

PPN 06/21

Carbon Reduction Plan

2022



Commitment to achieving Net Zero

Alexander Dennis Limited (AD) is committed to **reaching a target of Net Zero emissions by 2045**. The target aligns with the Scottish Government's Net Zero Roadmap which is 5 years ahead of the requirements set out in the standard Carbon Reduction Plan (CRP) guidance.

AD is at the forefront of providing a range of pioneering technology solutions to deliver significant fuel efficiencies and emission reductions within the public and private transport sector, supporting our customers in achieving their own climate reduction goals with the market's widest range of low and zero emissions products.

AD is part of NFI Group Inc. (NFI), a leading independent global provider of sustainable bus and motor coach solutions.

GHG Emissions Footprint

AD's greenhouse gas (GHG) emissions footprint was calculated in accordance with the best practice methodologies set out within the GHG Protocol Corporate Standard¹. The GHG emissions are categorised into *Direct* (Scope 1), *Indirect* (Scope 2) and *Other Indirect* (Scope 3) emissions.

In alignment with the requirements of Procurement Policy Notice (PPN) 06/21², AD's Carbon Reduction Plan (CRP) reports on Scope 1 and 2 emissions along with five categories of Scope 3 emissions. The Scope 3 categories reported on in this CRP include:

- Category 4: Upstream transportation and distribution
- Category 5: Waste generated in operations
- Category 6: Business travel
- Category 7: Employee commuting
- Category 9: Downstream transportation and distribution

AD's GHG emissions have been tracked and reported on an annual basis since the 2019 baseline. Within this scope are emissions from AD's UK activities only.

¹ <https://ghgprotocol.org/corporate-standard>

² <https://www.gov.uk/government/publications/procurement-policy-note-0621-taking-account-of-carbon-reduction-plans-in-the-procurement-of-major-government-contracts>

Baseline Year: 2019

AD's baseline year was calculated for the period 1st January to 31st December 2019. AD continues to measure their GHG footprint on an annual basis to capture progress against its target of reaching net zero by 2045. *Table 1 gives AD's 2019 baseline emissions footprint, split by emissions scope.*

Table 1: 2019 Baseline GHG emissions footprint by scope and scope 3 category.

2019 Baseline year emissions	
Emissions Category	Total Emissions (tCO ₂ e)
Scope 1	6,267
Scope 2	3,223
Scope 3 (see breakdown below)	4,180
<i>Cat 4: Upstream transportation and dist.</i>	2,047
<i>Cat 5: Waste generated in operations</i>	50
<i>Cat 6: Business travel</i>	129
<i>Cat 7: Employee commuting</i>	1,954
<i>Cat 9: Downstream transportation and dist.</i>	NA ³
Total Emissions	13,670

³ Manufactured vehicles are driven directly to customers. Emissions from the fuel consumed in this activity are accounted for in Scope 1, therefore, there are no downstream distribution activities. Emissions from aftermarket freight deliveries are included upstream, this aligns with the GHG Protocol Scope 3 Guidance which states that distribution services paid for by the reporting company should be included in category 4.

Current Emissions Reporting

AD will continue to update its CRP as stipulated in the PPN 06/21 guidance on an annual basis. The latest GHG emissions assessment for the reporting period of 1st January to 31st December 2022 are included in table 2 below alongside the previous reporting year (2021) and the 2019 baseline for comparison purposes.

Table 2: AD's GHG emissions footprint for 2022 compared to the previous year (2021) and baseline (2019), split by emissions scope and scope 3 category

