



# Low emissions vehicle cost-benefit calculator

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2. Outcomes and benefits for fleet management
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# How it works

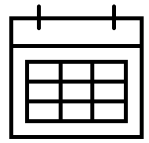
## Cost categories

Capital costs

Fuel costs

Insurance, tax, maintenance and servicing costs

Carbon liability



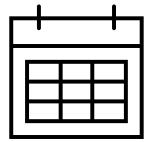
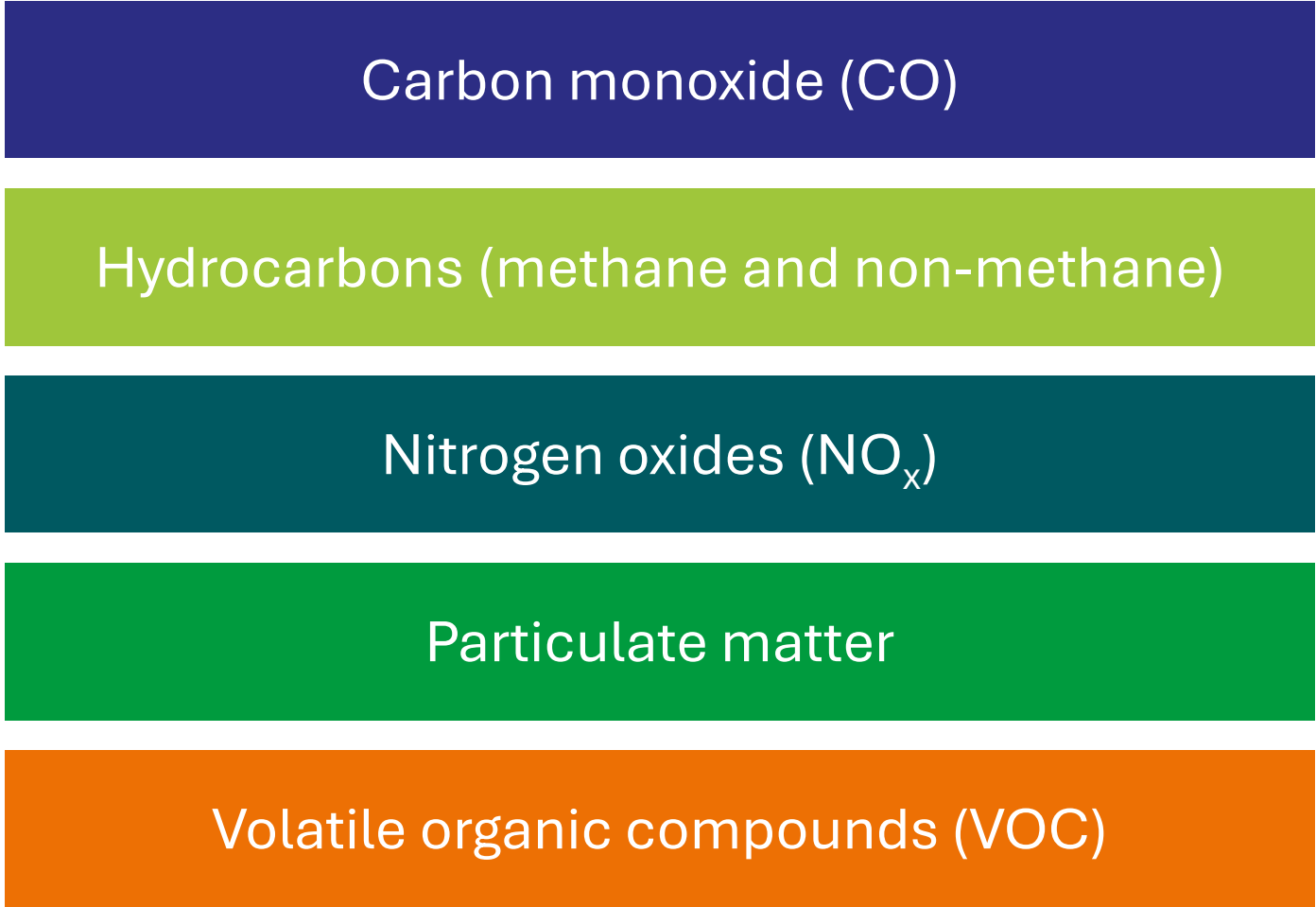
5- and 10-year assessment points



Excel-based model

# How it works

## Emissions categories



5- and 10-year assessment points



Excel-based model

# How it works

## Capital costs



### *Reference vehicle (ICE)*

Vehicle cost

### *Low emission vehicle alternative*

Vehicle cost

Charge point installation

- Capital and labour costs
- Grants
- Cost per socket

# How it works



## Fuel costs

### *Reference vehicle (ICE)*

#### Fuel consumption

- Annual mileage
- Miles per gallon

#### Fuel prices

- Forecast fuel prices (annual change based on historic trend)

