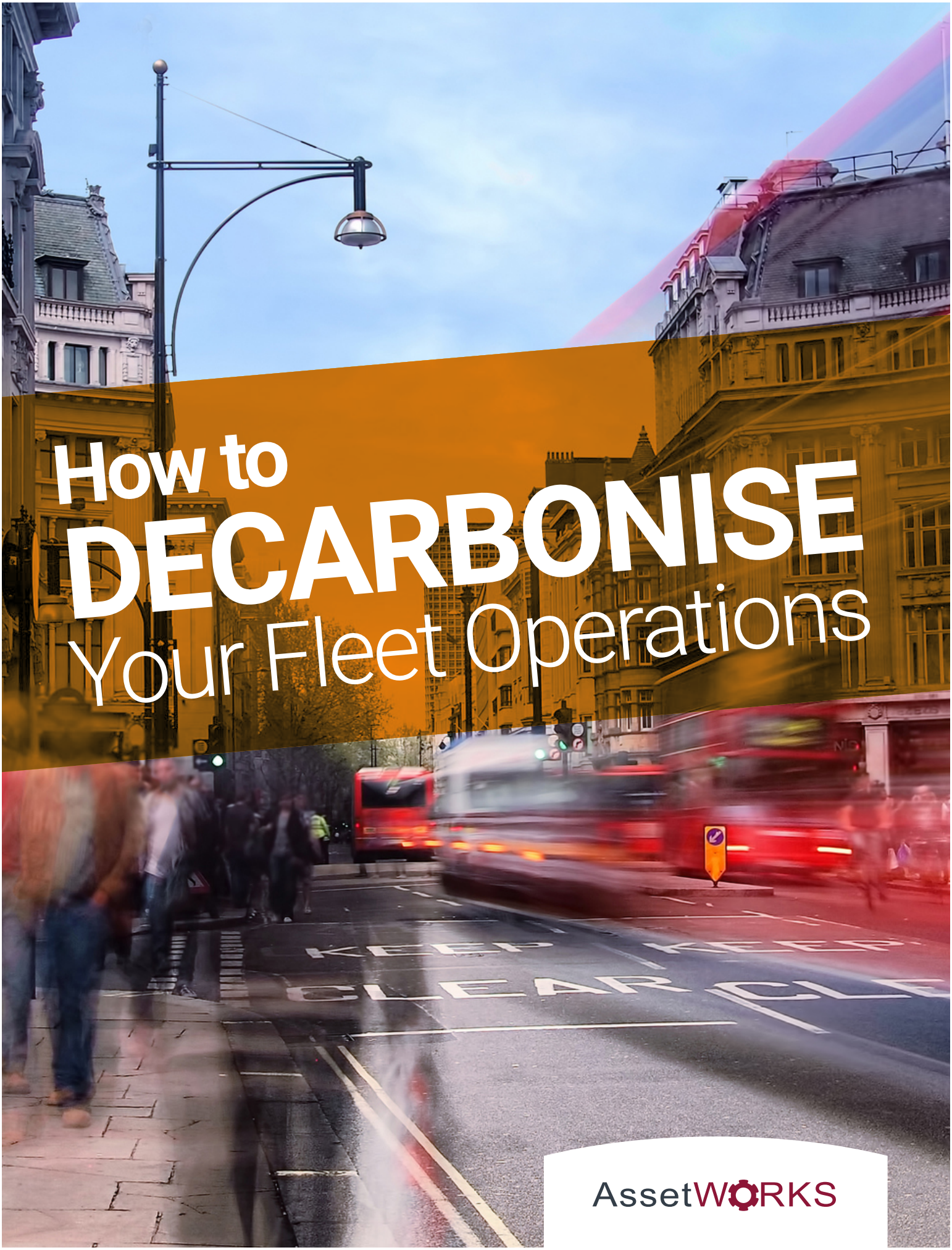
How to
DECARBONISE
Your Fleet Operations
KEEP
CLEAR
AssetWORKS

In June of 2019, the United Kingdom became the first global economy to pass a law requiring the country to achieve net zero greenhouse gas emissions by 2050. This ambitious plan brings together virtually all industries in the United Kingdom to make the country a global leader in green technologies, all while creating jobs and addressing climate change concerns.

