



GHD ZEVO

↳ An innovative solution for unpacking the various complexities of transportation decarbonisation and optimising zero emission fleets.

→ **The Power of Commitment**



ZEVO enables advanced planning for future infrastructure needed to support the ZEV transition

What is ZEVO?

In response to the Zero Emission Vehicle (ZEV) revolution, GHD offers a proprietary Zero Emission Vehicle Optimisation (ZEVO) toolset. ZEVO is a platform for seamlessly understanding and analysing the complexities of a vehicle fleet transition to zero emissions and provide fleet operators with the information they need to make realistic and practical decisions.

ZEVO streamlines the level of effort, enables the use of real-life data, and enables rapid analysis of different fleet transition options. With ZEVO, fleet operators can be confident they have the depth of insight to make the ideal fleet transition roadmap to meet their carbon reduction goals. The basic principle of ZEVO is to transform fleet and operational data into various decarbonisation timeline scenarios. The tool utilises two separate assessments to reach the decarbonisation scenarios: Fleet Assessment and Service Assessment.

Fleet Assessment

Fleet Assessment through ZEVO involves collecting, auditing, and processing asset metrics (such as odometer, maintenance cost, fuel efficiency, and carbon intensity) from the existing fleet to develop a fleet attrition plan. GHD's proprietary statistical model evaluates each asset's operational viability and helps identify 'easy targets' within the existing fleet to transition away from fossil fuel into ZEV technologies.

Service Assessment

The Service Assessment involves collecting and processing GPS data that maps out the activity performed by the assets. This assessment allows validating the specification of ZEVs within the context of the energy and power requirements currently being expended by fossil fuel assets. ZEVO performs the Service Assessment using a proprietary physics model, which considers elevation, local climate, duty cycle, stop events, speed, and other relevant on-road factors.

ZEV transition scenarios

The goal is to use the two assessments combined to output the ideal ZEV asset. One that can perform the same duties as the existing fossil fuel asset, but operate within the constraints of operating and capital budgets. ZEVO consequently creates transition scenarios using the appropriate ZEV specification and generates the associated financial, environmental, utility, and energy analyses for each scenario.



For fleet operators transitioning their fleets to zero emission technologies, ZEVO is an indispensable tool.

Additionally, ZEVO features the following abilities:

- **Financial viability analysis** – Delivers a predictive funding structure which incorporates both CAPEX and OPEX
- **Energy and utility analysis** – Produces projections of energy demands and identifies pivot points for local utilities to upgrade their infrastructure
- **Environmental analysis** – Provides an outlook into how to achieve climate goals and projects reductions in carbon and other pollutant emissions
- **ZEV database** – Contains every vehicle make and model available from heavy-duty to light-duty passenger vehicles to consider for a proposed ZEV scenario
- **Scenario breakdown** – Provides the ability to drill into different scenarios to determine the overall impact by year and ascertain the viability of the overall roll-out plan

ZEVO empowers fleet operators to start their decarbonisation decision-making process using data outputs to justify business cases and support public and stakeholder outreach. The tool provides the expected key benefits from a ZEV transition in terms of carbon emission reduction, financial savings, and energy sustainability.

9.5 ^m

Electric Vehicles are predicted to be sold around the globe in 2022.



Key benefits

+ ZEV business case development
Identifying the CAPEX, OPEX and key benefits from a 100% ZEV fleet

+ ZEV specification
Based on duty cycle, lifespan and charging infrastructure locations

+ Fleet attrition plan
Identifying the number of expected asset replacements till 2050

+ CO₂ and harmful pollutant offsets
Providing the projected reduction in greenhouse gases and harmful pollutants such as CH₄, N₂O, NO_x, SO_x, PM_{2.5}, PM₁₀ and VOCs

+ Range modelling
Determining the vehicle battery size required to complete each block of work

+ Lifecycle cost analysis
Identifying the ZEV lifespan based on the asset duty cycle and the associated battery replacement costs

+ Application for rebates & grants
Providing justification and materials for grant applications

+ Community outreach
Supports public consultation and outreach efforts

+ Energy modelling
Identifying the peak daily demand for electricity and projection of energy usage

Why GHD ZEVO?

GHD ZEVO is an integrated software solution that streamlines, automates and manages Zero Emission Vehicle transition assessments. It converts the assessments into three-phase multi-year transition scenarios with corresponding financial, environmental and energy analyses.

Highlights

Our goal is to utilise ZEVO and our extensive multidisciplinary team to decarbonise transportation through:

- Data analytics and AI
- System reliability and resiliency
- Thoughtful Infrastructure
- Defensible roll-out plans

Next steps

To learn more about ZEVO, contact:

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We utilise a two-pronged approach to gain insights into the financial, environmental, and energy impacts of ZEV transition pathways and develop a wholesome implementation plan.

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60%

of fleet transitions lead to an adjustment of how the asset is operated, to allow for effective charging

