REPAIR, REUSE OR REPLACE

The role of reclaimed vehicle parts in reducing carbon emissions in vehicle repair

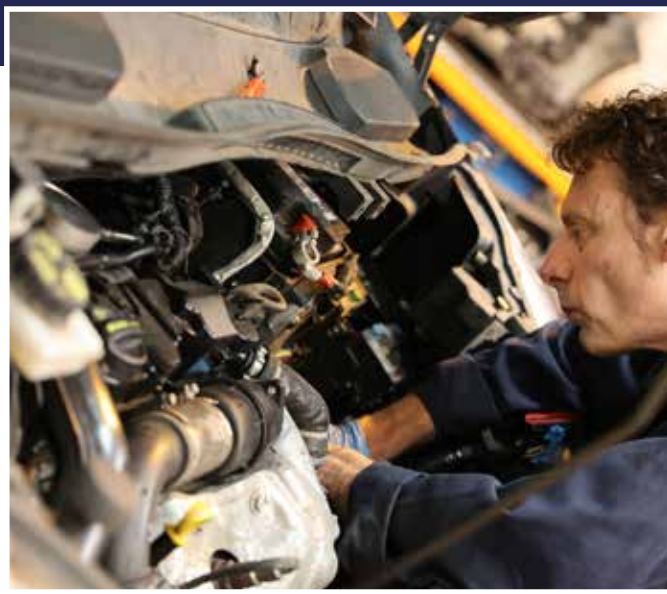
August 2024

VRA©

CERTIFICATION

SYNETIQ
an IAA company

Proud to be a VRA member and working together to make a positive difference to our industry.



Our range of **business solutions** offer so much more:

- Salvage solution
- Green parts
- Mechanical Solutions

Find out more here:

SYNETIQ.CO.UK

REPAIR, REUSE OR REPLACE

The role of reclaimed vehicle parts in reducing carbon emissions in vehicle repair

CONTENTS

This study was commissioned by the Vehicle Recyclers' Association and VRA Certification in late 2023 as a follow up to the 2022 Allianz Repair or Replace report (see Appendix 1). The project was delivered by Oakdene Hollins in collaboration with VRA member and certified vehicle recycler SYNETIQ, and the participants of the original Allianz report

VRA© CERTIFICATION

www.vra-c.org

EXECUTIVE SUMMARY

The use of green replacement vehicle parts by the UK body repair sector has the potential to deliver annual carbon emission savings of more than 1 billion kgCO2e. At a European level the savings could easily amount to more than 7 billion kg CO2e per year. Greening of the vehicle repair sector, including increased usage of green replacement parts, has a massive role to play in achieving Net Zero.

The use of 'green' parts (reclaimed from end of life vehicles) in vehicle repairs offers significant carbon emission savings over the use of new OE parts. The more distant the location of original OE part manufacture from the point of final fitment, the greater the emissions savings.

The heavier the replacement part, the greater the emission saving, due mainly to the embodied emissions; in the 4 examples studied here, the 'green' front door delivered the greatest emissions saving.

Based upon the results presented here, although limited in extent, a common accident repair scenario involving just the replacement of the front bumper cover, one headlight, the bonnet & a front door with a locally (UK) sourced green part, could deliver a 177 kg CO2e saving per repair. More extensive damage (for example, involving more than one headlight or door, front wings, front panel and radiators etc.) would hugely increase the carbon emission savings compared to the usual replacement with new OE.

Scaled up nationally & annually this could make a huge contribution to UK emissions reductions. Using an estimated figure of 5 million vehicle body repairs in the UK every year the emissions savings associated with just this limited repair scenario could amount to at least 875 million KgCO2e per year.

This report also underlines the fact that the use of reclaimed parts should not form the entirety of the repair sector's emission reduction initiatives. In line with the previous Allianz work, with painting & curing contributing a large proportion of emissions in all repair scenarios (the largest in repair and replacement with 'green' parts), this study highlights the very significant potential emissions savings that could be achieved by energy source & efficiency changes at vehicle repair facilities. Specifically, by reducing the use of energy (such as low temperature paint curing) & by sourcing that energy from renewable sources (e.g. solar). For example, this study indicated that just switching to solar could generate a further 30 kg CO2e saving per the 'typical' 4 part repair.

Based on the figures produced in this study (which we believe are on the 'conservative' side in relation to other published emission studies) a combined approach at UK vehicle body shops involving greater repair of parts, replacement with 'green parts', use of renewable energy sources and reduced energy demand could generate emission savings in excess of 1 billion kgCO2e per year. At a European level the savings could easily amount to more than 7 billion kg CO2e per year (estimated simply on a pro rata on vehicle parc size).


J 029 E
SYNETIQ
an IAA company
Delivering sustainable vehicle parts
All electric - Zero emissions
KS70 SXJ

OAKDENE HOLLINS

VRA Repair, Reuse, Or Replace Study: Public Report

Contents

Allianz

SYNETIQ

metsims
Sustainability Consulting

OAKDENE HOLLINS

Introduction

The repair, reuse or replace study is a collaboration between the Vehicle Recyclers Association (VRA), Allianz Se, SYNETIQ, Oakdene Hollins, and Metsims Environmental Consulting. Led by the VRA, the study builds on the existing Repair or Replace, and Green Parts studies by Allianz and SYNETIQ to investigate the relative climate impact for repairing a damaged vehicle in the UK.

Repair, Reuse, Or Replace?

OAKDENE HOLLINS

Results summary

This report confirms that the use of 'green' parts in vehicle repairs offers significant carbon emission savings over the use of new parts. The heavier the replacement part, the greater the saving, due mainly to the embodied emissions; in the 4 examples studied here, the 'green' front door delivered the greatest emissions saving.

Based upon these results, although limited in extent, a common accident repair scenario where just the front bumper, a single headlight, the bonnet & a front door are replaced with a locally (UK) sourced green part, could deliver a **177 kg CO2e saving per repair**. Scaled up nationally & annually this could make a significant contribution to UK emissions reductions.

However, depending on the extent of repair required, the repair of the damaged part is slightly more emissions efficient than the use of green replacement parts. For the 4 parts examined, under the limited damage scenarios considered, the advantages of repair over 'green replacement' are illustrated in figure 1.

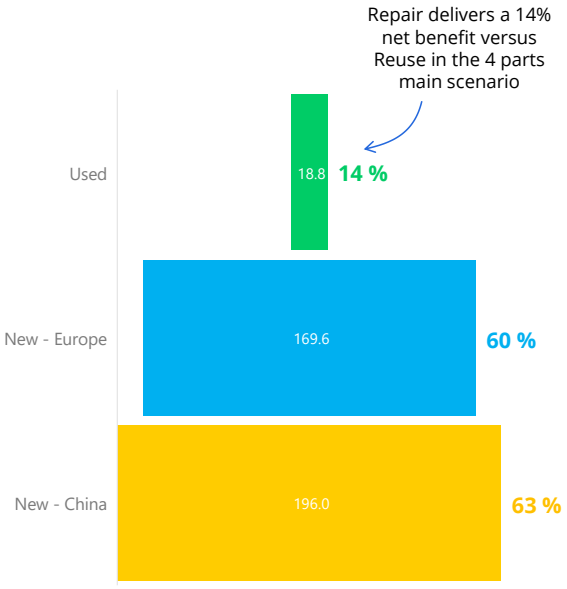


Figure 1: Benefit of Repair over Reuse and Replace in the main scenario (kg CO2e)

OAKDENE HOLLINS

Results summary

With both the repair & green replacement part scenarios, by far the greatest proportion of emissions was attributable to the painting & curing process. Typically, this represented about 87-99% for parts repair, and 78-84% for green part replacement, compared to 25%-65% for new part replacement.

Replacement of damaged parts with new parts is by far the least favourable in terms of emissions. This study suggests that (at the individual part level) the logistics of manufacturing in Europe (as opposed to China) offers savings of between 0.6% - 13% (with the heaviest parts again delivering the greatest transport emissions savings if made in Europe).

In line with the previous Allianz work, with painting & curing contributing a large proportion of emissions in all repair scenarios, this study highlights the very significant potential emissions savings that could be achieved by energy source & efficiency changes at vehicle repair facilities. Specifically, by reducing the use of energy (e.g. low - temperature paint curing) & by sourcing that energy from renewable sources (e.g. solar). For example, this study indicated that switching to solar would generate a ~10 kg CO2e saving per part, which for a 'typical' 4 part repair (consisting of repair/ replacement of the front bumper, headlight, bonnet & front door) would equate to a further circa 30kg CO2e saving (there is no saving from solar energy savings for the headlight, which doesn't require painting).

OAKDENE HOLLINS

5

Goal & Scope

The goal of this investigation is to validate the assumption that repairing a damaged vehicle with a 'green' part sourced in the UK is the more climate-friendly (low-emission) approach relative to the common alternative of replacing it with a newly manufactured replacement part.

Aligned with the previous Repair or Replace study conducted by Allianz, this investigation focusses on the repair of a VW ID.3, with damage to four key exterior parts: front bumper, bonnet, headlight, front door. These were selected because they are the most frequently damaged parts in vehicle accidents in the UK. Additionally, the emissions' implications of new parts being manufactured in China, as opposed to the EU were examined.

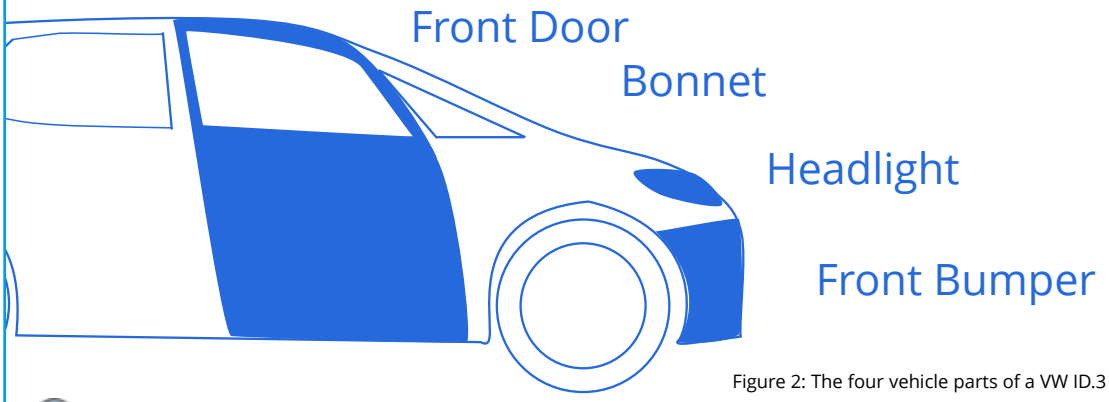


Figure 2: The four vehicle parts of a VW ID.3 utilised for this study

OAKDENE HOLLINS

6

Study Scenarios (Main and Solar)

The scenarios consider the repair of a vehicle with damage to a single part and encompass the production of the raw materials through to the vehicle being placed back on the road. From this point, the lifecycle of the vehicles are assumed to be identical and so these impacts have been excluded from scope.

In addition to the main study scenarios, an additional analysis was conducted of each assuming that the electricity at the final repair workshops were powered with onsite solar photovoltaic panels. Throughout these are referred to as the 'Solar' scenarios.

	Description	Source
Scenario 1	The part is repaired in situ by technicians at the repair shop.	Modelling completed during original Repair Or Replace study
Scenario 2	The part is replaced with a new part manufactured in Europe.	Modelling completed during original Repair Or Replace study
Scenario 3	The part is replaced with a reused 'green' part salvaged from an end-of-life vehicle.	New scenario developed for this study
Scenario 4	The part is replaced with a new part manufactured in Asia.	New scenario developed for this study

Table 1: Description of study scenarios

Defining the Repair, Reuse or Replace Study

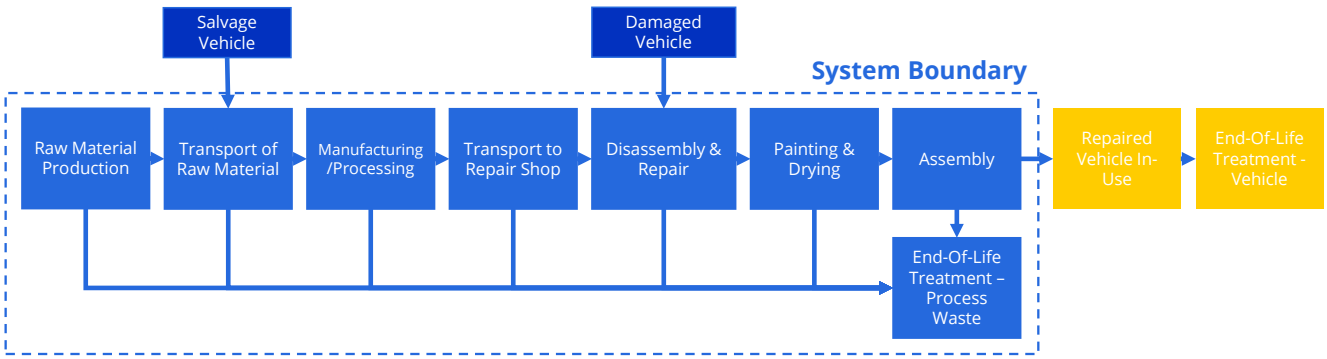


Figure 3: High-level process flow map including the system boundary for this study

Study Goal: This study seeks to validate the assumption that repairing a damaged vehicle part is the more climate-friendly ('low-emission') approach relative to the common alternatives of used or new replacement parts.

System Boundary: Encompasses the production of the raw materials through to the vehicle being placed back on the road, and the treatment of any waste generated in the process (e.g. the damaged part that has been replaced)

Cut-off Criteria: 1% of the total global warming impact per functional unit.

