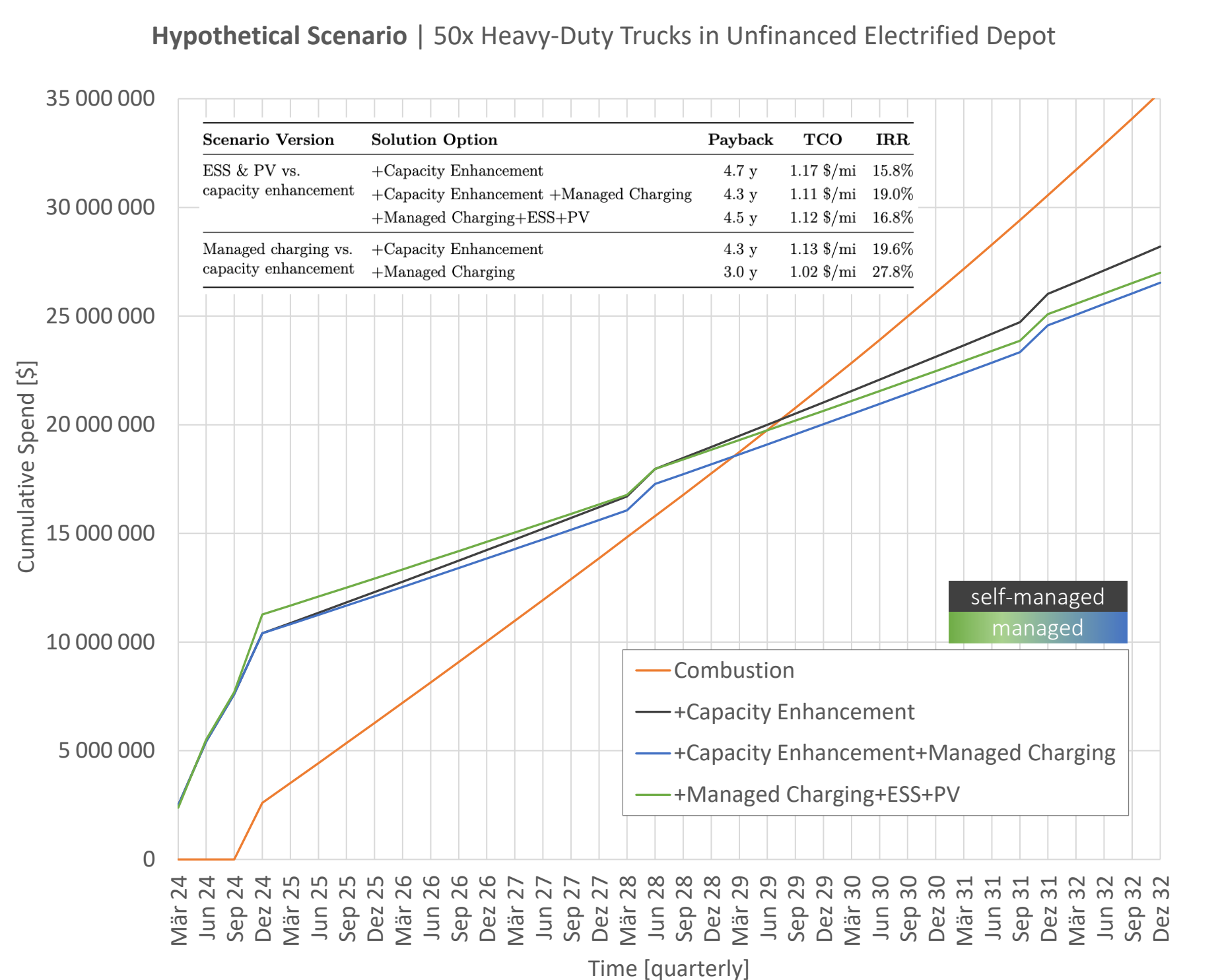