Emissions Reporting (Baseline to current reporting year)					
Emissions Category	Total Emissions (tCO ₂ e)			% Reduction from previous year	% Reduction from Baseline
	2019 (Baseline)	2021	2022 (current reporting year)		
Scope 1	6,267	4,972	3,549	-29%	-43%
Scope 2	3,223	1,698	1,462	-14%	-55%
Scope 3 (see breakdown below)	4,180	4,121	4,959	+20%	+19%
<i>Cat 4: Upstream transportation and dist.</i>	<i>2,047</i>	<i>2,364</i>	<i>2,396</i>	<i>+1%</i>	<i>+17</i>
<i>Cat 5: Waste generated in operations</i>	<i>50</i>	<i>53</i>	<i>75</i>	<i>+40%</i>	<i>+50%</i>
<i>Cat 6: Business travel</i>	<i>129</i>	<i>107</i>	<i>473⁴</i>	<i>+342%</i>	<i>+265%</i>
<i>Cat 7: Employee commuting</i>	<i>1,954</i>	<i>1,596</i>	<i>1,860</i>	<i>+17%</i>	<i>-5%</i>
<i>Cat 9: Downstream transportation and dist.</i>	<i>NA</i>	<i>NA</i>	<i>NA⁵</i>	<i>-</i>	<i>-</i>
Total Emissions	13,670	10,790	9,970		

⁴ AD use spend data to calculate their Business Travel emissions. Spend-based approaches are inherently more uncertain than alternative approaches which utilise actual distance or consumption data. This is one of the main factors behind the increase in these emissions seen in 2022. AD intend to switch to a distance-based approach to calculating these emissions in the coming years.

⁵ Manufactured vehicles are driven direct to customer. Emissions from the fuel consumed in this activity are accounted for in Scope 1, therefore, there are no downstream distribution activities. Emissions from aftermarket freight deliveries are included upstream, this aligns with the GHG Protocol Scope 3 Guidance which states that distribution services paid for by the reporting company should be included in category 4.

Emissions Reduction Targets

AD United Kingdom is committed to making progress towards achieving net zero by 2045 from a 2019 baseline year. This aligns with the Scottish Government's net zero ambition for 2045.

Carbon Reduction Modelling

AD's net zero targets are aligned to the Paris Agreement objective to limit global temperature increase to 1.5°C above pre-industrial levels. This requires AD to achieve at least an average annual 4.2% reduction of total operational and value chain emissions year-on-year up to 2045, relative to the baseline.

As such, AD has modelled its emissions reduction trajectory according to this minimum rate of reduction. This pathway is presented in comparison to AD's confirmed emissions footprint from the 2019 baseline to the current reporting year 2022 in figures 1 & 2 on the following page.

Figures 1 & 2 shows the carbon reduction projected for Scopes 1, 2 and 3 when aligned with a 1.5°C pathway. On this pathway, AD's total GHG emissions will decrease by approximately 46% by 2030 compared to baseline. The bars overlying the emissions projections, represent the actual 2019 (baseline) to 2022 GHG emissions trajectory to demonstrate emissions reduction progress to date.

AD acknowledges that it is unlikely to be possible to reduce its gross emissions down to zero. Once AD has reached the point where they have achieved maximum possible abatement of their emissions, at minimum a reduction of 90% compared to baseline, AD may offset the residual emissions by investing in high-quality, verified carbon removal credits to reach the net zero goal.

AD's emissions reduction pathways have been modelled in accordance with the SBTi guidelines for a 1.5°C-aligned Science-Based Target with a near-term 2030 target and a long-term 2045 net zero target.

Business-as-Usual Modelling

In addition to the modelling described above, in 2020 AD modelled a business-as-usual (BAU) emissions scenario to guide its emissions reduction strategies. The BAU scenario forecasted AD's emissions growth in the fictional absence of any emissions reduction actions. It accounts for business growth in line with an average UK economic growth forecast and for forecasted decarbonisation of the UK electricity grid⁶. This BAU scenario showed the emissions gap between AD's forecasted emissions pathway and the 1.5°C-aligned emissions reduction pathway. This allowed AD to understand and plan the emissions abatement required to reach net zero by 2045.

⁶ <https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal>

Figure 1 shows the BAU scenario for scopes 1 & 2 against AD's projected emissions reduction pathway.