Functional unit: Remediating the damage of a VW ID.3 by repairing or replacing a single part.

Modelling Reused Parts

The life cycle inventory for reused parts in this study has been developed assuming that SYNETIQ's Bentley Moor Lane operations represent the typical salvage process for reused parts, at the time.

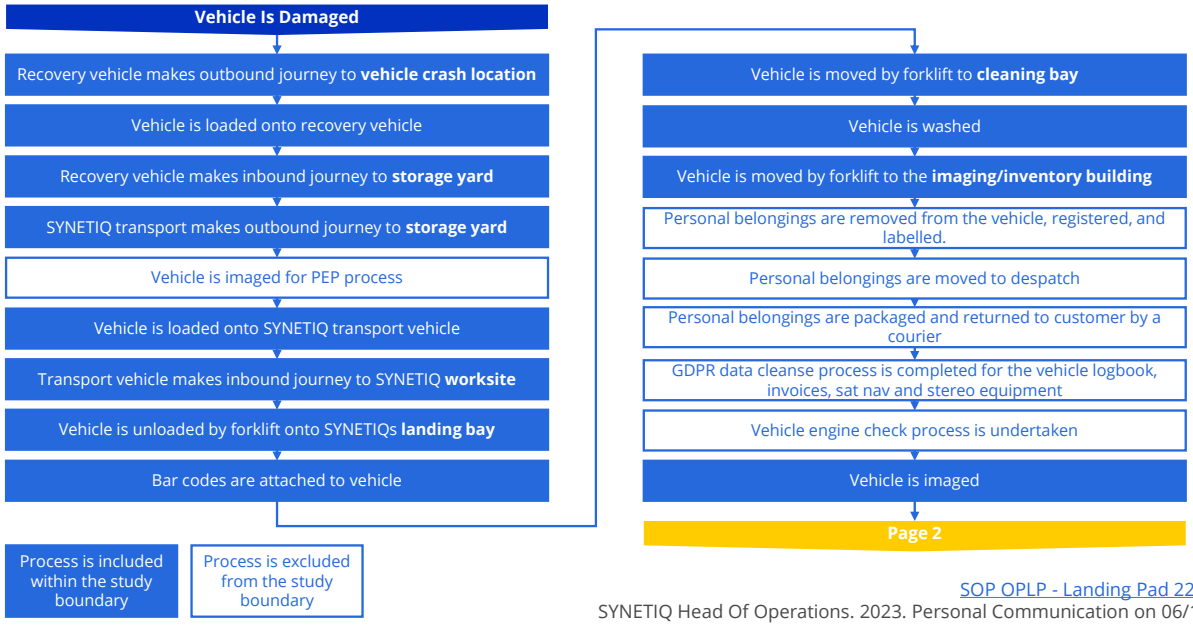
For each of the parts to be modelled (bonnet, front bumper, front door, headlight) SYNETIQ will most often retrieve parts using a mobile dismantler van. In this process the vehicle is first collected, processed and placed in storage. When a part is required, a dismantler will drive to the vehicle to remove the part then transport it back to be further processed.

In the following slides the process flow map developed for reused parts has been set out, in addition to details on the modelling of logistics. A full description of the life cycle inventory has also been provided in Appendix 1.

Other recyclers may operate variations on this theme, including full initial dismantling a of a vehicle 'all in one go' with the parts being stored in a warehouse (from where they are dispatched directly to the customer). These variations may result in slightly different emission levels, but it may not necessarily be the case that reused parts warehousing significantly reduces the overall emissions (because these emission sources are insignificant in relation to the embodied emissions).

Green Parts Process Flow Map 1/3

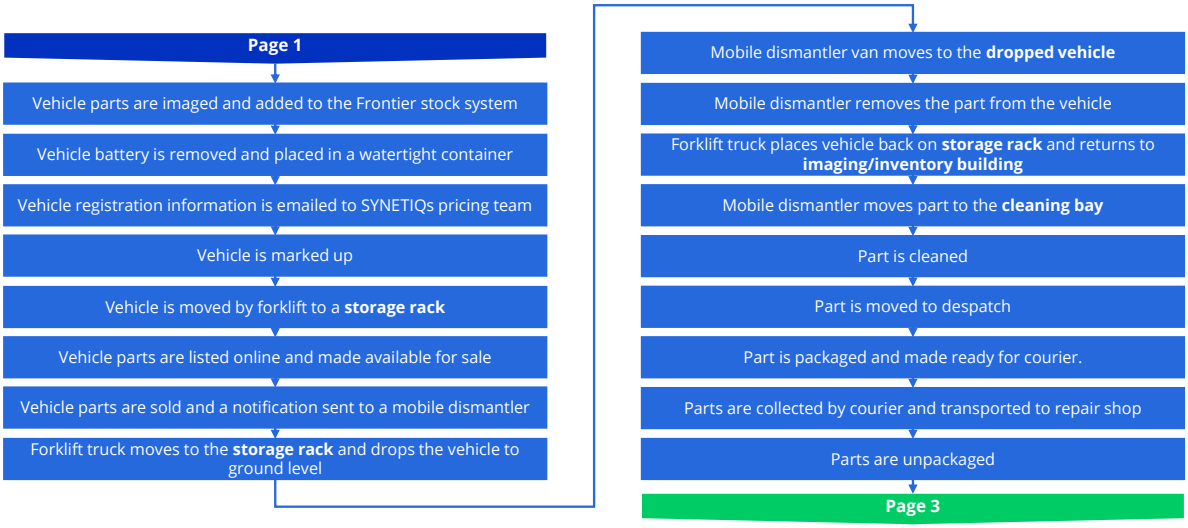
Figure 4: Used parts process flow map (Scenario 3) - Part 1



SOP OPLP - Landing Pad 22.10.pptx
SYNETIQ Head Of Operations. 2023. Personal Communication on 06/12/2023.

Green Parts Process Flow Map 2/3

Figure 4: Used parts process flow map (Scenario 3) - Part 2



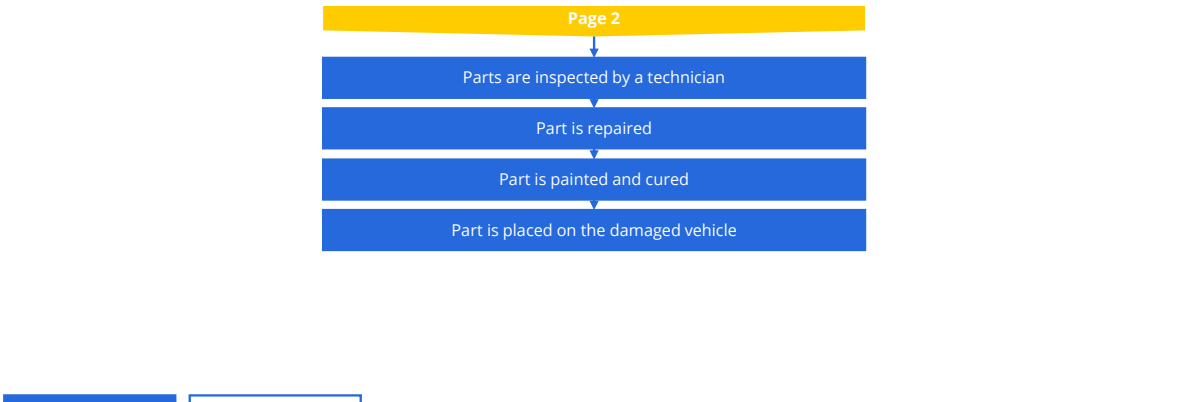
SOP OPLP - Landing Pad 22.10.pptx
SYNETIQ Head Of Operations. 2023. Personal Communication on 06/12/2023.

OAKDENE HOLLINS

11

Green Parts Process Flow Map 3/3

Figure 4: Used parts process flow map (Scenario 3) - Part 3



SOP OPLP - Landing Pad 22.10.pptx
SYNETIQ Head Of Operations. 2023. Personal Communication on 06/12/2023.

OAKDENE HOLLINS

12

Used Parts – Upstream & Downstream Logistics

The upstream and downstream logistics of used parts are known to be a major source of emissions. In line with the study approach, the logistics associated with used parts have been modelled based on the typical operations of SYNETIQ's BML worksite.

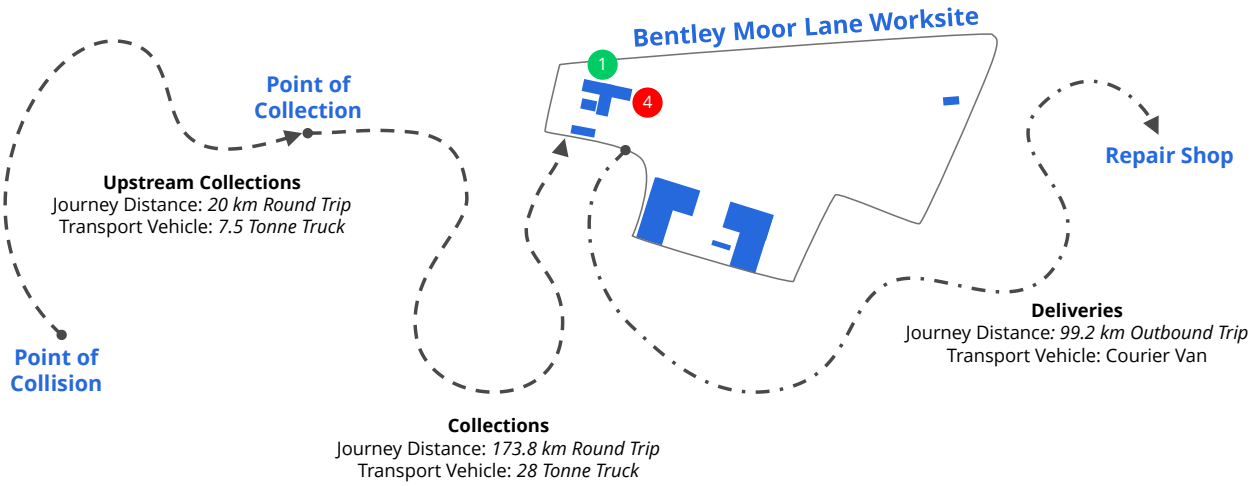


Figure 5: High-level upstream and downstream logistics of used parts

Used Parts – Mobile Dismantler Van Movements

Once onsite, the movements of parts within SYNETIQ's mobile dismantler vans are also accounted for, using technical information for a typical panel van and the routes outlined below. Of note is that this scenario assumes that the mobile dismantler completes the full journey for just a single part, whereas in reality this is a worst-case scenario with dismantlers optimising their routes to collect and transport multiple parts in one journey.

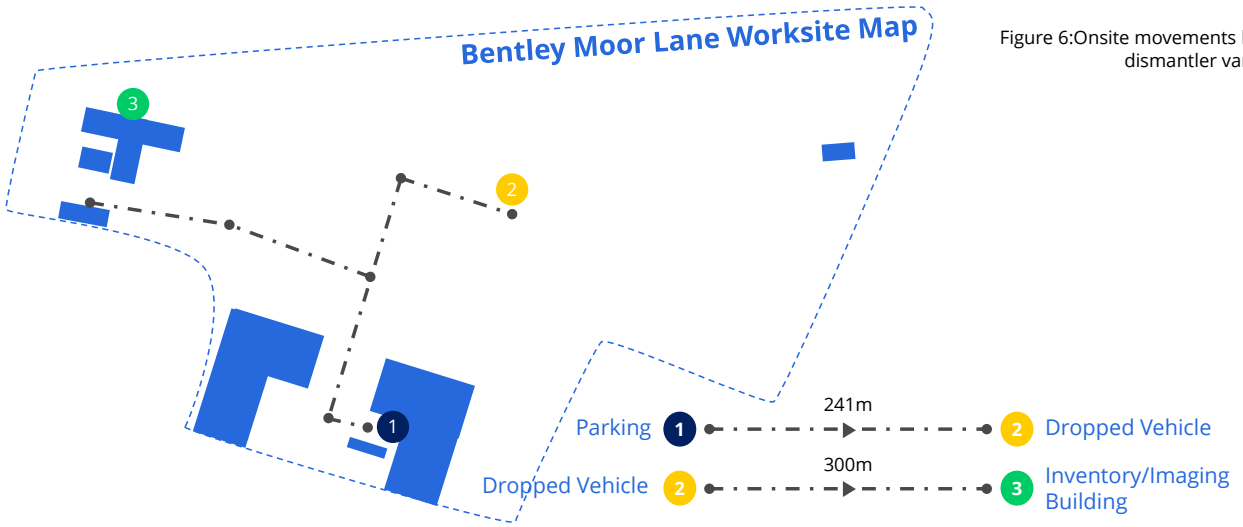


Figure 6:Onsite movements by dismantler vans

Used Parts – Onsite Forklift Movements

Similarly, the movement of vehicles by SYNETIQ's Linde H40D forklift trucks has been modelled using published technical data and the typical routes outlined below.