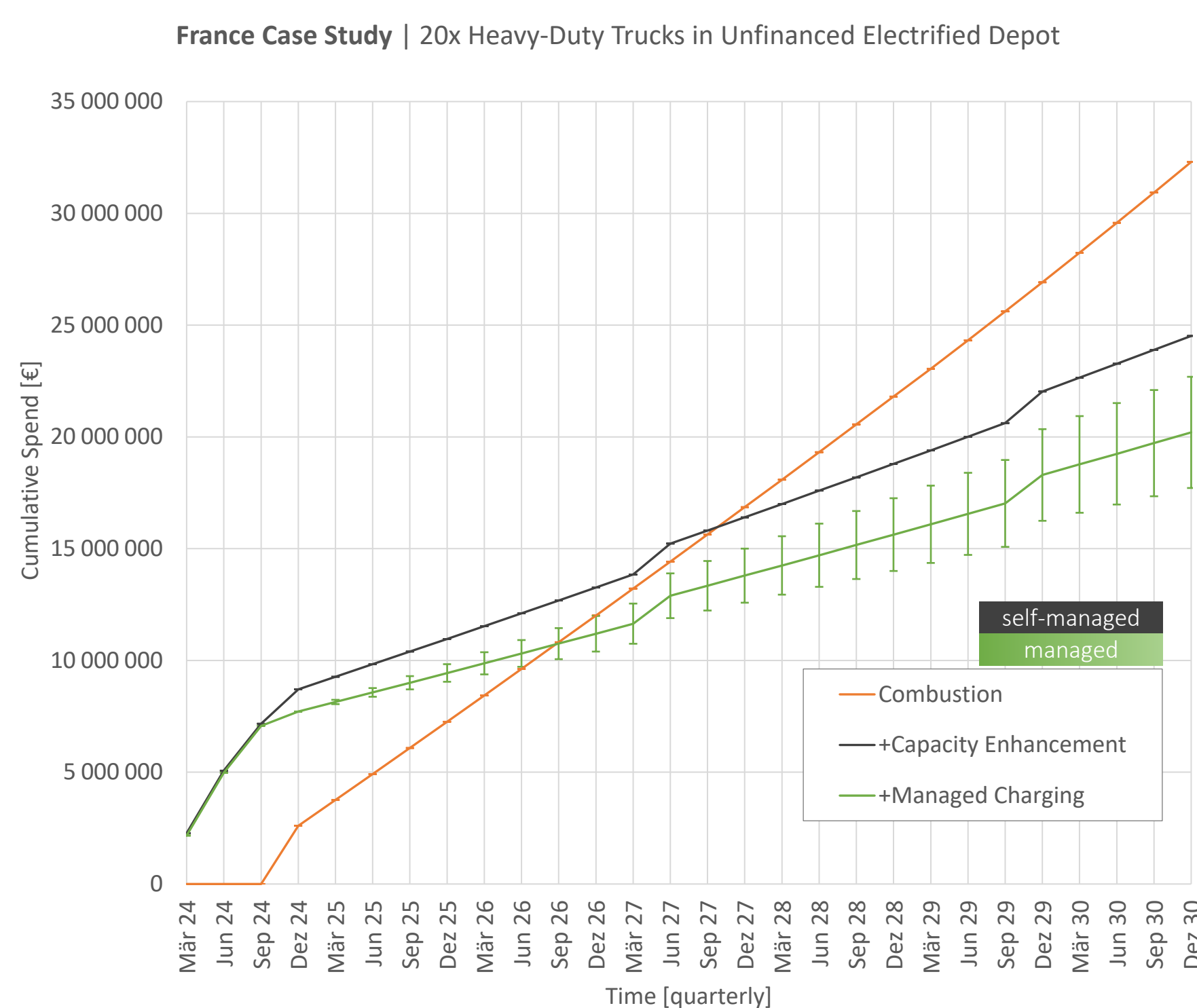
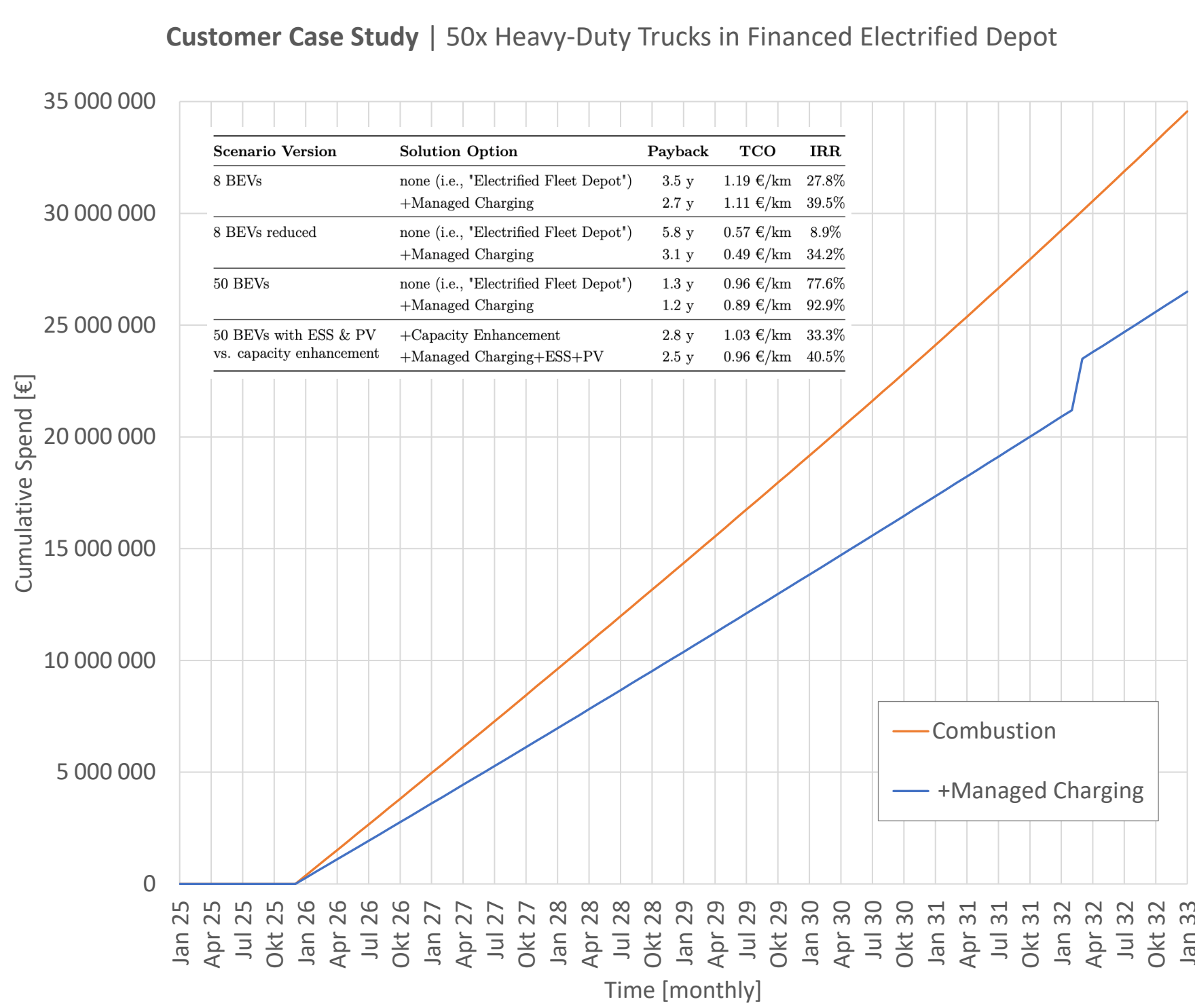