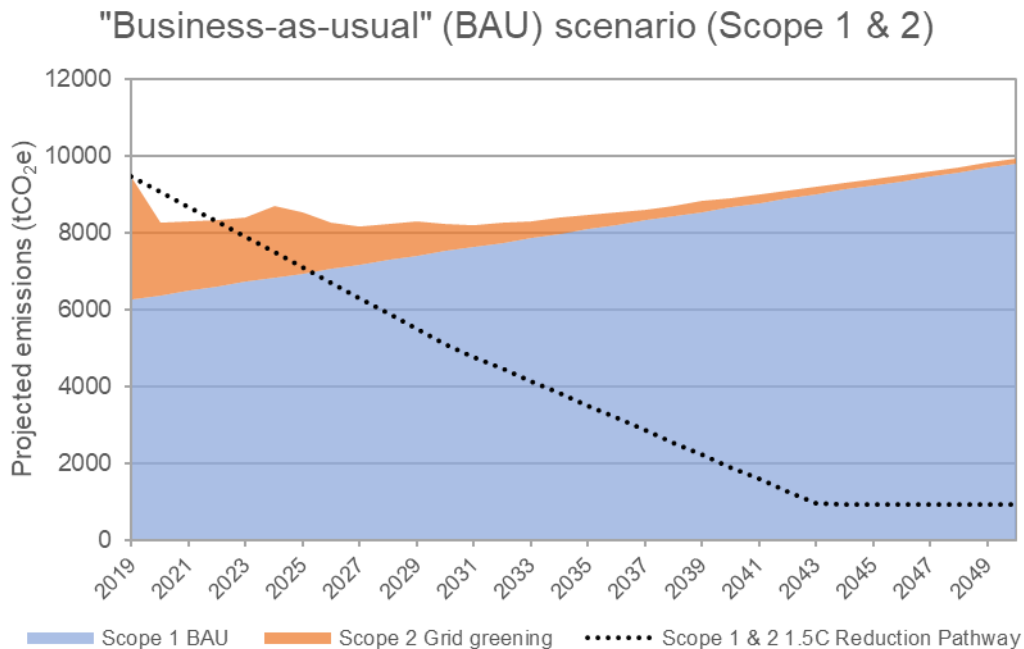


Figure 1: Business-as-usual scenario against AD's 1.5C-aligned reduction pathway, modelled from 2029 baseline to 2050. Modelling conducted in 2020.

Actual Versus Projected Emissions

Figures 2 and 3 show AD's progress against its projected emissions reduction pathways for scopes 1 & 2, and scope 3 respectively. Bars on the graphs display AD's actual footprints since the 2019 baseline, while the areas behind the bars show AD's 1.5°C-aligned reduction trajectory.

In 2020 and 2021, AD saw a significant reduction in total emissions against the 2019 baseline. This is consequence of the global Covid-19 pandemic and the reduction in some operational activities during these periods. In 2021 emissions increased compared to 2020 as AD, and the UK economy, began its recovery from the pandemic. In 2022, AD's scope 1 & 2 emissions have continued to fall relative to baseline, a result of AD's continuing energy efficiency actions towards its net zero target.

From figure 2, AD's scope 1 & 2 reduction achievement is significantly ahead of its net zero trajectory. While Covid-19 could be said to have contributed to the reductions in AD's emissions from its own operations for 2020 and, partially, 2021; the fact that 2022 direct emissions are the lowest since baseline, demonstrates the success of AD's energy efficiency initiatives to date.

Scope 2 emissions remain below the level forecasted by BEIS's grid decarbonisation figures. Again, this indicates that AD is ahead of the trend in its electrical efficiency initiatives. The UK grid is projected to decarbonise at a faster rate than AD's required 1.5°C reduction trajectory. Combining this grid decarbonisation with AD's efficiency improvements leaves AD's scope 2 emissions in a strong position relative to the target trajectory.

