



VEV

# The five steps to electrifying your RCV fleet

Improve your local community while  
accelerating your net zero efforts

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VEV

Powering zero-emission  
waste collection in your community

Find out more: [vev.com](https://www.vev.com)



The Complete  
Refuse Vehicle  
Solution



FUTURE  
INSIDE

Designed by EMOSS

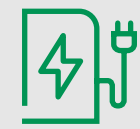
Delivered by Refuse Vehicle Solutions

Do not reach  
under raised refuse  
unless it is  
safely propped



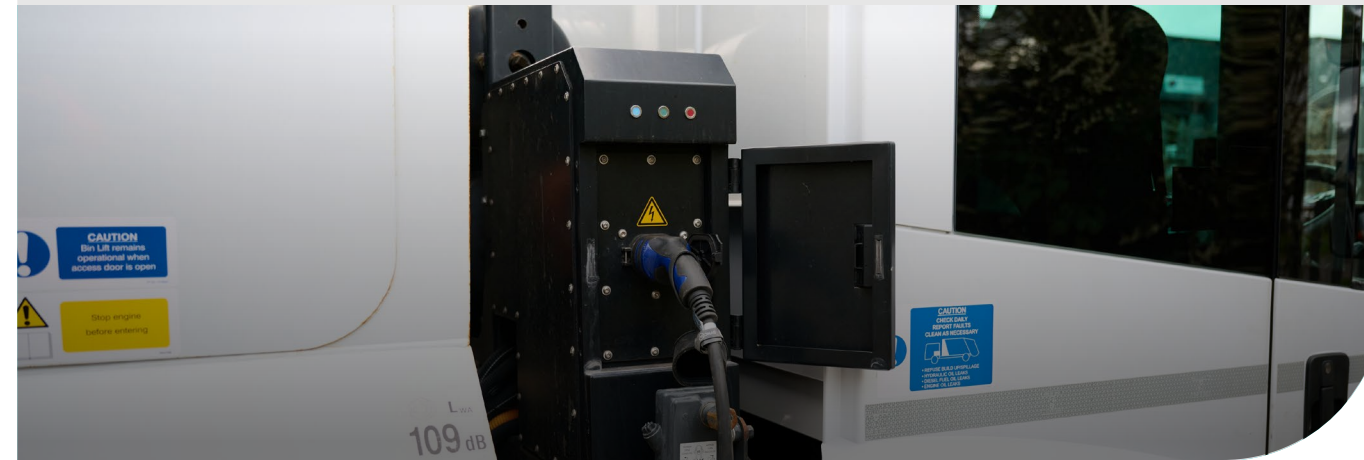
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# Introduction

As of July 2021, more than 300 local councils in the UK had declared a climate emergency, but only a handful are taking meaningful action to decarbonise their waste fleets. Out of the estimated 19,000 refuse collection vehicles (RCVs) in the country, only about 150 (less than 1%) are electric.<sup>1</sup>

Transitioning these vehicles to electric doesn't just reduce carbon emissions, contributing to global net-zero ambitions. It also improves local air quality, reducing particulate and harmful emissions from diesel vehicles constantly accelerating and braking in towns and cities.

According to a report published by environmental consultancy, Eunomia, replacing local authority-operated diesel RCVs with electric counterparts can reduce CO<sub>2</sub>e emissions from 330 kilotonnes, to a mere 40 kilotonnes.<sup>3</sup>

The good news is that among the early adopters, we're already starting to see the benefits of RCV electrification in action.

In 2022, Manchester City Council partnered with Biffa to introduce 27 electric refuse collection vehicles (eRCVs) into their fleet. In replacing half of their conventional waste vehicles, the transition is expected to save the Council around 900 tonnes of CO<sub>2</sub> per year.<sup>4</sup>

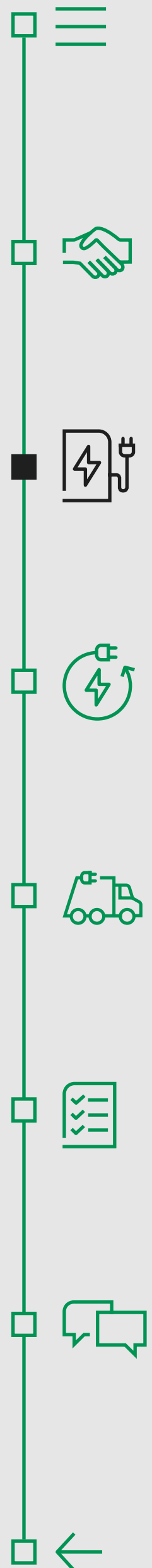


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<sup>1</sup> VEV Analysis

<sup>3</sup> <https://eunomia.eco/reports/ditching-diesel-analysis-electric-refuse-collection-vehicles/>