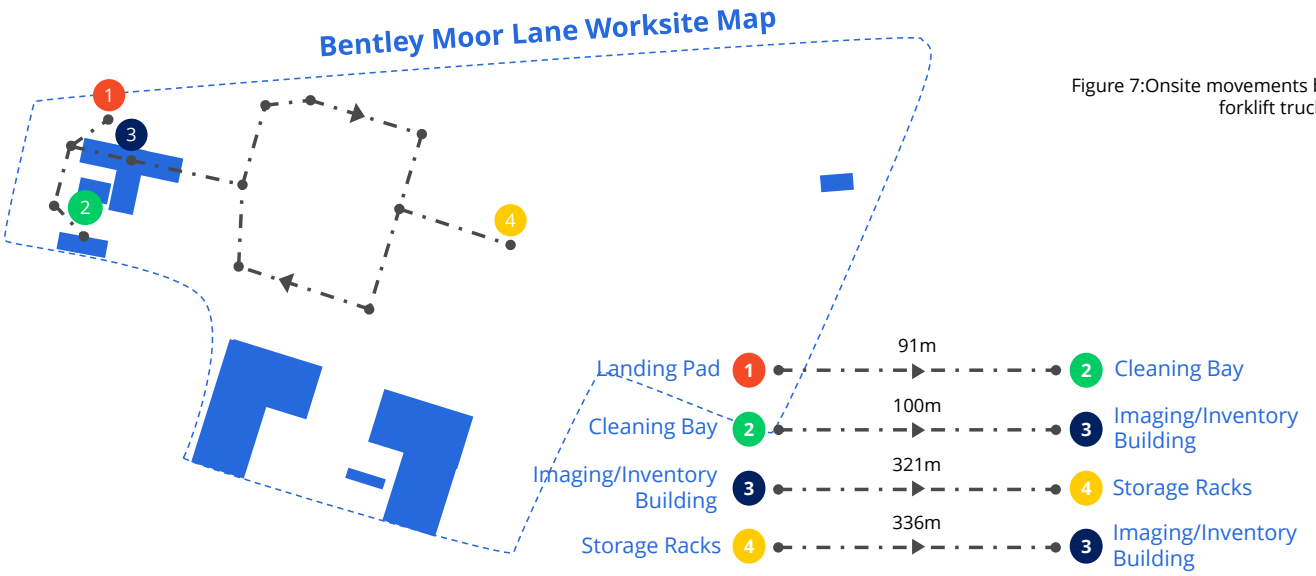


Figure 7:Onsite movements by forklift trucks

Packaging: Used Parts

Another new inclusion for this study is the modelling of packaging for used parts, new parts manufactured in China, and new parts manufactured in Europe.

The modelled packaging systems of used parts have been based on the LCI data collected for SYNETIQ's previous Green Parts study, and represent the typical packaging used by SYNETIQ.

The packaging systems created for both European and Chinese new part manufacturing are assumed to be identical and are again based on the LCI created for SYNETIQ's Green Parts study. It is known that in reality, a large variety of packaging systems are used in automotive supply chains, and so the modelling of new part packaging is intended as an indication only.

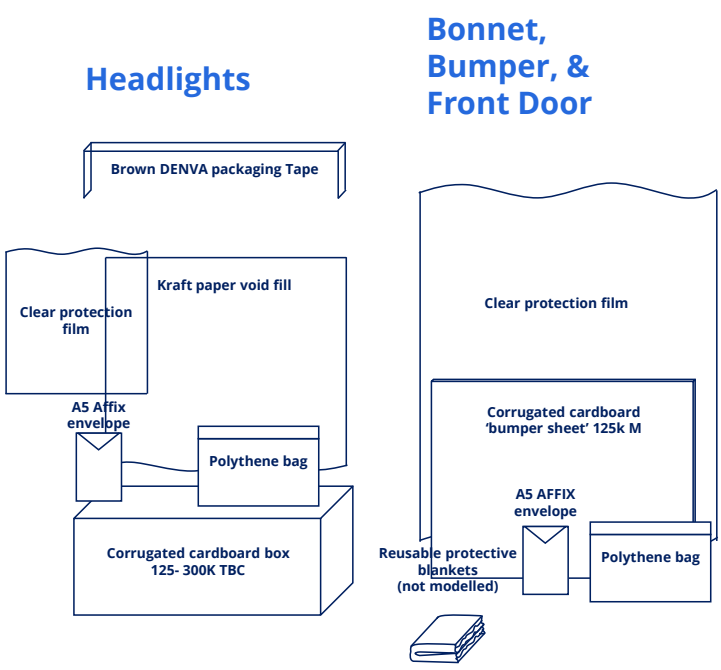
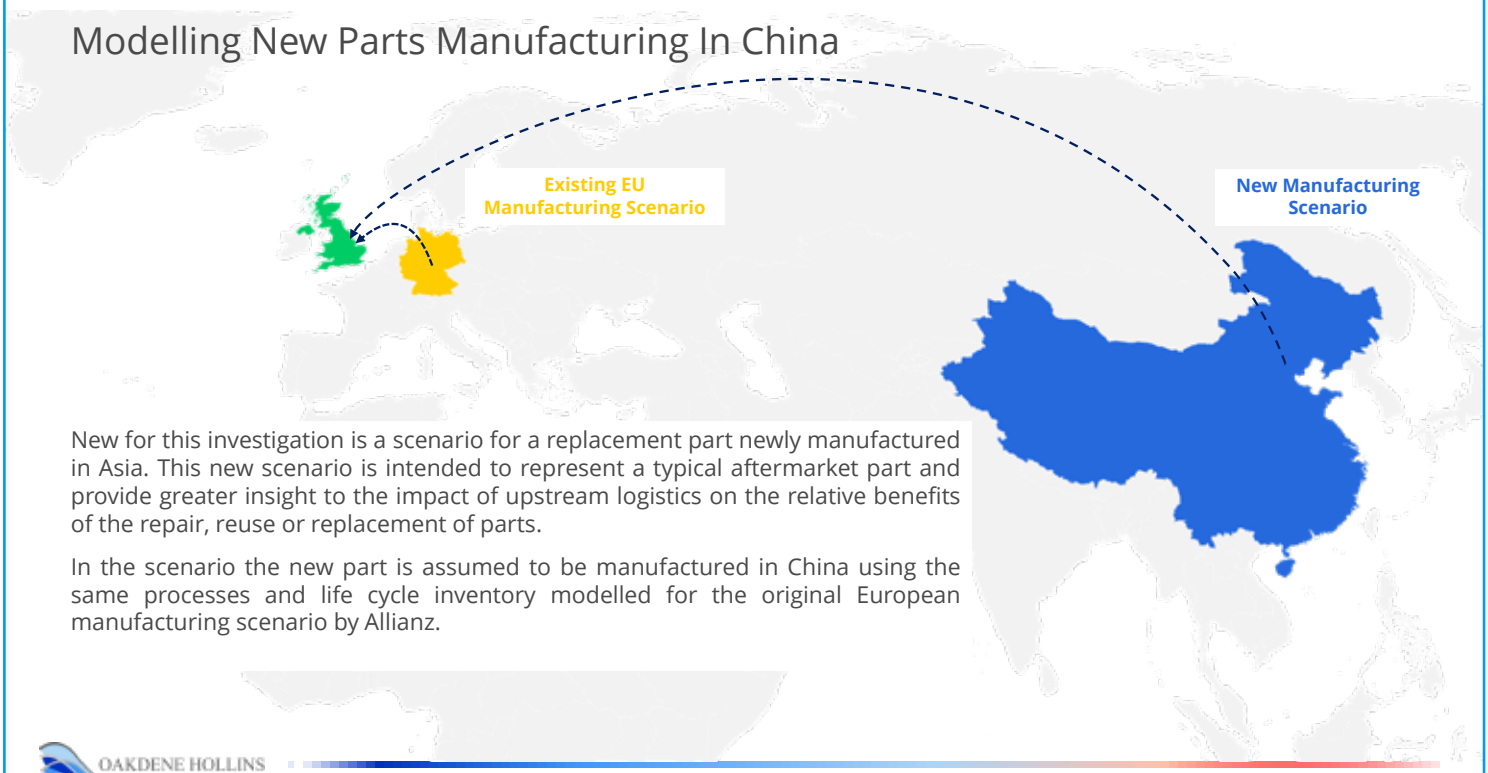


Figure 7: Breakdown of packaging for used parts

Modelling New Parts Manufacturing In China



New for this investigation is a scenario for a replacement part newly manufactured in Asia. This new scenario is intended to represent a typical aftermarket part and provide greater insight to the impact of upstream logistics on the relative benefits of the repair, reuse or replacement of parts.

In the scenario the new part is assumed to be manufactured in China using the same processes and life cycle inventory modelled for the original European manufacturing scenario by Allianz.

OAKDENE HOLLINS

17

New Part Logistics: Manufacturing In China

The Chinese manufacturing scenario assumes that the part is assumed to be transported by cargo ship from Beijing to UK and then onwards to the repair workshop. As in the original repair or replace scenario's no impacts for warehousing or storage have been accounted for.

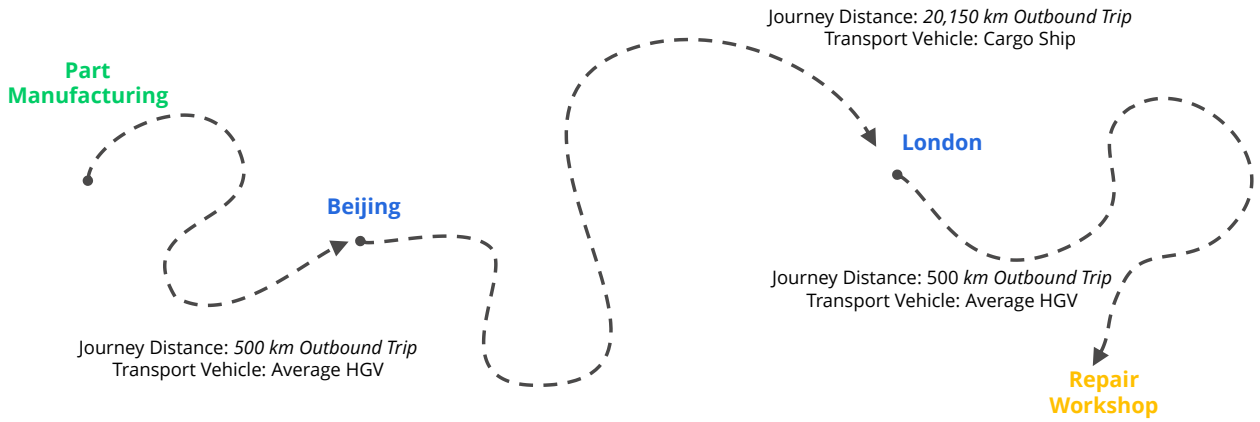


Figure 8: High-level upstream and downstream logistics of new part manufacturing in China

OAKDENE HOLLINS

18

New Part Logistics: Manufacturing In Europe

For comparison, the original UK scenario modelled by Allianz includes the much shorter logistics chain below, for parts manufactured in central Europe.

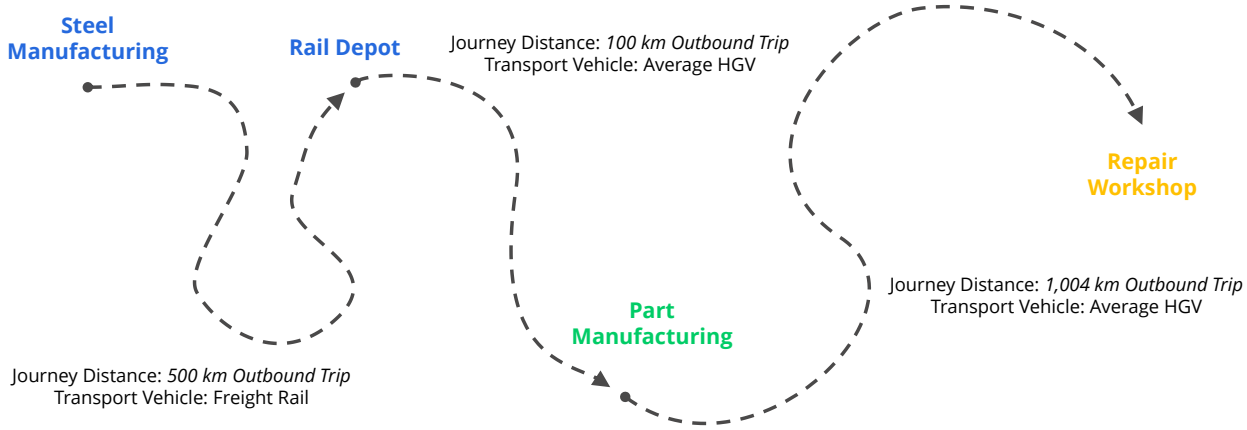
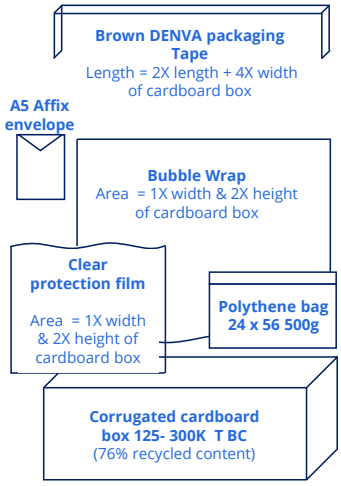


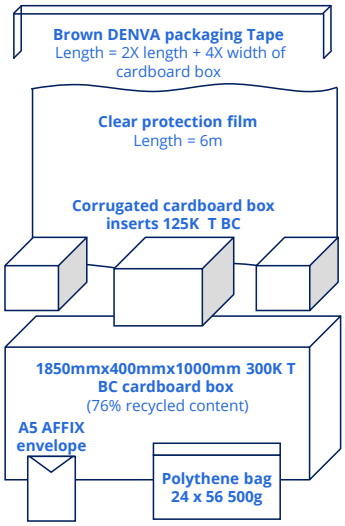
Figure 9: High-level upstream and downstream logistics of new part manufacturing in Europe

Packaging: New Parts

Headlights



Bonnet,Bumper, & Front Door



Tertiary Transit Packaging

1. 12mm black plastic reel polypropylene strapping with accompanying 12mm STD semi-open metal seals
2. Flush core pallet stretch film (500mmx19mu)
3. Euro EPAL 3 wooden pallet

Fed Ex. 2019. Automotive and Mechanical Parts Packaging Guidelines and Designs.

Results: Summary

Looking at the results from all scenarios, replacing using parts manufactured in China results in the highest carbon emissions for all parts. Similarly, repairing at the repair shop results in the lowest carbon emissions per part, followed closely by replacement used parts.