Due to the goals outlined for the United Kingdom as a whole, decarbonisation is an important and necessary step forward for the fleet management industry; however, many fleets struggle to determine the best strategy for decarbonisation and how to begin the investment in Alternative Fuel Vehicles and charging infrastructure. A valuable tool to help fleet managers determine the best strategy for decarbonization and replacing petrol/diesel vehicles with electric vehicles is life-cycle cost analysis.

This white paper will outline how fleet managers can prepare for decarbonisation, including:

- **How to replace aging vehicles** with Alternative Fuel Vehicles with life cycle cost analysis
- **The types of data organisations should track** for effective life cycle cost analysis
- **How to determine a vehicle or asset's optimal replacement time**
- **Types of electric vehicle charging infrastructure**

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The United Kingdom's Ten Point Plan for a Green Industrial Revolution

1. Advancing offshore wind	6. Jet zero and green ships
2. Driving the growth of low carbon hydrogen	7. Greener buildings
3. Delivering new and advanced nuclear power	8. Investing in carbon capture, usage and storage
4. Accelerating the shift to Alternative Fuel Vehicles	9. Protecting our natural environment
5. Green public transport, cycling and walking	10. Green finance and innovation

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What is life-cycle cost analysis?

Life-cycle cost analysis (LCA) helps fleet managers measure the long-term economic sustainability of their organisation's vehicles and assets through the calculation of the total cost of ownership over the life of an asset. LCA not only improve an organisation's bottom line, but it also answers the age-old question: should I hold onto or sell this asset? This minimises the cost of investment and maximises the profitability an asset will return.

Life-cycle cost analysis and decarbonisation efforts

The fleet and logistics industry is the biggest polluter at 28% of carbon emissions. Manufacturers have to remove ICE vehicles by cars 2030, LCV's 2035 and HCV;'s by 2040. Fleets are looking to invest in Alternative Fuel Vehicles and charging infrastructure, but major investments cannot be made without precise planning and data cleanup. It is recommended that fleet managers utilise life-cycle cost analysis to prepare for future investments into electric vehicles and charging infrastructure.

Using LCA, fleet managers can understand the best ways to use their budget in the present so they can have room more major investments, like Alternative Fuels and charging infrastructure, in the future. LCA also helps fleet managers understand how much an EV costs to own and operate, from initial investment to maintenance and finally disposal. LCA serves as a long-term, exhaustive measurement of economic viability over each stage of an asset's life-cycle.

Additional benefits of life-cycle cost analysis

Aside from maximising profitability and assisting with decarbonization efforts, life-cycle cost analysis provides other important benefits for a fleet organization, including:

Regulatory Compliance: As a part of the United Kingdom's Ten Point Plan for a Green Industrial Revolution, the sale of new petrol and diesel vehicles is prohibited after 2030. While existing petrol and diesel vehicles may continue to operate after 2030, utilising LCA can help fleet managers prepare accordingly, as regulations often require specific reporting and analysis for compliance.

Corporate Policy Evaluation: LCA serves as a tool to review the impact of corporate policy decisions on an asset's life cycle. For example, LCA can weigh the upfront cost of implementing an alternative fuel in a vehicle vs. the fuel savings over the life cycle of the vehicle. While this was traditionally thought of as an effective way to measure the efficacy of compressed natural gas (CNG) and other alternative fuels, it can also be used very effectively for Alternative Fuel measurements.

Comprehensive Asset Management: Asset management is evolving from a narrower maintenance management approach to a broader and more exhaustive asset management approach. Instead of managing only operating and maintenance expenses, there is an expanded emphasis on replacement, procurement and remarketing strategies to minimise life cycle costs and maximise salvage value.

