

Bachelor-/Master Thesis

Life Cycle Costs of Electric and Conventional Vehicles

■ Organizational aspects

The thesis can be written in **English, French, or German.**

■ Motivation and objectives

Electric mobility is expanding in transportation and becoming more important in the context of emission reduction. However, conventional fuels could be substituted with renewable ones in conventional vehicles making them a possible sustainable transport solution. What would be the economic benefits and drawbacks of such a measure? The aim of this study is to compare the costs of an electric vehicle to its counterpart that is driven using renewable fuels. In this thesis, you will provide a life cycle analysis of an electric and a conventional vehicle in order to compare them from an economic perspective.

■ Content of the thesis

At first, you will review the literature for similar works about the life cycle cost of (electric) vehicles. From the reviewing, you will be able to provide first estimations of the life cycle costs of an electric vehicle and its conventional counterpart. Afterwards, you will define the methodology that you will use to assess the costs of these vehicles. You will establish a cost breakdown structure and a cost estimating approach based on approaches and models from the literature. The functional unit will be an electric vehicle and its non-electric counterpart (e.g. Mercedes-Benz B-Klasse, Renault Kangoo, VW Golf). The substitution of conventional fuels with renewable fuels is an indispensable aspect in your analysis. You will provide an analysis all along the acquisition phase, the utilization phase, and the recycling phase of those two vehicles. You will also specify what variables you will focus on during your sensitivity analysis. After estimating the costs, you will perform a sensitivity analysis to identify the sensitive cost positions. You will also focus on the critical appraisal of the assumptions that you attributed to the system during the analysis. These aspects will be the basis for the discussion in your thesis.

■ Requirements

Reliability, commitment, and pro-active attitude

■ Duration

3 to 6 months

■ Please contact

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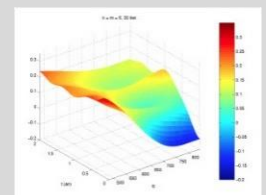
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