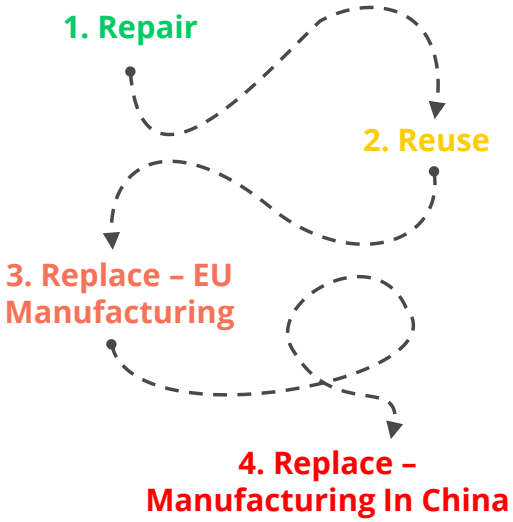
For repair and used parts the **painting and curing** activities are responsible for the highest percentage of carbon emissions.

As there is no painting and curing necessary, **headlights** are the least carbon intensive part for repair and use of 'green parts'.

Low energy painting & curing techniques are now being adopted by the industry and so these results may change in the near future.

For replacement with new parts from both Europe and China, the **manufacturing & painting** of new parts activities make up the highest percentage of carbon emissions.

Of the parts studied, the **front door** is the most carbon intensive part to manufacture, largely due to the energy intensive steel production required.



Results: Total Impacts and Net Savings

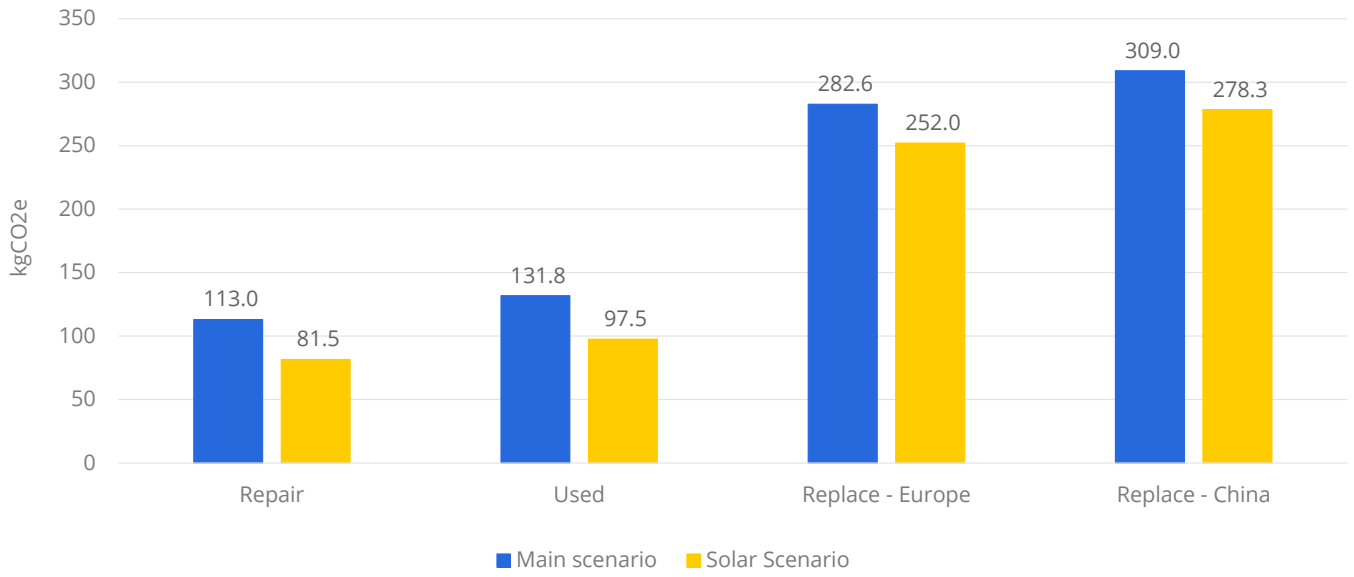


Figure 10: Summary results for the remediation of damage to all 4 parts considered in this study (front door, bonnet, headlight and front bumper) for Main and Solar Scenario

Results: Used Parts Main Scenario

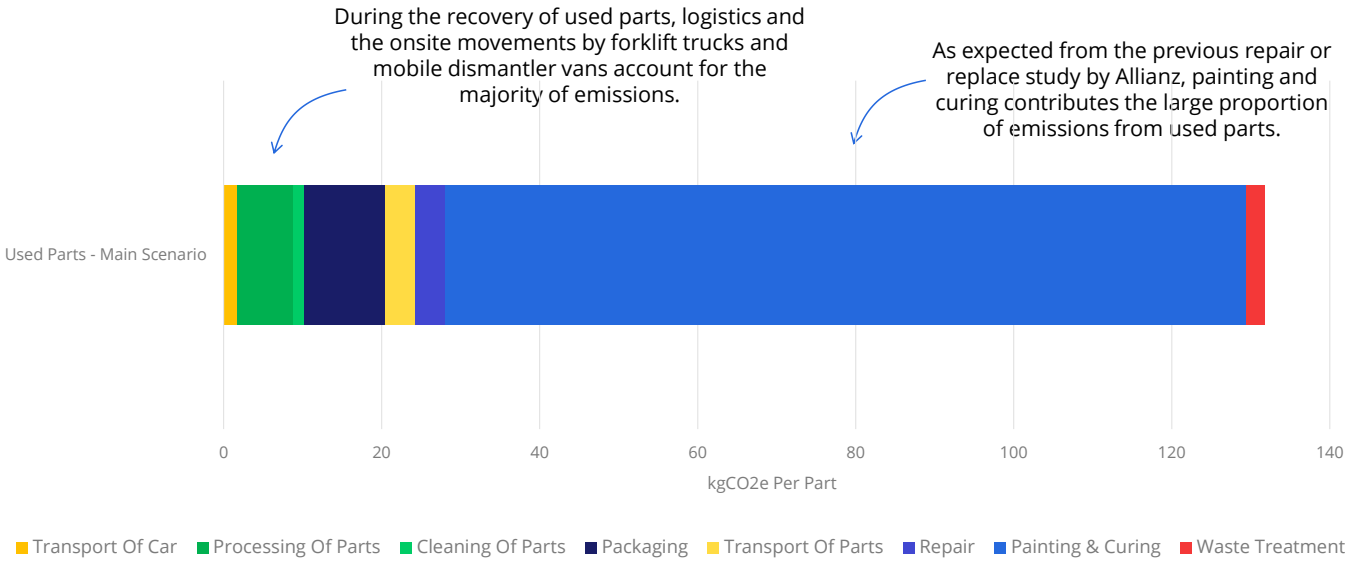


Figure 11: Main scenario results for remediation with all used parts, broken down by process stage (kgCO2e)

Results: New Parts Manufactured In China – Main Scenario

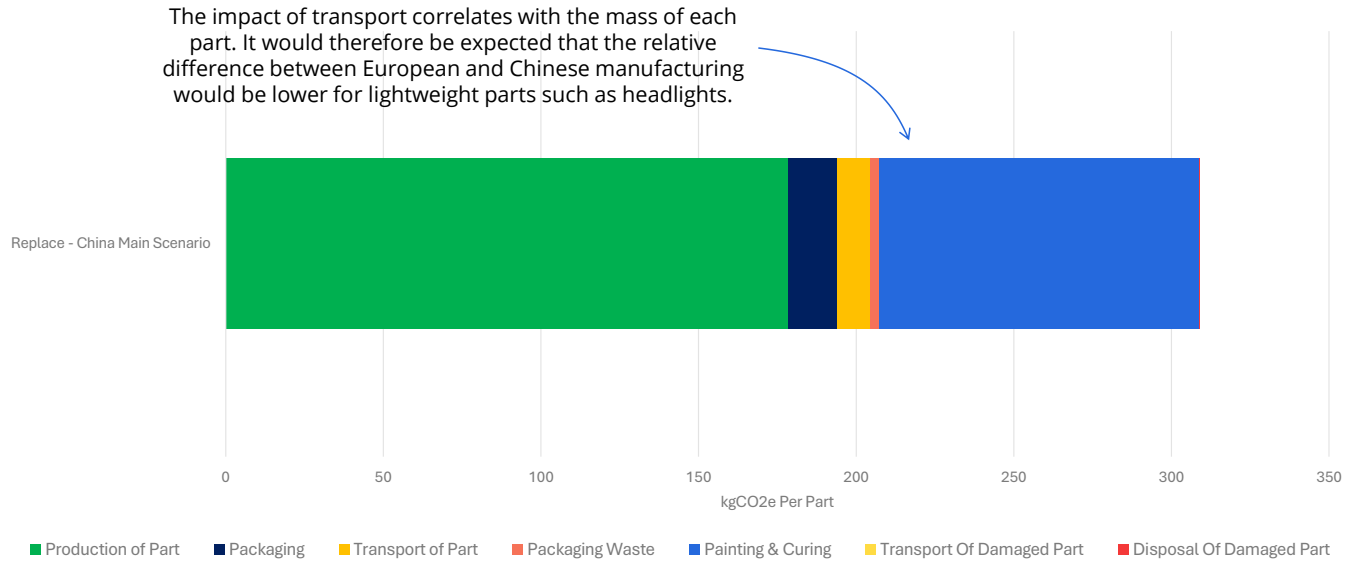


Figure 12: Main scenario results for the manufacturing of new parts in China (kgCO2e per part)

Results: All Main Scenarios

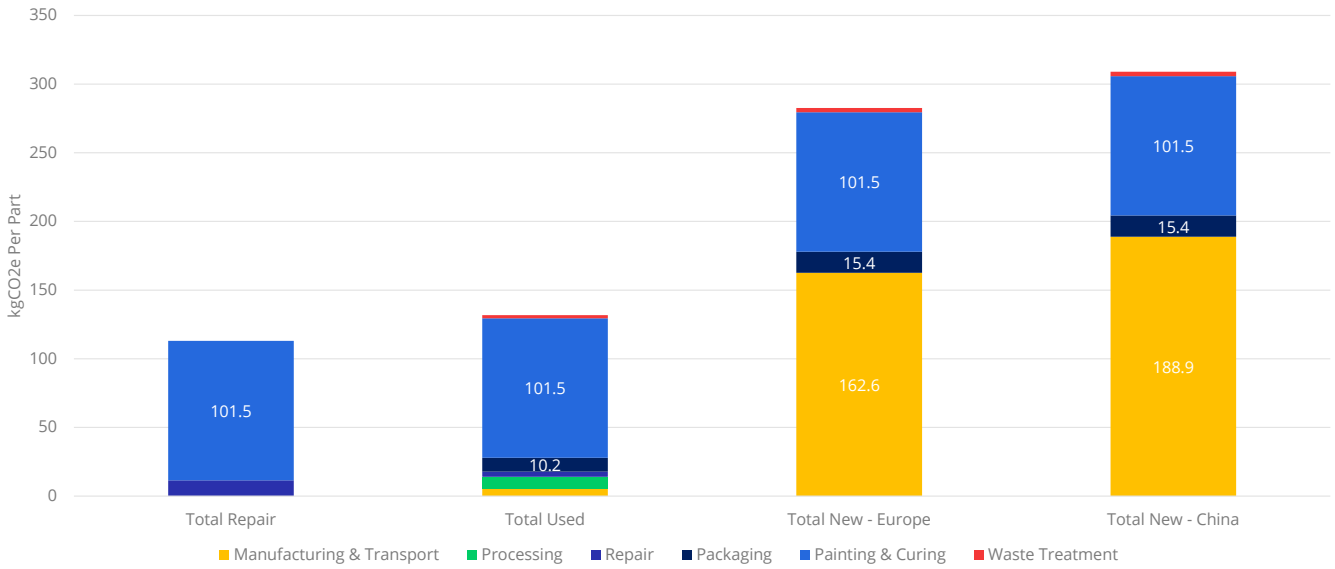


Figure 13: Main scenario results broken down by process stage (kgCO2e total parts)

The Benefits Of Repair

The chart below highlights the potential emission reductions of choosing repair over reuse or replacement of all parts in the main study scenarios.