### *Low emission vehicle alternative*

#### Electricity consumption

- Annual mileage
- Vehicle range (worst case scenario)
- Annual kWh requirement

#### Electricity prices

- Forecast electricity prices (annual change based on historic trend)

# How it works

## Insurance, tax, maintenance and servicing costs



### *Reference vehicle (ICE)*

#### Revenue costs

- MOT
- Road tax
- Maintenance
- Servicing
- Insurance
- Breakdown cover

### *Low emission vehicle alternative*

#### Revenue costs

- Same categories as for reference vehicle

#### Charge point costs

- Back-office costs
- Proactive maintenance

# How it works

## Carbon liability



### *Reference vehicle (ICE)*

#### Emissions factor

- Fuel-specific kg CO<sub>2</sub>/km

#### Carbon price

- BEIS traded carbon values for modelling purposes

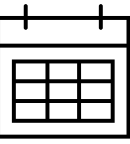
### *Low emission vehicle alternative*

#### Emissions factor

- UK electricity conversion factor (grid average)
- Scope 2 and 3 emissions included
- Includes GWP of CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub>

#### Carbon price

- BEIS traded carbon values for modelling purposes



5 years

# How it works



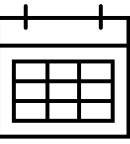
## Example:

Peugeot Expert Combi 1.6 HDI 8-seater



Vauxhall Vivaro-e Life Combi L 50 kWh





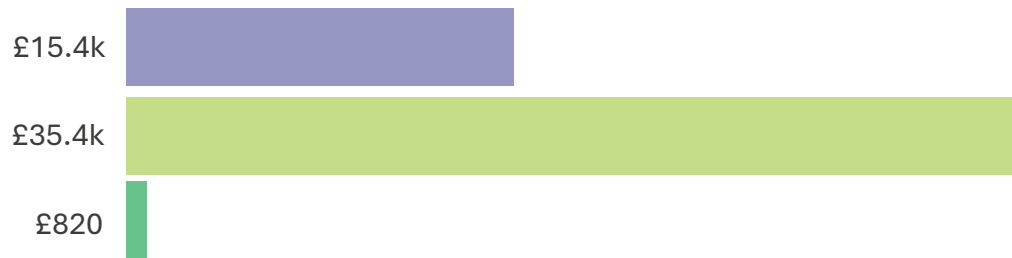
10 years

# How it works

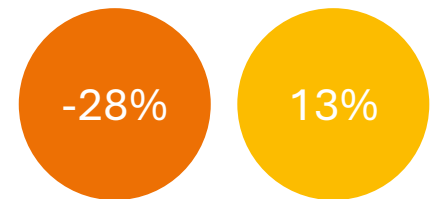


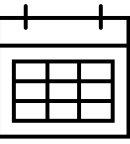
## Example:

Peugeot Expert Combi 1.6 HDI 8-seater



Vauxhall Vivaro-e Life Combi L 50 kWh





5 years

# How it works

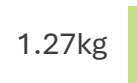


## Example:

Peugeot Expert Combi 1.6 HDI 8-seater



Vauxhall Vivaro-e Life Combi L 50 kWh



# How it works

## Information sources:

- [Electric Vehicle Database](#)
- Web searches
- Previous EV projects
- DSO tools (LENZA, Your Local Net Zero Hub)
- [Defra – Air quality appraisal: damage cost guidance](#)
- [UK Government GHG Conversion Factors for Company Reporting](#)
- [ICE reference vehicle](#) and [GOV.UK](#)
- [Miles per gallon by vehicle make/model](#)
- [Weekly road fuel prices](#)
- [Updated short-term traded carbon values used for modelling purposes](#)



# Outcomes and benefits for fleet management

## Inputs to business case

- Conservative cost assessments
- Standard and comprehensive methodology
- Independent analysis

## Communication tool

- Costs and benefits of transition to EV
- Snapshots (5 and 10 years) rather than full time series
- Key cost categories
- Air quality impacts

### Challenges:

- Resource to update model variables
- Sensitivity of results to dynamic variables, e.g., fuel costs
- Incorporating air quality impacts
- Still additional cost to EV transition
- Charging infrastructure timescales
- Future electricity grid mix
- Data availability, e.g., insurance

# Alignment with wider policy framework

## Climate Change and Air Quality Strategy

- Action 24. Review the council's fleet and develop proposals to reduce emissions from its operation

## Climate Change Fund

- Fund earmarked to support the transition of Council fleet to Battery Electric Vehicles
  - Fleet vehicle replacement (funding shortfall – difference in ICE and BEV cost)
  - EV charging infrastructure installation

