



Department  
for Transport

# Commercial electric vehicle battery warranty analysis

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# Overview

- Introduction
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- N2 category
- Heavy duty
- Summary



# Introduction

- EVE setting MPRs for Category 2 vehicles for GTR No. 22 and heavy duty vehicles for the new HD GTR
- At the 59<sup>th</sup> EVE, it was suggested to conduct another **warranty analysis** for these vehicles
- UK offers subsidies for electric vans and trucks, but requires a **battery degradation warranty**
- Warranty analysis conducted for **66 vehicle models** eligible for grants

“Warranty analysis was conducted by the US EPA to understand the current warranty offering from manufacturers for electric vehicle batteries”

**GTR No. 22**

# Light duty commercial

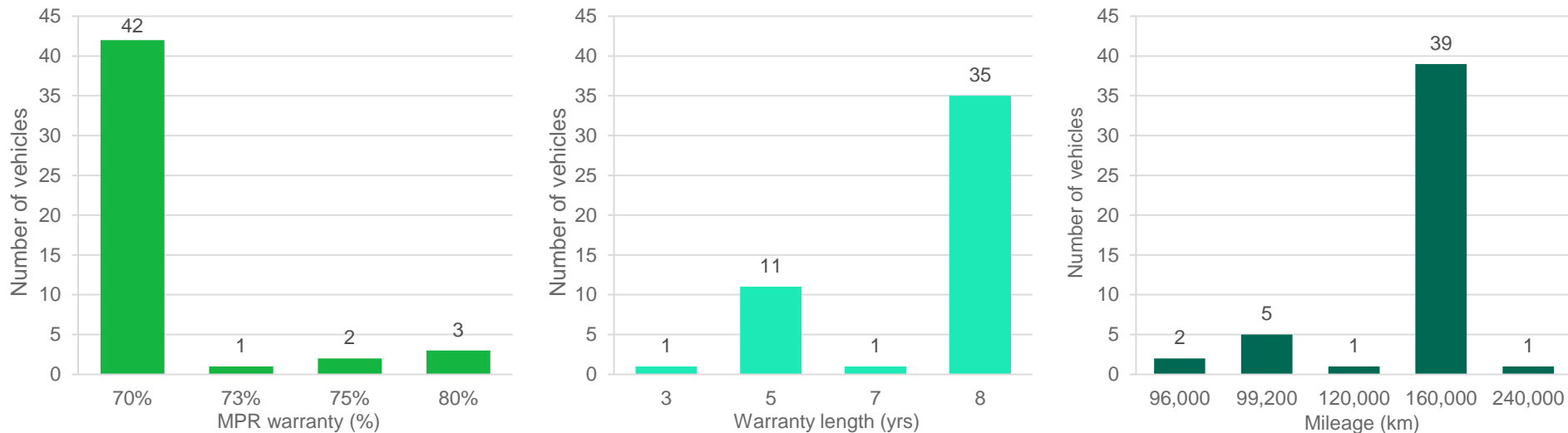
(Category 2 in GTR No. 22)

# Light duty commercial – scope

- Total **48 vehicle models** eligible for UK Government's Plug-in Van Grant
- Van not exceeding 3,500kg
- Approved as **N1** in Europe
- *Similar* to US truck Classes 1 and 2a
- Ranging from MY 2020 to 2023



# Light duty commercial – results



Figs. 1-3. Warranty MPRs, warranty lengths, and warranted mileage for small vans (N1 category)

- Most vehicles had a **70% / 8 yr / 160k km** warranty (GTR22 MPR)
- Only two vehicles had a **80% / 5 yr** warranty (GTR22 MPR)
- No vehicles used **charge cycles** or **energy usage** as a metric
- Three vehicles had an **80% / 3 yr** warranty (**in addition to 70%**)
- Data could potentially be made available for further analysis, tbc

# N2 category

# N2 category – scope

- Total **11 vehicle models** eligible for Plug-in Van or Plug-in Truck Grant
- Some approved as **N2 light duty**:
  - Between 3,500kg and 4,250kg
  - *Similar* to US truck Class 2b
- Some approved as **N2 heavy duty**:
  - Between 4,250kg and 12,000kg
  - *Similar* to US truck Classes 3 thru 6
- Ranging from MY 2019 to 2023





