charges.

Low emission vehicles

In addition to the above, we will aim for 50% of our replaced vehicles to be ULEV at a cost of £1.56m per year.

These types of vehicles, be they EV or other ultra-low emission, use low carbon technologies, emit less than 75g of CO₂/km from the tail pipe and are capable of operating in zero tailpipe emission mode for a range of at least ten miles.

These combined initiatives will result in reduced carbon emissions of 12.5ktCO₂e; reduced air pollution (NO_x and particulates) and will mean that we are projected to meet our 25% reduction in Business Carbon Footprint (BCF) target by the end of GD2.

6.6 Investment in existing assets – CBA/EJP

Commercial vehicles

We are proposing to replace our existing commercial fleet using a condition-based approach as discussed above. We initially looked at three options for such an approach and, following stakeholder feedback around our environmental ambitions we will increase our current 8-year replacement cycle to 6-years.

The benefits of the accelerated replacement cycle and 50% of vehicles replaced to be ultra low emission, is the de-fleeting of older polluting diesel vans, replacing them with more efficient vehicles, reducing fuel and maintenance cost, improved reliability and the societal benefit of a reduction in CO₂, NO_x and particulate pollution.

Company cars

We operate a company car scheme to provide employees with company cars where they are required to drive to carry out their job effectively and consider a company car the most suitable method to do so. In addition, we determine whether a car should be provided as part of the total remuneration package to attract and retain employees. Our company car scheme ensures that we provide modern, safe and reliable cars for our employees to carry out their job.

The scheme allows the choice from an approved list, based on an allowance by grade/job entitlement and colleagues can choose to supplement their selection by making a personal use contribution (PUC). The company contribution amount varies according to grade, and the PUC is based on the whole life cost of the car and the employee's salary.

The car scheme environmental policy targets a reduction in CO₂ emissions, by limiting cars on the list to 130g/km. This CO₂ limit is reviewed annually, although current planned reductions by years are as shown below:

Table 5: CO₂ limit

2019	2020	2021	2022	2023	2024	2025	2026
130g/km	125g/km	120g/km	115g/km	110g/km	105g/km	100g/km	95g/km

Additional incentives to encourage greener choices are by way of an enhanced allowance for lower emission cars (sub 80g/km and below). This operates on a sliding scale that increases the contribution for cars with lower CO₂ emission.

Plug-in hybrid cars have been added to our car choice list, again with the incentive of an additional allowance to help offset the higher lease cost, with added flexibility on driver contribution. There is also a significant benefit-in-kind taxation saving, for the driver and a reduction in employer National Insurance contribution which has been used as part of the incentive when adding hybrids cars.

EV charging points are currently being installed at our key sites, with additional infrastructure to allow additional charging point installation in the future to support the hoped uptake of hybrid and electric cars onto the fleet. A small number of electric cars have been added onto the fleet in 2019. As electric vehicles cost reduces, their range improves, and the charging network becomes more robust, an annual review will be conducted by the fleet manager, environmental manager and HR. This review will evaluate and add more EVs onto the choice list when they meet an agreed minimum range to be considered suitable for regular business travel.

Company cars, which make up just under 30% of our fleet, are procured on an operational lease of between 3 and 4 years, including maintenance. The length of lease is determined primarily by mileage, but maximising the residual value is also a consideration.

6.7 Engineering Justification Papers

Table 6: Fleet Engineering Justification Papers (EJPs) and CBAs

Network	Asset	Project Spend (£m)	NPV (£m)	CBA Payback (years)	Engineering Justification Paper
SGN	Fleet BAU	37.40	32.39	5	SGN Fleet - 001 BAU EJP Dec 19
SGN	Fleet EAP	21.59	21.49	5	SGN Fleet - 002 EAP EJP Dec 19

6.8 Investment in new assets

We are not proposing to invest in additional fleet assets during GD2; rather, we are replacing old assets at the end of their useful life.