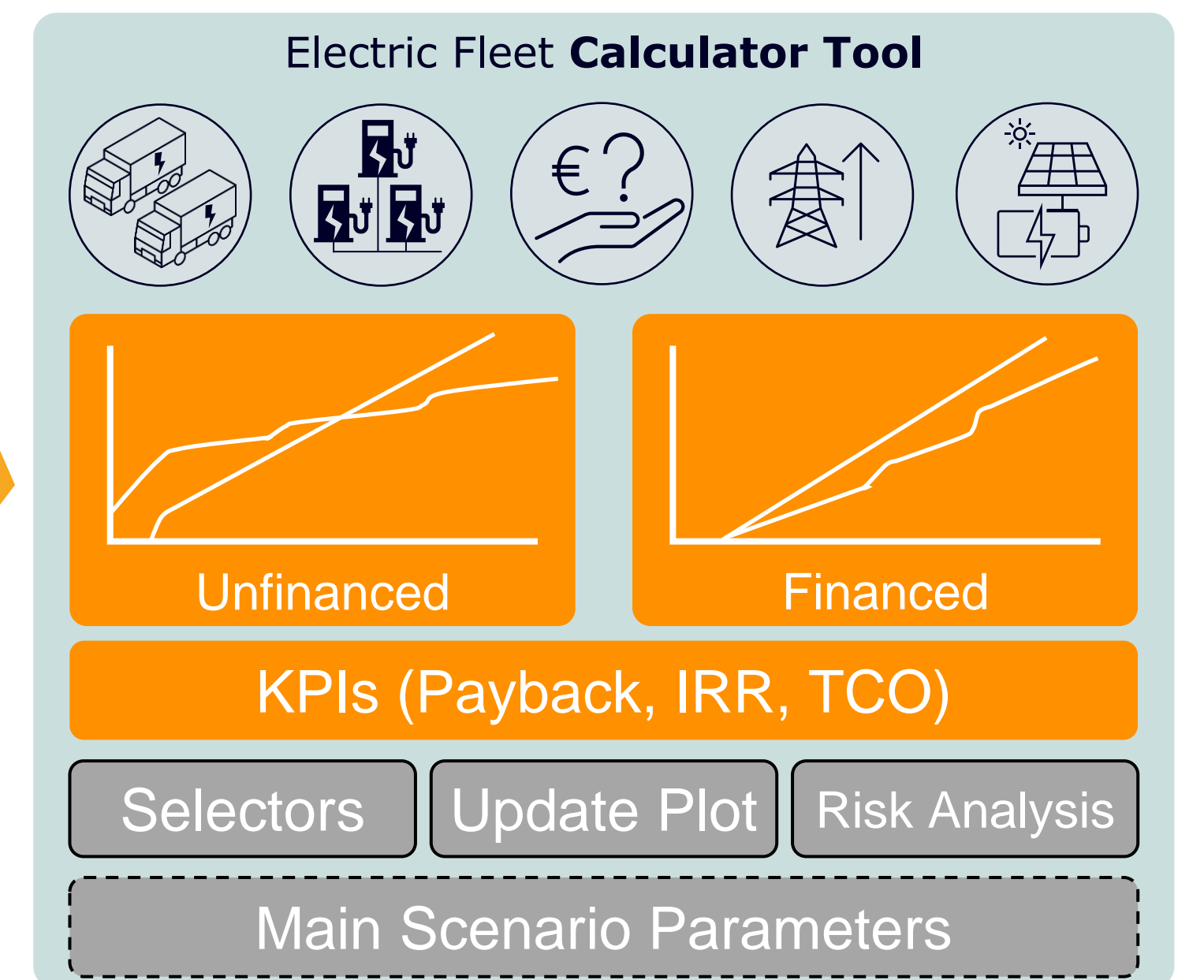