# N2 category – results

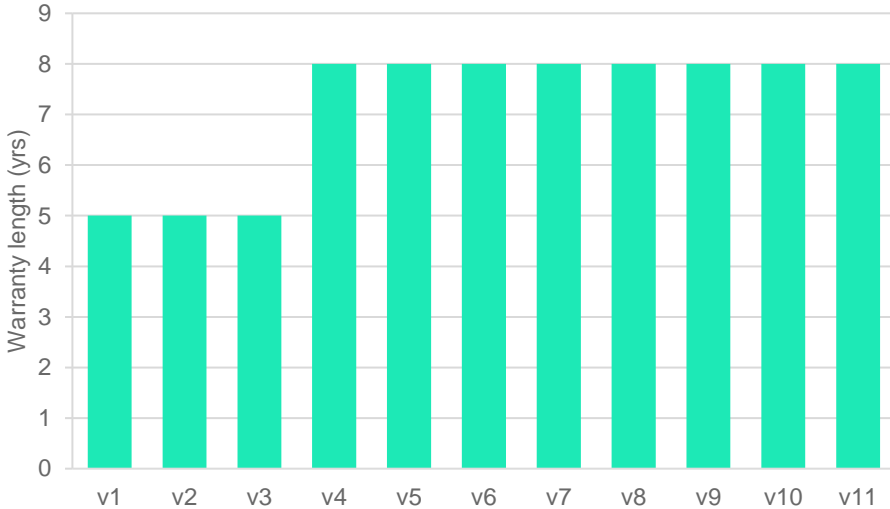


Fig. 4. Warranty lengths for N2 category vehicles

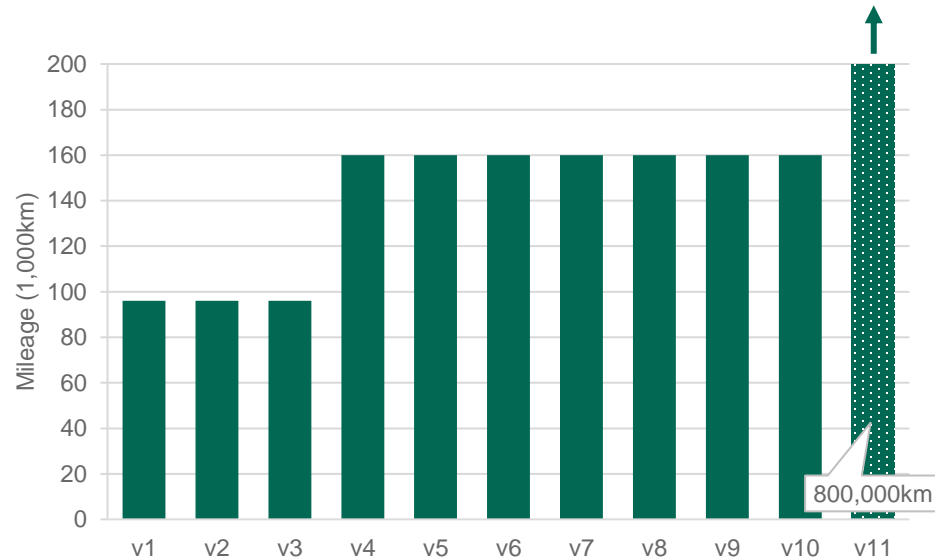


Fig. 5. Warranted mileage for N2 category vehicles

- Small sample size
- All vehicles had a **70% MPR**
- Most vehicles had a **70% / 8 yr / 160k km** warranty (GTR22 MPR)
- No vehicles used **charge cycles** or **energy usage** as a metric
- Three vehicles with 5 yr warranty **also had an 80% / 3 yr warranty**
- Vehicle 11 had an **800k km warranty**

# Heavy duty

# Heavy duty – scope

- Total **7 vehicle models** eligible for Plug-in Truck Grant
- Truck exceeding 12,000kg
- Approved as **N3** in Europe
- *Similar* to US truck Classes 7 and 8
- Ranging from MY 2021 to 2023