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Necessary data for life-cycle cost analysis

Fleet organisations capture a lot of data—from vehicle diagnostics and fuel usage to historical maintenance and downtime. Effective life-cycle cost analysis requires fleets to not only capture the necessary data points, but also to understand how to use them to tell the complete story of the assets.

1. **Maintenance and Repairs:** Information on costs related to parts and labour can be accessed through annual maintenance reports, labour reports and downtime reports from the fleet management system or asset service provider. Only the costs related to normal wear and tear repairs, component failure, refurbishment and routine maintenance should be included. Costs linked to accidents, physical damage, misuse, and user modifications are excluded.

2. **Downtime:** The reliability and time required to repair and maintain an asset changes as assets age and can influence an asset's optional life-cycle. Maintenance systems can provide data on the frequency of breakdowns and the out-of-service duration.

3. **Fuel:** An automated fuel management system which interfaces with commercial fuel card providers are the best sources for fuel consumption and cost data. The fuel transaction data captured by these systems can provide the quantity of fuel consumed over time and distance, as well as historic costs. In the modern day, premier fuel management solutions will integrate with Alternative Fuel technology to provide the same level of measurement with electricity as they do with petrol or diesel.

4. **Depreciation:** The ongoing capital expense associated with an asset is critical to determining its life-cycle. Capital or expense-based deprecation statistics are offered through capital journals or through capital asset management tools. These can provide purchase price and depreciation terms which, along with expected resale value, can determine the ongoing cost of ownership.

5. **Resale value:** An asset's market worth can be estimated by using an industry reference, such as Black Book, or by sampling salvage and sale records. Alternatively, salvage can be calculated from the purchase price, estimated depreciation salvage value, depreciation term and method.

6. **Usage:** Automated fuel systems, GPS/AVL systems and manual metre entry are all methods for collecting usage. Usage can be measure as time (hours of operation), distance (miles/kilometers), or as a count. Usage data is correlated with other costs to help calculate use-based life-cycle parameters.

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How to determine optimal replacement

In order to replace assets at an optimum economic end of life, fleet managers can calculate the cost per year of owning and operating an asset over its entire lifespan using a widely accepted methodology called Mean Equivalent Annual Cost (MEAC). MEAC averages the varying capital and operating costs for different life spans of an asset to identify which life span has the least annual cost and represents the optimal replacement point.

The MEAC cost calculation uses the cumulative costs of ownership and operation and an annual equivalency factor to determine the average annual cost for an asset with that life span. The average annual cost for each life span is plotted on a graph and presented in a table. The life span with the lowest average annual cost is considered the optimal life span and the recommended replacement point.

For example: Replacing a petrol or diesel vehicle before or after the recommended replacement time would result in higher costs. Replacing it at the optimum time, however, results in more money for the fleet to turn around and invest in EV technology in an effort to decarbonise operations. In effect, this system would help fleet managers understand and act on the most effective route to an Alternative Fuel fleet transition, either ahead of or on time with whatever mandate you may have to follow.

Electric vehicle fleet management

As fleets across the United Kingdom focus their efforts on decarbonisation, Alternative Vehicles adoption and charging infrastructure investments will be paramount to their success. Introducing Alternative Fuel into any fleet is wholly beneficial for a multitude of reasons.

In any case, the adoption of Alternative Fuel exponentially benefits our planet by reducing the amount of harmful exhaust gases projected into the earths atmosphere from daily vehicle usage but also allowing fleet organisations to: reduce maintenance, fuel and overall operational costs while driving efficiencies in driver productivity. Less trips to the petrol station, more miles covered, zero waste.

Decarbonisaton: A shared social responsibility

For over 40 years, the AssetWorks team has been committed to the success of the fleet and asset management industry around the world. As the industry shifts towards decarbonization and electrification, AssetWorks sits at the forefront while supporting any and all fleet organisations with their net xzero and alternative fuel strategy.

For More Information, visit: assetworks.co.uk

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