<sup>4</sup> <https://www.smm.co.uk/2022/03/electric-refuse-trucks-helping-to-scrap-carbon-emissions/>



# Why transition your fleet to EV?

1

## Lower CO2 emissions

Fully-laden diesel RCVs can emit in excess of 600g CO<sub>2</sub>/km travelled, the case for transitioning to electric vehicles is clear from an environmental viewpoint.

2

## Better air quality

Not only do eRCVs improve the air quality of cities and local communities, they also improve the health of its residents.

3

## Improvements for local health outcomes

According to a team of researchers from the Keck School of Medicine of USC, when registrations of zero-emission vehicles (ZEVs) increase in a given area, air pollution levels and asthma-related emergency room visits decrease.<sup>6</sup>

4

## Deliver on council priorities

At VEV, our own research tells us that decarbonising council vehicles is one of the top 3 priorities for local councils, driven by the need to meet Net Zero targets by 2035.

5

## Lower costs

Switching to eRCVs reduces the total cost of ownership (TCO) compared to diesel vehicles.<sup>7</sup> By converting existing diesel vehicles to electric, fleets can save on both the initial and the operational costs, while extending the lifespan of their assets. According to our modelling and real world operational data from our partners' fleet (RVS), fleets can save 13-16% on their TCO moving from ICE to EV.

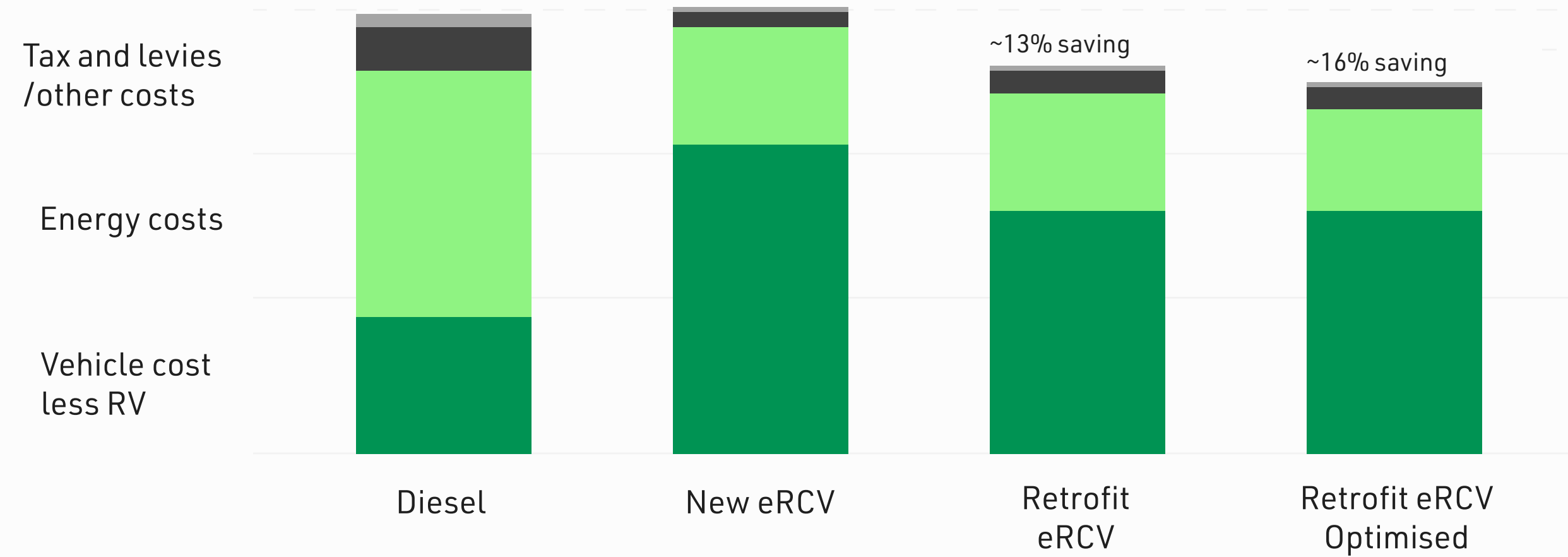
<sup>5</sup> <https://minutes.belfastcity.gov.uk/mgAi.aspx?ID=20375>

