

# Learning by Using Battery Electric Trucks



## INTRODUCTION

We are a team of Automotive Engineering students from HAN, who specialize in Business Management and Powertrain, working on a Semester 6 project in partnership with Green Planet Pesse. The client, Green Planet, is a multifuel station which wants to assist the transition to zero-emission logistics by supporting transporters with relevant knowledge, data and tools for such a change in mobility.

Our goal is to develop a Total Cost of Ownership (TCO) tool for Battery Electric Trucks (BETs), based on real data, from electric trucks that drove in The Netherlands. This is important for the small and medium-sized enterprises (SMEs) in order to have an overview of their costs with such a vehicle.

## JOURNEY & LEARNINGS

Our journey started with analysis of previously collected data. We quickly realized that understanding energy consumption, charging infrastructure, and maintenance differences across truck brands was essential. One key challenge was the analysis itself, which we are now transforming by developing automated MATLAB scripts and a Power BI dashboard.

One breakthrough was analyzing how different powertrains and driving environments can influence operational costs. Another was researching that maintenance costs for BETs can be lower than diesel trucks, but also their range on a full charged battery is way lower than to a diesel truck with a full fuel tank.

## **OUTCOME & IMPACT**

We created an interactive TCO tool in Power BI that allows SMEs to compare operational and financial costs across brands and scenarios, we created a WebApp for the team itself, a communication website and we grew a LinkedIn page organically.

This tool is going to benefit the SMEs. It enables smarter investment decisions, encourages zero-emission transport by showing them an overview of costs over the next years. With such an accurate estimation they can see what their real advantage in terms of the total cost of ownership is.

We're most proud of how complex the tool itself is and at what point we managed to get, considering we started from scratch, with only the data from the BETs available, which we had to analyze, work with it and make it into a user-friendly programme. At the symposium, we're excited to showcase our main scope of the project: the TCO, and all the other products such as the WebApp, Website and our social media accounts!