

# Driving the change switching to electric

**The World Business Council for Sustainable Development (WBCSD) has developed the first comprehensive guide for corporate electric vehicle (EV) fleet adoption. By electrifying their fleets, companies can reduce costs and contribute to improved air quality and citizen health. This guide provides an overview of how to make the transition.**

## Foreword

Urban mobility is normally the core of city life and economic activity. It provides us with access to work, health, education, goods, services and leisure. Mobility systems are essential to our modern economy, but for most large cities, mobility systems are also at their limits.

The COVID-19 pandemic is profoundly changing the way people move and do business. The effects of the pandemic on mobility highlight the need for vehicles and transportation systems that are resilient to further shocks.

The world needs immediate business actions to address the crisis and shape the "new normal". But immediate responses to COVID-19 must also contribute to the medium and long-term goals such as the ones outlined in the Paris Agreement. It's essential to look ahead and prevent a further exacerbation of the climate crisis: in short, we need to pair climate action with our COVID recovery.

One key step that business can take towards building a more resilient and healthier world is to electrify their fleets and remove polluting vehicles from the roads.

This will help minimize the contribution of transport to the climate emergency, where emissions are increasing by 2.5% per year.<sup>1</sup>

Transport is also a significant and growing contributor to particulate air pollution. The total contribution of transport to particulate air pollution can vary widely, from 12%-70% of the total pollution mix,<sup>2</sup> which costs countries on average 3.5% of their GDP.<sup>3</sup>

A study by Transport & Environment indicates that urban air pollution is responsible for half a million premature deaths per year in Europe alone.<sup>4</sup> The drop in carbon emissions as a result of COVID-19 shows what is possible when our streets are not powered by ICE vehicles, and estimates are that the corresponding drop in air pollution may have saved around 77,000 lives worldwide.

### **The message is clear: mobility needs to decarbonize.**

The good news is that urban mobility is undergoing a massive transformation driven by new policies, technology, and behavior change. This presents a global economic opportunity worth trillions of dollars, along with the potential to improve the livelihoods of billions of

people, their quality of life, their health and the environment.<sup>5</sup>

The recession caused by the pandemic shock will force companies to make difficult economic decisions. It's therefore crucial to highlight the long-term financial benefits of driving electric. If high annual distances are driven, the total cost of ownership - including incentives, lower refueling expenses and savings in long-term maintenance costs - is lower for EVs than for comparable ICE cars. Business and commercial fleet operators often have high vehicle utilization, making them ideal candidates for early EV adoption. Switching from internal combustion engines to electric engines in vehicles is a clear pathway to decarbonize mobility and improve air quality. The transition is accelerating with lower purchase costs, longer vehicle ranges, different vehicle types, faster charging speeds and stricter emission regulation.

However, the switch is not happening quickly enough. The IEA estimates we need a global EV population of 250 million by 2030 to align with the Paris Agreement.<sup>6</sup>

**WBCSD has developed this guide to help companies accelerate their fleet transition to sustainable, electric mobility.**

## Who is the guide for?

This guide is aimed at corporate fleet managers, company strategists, procurement officers, and sustainability managers who are involved in commercial decisions regarding company vehicle fleets.

**The guide is here to help you make the right decisions as you transition to an electric fleet.**

## Why switch?

Choosing to electrify your corporate fleet is a simple action that delivers multiple benefits – reducing costs, improving air quality and citizen health, and protecting the environment.

EVs have come a long way since the first models were introduced around 2010. Purchase costs are lower, ranges are longer, and different vehicle types are becoming more widespread. Charging is quicker, smarter, and more readily available.

Despite the current uncertainties in the energy sector caused by the COVID-19 pandemic, [many countries are eager to continue promoting the electrification of transport](#). In many regions there

## Some key elements include:

- Electric vehicles (EVs) in your region
- Incentives from your government
- Current industry trends and innovations
- Charging technologies to choose from
- Learning from others and how they have transitioned their fleets to electric
- How you can make your EV transition as successful as possible

are subsidies for EV purchases. In addition, studies increasingly show the cost advantages for the total cost of ownership (TCO) of EVs compared to internal combustion engines (ICE).