<sup>6</sup> <https://www.sciencedirect.com/science/article/abs/pii/S0048969723003765?via%3Dihub>

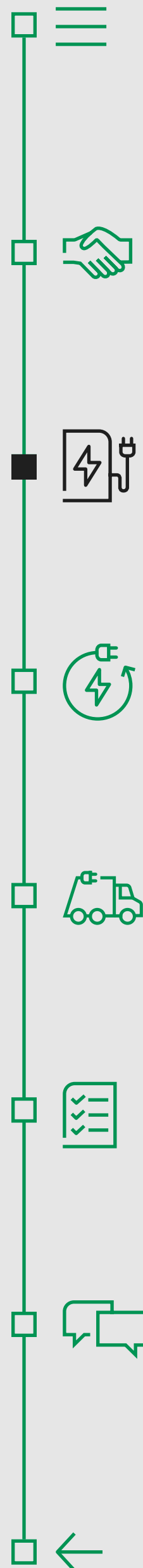
<sup>7</sup> TCO takes into account not only the upfront purchase cost, but also the ongoing expenses of fuel, maintenance, insurance, and taxes



# ⚡ Why you should transition your fleet to EV?



However, as more local authorities adopt eRCVs, original equipment manufacturers (OEMs) will likely experience a surge in demand for their flagship models. Local authorities will therefore need to plan ahead, adopt early, and consider alternatives if they choose to wait.



# The benefits of making the move to electric



## Quieter waste collections

eRCVs are much quieter than their diesel counterparts, so they reduce noise pollution. Not only do residents enjoy quieter collections, but collection hours can be more flexible, as eRCVs aren't limited to only collecting during daylight hours.



## Better service

Electric waste collection vehicles encounter fewer service and maintenance issues, making them more reliable. In turn, this ensures that local authorities can have the optimum number of vehicles on the road to provide the best service at the best value for residents.



## A visible commitment to Net Zero

It's important that local residents are able to see the results of their council's decarbonisation efforts. Residents want to know that local authorities are making good investment decisions and are implementing effective changes. Demonstrating a commitment to achieving Net Zero can also improve the perception of councils and their future term in office.



# The benefits of making the move to electric



## Lower total cost of ownership

According to Eunomia, the total cost of ownership (TCO) of an eRCV would be around 5% higher than a diesel over 8 years.<sup>8</sup> However, if the monetised impact of emissions is included, the eRCV's TCO saving is more than £12,300 over the same period. So, although initial purchase costs may be higher, when we consider that tax, fuel, maintenance, and insurance costs are lower for electric vehicles, it becomes clear that transitioning to eRCVs is a smart move in the long-term.

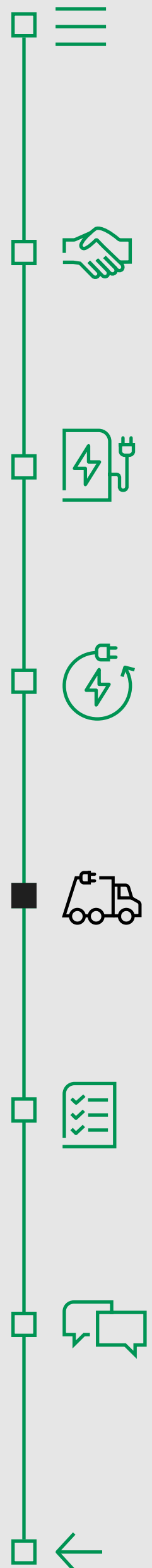


## Reuse old vehicles

With the improvements in battery and conversion technology, the cost of moving to electric is significantly reduced by converting old vehicles. Leading converters, like Refuse Vehicle Services (RVS) are giving old vehicles a new life through refurbishment. What's more, it's a sustainable approach to bringing more eRCVs onto the market, as it doesn't require the construction of a new chassis, and it takes an old emitting vehicle off the road, preventing future emissions through the vehicle's second and third lives.

<sup>8</sup> <https://www.eunomia.co.uk/reports-tools/ditching-diesel-analysis-electric-refuse-collection-vehicles/>





# Don't get left behind - large scale transitions to electric are already happening



Making the move to eRCVs requires careful planning. In most cases, a phased approach works best, both financially, and logistically.