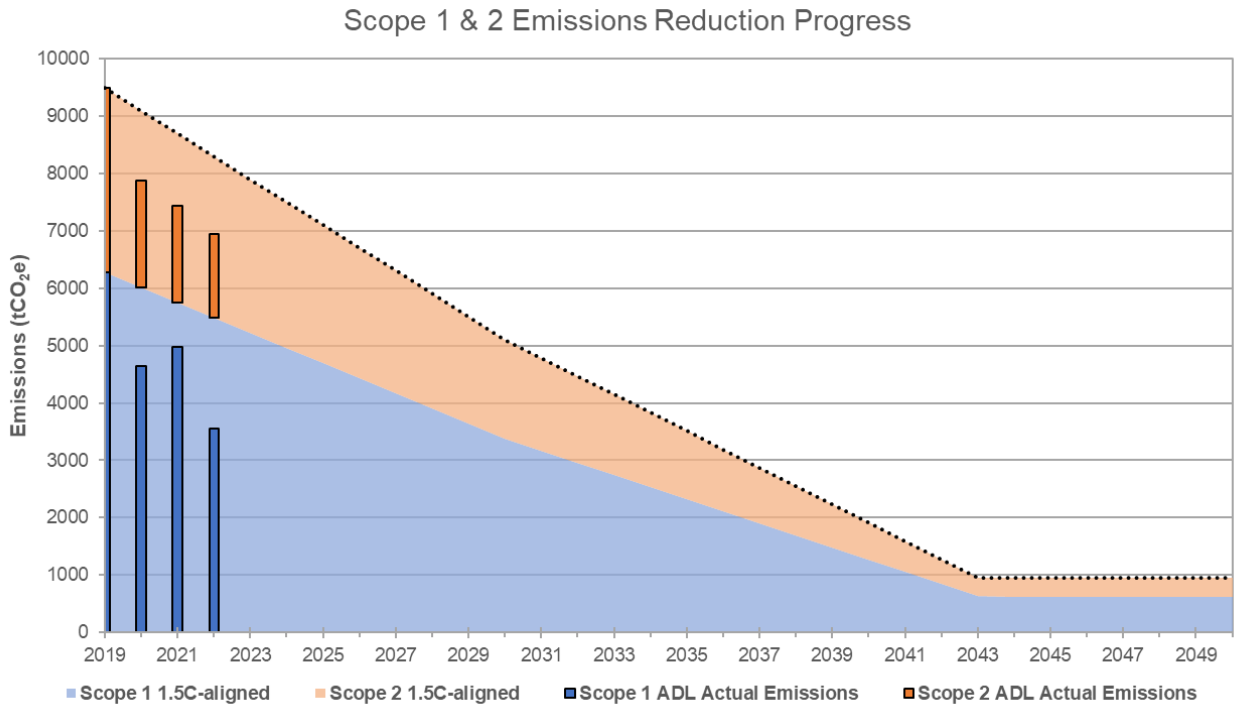


Figure 2: Targeted scope 1 & 2 emissions reduction pathways modelled from 2019 baseline to 2050.