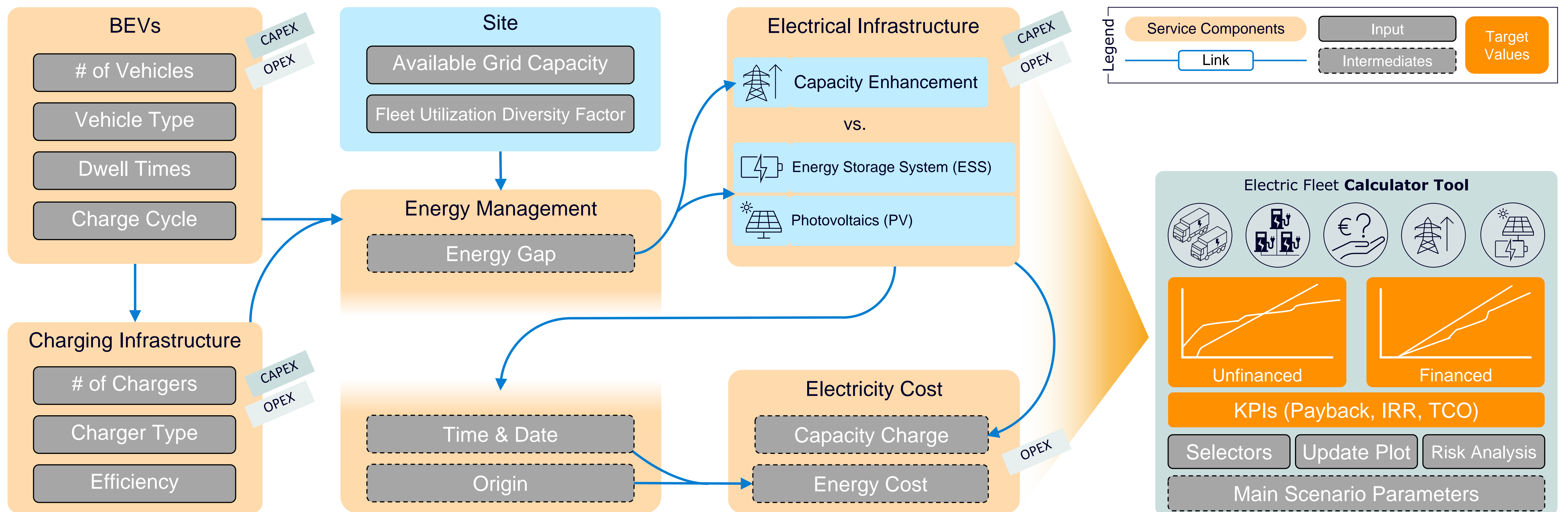