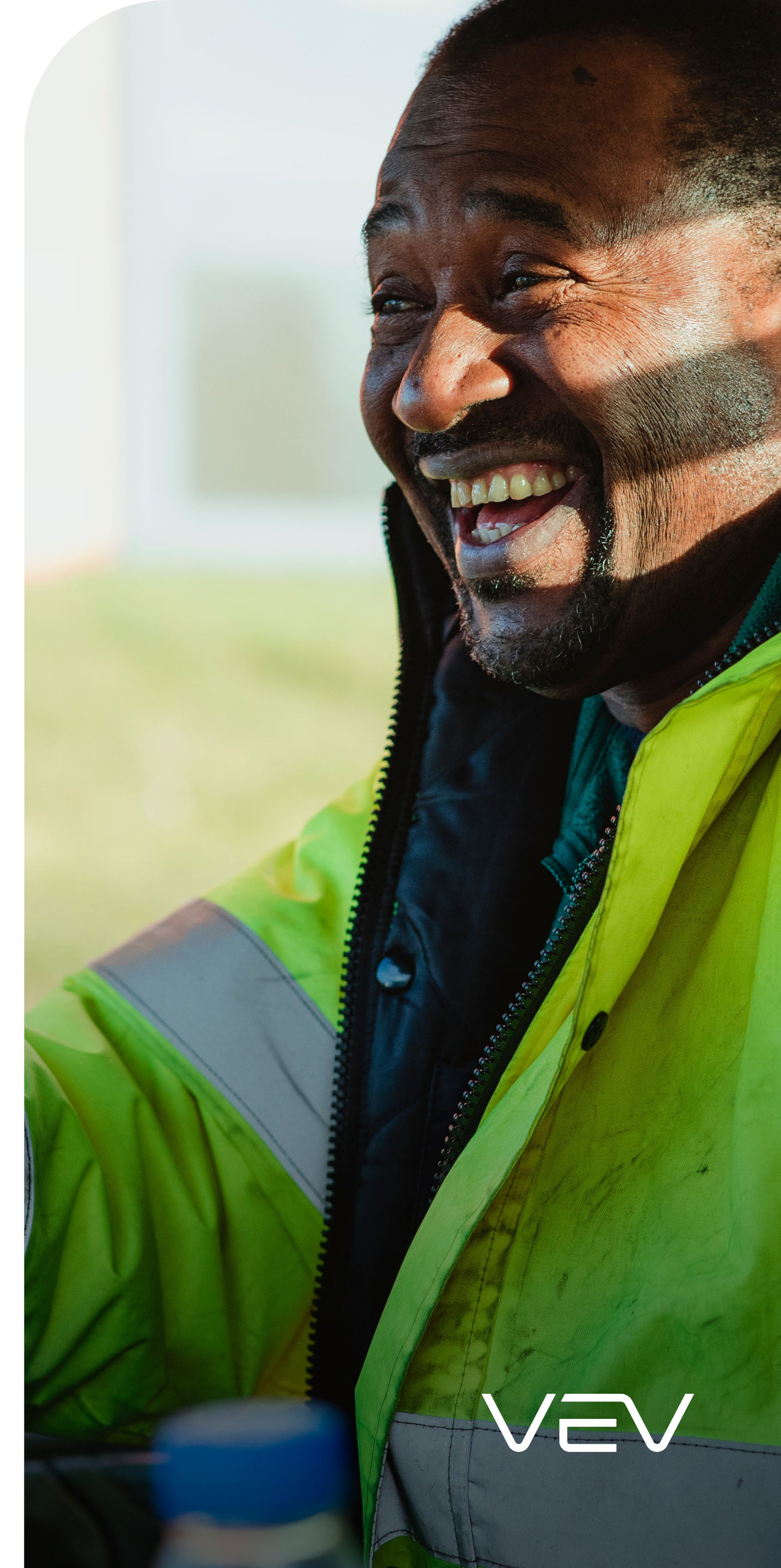
Given that 10% of the UK's total carbon emissions are from fleets<sup>9</sup> (with RCVs being one of the largest carbon emitters), decarbonising waste vehicles is critical to meeting net zero targets, improving air quality, and saving local authorities money.



Following the UK government's announcement that all new HGVs are to be zero emission by 2040<sup>10</sup>, local authorities all across the UK are ramping up their RCV transition journeys.