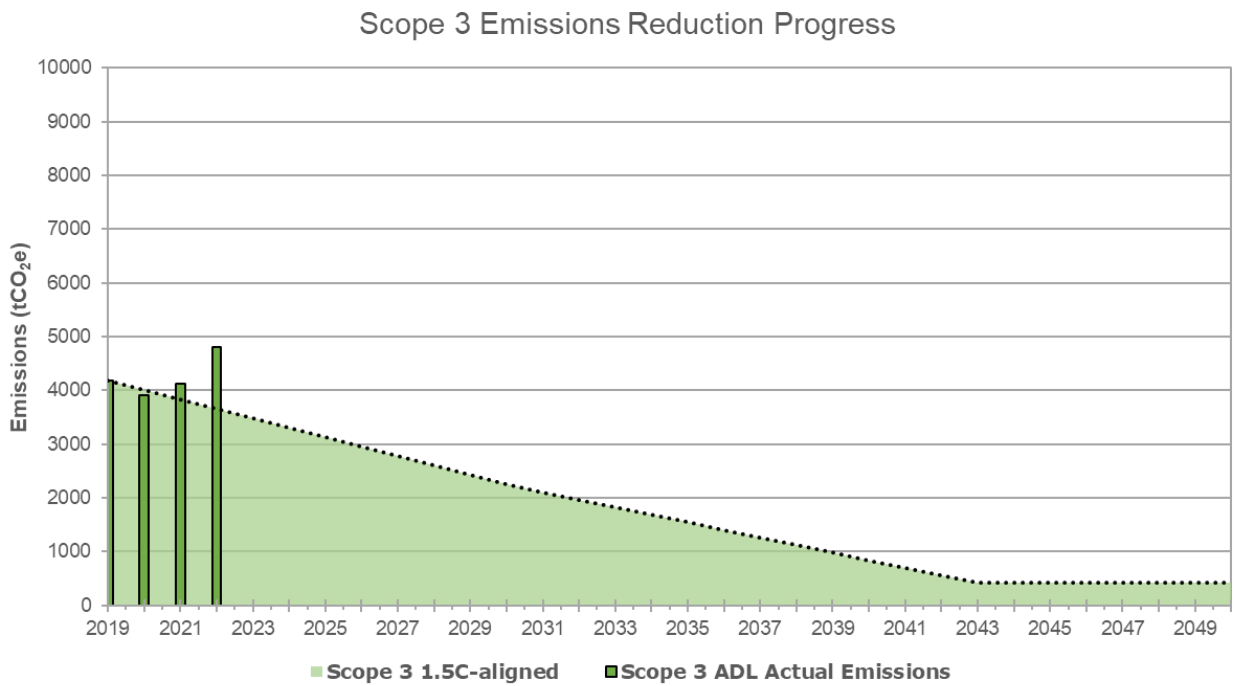


Figure 3: Targeted scope 3 emissions reduction pathway modelled from 2019 baseline to 2050. Emissions include five reported categories of Scope 3 emissions (Upstream logistics, Waste, Business travel, Commuting, Downstream logistics).

Figure 3 shows AD's value chain or Scope 3 emissions for the five reported categories against the net zero trajectory. It shows an increase from 2021 to 2022 in AD's indirect emissions. This increase has resulted predominantly from an increase in business travel and commuting emissions.

AD uses spend data to calculate their Business Travel emissions. Spend-based approaches are inherently more uncertain than alternative approaches which utilise actual distance or consumption data. This is one of the main factors behind the increase in these emissions seen in 2022. AD intends to switch to a distance-based approach to calculating these emissions in the coming years.

The increase in commuting emissions largely results from an increase in the number of employees employed by AD.

AD will continue to monitor trends in these and other Scope 3 categories and develop initiatives to reduce these emissions in the future (see carbon reduction projects section).



Carbon Reduction Projects

AD has implemented a number of carbon emission reduction projects with the goal of reducing the company's overall carbon footprint in line with its targets. The following environmental management measures and projects have been completed or implemented since the 2019 baseline.

Completed Carbon Reduction Initiatives

Energy Efficiency

Since 2019, AD has completed multiple initiatives to reduce emissions from electricity and gas used across its operational sites. Some of the highest impact initiatives are listed below, saving a total of 131.9 tCO₂e.

- In 2019, AD completed investment grade energy audits to identify opportunities to improve energy efficiencies.
- In 2019, AD completed the installation of LED lighting systems across a number of its UK sites, providing a reduction in electricity consumption of 382,740 kWh. This equated to a savings of 97.8 tCO₂e within the Scope 2 baseline.
- In 2022, AD completed the installation of further LED lighting systems, providing a reduction in electricity consumption of 176,337 kWh, equating to 34.1 tCO₂e (1.1% reduction versus the Scope 2 baseline).

Ongoing improvements through facility retrofitting efforts and operational process design efficiencies will continue to be evaluated.

Facilities Energy Efficiency and Optimisation

In 2022, AD opened its state-of-the-art facility in Farnborough, UK, relocating to a smaller, newer facility with an improved EPC rating, further consolidating its property portfolio, and reducing its scope 1 and scope 2 emissions. The site is largely electric, reducing AD's reliance on scope 1 emissions.