**MASTER OF SCIENCE IN ENGINEERING**

# Holistic Cost Analysis for Managed Fleet Services

## Decarbonizing Road Logistics



### Problem Statement

This paper addresses the imperative need for integrating battery electric vehicles (BEVs) into the inevitable road logistics amid rising global temperatures. The primary objective is to facilitate the electrification of fleet depots and overcome challenges faced by transport service providers. Focusing on the commercial long-haul and last-mile applications, the research establishes a comprehensive framework for a holistic cost analysis aimed at rectifying current cost underestimations in existing literature.

### Solution

To achieve this goal, a novel business model based on service transformation, managed fleet services, is analyzed. By employing systems thinking and collaborating with industry experts for constant validation and verification, a robust cost framework is derived.

Key components such as a comprehensive energy management incorporating smart charging, demand side response, site capacity enhancements, photovoltaic (PV), and energy storage systems (ESS) are strategically added where feasible and needed.

### Results

The findings, supported by implementing the cost framework as a calculator tool, provide a nuanced and quantified understanding of the benefits of managed fleet services. With the tool being capable of computing cumulative costs and key performance indicators (KPIs) for customized scenarios, a strategic decision-making solution is offered; self-managed electrification scenarios are compared with managed scenarios and the benchmark of traditional internal combustion engine vehicles (ICEVs).

This tool, encompassing a comprehensive set of parameters, demonstrates the superiority of applying managed fleet services in fleet electrification; especially financing proved to be a viable component to reach positive net cashflow at day one of operations.

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