6.9 Cost efficiency

Operating a large fleet of vehicles requires that we meet certain legal requirements in maintaining and ensuring the vehicles are safe and fit for purpose. Cost efficiency and control of cost will result from more fuel-efficient new vans; in GD2 it is expected the new vans will be 10% more efficient. As outlined in section 6.9, fleet procurement activity is conducted by means of competitive tendering to ensure best value for money.

We will be using telematics technology, to support our drivers in efficient driving, along with training to deliver more fuel-efficient driving. Maintenance and repair of the vans will be carried out in line with manufacturers' recommendations to keep the vehicle in good condition. We will continue to ensure that we procure services and fuel at the most competitive value for money, and that consistent, regular appraisal of vehicle usage and utilisation, ensures the size of the operational fleet is the minimum required to maintain excellent service levels.

6.10 Managing uncertainty

Our ambition to green our fleet relies heavily on the availability of suitable vehicles and the wider refuelling infrastructure being robust enough to support them. Home EV charging points do not provide enough power to charge our maintenance vehicles, so they will need to be recharged at our depots, along with our current depot-based support vehicles. Transitioning our smaller vehicles to EV or other ULEV will require the development of local (hub) charging facilities across the UK.

Both the technology and infrastructure will need to advance during GD2 if we are to meet our ambition of 42% of our fleet being ultra-low emission vehicles (ULEV) by 2026. To manage the uncertainty in this area we are proposing a bespoke 'use-it-or lose-it' uncertainty mechanism of £9.7m. Our justification for this is as follows:

What is the issue/risk that the proposed mechanism addresses?

The risk with new and relatively untested technology in an operational environment is that it does not always perform as expected in terms of range or functionality. In such circumstances we would not want to increase operational risk so would not look to invest in the technology until it can fulfil the operational requirement as outlined in 5.2. Additionally, there is still some uncertainty on the availability of suitable vehicles or manufacturers' ability to supply in sufficient quantities.

Where does the ownership of risk lie in relation to the uncertainty?

The evaluation of the risk and decision on not to bring ultra-low emission vehicles onto the fleet will be at the recommendation of the review panel using the appraisal methodology outlined in section 5.2.

Materiality of issue

The three key issues are the suitability of the vehicles to meet operational requirement in delivering our service commitments safely and efficiently, the availability of suitable vehicles and the wider development of the recharging infrastructure for EV's.

Frequency and probability of issue over the price control period

The probability of the issue over the price control period is uncertain and will be reviewed annually by the panel, the frequency of the review would be increased if it became apparent significant advancements were happening in vehicle technology that warranted more regular appraisal on suitability to introduce into our fleet.

What is the proposed mechanism?

We are proposing a use-it-or-lose-it mechanism, providing funding of £9.7m to support the additional investment required to introduce ultra-low emission vehicles and the associated EV charging infrastructure required to support them. We will review annually, identify where the introduction of ultra-low emission vehicles can be made and plan them into the annual fleet replacement program.

What are the justifications for the mechanism?

The mechanism will allow us to meet our environmental ambition in significantly reducing the harmful emissions from operating a large fleet of commercial vehicles as discussed in our Environmental Action plan, and the societal benefits a reduction in emissions will give.

What are the drawbacks of the proposed mechanism?

The drawbacks of this method are the uncertainty is high and costs may be significantly higher or lower than forecast. If testing of the new technology takes longer than planned or the appraisal on suitability requires further investigation, it could result in a delay in making the investment in some areas of our operational fleet.

Treatment in Business Plan Data Templates (BPDTs)

The project described has been included in section 3.06 of the BPDT. The BPDT includes the additional capital cost of the 8y to 6y accelerated replacement program and the additional cost of the ultra-low emission vehicles, an allowance has been built in to cover the additional investment in charging infrastructure. The opex element in the BPDT takes into account the reduction in fuel and lower maintenance costs when the new more fuel-efficient vehicles being either, EV's or new diesel vehicles are added to the fleet.

6.11 Competition

To ensure best value for money on vehicle acquisition historically, any capital fleet replacement was carried out as a one-off regulated competitive tender. This required the full tender process to be adhered to but caused some difficulties in building long-lasting, mutually beneficial relationships with external suppliers.