A recent report from the International Solid Waste Association (ISWA) found that of the 33 municipalities that were surveyed (many of them in the UK), almost half (17) said that they had already introduced low emission vehicles for their waste collection services.<sup>11</sup>

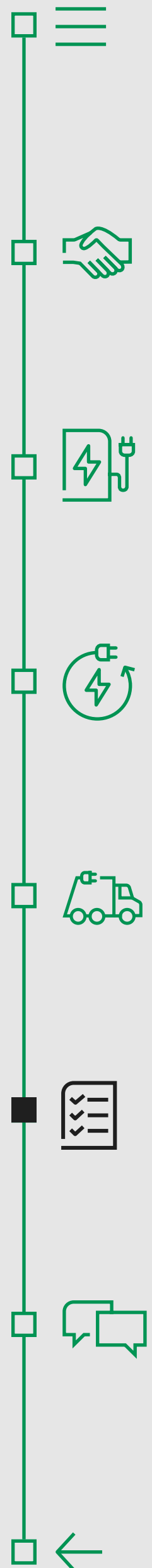


<sup>9</sup> <https://www.gov.uk/government/statistics/transport-and-environment-statistics-2022/transport-and-environment-statistics-2022>

<sup>10</sup> <https://www.gov.uk/government/consultations/heavy-goods-vehicles-ending-the-sale-of-new-non-zero-emission-models/outcome/outcome-and-response-to-the-consultation-on-when-to-phase-out-the-sale-of-new-non-zero-emission-hgvs>

<sup>11</sup> <https://www.iswa.org/wp-content/uploads/2022/09/WGCTT-Alternative-Fuels-Report-2022-Final.pdf?v=75dfead2dded>










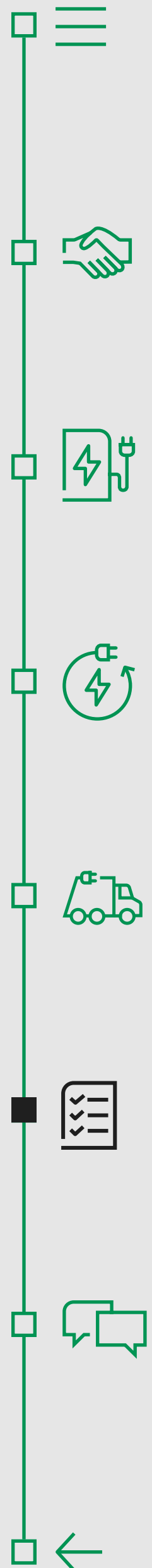
# The five steps to your transition

Implementing operational change in an organisation requires careful planning and communication. Here's our step-by-step guide to help you transition your RCV fleet to electricity seamlessly:

## 1. Rally all stakeholders 2 3 4 5 6

-  **Prepare for the journey**  
Ensure that all stakeholders understand the reasons for transitioning to eRCVs and the steps involved.
-  **Get team 'buy in'**  
Ask for input from team members and use their valuable feedback to develop the transition plan.
-  **Be transparent**  
Transparency is key when embracing electrification, so keep everyone updated of the changes and the anticipated benefits.
-  **Create a roadmap**  
Outline each step of the process, including the expected outcomes, and how you will measure success.
-  **Sign up for a demo**  
Derisk your transition to EV with an integrated pilot to trial the vehicle and get real world TCO and operational data.









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- 1
- 2. Evaluate your depot, vehicles & skillset**
- 3
- 4
- 5
- 6

-  **Analyse your data**  
Create an overview of data like fuel consumption, maintenance costs, vehicle usage, and operating schedules.
-  **Assess your fleet**  
Identify which vehicles are ready to be upgraded based on factors like age, mileage and maintenance costs.
-  **Evaluate conversion potential**  
Determine which vehicles can be converted from diesel to electric, looking at factors like vehicle type and condition.
-  **Understand depot configuration**  
Consider the layout, capacity, facilities, and power availability of your on-site premises.





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- 1
- 2
- 3. Look beyond up-front investment**
- 4
- 5
- 6



### Look for subsidies

With the UK government's continued focus on decarbonisation, there are many grants and subsidies available to ease your transition.



### Avoid capital investment

Being able to electrify your RCVs through an OpEx 'as-a-service' model means you can avoid heavy investments.