Future energy efficiency projects include benchmarking and auditing (by AD's in-house team) of the Company's facilities. Fossil fuel-powered solutions will be reviewed with a view to timing and prioritising removal of older, inefficient products with newer, cleaner alternatives.

AD is reviewing further optimisation and consolidation of its property portfolio for the coming years.

Hybrid Working Models

AD has built on lessons and experiences learned as a result of the global COVID-19 pandemic and introduced flexible work arrangements such as moving meetings online and assisting employees

with their homeworking setups. This has reduced the number of daily commutes to the workplace, minimising Scope 3 emissions.

Future Projects

In the future, AD aims to implement further measures in line with the business sustainability strategy and wider group decarbonisation goals. AD will continue to explore opportunities to reduce Scope 1, 2 & 3 emissions.

Reducing Fossil Fuel Usage

AD aims to reduce Scope 1 emissions by evaluating its emissions-intensive operational practices, such as AD fleet vehicles and on-site machinery. AD aims to explore potential opportunities to replace older, less efficient equipment at their end-of-life with newer, more efficient models, or those that run on electricity/greener fuels.

Reducing Travel

To further reduce Scope 3 emissions, AD will evaluate opportunities towards reducing travel or types of travel between sites where available.

Supply Chain Engagement

AD understands the importance of the supply chain when it comes to reducing Scope 3 carbon emissions. AD is committed to engaging with its supply chain with the ambition to understand, manage and reduce wider environmental impacts associated with their purchased goods and services.

In the coming years, AD will continue to engage with its largest suppliers, to gather more reliable GHG emissions data and to work directly with those suppliers to support the reduction of embodied carbon within the parts and materials used in AD's direct operations where possible.

Carbon Footprinting

AD will continue to improve its measurement and reporting of carbon emissions. In 2020, AD worked with EcoAct, an external climate consultancy, to develop a tool to aid the internal environmental data collection processes. Since then, AD has continued its work with EcoAct, ensuring data collection processes continue to improve year-on-year, and using their expert knowledge in calculating an emissions footprint that is aligned with the guidance of the GHG Protocol.

In the coming years, AD intends to improve its emission footprint calculations by exploring how it can move away from a spend-based approach to calculating emissions from business travel and upstream logistics. AD recognises the limitations of spend-based emissions accounting and the challenges in tracking these emissions year-on-year inherent in this approach.

In addition, AD will undertake further analysis to identify future physical and transitional risks and opportunities to the business. The analysis work or framework selected will aim to optimise carbon reduction initiatives and ease the burden of climate change across the business.

Energy Management Framework

AD is currently building an Energy Management Framework that is expected to be implemented across all UK sites. The framework will allow AD to benchmarking its energy consumption and intensity and set annual reduction targets. AD will continue to drive energy reduction through continuous improvement activities on-site and will ultimately use the framework to understand track and monitor progress against future targets.



Declaration and Sign Off

This Carbon Reduction Plan has been completed in accordance with PPN 06/21 and associated guidance and reporting standard for Carbon Reduction Plans.

Emissions have been reported and recorded in accordance with the published reporting standard for Carbon Reduction Plans and the GHG Reporting Protocol Corporate Standard⁷ and uses the appropriate Government emission conversion factors for greenhouse gas company reporting⁸.

Scope 1 and Scope 2 emissions have been reported in accordance with SECR⁹ requirements, and the required subset of Scope 3 emissions have been reported in accordance with the published reporting standard for Carbon Reduction Plans and the Corporate Value Chain (Scope 3) Standard¹⁰.

This Carbon Reduction Plan has been reviewed and signed off by the board of directors (or equivalent management body).

Signed on behalf of the Supplier:



Paul Davies

President & Managing Director at Alexander Dennis Limited

15th December 2023

⁷ <https://ghgprotocol.org/corporate-standard>

⁸ <https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting>

⁹ <https://www.gov.uk/government/publications/academy-trust-financial-management-good-practice-guides/streamlined-energy-and-carbon-reporting>

¹⁰ <https://ghgprotocol.org/standards/scope-3-standard>