Competitively tendered framework agreements

To develop mutually beneficial relationships with vehicle manufacturers but remain competitive during the fleet replacement programme, the decision was taken in 2018 to tender for the award of a Framework Agreements for the outstanding vehicle replacement requirement for the remainder of GD1, acting as the first call-off from these agreements. Through this tender process, frameworks were awarded to Iveco, Ford, Mercedes and Vauxhall with all future requirements to be carried out as mini competitions between the four suppliers. This will allow us to receive and assess different technical offerings within the market, as well as maintain commercial competition to ensure that we are receiving best value. There is also the opportunity to

maintain regular contact and manage the suppliers appropriately, in order to understand market developments and upcoming innovations.

6.12 Real price effects

We expect that the main factors that will affect our fleet costs going forward will follow CPI. It should be noted that fuel costs are accounted for in our operational units' costs.

6.13 Financial summary

The investment planned in GD2 is along similar lines to GD1 and will ensure our investment in new vehicles will give the best value for money while controlling maintenance costs. The new replacement strategy is designed to provide a more balanced fleet and a more even investment spread across GD2. This will improve reliability by minimising the impact that large numbers of ageing vehicles have on operational efficiency. We are also very likely to introduce alternative fuelled vehicles such as EVs to both the operational fleet and company cars. While EVs have a higher purchase price, the in-life operating costs are believed to be comparable or slightly less than combustion vehicles. The full capex and opex cost for both Southern and Scotland can be found in section 3.06 of the BPDT on lines 13 and 14 respectively. It should be noted the opex values in the table below are repair and maintenance, with fuel and insurance costs covered separately in the business plan. Our proposed investment plan (not including the EAP) for GD2 is therefore £68.5m, split over opex and capex as follows:

Table 8: GD2 forecast: capex and opex

GD2 Forecast	2022	2023	2024	2025	2026	Total
Capex (£m) Scotland	6.03	4.07	3.32	3.16	2.49	19.08
Capex (£m) Southern	4.15	6.77	5.63	6.73	7.10	30.38
Capex (£m) Total	10.18	10.85	8.95	9.89	9.59	49.45
Opex (£m) Scotland	1.77	1.64	1.47	1.21	1.15	7.24
Opex (£m) Southern	2.89	2.68	2.39	1.98	1.88	11.82
Opex (£m) Total	4.67	4.32	3.86	3.19	3.03	19.06

6.14 Assurance

Our business plan, including appendices, has been subject to a rigorous assurance process which is detailed in chapter 3 of the plan and the Board Assurance Statement.

Our Director of HR and Shared Services was appointed as the Sponsor for the fleet appendix and the associated Cost Benefit Analyses (CBAs), Engineering Justification Papers (EJPs) and Business Plan Data Templates (BPDTs); which have been through the following levels of review and assurance:

First Line

This was undertaken at project level by the team producing the document, as a regular self-check or peer review.

Second Line

This was undertaken independently within the organisation to review and feedback on product development, including a GD2 workshop on Capital Expenditure (Capex).

Both Senior Manager and Director sign-off was obtained and our GD2 Executive Committee: (1) considered the appropriateness of assurance activity for the appendix and (2) provided assurance to SGN's Board that the Business Plan meets Ofgem's assurance requirements.

Third Line

This was undertaken by external advisors and groups providing critical challenge during the development of products within the Business Plan. In addition to the feedback and challenge provided by the Customer Engagement Group (CEG) and Customer Challenge Group (CCG) this appendix was developed after consultation with and advice from:

Advisor / Group	Contribution
Ove Arup and Partners	Consultancy support to enable development of an evidence based high quality business plan draft by acting as an expert challenge group through independent peer reviews against Ofgem business plan guidance.

Fourth Line

This was undertaken by independent and impartial external providers, who provided a detailed and comprehensive report to both the Executive Committee and Board of Directors:

Advisor / Group	Contribution
Ove Arup and Partners ('Clean' Team)	Review of appendix against Ofgem's assurance requirements.
PwC	Business Plan Data Template review: Other Capex

7 Glossary

All acronyms and associated descriptions can be found within the Glossary appendix.