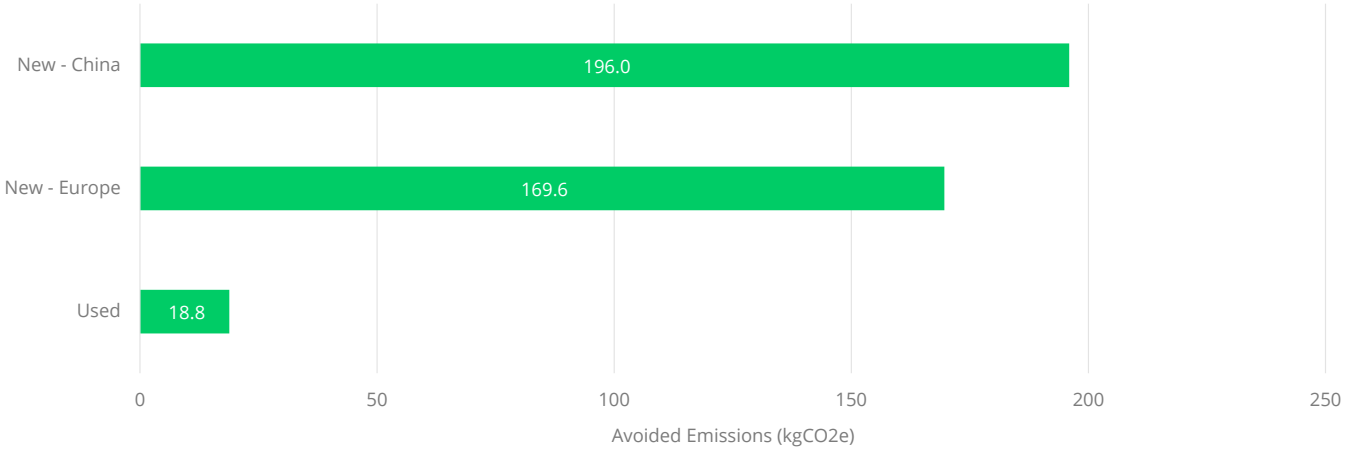


Figure 14: Net benefit of repair over reuse & replacement of all parts in main scenarios (kgCO2e)

Results: All Main Scenarios

	Manufacturing	Processing	Cleaning	Transport	Repair	Packaging	Painting & Curing	Waste Treatment	Total
Total Repair	0.0	0.0	0.0	0.0	11.5	0.0	101.5	0.0	113.0
Total Used	0.0	7.0	1.4	5.6	3.8	10.2	101.5	2.4	131.8
Total New - China	178.5	0.0	0.0	10.4	0.0	15.4	101.5	3.1	309.0
Total New - Europe	155.8	0.0	0.0	6.8	0.0	15.4	101.5	3.1	282.6

Table 2: Summary of main scenario results (kgCO2e)

Results: All Solar Scenarios

	Manufacturing	Processing	Cleaning	Transport	Repair	Packaging	Painting & Curing	Waste Treatment	Total
Total Repair	0.0	0.0	0.0	0.0	10.7	0.0	70.8	0.0	81.5
Total Used	0.0	7.0	1.4	5.6	0.1	10.2	70.8	2.4	97.5
Total New - China	178.5	0.0	0.0	10.4	0.0	15.4	70.8	3.1	278.3
Total New - Europe	155.8	0.0	0.0	6.8	0.0	15.4	70.8	3.1	252.0

Table 3: Summary of all solar scenario results (kgCO2e)

References

1. Allianz Centre for Technology. 2022a. Electronic Correspondence With Employees.
2. Allianz Centre for Technology. 2022b. VW ID3 Parts Data Collection.
3. Allianz. 2023. Topics at the Allianz Center for Technology: Repair or Replace (Webpage). https://www.azt-automotive.com/en/topics/RepairOrReplaceEn
4. Amazon. 2024a. Duronic Thermal Labels LL4X6 [3000 Labels-6 Rolls] | 100x150mm (6x4") Self-Adhesive Shipping Labels | Ideal Postage Labels for Etsy, Shopify, eBay, Amazon, Royal Mail, FedEx, UPS, Hermes | 6 ROLL PACK (Webpage). https://www.amazon.co.uk/Duronic-Labels-6-100x150mm-Self-Adhesive-Shipping/dp/B07PW6QCCB?th=1.
5. Amazon. 2024b. Battery Terminal Covers, 2Pcs PVC Marine Battery Terminal Cover Car Positive & Negative Battery Terminal Protector Cover Red & Black (Webpage). https://www.amazon.co.uk/Battery-Terminal-Flexible-Positive-Negative/dp/B07GGPZ2N3.
6. Apple. 2021. Product Environmental Report - iPad 9th Generation.
7. Apple. 2024. Apple - iPad 10.2 9th Generation - Tech Specs.
8. Argonne National Laboratory. 2014. Vehicle Idle Reduction Savings Worksheet (excel).
9. Bristol Cameras. 2024. Product Code: 4132C002AA (Webpage). https://www.bristolcameras.co.uk/product/canon-lp-e6nh-lithium-ion-rechargeable-battery-pack/.
10. Canon. 2024a. Eos-R5 Camera: Powerful professional performance (Webpage). https://www.canon.co.uk/cameras/eos-r5/professional-performance/.
11. Canon. 2024b. Eos-R5 Camera: Specifications (Webpage). https://www.canon.co.uk/cameras/eos-r5/specifications/.

References

12. DEFRA. 2023. ENV23 - UK statistics on waste - UK Statistics on Waste Data 2023 (Excel): Packaging (Webpage).https://www.gov.uk/government/statistical-data-sets/env23-uk-waste-data-and-management.
13. EPSON Press. 2021. Why on demand labelling has sticking power as a sustainable solution (Webpage). https://press.epson.eu/en_EU/blog/why-on-demand-labelling-has-sticking-power-as-a-sustainable-solution/.
14. Fall et al. 2007. Carwash Wastewaters; Characteristics, Volumes, and Traceability by Gravity Oil Separation.
15. Google Maps. 2024. Google Maps - Measure Distance (Webpage). https://www.google.co.uk/maps/place/SYNETIQ+Doncaster/@53.5771365,-1.1723317,17z/data=!3m1!4b1!4m6!3m5!1s0x487912604faac89f:0xe540586895a0f3f7!8m2!3d53.5771365!4d-1.1697568!16s%2Fg%2F1hc23hsyh?entry=ttu.
16. Google. 2024. Google Search (Webpage). https://www.google.co.uk/.
17. Grepow. 2020. The Charging Cycle of Lithium-Ion Polymer Batteries (Webpage). https://www.grepow.com/blog/charging-cycles-of-lithium-ion-polymer-batteries.html.
18. H&F Lift Trucks. 2024. The Average Lifespan of a Forklift Truck (Webpage). https://www.hfliftrucks.co.uk/the-average-lifespan-of-a-forklift-truck/.
19. Immediate Label. 2024. 100mm x 150mm Direct Thermal Labels 102mm Diameter Roll on a 25mm core With 250 Labels Per Roll (Webpage). https://immediatelabel.co.uk/thermal-labels/100x150-direct-thermal-labels-4p.
20. Key Hardware. 2024. Brown Packing Tape - Product Code: BPT (Website). https://www.keyhardware.co.uk/brown-packing-tape-bpt.

References

21. Linde. 2023. Linde 2023 - H40D Counterbalance Truck Technical Data.
22. Metsims Sustainability Consulting. 2022. ALLI 09 - 584: Repair or Replace Calculator Methodology Walkthrough - 230822.
23. Nilfisk. 2022. NEPTUNE 1 & 2 Industrial hot water pressure washer: Operating instructions.
24. Oakdene Hollins. 2022. Methodology: Study Of SYNETIQ's Green Parts 22/10/2022.
25. Snap On. 2024. 18 V 5 Ah MonsterLithium Ion Slide-On Battery (Webpage). https://shop.snapon.com/product/Snap-on-Battery-Packs/18-V-5.0-Ah-MonsterLithium-Ion-Slide-On-Battery/CTB8187.
26. Statista. 2012. On average, how many hours do you use your iPad? (Webpage). https://www.statista.com/statistics/237658/average-ipad-usage-in-hours-in-the-us/.
27. SYNETIQ. 2022a. Personal Communication With SYNETIQ Employees.
28. SYNETIQ. 2022b. Fixed Asset Register 2022 Financial Year.
29. SYNETIQ. 2022c. SYNETIQ Ltd Packaging Waste Record 2021 Calendar Year.
30. SYNETIQ. 2022d. CO2 Timing Study SYNETIQ BML - May 2022.
31. SYNETIQ. 2024a. Personal Communication With SYNETIQ Employees.
32. SYNETIQ. 2024b. Auction: Parts Breaking: Doors (Webpage). https://www.synetiq.co.uk/doors/.
33. SYNETIQ. 2024c. Analysis of SYNETIQ Fleet Vehicle Fuel Consumption.

References

34. SYNETIQ. 2024d. Auction: Items: Cars (Webpage). https://auctions.synetiq.co.uk/auction/items/cars.
35. What Car. 2024. What Car - Nissan Qashqai 1.3 DiG-T MH N-Connecta 5dr Review (Webpage). https://www.whatcar.com/nissan/qashqai/hatchback/13-dig-t-mh-n-connecta-5dr/97329#specification.

Appendix 1: Used Parts Life Cycle Inventory 1/7

Process	Reference Flow	Unit	Methodology Notes
Recovery vehicle makes outbound journey to vehicle crash location	Transport - Lorry 7.5-16 metric ton	km	Represents an unladen journey to the pick up location. The journey distance is an assumption based on the typical operating radius of salvage yards as estimated by SYNETIQ's transport compliance manager (SYNETIQ 2022a).
Vehicle is loaded onto recovery vehicle	Forecourt Diesel	Litres	Fuel consumption is extrapolated assuming 15 minutes of run time during the loading process as estimated by SYNETIQ's head of operations (SYNETIQ 2024a), and the average consumption of a tow truck idling without load, as reported by Argonne National Laboratory 2014.
Recovery vehicle makes inbound journey to storage yard	Transport - Lorry 7.5-16 metric ton	kg.km	Represents the inbound journey to the storage location for the mass of the part only (AZT 2022b). The journey distance is an assumption based on the typical operating radius of salvage yards as estimated by SYNETIQ's transport compliance manager (SYNETIQ 2022a).
Vehicle is unloaded at storage yard	Forecourt Diesel - Lorry 7.5-16 metric ton	Litres	Transport vehicles are assumed to be switched off during the unloading process.
SYNETIQ transport makes outbound journey to storage yard	Transport - Lorry 28 metric ton	km	Represents an unladen journey to the pick up location. The typical journey distance has been assumed as 86.9km based on a random sample of 20 vehicle collections undertaken by SYNETIQ fleet vehicles in 2022 (SYNETIQ 2024c).
Vehicle imaged by SYNETIQ driver for PEP process	Electricity Consumption - Digital Camera	kWh	Excluded as the PEP process is required for all vehicles regardless of the recovery of used parts and is therefore considered outside the process boundary.
Vehicle is loaded onto SYNETIQ transport vehicle	Forecourt Diesel - Lorry 28 metric ton	Litres	Total fuel consumption is extrapolated assuming 15 minutes of run time during loading as reported by SYNETIQ 2024a, and the average consumption of a medium heavyweight truck idling without load, as reported by Argonne National Laboratory 2014.
SYNETIQ transport vehicle makes inbound journey to SYNETIQ worksite	Transport - Lorry 28 metric ton	kg.km	Represents the inbound journey to the storage location for the mass of the part only (AZT 2022b).The distance is assumed to be 86.9km based on a random sample of 20 vehicle collections undertaken by SYNETIQ fleet vehicles in 2022 (SYNETIQ 2024c).
Vehicle unloaded at the landing bay of the SYNETIQ worksite	Forecourt Diesel - Forklift Truck	Litres	Transport vehicle is assumed to be switched off during unloading. The fuel consumption from the use of forklift trucks is estimated assuming 1.2 minutes of operation per vehicle (SYNETIQ 2022d) and a fuel consumption of 3.8 litres per hour for a Linde H40D Counterbalance truck as published by Linde 2023.

Appendix 1: Used Parts Life Cycle Inventory 2/7

Process	Reference Flow	Unit	Methodology Notes
Bar codes attached to vehicle	Electricity Consumption - Laser Printer	kWh	Assumes an energy consumption of 39kWh per 100 square metres of print labels, as reported by EPSON Press 2021 for a commercial flexible label printer.
	Paper Label	kg	The mass of a single label is estimate based on an assumed 8kg per 1000 labels, sourced from a listing for self adhesive shipping labels (Amazon 2024a).
Vehicle moved to cleaning bay	Forecourt Diesel - Forklift Truck	Litres	Based on the journey distance between the landing pad and cleaning bay, calculated using Google Maps 2024 for the route specified by SYNETIQ 2024a. Fuel consumption is extrapolated as a function of the journey distance and the fuel consumption of a Linde H40D Counterbalance truck travelling at 21 km per hour as published by Linde 2023.
Vehicle washed	Electricity - Pressure Washer	Litres	For each vehicle the cleaning process is assumed to require 5 minutes of Jet Washer operation, based on SYNETIQ 2024a. The consumption of power (3,100 Watt), fuel (0.001 kg per second), and water (0.19 kg per second) is then derived based on the technical data for a Nilfisk Alto Neptune 2 Heated Power washer (2-25x) published by Nilfisk 2022.
	Forecourt Diesel - Pressure Washer	Litres	
	Water - Pressure Washer	Litres	
Vehicle moved to imaging/inventory building	Forecourt Diesel - Forklift Truck	Litres	Based on the journey distance between the cleaning bay and imaging/inventory building calculated using Google Maps 2024 for the route specified by SYNETIQ 2024a. Fuel consumption is extrapolated as a function of the journey distance and the fuel consumption of a Linde H40D Counterbalance truck travelling at 21 km per hour as published by Linde 2023.
Personal belongings removed from vehicle, registered, and labelled	Electricity Consumption - Laser Printer	kWh	Excluded as the PEP process is required for all vehicles regardless of the recovery of used parts and is therefore considered outside the process boundary.