Since 2011 the global market has grown at an average annual rate of over 65%. In 2018 the number of battery EVs grew by nearly 75% to reach 1.3 million.

This growth has been driven by strong transportation decarbonization policies that pushed significant investments in battery technology and charging infrastructure. Consequently, battery prices have dropped sharply – from around \$800/kWh in 2011 to around \$200/kWh today.

[EVs have proven efficient in helping communities bounce back from crises](#). EV batteries have been used to sustain the power distribution to households during power outages and during the COVID-19 pandemic, [EV autonomous renewable chargers are being repurposed to power emergency response facilities](#).

As governments and businesses around the world design COVID-19 recovery plans, it's clear that returning to business-as-usual is not enough. We need to build back better and investments in cleaner modes of transport can allow the world to benefit economically, socially and environmentally.

## Why electric?

Why choose electric cars, when there are lots of other alternative fuels becoming available, such as natural gas, propane gas and advanced biofuels?

### Emissions:

Although alternate fuels exist, battery EVs show a better reduction in emissions (compared to ICE) over the vehicle lifecycle when accounting for production, use, and recycling. An EV engine is also three to five times more efficient than an ICE.<sup>9</sup>

This is an important consideration for companies who want to reduce their overall energy consumption, impact on the environment and meet the expected future regulations relating to climate, carbon emissions and reporting, from bodies such as the Task Force on Climate-related Disclosure (TCFD).

### Cost benefits:

The battery EV is now a mass-market solution that, in some countries, is cheaper to own than a conventional vehicle.<sup>10</sup> One of the contributing factors to this is the fact that the maintenance of a EV is about 70% less compared to an ICE.<sup>11</sup>

Battery EVs can lower the operating costs<sup>12</sup> of your fleet by reducing energy costs by 2-3 times,<sup>13</sup> decreasing the GHG emissions of your company, and improving the health and welfare of your employees.<sup>14</sup>

### Better air quality:

Going electric helps to reduce particulate pollution, meaning cleaner air for people to breathe. This has a major impact on air quality – which currently contributes to more deaths worldwide than cigarette smoking.<sup>15</sup>

### Additional benefits:

Driver satisfaction – the instant acceleration, ease of one-pedal driving, and reduced noise are just some of the things drivers regularly report they love about EVs

Better access to cities - examples include the exemption from congestion charging zone fees in London, access and free parking in Madrid's restricted access area and access to city centres with impending combustion engine bans

Moreover, electrification will be fundamental when companies develop their [integrated energy strategy](#) that also utilizes the knowledge, expertise and relationships with their suppliers and customers.

## What kind of EV could you choose?

- 1. Plug-in Hybrid Electric Vehicles (PHEVs)** combine an ICE with a battery electric drivetrain. The car can be re-charged by plugging into an external battery charger, or through the internal energy exchange within the vehicle. Batteries are typically sized for medium distances and, when combined with the ICE, can deliver up to 870km of driving range.
- 2. Battery Electric Vehicles (BEVs)** have a full electric drivetrain. The car is powered by electricity from a battery and charged via an external charger. Longer driving ranges require bigger battery packages. Depending on the battery size, charger type and charging power, a full charge can be completed in anywhere from five minutes to several hours. EV range has increased steadily since 2010 with some offerings now delivering up to 600km.
- 3. Fuel Cell Electric Vehicles (FCEVs)** generate electricity for their electric drive train on-board, by using a fuel cell fed with hydrogen. The hydrogen tank can be refilled in just a few minutes, which makes it relevant for intensive operations. However, there is little hydrogen filling infrastructure available. FCEVs deliver ranges up to 600km.

**This guide focuses firstly on BEVs, for their favourable commercial viability and availability, the energy efficiency characteristics of electric drive,<sup>16</sup> and the decarbonization potential of the electric power sector relative to other energy supply chains.<sup>17</sup>**

## The EV adoption guide

Transitioning your fleet to EVs means making operational changes to your fleet management. It requires careful research and planning to ensure your money is spent wisely and the implementation is as seamless as possible.