### Work with suppliers and partners

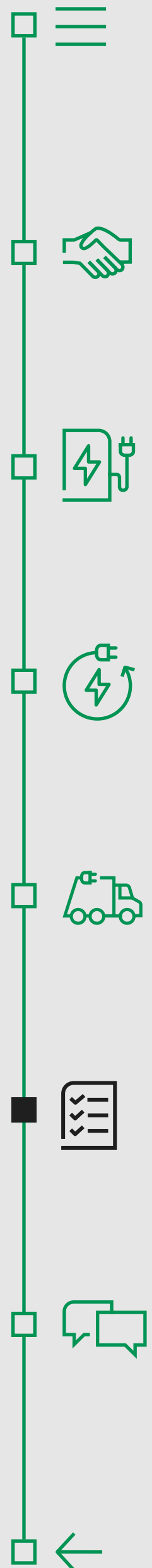
When selecting your partners, consider the long-term value and benefits of the relationship, not just the up front cost.



### Measure your success

Define what success will look like - will it be meeting your net zero targets early? Or continuing to offer an uninterrupted service to the community?









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- 1
- 2
- 3
- 4. Develop your transition strategy**
- 5
- 6

-  **Identify depots**  
Consider factors like size, location, and the types of vehicles when choosing which depots to electrify.
-  **Choose your drivers**  
Drivers who are open to change, have a positive attitude, and are respected by their peers can be advocates for your transition.
-  **Decide on a time line**  
Be realistic and consider the availability of eRCVs, the capacity of our depots, and the training needs of your drivers - all the while allowing for unexpected challenges.
-  **Communication is key**  
Keep residents informed about the changes and the benefits of eRCVs to generate support for the project.





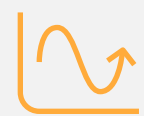
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## Start small

If you haven't already started, keep your first move to a single depot or handful of vehicles, giving you a chance to learn and refine your roll-out plan.



## Iterate based on data & learnings

Use telematics and energy data from your trial to monitor the success of your vehicles (and the comparison to your ICE fleet) to update your plan and inform the scaled investment.



## Phase change through your fleet

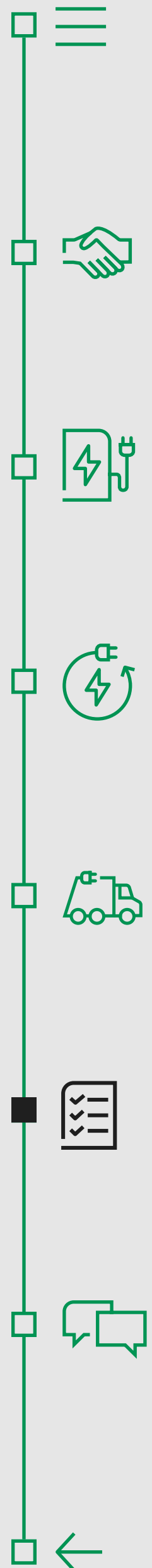
Move through your fleet in phases, tailoring your plan as you learn and you move from easier to more challenging vehicles.



## Educate your teams

Bring your teams on the journey, early drivers will love the vehicles, and they will be advocates to the rest of your team. Educating them on the best way to drive and charge a vehicle will positively impact your roll-out and TCO.









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- 1
- 2
- 3
- 4
- 5
- 6. Inspire others to follow you**

-  **Demonstrate the impact**  
Communicate the benefits of eRCVs, especially the positive environmental impacts, using real world data from your fleet.
-  **Outline the community benefits**  
Highlight the positive health impacts of eRCVs, the potential for job creation, and infrastructure development.
-  **Promote your progress**  
Use local media, social media, and community events to share your vision, chart your progress, and generate support for the project.
-  **Measure your success**  
Share your experiences of transitioning to eRCVs in publications, or by hosting workshops to inspire others to follow suit.



# Start planning now for a sustainable future

The transition to eRCVs is gathering pace. You can get ahead by evaluating which vehicles are ready to be transitioned right now, and which are better suited to being converted, or upgraded.

To achieve sustainability goals and meet net zero commitments, it's important to act now. By following the five steps in this guide, you can start reaping the benefits of improved air quality and lower fleet operating costs.

At VEV, we help organisations deliver on their carbon reduction ambitions with end-to-end fleet electrification which integrates vehicles, charging infrastructure and power systems. VEV is owned by Vitol, a world leader in energy that has committed more than \$2 billion to sustainable energy initiatives worldwide.

We navigate the complexities of EV transformation, designing and implementing cost-effective fleet solutions which are optimised for specific requirements. Our aim is to support you as you transition to electric refuse collection vehicles whilst ensuring operational resilience and delivering against your commitments to your community.

More information at [VEV.com](https://www.vev.com)

Contact us [ask@vev.com](mailto:ask@vev.com)

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