Appendix 1: Used Parts Life Cycle Inventory 3/7

Process	Reference Flow	Unit	Methodology Notes
Personal belongings removed from vehicle, registered, and labelled	Electricity Consumption - Laser Printer	kWh	Excluded as the PEP process is required for all vehicles regardless of the recovery of used parts and is therefore considered outside the process boundary.
	Paper Label	kg	
Personal belongings moved to despatch	-	-	
Personal belongings packaged and returned to customer	Transport - Courier Vehicle	kg.km	
GDPR data cleanse process is completed for the vehicle logbook, invoices, sat nav and stereo equipment.	Electricity Consumption - VW ID.3	kWh	Excluded as the GDPR cleanse process is required for all vehicles regardless of the recovery of used parts and is therefore considered outside the process boundary.
Vehicle undergoes the engine check process	Electricity Consumption - VW ID.4	kWh	Excluded as the engine check process is required for most vehicles regardless of the recovery of used parts and is therefore considered outside the process boundary.
Vehicle is imaged	Electricity Consumption - Digital Camera	kWh	Power consumption is derived for a Canon LP-E6NJ Lithium-ion rechargeable camera battery with a power capacity of 15Wh based on Bristol Cameras 2024, and a total of 490 shots per charge based on Canon 2024a. For this process it is assumed that 16 shots in total are taken.
Vehicle parts are graded and added to the Frontier system	Electricity Consumption - Electronic Tablet	kWh	Electricity consumption by the electronic tablet is excluded to align with the existing repair and replace scenarios.
Vehicle parts are imaged and added to the Frontier system	Electricity Consumption - Digital Camera	kWh	Camera power consumption is derived for a Canon LP-E6NJ Lithium-ion rechargeable camera battery with a power capacity of 15Wh based on an online product listing by Bristol Cameras 2024, and a total of 490 shots per charge based on Canon 2024a. 5 total shots are assumed to be taken during the process. Electricity consumption by the electronic tablet is excluded to align with the existing repair and replace scenarios.
Battery removed and placed in watertight container			No sources of emissions identified
Vehicle registration information is emailed to SYNETIQ's pricing team.	Electricity Consumption - Electronic Tablet	kWh	Electricity consumption by the electronic tablet is excluded to align with the existing Repair and Replace scenarios.

Appendix 1: Used Parts Life Cycle Inventory 4/7

Process	Reference Flow	Unit	Methodology Notes
Vehicle is marked up	Wax Crayon	kg	Excluded under the cut-off criteria.
Vehicle is moved to storage rack	Forecourt Diesel - Forklift Truck	Litres	Based on the journey distance between the inventory building and storage racks calculated using Google Maps 2024 for the route specified by SYNETIQ 2024a. Fuel consumption ia extrapolated as a function of the journey distance and the fuel consumption of a Linde H40D Counterbalance truck travelling at 21 km per hour as published by Linde 2023.
Vehicle parts are listed online and made available for sale	Electricity Consumption - Web Hosting Services	kWh	Excluded to align with the existing Repair and Replace scenarios.
Parts are sold and a notification sent to a mobile dismantler	Electricity Consumption - Web Hosting Services	kWh	Excluded to align with the existing Repair and Replace scenarios.
Forklift truck moves to storage rack and drops the vehicle to ground level	Forecourt Diesel - Forklift Truck	Litres	Based on the journey distance between the inventory building and storage racks calculated using Google Maps 2024 for the route specified by SYNETIQ 2024a. Fuel consumption is extrapolated as a function of the journey distance and the fuel consumption of a Linde H40D Counterbalance truck travelling at 21 km per hour as published by Linde 2023.
Mobile dismantler van travels to the dropped vehicle	Transport - Mobile Dismantler Van	km	Represents an unladen journey to the dropped vehicle, with the distance between the mobile dismantler van parking and the storage racks calculated using Google Maps 2024 for the route specified by SYNETIQ 2024a.
Mobile dismantler removes the part from the vehicle	Electricity Consumption - Power Tools	kWh	Estimated assuming that each mobile dismantler vehicle discharges two Snap On Inc Model CTB8187 Rechargeable Li-ion battery packs to remove 25 parts total each day. The battery packs are modelled with a total capacity of 90Wh based on Snap On 2024 and the scenario was created by SYNETIQ's Head of Operations (SYNETIQ 2022a) to represent a lower estimate for the productivity of mobile dismantlers.
Forklift truck places vehicle back onto storage rack and returns to imaging/inventory building	Forecourt Diesel - Forklift Truck	Litres	Based on the journey distance between the storage racks and inventory/imaging building calculated using Google Maps 2024 for the route specified by SYNETIQ 2024a. Fuel consumption ia extrapolated as a function of the journey distance and the fuel consumption of a Linde H40D Counterbalance truck travelling at 21 km per hour as published by Linde 2023.
Mobile dismantler van moves part to cleaning bay	Transport - Mobile Dismantler Van	kg.km	Represents the transport of just the part from the dropped vehicle to the cleaning bay with the distance calculated using Google Maps 2024 for the route specified by SYNETIQ 2024a.

Appendix 1: Used Parts Life Cycle Inventory 5/7

Process	Reference Flow	Unit	Methodology Notes
Part is cleaned	Electricity - Pressure Washer	Litres	The cleaning process is assumed to require 15 seconds of pressure washer operation based on a measurement of 13 seconds for the cleaning of a front door (Oakdene Hollins 2022a). The consumption of power (3,100 Watt), fuel (0.001 kg per second), and water (0.19 kg per second) is then derived based on the characteristics of a Nilfisk Alto Neptune 2 Heated Power washer (2-25x) (Nilfisk 2022).
	Forecourt Diesel - Pressure Washer	Litres	
	Water - Pressure Washer	Litres	
	Contact Cleaner - Xylene Content	Litres	Extrapolated based on the (normalised) material composition published by Autosmart 2018. And an assumed cleaner consumption of 400ml per 125 parts as estimated by SYNETIQ 2022a.
	Contact Cleaner - LPG Content	Litres	
	Contact Cleaner - Hydrocarbons, C9-C11, N-alkanes, Isoalkanes, Cyclics Content	Litres	
	Contact Cleaner - Methanol Content	Litres	
Part is moved to despatch	-	-	Undertaken by foot or by pallet truck

Appendix 1: Used Parts Life Cycle Inventory 6/7

Process	Reference Flow	Unit	Methodology Notes
Part is packaged and made ready for courier	500mmx33m Clear High Tack Protection Film	kg	Based on the characterisation of Green part packaging created for Oakdene Hollins 2022a and verified by SYNETIQs head of operations.
	A5 Printed Affix Document Envelopes	kg	
	Cardboard - 1800x2200mm 125KTBC MC Sheet 10 Creases 550/50/50/50/50/300/50/50/50/50/550	kg	
Parts are collected by courier and transported to repair shop	Transport - Courier Vehicle	kg.km	Represents the transport of just the part from SYNETIQ's worksite to the workshop. With the distance travelled estimated at 60.4km based on the best assessment of operations manager of the typical distance of SYNETIQs reused part deliveries SYNETIQ 2022a.
Parts are unpackaged and inspected by repair technician	Waste Treatment - 500mmx33m Clear High Tack Protection Film	kg	Based on DEFRA 2023 it is assumed that 44% of waste plastics are treated via energy recovery, with the rest either landfilled or incnerated.
	Waste Treatment - A5 Printed Affix Document Envelopes	kg	Based on DEFRA 2023 it is assumed that 71% of waste paper and cardboard is recycled, with the rest either landfilled or incinerated.
	Waste Treatment - Cardboard - 1800x2200mm 125KTBC MC Sheet 10 Creases 550/50/50/50/50/300/50/50/50/50/550	kg	
Parts are repaired	Plastics Repair Material (PP) - Reinforcing Strips	kg	Assumed to require repair to a surface area 50% the size of the light damage scenario described in the repair scenarios. The drying time is assumed to be 30 minutes based on AZT 2022b and energy consumption is assumed to be 2.3kW at 75% efficiency based on Metsims 2022.
	Plastics Welding	Minutes	
	Plastics Repair Adhesive (2 Component PU)	kg	

Forklift Journey 1

Google Maps. 2024.

Forklift Journey 2

Google Maps. 2024.

Forklift Journey 3

Google Maps. 2024.

Forklift Journey 4

Google Maps. 2024.

Mobile Dismantler Van Journey 1

Google Maps. 2024.

Mobile Dismantler Van Journey 2

Google Maps. 2024.


Allianz
Repair or Replace
Investigating the relative GHG emissions of repairing or replacing damaged vehicle parts
A joint report by
Allianz SE, Allianz Center for Technology, Metsims Sustainability Consulting and Oakdene Hollins
25 000
LEBEN RETTEN
Europäische Charta

APPENDIX 1
The Original Allianz Repair or Replace Study

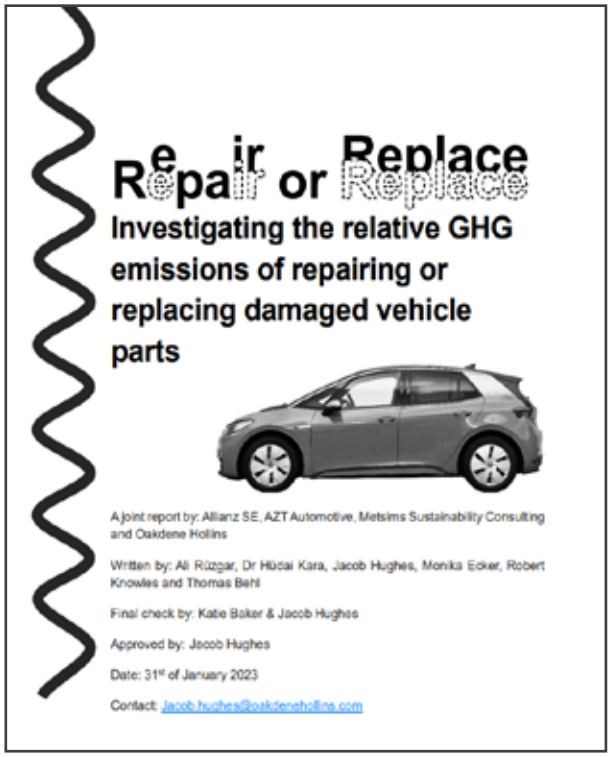
The following article first appeared in the VRA magazine Vehicle Recycling Issue 22, in October 2023. It summarises and discusses the original Allianz report that was issued in October 2022.

REPAIR OF DAMAGED VEHICLE PARTS OFFERS ENORMOUS GREENHOUSE GAS EMISSION SAVINGS

A study published earlier this year by the insurer Allianz (& carried out in conjunction with AZT, Metsims Sustainability Consulting & Oakdene Hollins) has further contributed to the understanding about how Greenhouse Gas (GHG) emission savings can be made during vehicle repair. It also holds out the prospect of increased use of green parts in sustainable vehicle repairs.

The aims of the study were to understand:

- the climate impact of undertaking part repair rather than part replacement
- how the impact might be affected by geographic factors



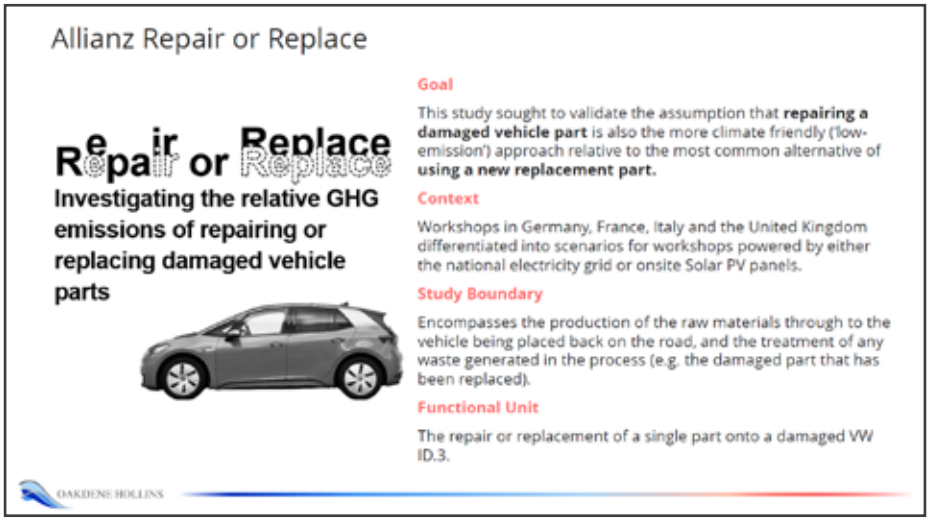
Looking at the GHG emissions of 9 individual parts, in 4 different locations across Europe, the work confirmed that the repair of a vehicle by repair of the damaged parts, rather than replacement of the damaged parts, generates significant carbon emission savings. In 5 of the 9 parts examined, repair of the part reduced emissions by more than 50% & in 2 cases by more than 98%.

The authors said:

"The way damage to a vehicle is rectified has an impact on the volume of greenhouse gases emitted. The first step to understanding this is to be able to reliably calculate and compare the emissions resulting from different approaches to handling the same vehicle damage, such as replacing or repairing a damaged door. This study aims for full transparency on methodology and results, welcomes scrutiny, and demonstrates how the insurance industry can make advances in what is becoming known as "green repairs".

The report concluded:

"Comparing the repair & replacement processes for 9 different parts across 4 different countries showed that this (repair generates lower GHG emissions than replacement) is universally the case. The findings from this report are clear regarding how to reduce emissions following a vehicle collision. For those relatively low-cost, low-impact collisions that mainly affect bodywork and windscreens, repair should be the first choice".



Whilst the headline might seem an obvious conclusion to many people, data to back up this belief doesn't appear to have been previously readily available; it is also not necessarily always the case & under some circumstances, repair might not have as big an advantage as first thought.

A 'green parts' scenario was not discussed in the report but forms a logical extension of this work. In this article VRA discusses the study & some of the most notable conclusions, limitations & possible next steps.

Most, if not all, insurers are increasingly focused on how to achieve significant reductions in carbon emissions & ultimately in achieving 'net zero'. Some insurers, such as Ageas, have been working on the 'repair rather than replace' approach for some years now, with facilitators such as Cornerstone Technologies (which have been featured previously in VRA magazines). However, this is the first report that we are aware of that provides a publicly available justification for such an approach.