# Heavy duty – results

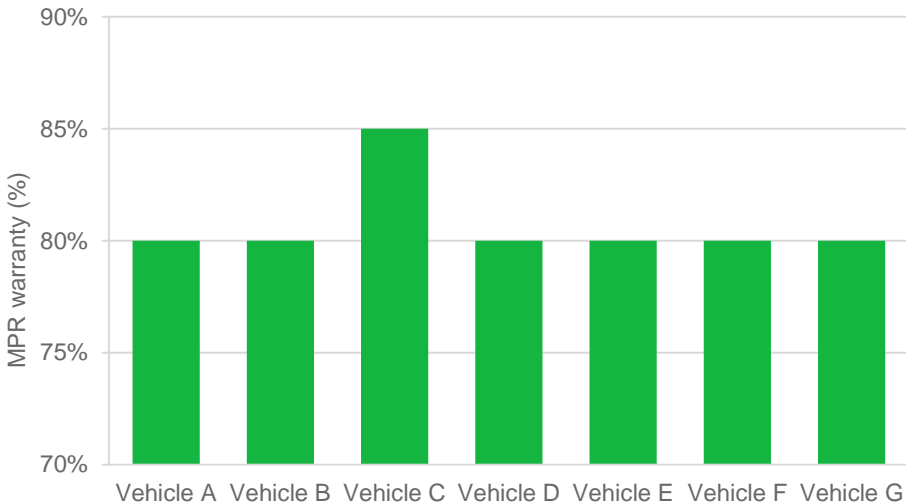


Fig. 6. Warranty MPRs for large trucks (N3 category)

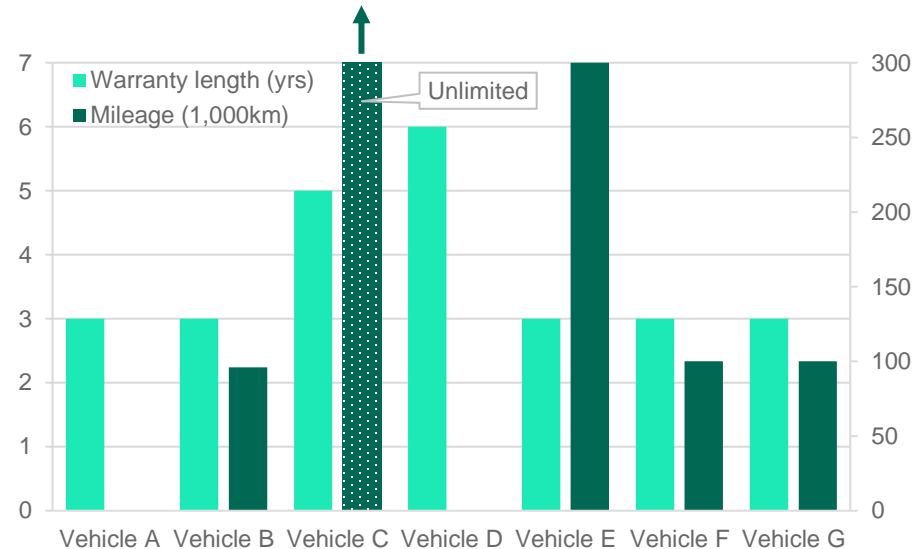




Fig. 7. Warranty lengths and warranted mileage for large trucks (N3 category)

- Very small sample size
- All vehicles had an **80% / 3 yr** warranty at a minimum
- One vehicle (Vehicle C) had an **85% / 5 yr / unlimited mileage** warranty

- One vehicle offered an extended warranty for **70% / 5 yrs**
- Some vehicles **did not** include a warranted mileage
- Several vehicles warranted for **number of charge cycles** or **total energy usage**

# Summary

- All light duty (N1) and N2 warranties assessed used **mileage/vehicle age** metrics
- Most light duty warranties were similar to passenger cars and **matched 70% MPR from GTR22**
- Some variation in metrics used for larger HD vehicles (e.g., **charge cycles** or **total energy usage**)
- Very small sample size for larger HD vehicles, **further analysis required** as market develops
- Results should not be used in isolation to set MPRs, but could be **considered with other evidence**

 *It has been highlighted by manufacturers that warranty offerings are not based solely on the technical performance of the battery and include further considerations from a commercial and customer satisfaction perspective* 

**GTR No. 22**