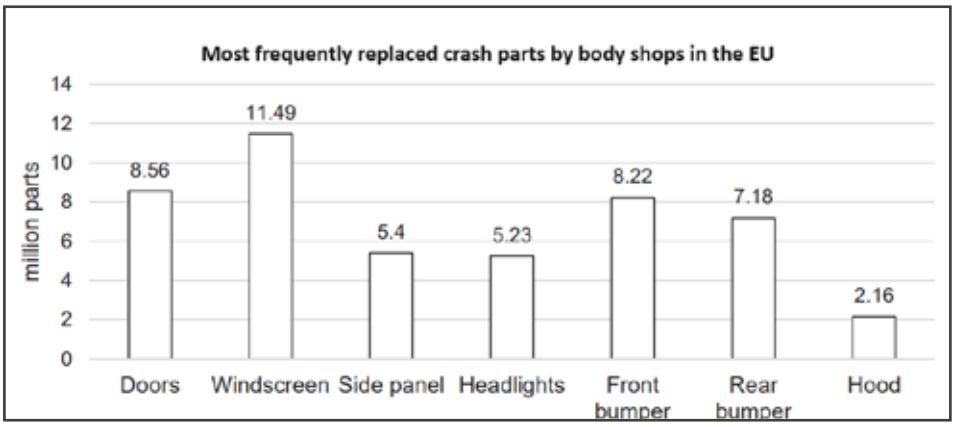
The study looked at the GHG emissions associated with the repair of a damaged VW ID3 vehicle in 4 different workshop locations within Europe by either:

1. Replacement of a damaged part with a new OEM part
2. Repair of the original part.

The body shop locations used were:

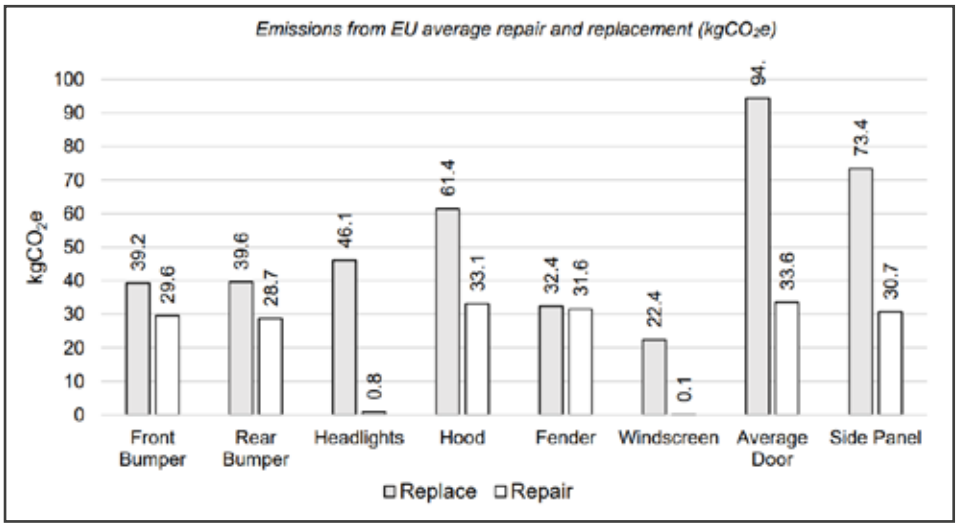
- UK
- France
- Germany
- Italy

The parts examined were those most frequently replaced by body shops in the EU (based upon European repair estimates). * Side panel (rear quarter panel).



So, what were the results?

The GHG emission implications for both scenarios (repair or replace) were examined in detail for each of the 9 parts listed. The graph opposite & table on the next page below shows the estimated emissions savings on the individual parts examined.



What type/ level of part damage produced these results?

In all cases a limited 'light damage scenario' was used & this is explained in the Table. It is worth noting that in all cases, the whole panel/ part' was repainted, as it appears that 'spot' painting is not standard practice these days. In reality, the extent of damage could, of course, be infinitely variable up to the point where the part is not repairable at all, so we assume that the extent of repairs reflects a 'typical' level of damage. This could be an important point because it might artificially lower the emissions of the part repair scenario (by requiring less materials) or overstating the emissions from 'replacement'. An area of further work could be to look at the emissions of repairing more or less extensively damaged parts, different types of damage or different commonly damaged parts (e.g. radiators, door mirrors, rear lights etc.). Detailed data on accident type & severity is probably available via the estimating systems.

PART	KG CO2E REPLACE	KG CO2E REPAIR	KG CO2E SAVING	CO2E % SAVING
FRONT BUMPER	39.2	29.6	9.6	24.50%
REAR BUMPER	39.6	28.7	10.9	27.50%
HEADLIGHT	46.1	0.8	45.3	98.30%
BONNET	61.4	33.1	28.3	46.10%
WING	32.4	31.6	0.8	2.50%
WINDSCREEN	22.4	0.1	22.3	99.60%
DOOR	94.3	33.6	60.7	64.40%
SIDE PANEL	73.4	30.7	42.7	58.20%

Clearly, there will already be a significant level of repair, on simple economic grounds, so it's not a case of 'starting from scratch' (no pun intended). A good example of the recognition of parts repair was highlighted by the recent Thatcham publication on headlight repair (reported in a previous issue of Vehicle Recycling).

PART	EXTENT OF DAMAGE	REPAIR METHOD
Bumpers	Light scratch or split.	Bumper removed, the existing paint finish is sanded down, & the crack/scratch repaired using a plastics welding process with polypropylene reinforcing strips & the application of a two-part polyurethane repair adhesive. Once complete, body filler is applied to the repaired area, set using a filler hardening product, & finished. The bumper is repainted, cured & fitted back on the vehicle.
Doors	Scratch or dent requiring repair to 6.5% of surface area.	Door removed & the existing paint finish is sanded down to bare metal in damaged area & a tin solder replacement material is applied to restore the damaged area. The filler is dried using an electric infrared heater & finished, at which point the door is repainted. Once this is complete the door is then placed back onto the vehicle. No allowance for stripping & refitting door components made for door replacement (not required for repair)
Bonnet	Scratch or dent requiring repair to 6.6% of surface area.	Bonnet removed & the existing paint finish in damaged area is sanded down to bare metal & a body filler putty is applied to restore the damaged area. Once this is complete, the filler is dried using an electric infrared heater & finished, at which point the door is repainted. Once this is complete the bonnet is then placed back onto the vehicle.
Wing	9% of the surface area.	The existing paint finish in the damaged area is sanded down to bare metal & a body filler putty applied. Once complete, the filler is dried using an electric infrared heater & finished, after which the side panel is repainted. Unlike most other studied parts but like the side panels, the fender remains on the vehicle throughout this entire repair process
Side panel (rear ¼)	3.6% of the surface area	The existing paint finish is sanded down to bare metal in the damaged area & a body filler putty applied to restore the damaged area. The filler is dried using an electric infrared heater & finished; at this point the side panel is repainted. Unlike most other studied parts, the side panel remains on the vehicle throughout this entire repair process.
Headlight	2 different scenarios investigated: 1. the rear mounting bracket is damaged; 2. scratches on the front lens	In both cases the headlight is removed. Scenario 1 – The damaged brackets are removed & replaced with OEM spares made from polypropylene. Only the brackets are replaced in this process, assuming that the screws are retained from the original part. Scenario 2 – The area around the headlight is protected using masking paper & tape before the polycarbonate front lens is sanded, cleaned & painted with a clear coat. The clear coat is then air dried, the masking removed.
Windscreen	Single chip	Area around damage cleaned & repaired using a single capsule of acrylic acid. Air dried.

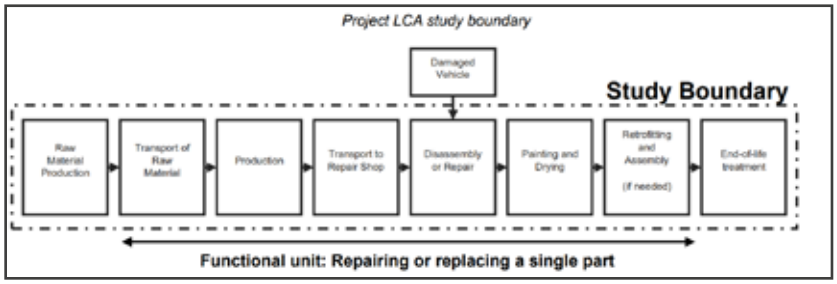
Study boundaries

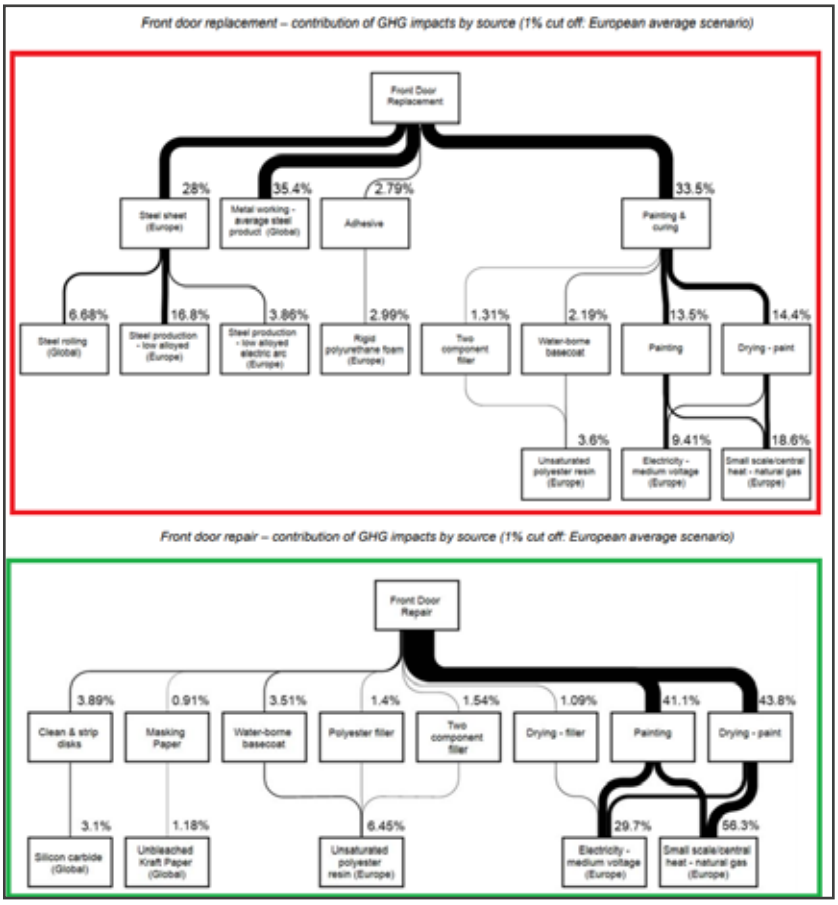
The first stage in looking at any GHG emissions scenario is understanding the full GHG emissions associated with the manufacturer of new vehicle parts. This is often difficult as there is very little of the necessary technical information available which means that many assumptions have to be made, which introduces a level of uncertainty. It was for this reason that the VW ID3 was chosen for this study, as much of the required information was available.

In this study the further emissions associated with the repair process were also taken into account, which included the transport of the part to the body shop, & the emissions involved in operating the body shop where the repair is undertaken (including the emissions generated in heating & powering the workshop). Interestingly (but not altogether surprisingly) the study demonstrated that body shops using electricity generated from solar power demonstrated higher GHG savings.

The various stages examined for the baseline GHG emissions

calculation for the repair of a vehicle with are shown in this image.





Limitations of the study

One of the 'simplifications' in the above process is that it probably does not accurately or fully reflect the true transport emissions associated with the distribution of the new part because this assumes that the part is manufactured & then immediately delivered to the body shop (which of course is not the case). There are several (possibly many) intermediate storage (warehousing) emissions which are likely to significantly increase the new part distribution emissions. This is one of the areas that needs further investigation.

In this study, none of the parts studied were 'multi-component parts' at the point of delivery meaning that there were not several intermediary stages where individual components were 'added together' into sub-assemblies or larger assemblies. These scenarios could again further add to new part distribution emissions. Doors are, however, multi-component parts but are built up on site at the body shop from individually ordered/ delivered parts. A typical door requiring either repair or replacement could typically entail the replacement of anywhere between 0 – 20 individual parts, potentially leading to a huge variation in transport emissions, and much higher emissions than reported here. However, in this study it was assumed that it was just the sheet metal door shell that was damaged & needing repair or replacement.

Furthermore, this study assumed that all the replacement parts were manufactured within the EU. But this is often not the case. Many parts (both OEM & aftermarket) are made in China and other distant locations. Naturally, this could hugely increase the transport emissions. But to fully understand the significance of this needs further work.

For these reasons, it is the VRA view that the true GHG emission generated by use of 'new parts' in vehicles is likely to be much higher than indicated in the study - meaning that the advantages (GHG emission savings) of parts repair is potentially much greater than reported.

There are, of course, practical limitations to the amount of repair that is 'suitable' for each type of part – generally, the more extensively a part is damaged, the longer the time & the more materials needed to repair it, the more expensive & the greater the GHG emissions, right up to the point where the part is (to all intents & purposes) unrepairable.

Although a move towards more repair (rather than replace) offers significant emissions saving potential, especially when considering emissions reductions due to reduced power consumption/ source, it may also pose some challenges for the vehicle repair sector, particularly around workforce skills & labour shortages , key-2-key times, body shop capacity etc. (although these could be viewed as an opportunity to create more high skilled 'green' jobs).

Another of the possible areas of error in the study is with the end-of-life disposal of waste materials from damaged parts generated by body shops. While it is probably true that 95% of metal is recycled, the true levels of plastic & glass recycling (in the UK at least) are likely to be very low indeed. This further adds to the emission savings of part repair (where it is feasible) where the parts are obviously not thrown away (so the embodied emissions are conserved) – particularly non-metallic parts such as lights & bumpers.

One of the interesting, but again not altogether surprising, observations of this study was that the energy consumption of the repair workshop represented a much more significant proportion of the total process GHG emissions than replacement, albeit it that the total emissions were much lower. In particular, the emissions associated with the energy needed to paint & dry the panels. As noted in the report, the use of newer 'low temperature' paint drying had the potential to significantly lower the emissions of both scenarios, but this

would be particularly significant for the repair process where total emissions were already low. It would be interesting to see the potential GHG emission implications of such technological advances spelled out more clearly.

It seems to us that this report highlights the advantages of 'working local'. Repairing a vehicle 'locally' rather than relying on globalisation to deliver unnecessary new replacement parts must surely be the emphasis in future. Better to avoid the enormous global transport emissions associated with (for example) moving parts round the globe & better to focus on local repair skills supplemented with locally sourced green parts to deliver more sustainable vehicle repairs. As such, it makes sense to have a better understanding of the full GHG emissions arising from the global distribution of new parts.

What is the true significance of repair over replace?

While the emissions savings associated with repairing individual parts do look impressive, they will only really become significant if they can contribute to emission savings on a large scale – nationally & internationally. The same argument applies to the use of 'green parts': unless the offering can be delivered at volume, the 'real' potential savings are likely to be very limited. This has been a point raised repeatedly in recent years.

While, at this stage, we have no data about the potential large-scale contribution of green parts, this study does now give us an indication of the GHG savings that could be delivered by a preference to repair rather than replace parts (bearing in mind the previously discussed extent of damage to the parts).

So, trying to take a broader view, let's take an example of a 'typical' vehicle repair consisting of damage to the offside front wing, headlight, bonnet & front bumper. The potential results are shown in the table below.

What this suggests is that (using the data from the report for just those 4 parts) per 100,000 vehicle repairs, parts repair could generate an annual GHG emissions savings of 8.4 million Kg CO2e (8,400 T Co2e). To put this into context, it has been reported that the number of vehicle insurance repairs in the UK runs into the millions every year, so there is real scope for savings.

The report itself says that just a 2% increase in repair of these individual parts could generate an annual EU saving of over

	KG CO2E REPLACE	KG CO2E REPAIR	KG CO2E SAVING	CO2E % SAVING	T CO2E SAVING PER 100,000 REPAIRS	T CO2E SAVING PER 1 MILLION REPAIRS
FRONT BUMPER	39.2	29.6	9.6	**24.50%**	960	9600
HEADLIGHT	46.1	0.8	45.3	**98.30%**	4,530	45,300
BONNET	61.4	33.1	28.3	**46.10%**	2,830	28,300
WING	32.4	31.6	0.8	**2.50%**	80	800
TOTAL	179.1	95.1	84	47%	8,400	84,000

29,00 tpa, but because each vehicle repair usually involves multiple parts, the true savings potential are likely to be much greater.

While the numbers do seem very large, what we don't know is the 'context': how significant are these type of figures likely to be? Do they represent a sector/ industry 10% emission saving or 1% or just 0.1%? This appears to be an obvious knowledge gap.

Moving forward it would be interesting to develop a better understanding of the national numbers of vehicle repairs & the proportions that would be amenable to parts repair rather than replace. This would give a better idea of the contributions that could be made by the vehicle repair sector.

Of course, this report was focused on GHG emissions, not costs. It remains to be seen what the cost implications are for a greater emphasis on repair rather than replace. Clearly, greater adoption of repair would lead to fewer new parts purchases by body shops (a significant cost saving).

It might be expected that repairers would prefer (find it easier) to reduce their GHG emissions by tackling the 'easy wins' first – such as switching to renewable energy supplies before addressing the more challenging 'repair' scenario (with green parts following).

What do we need to do next, from a green parts perspective?

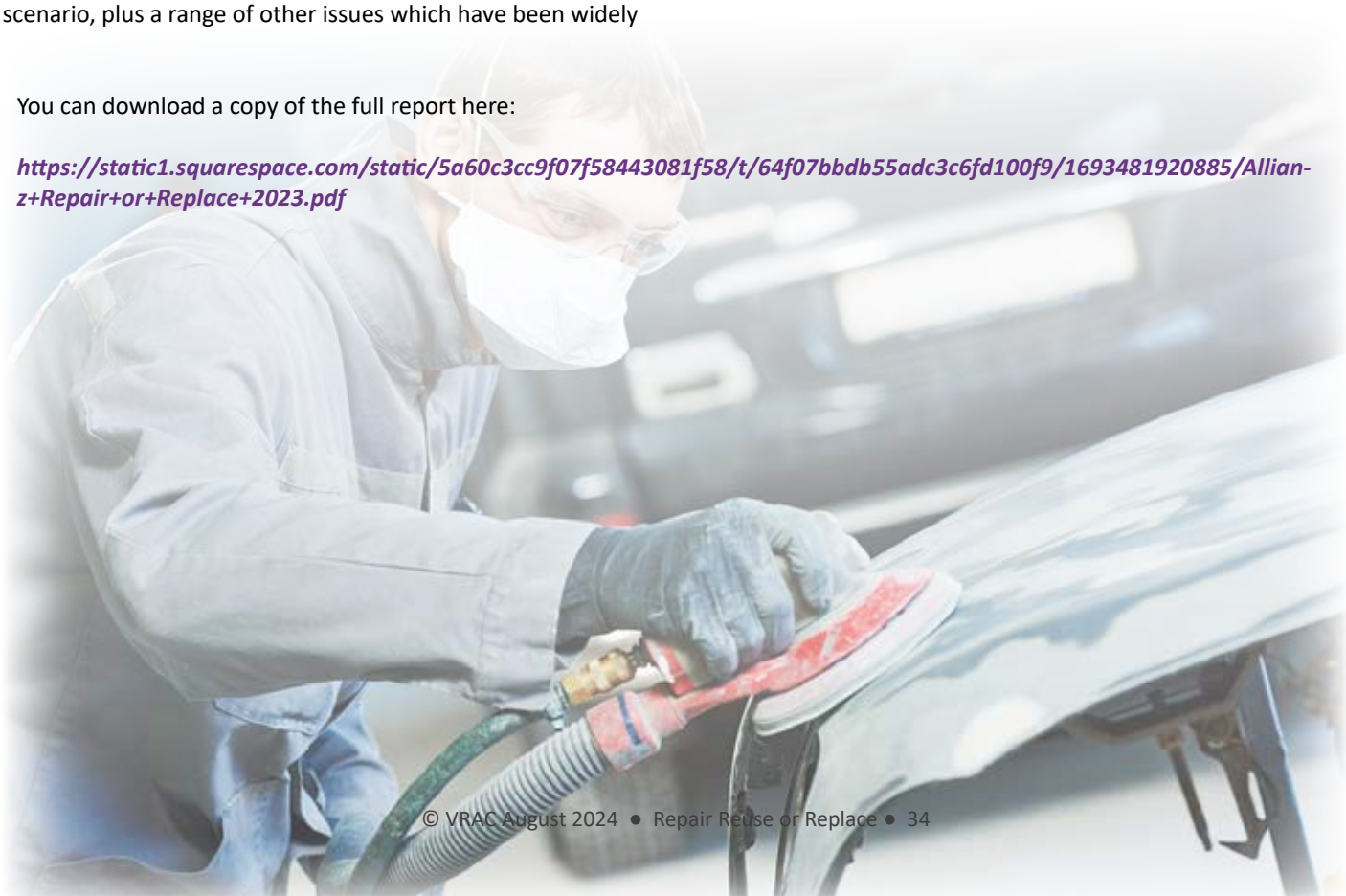
As mentioned, this study did not examine the use of green parts, but it is an obvious follow up, on the individual parts basis, on a typical vehicle repair basis & on a national basis. With green parts overwhelmingly being 'produced' locally, we would anticipate that they would also offer large GHG savings. But, as already mentioned, realisation of the true potential of green parts will be reliant upon a' delivery at volume' scenario, plus a range of other issues which have been widely

discussed, some of which form the basis of the VRA Standard & the Certification scheme (such as quality & consistency). Outside of this, there is a need for a nationwide logistics solution specific to the particular type of 'difficult to handle' parts often required by body shops.

Following the publication of the report, VRA reached out to Oakdene Hollins & ABP Club, to see whether there was an appetite for addressing some of the issues raised by the report, including the modelling of a 'green parts scenario', as well as better accuracy of the new parts replacement scenario (particularly the distribution & waste aspects). As we go to press, these discussions are still underway.

You can download a copy of the full report here:

https://static1.squarespace.com/static/5a60c3cc9f07f58443081f58/t/64f07bbdb55adc3c6fd100f9/1693481920885/Allianz+Repair+or+Replace+2023.pdf



APPENDIX 2

VRA CERTIFICATION

In 2020 the Vehicle Recyclers' Association published the UK Standard for Parts Reclaimed from End of Life Vehicles.

The primary aim of the VRA Standard is to:

> ***"Promote the further development of the 'reclaimed parts' market by addressing some of the long-term concerns that have held it back".***

These concerns include:
- Low environmental standards of traditional operators
- High levels of illegal activity in the sector
- The difficulty in distinguishing the 'good from the bad'
- Poor & inconsistent quality of parts & services supplied to customers

Compliance of vehicle recyclers (End of Life Vehicle Authorised Treatment Facilities) with the 'VRA Standard' is assessed through an independent 'certification scheme' managed by the not-for-profit company VRA Certification Ltd.

VRA Certification Ltd works with two completely independent nationally-recognised certification bodies, RMISC and Interface NRM. These certification bodies assess the compliance of applicant vehicle recyclers to the VRA Standard.

Certification requires that:
- All recyclers have in place the necessary basic legal requirements (e.g. an Environmental Permit and Scrap Metal Dealers' Licence)
- All parts supplied are fully traceable back to the vehicle from which they originate
- Parts that are dangerous (e.g. subject to a safety recall) are never sold
- Recyclers describe the condition of the parts they sell in a transparent and consistent manner

To assist recyclers in improving the accuracy and consistency in the way they describe parts being offered for sale, VRA Certification developed and launched an on-line Parts Grading training scheme for recyclers. To date over 900 candidates have taken the course and 130 UK vehicle recyclers have been certified.

The following 2 pages show parts of the VRAC Parts Grading training scheme.

Since the launch of the VRAC Parts Grading training scheme a number of other on-line training schemes for reyclers have been developed and launched to assist recycler upskilling.

VRA© CERTIFICATION

www.vra-c.org

VRA CERTIFICATION

www.vra-c.org

BACKGROUND

to the

STANDARD & CERTIFICATION SCHEME

Why is there a standard?

The most fundamental aim of the VRA Standard is:

"To promote the further development of the 'reclaimed parts' market by addressing some of the long-term concerns that have held it back".

These concerns include:

- High levels of illegal activity
- Low environmental standards
- Poor & inconsistent quality of parts & services supplied

If these issues can be overcome, then there are huge opportunities to increase the levels of reclaimed parts usage, & establish a professional & respected reclaimed parts industry.

Why is there a need for a standard?

- Demand for used parts increasing
- Sales moving on-line
- Customers demand better quality:
  - the part they expect
  - in the condition they expect
  - when they expect it.

FROM THIS

TO THIS

Why is there a need for a standard?

Seller may not have environmental authorisations:

- Waste permit/licence
- Scrap metal dealer's licence

Illegal operators may:

- Fund organised crime
- Pollute the environment

Seller may be operating illegally

This undermines legitimate businesses

Why is there a need for a standard?

It is hard to differentiate 'legal' from 'illegal' sellers

Legal operator?

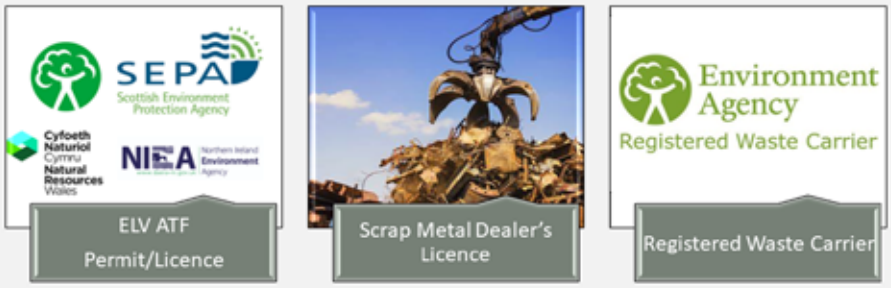
Legal operator?

How can you tell?

Beware of stolen parts & vehicles

Aims of the VRA Standard

1. To ensure that the vehicle recycler has appropriate ENVIRONMENTAL AUTHORISATIONS in place:

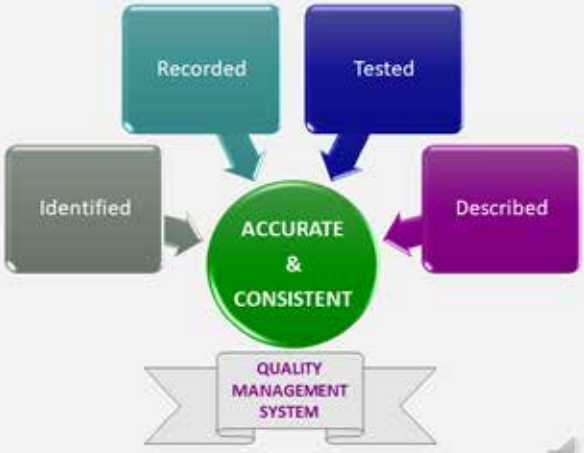


VRA CERTIFICATION

Aims of the VRA Standard

2. Transparency: Source-vehicle-part

3. To ensure that the reclaimed part is:



VRA CERTIFICATION

The VRA Standard

VRA CERTIFICATION

QUALITY CERTIFIED GRADED GREEN PARTS

CONTACT US TO LEARN MORE AND CONNECT TO OUR PARTS NETWORK

ELADENE

POWERING THE DISMANTLING INDUSTRY

WWW.ELADENE.COM **+44 1642 573 929**

VRA® CERTIFICATION
CERTIFYING QUALITY
RECLAIMED VEHICLE PARTS