This guide addresses the EV adoption process, in order to help companies, make the right choices.

The guide brings together practical experiences and specific expertise in EV fleet transition, from a wide range of industry and global perspectives, and presents them in a way that is easy to navigate.

The guide is for corporate fleets that primarily use passenger light duty vehicles (PLDVs), minivans, and light commercial vehicles, focusing on three corporate EV use cases:

- Company-owned vehicles used and housed with employee
- Company-owned vehicles housed at a company office
- Last mile goods deliveries

However, the guide provides valuable recommended reading for fleet managers in general and is designed to provide your company with:

- **The most up-to-date and geographically relevant information resources on EV technologies**
- **The clear steps to take in planning and adopting an EV fleet**
- **An overview of best practices and learnings provided by companies who have already undergone their fleet transitions**

## Companies involved



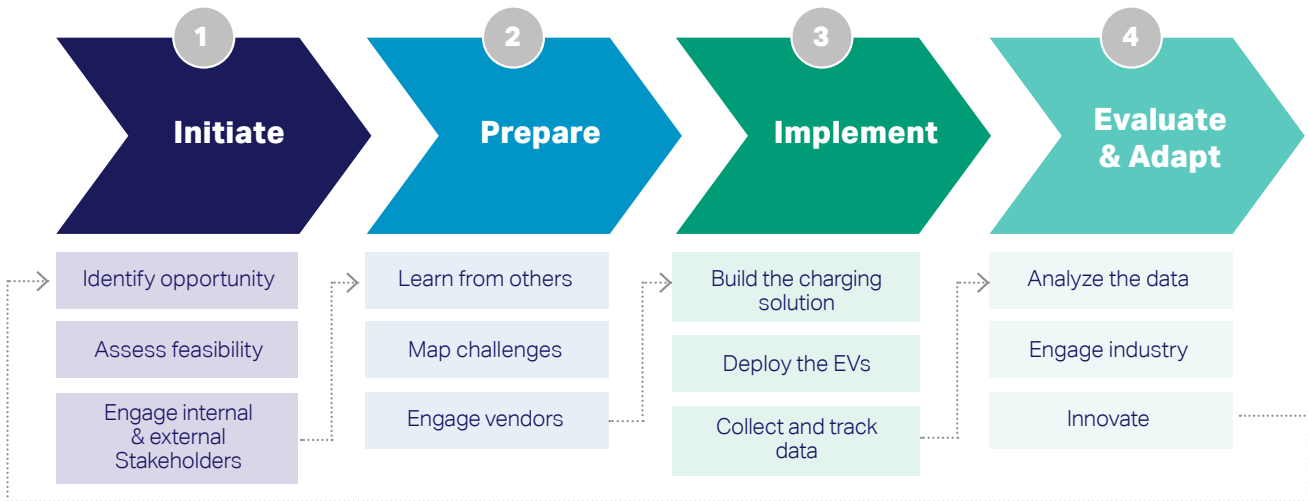
## Gettings started

This guide gives you the information, approach, and industry learnings to make your EV transition a success. Some of the high-level steps can be seen in the following image.

### Using the guide is simple.

Go to <https://wbcstools.org/goev/> and start developing the plan to make your fleet electric by sharing the guide with relevant stakeholders in your organization.

It's time to get your fleet on the path towards **lower costs, lower GHG emissions, and better employee health and welfare.**



## Endnotes

<sup>1</sup> International Energy Agency, Tracking Clean Energy Progress 2017 [www.iea.org/publications/freepublications/publication/TrackingCleanEnergyProgress2017.pdf](http://www.iea.org/publications/freepublications/publication/TrackingCleanEnergyProgress2017.pdf)

<sup>2</sup> WHO – Health and sustainable development <https://www.who.int/sustainable-development/transport/health-risks/air-pollution/en/>

<sup>3</sup> R Roy, N Braathen. 2017. The Rising Cost of Ambient Air Pollution thus far in the 21st Century: Results from the BRICS and the OECD Countries. OECD. Table 8, Page 22. <https://www.oecd-ilibrary.org/docserver/d1b2b844-en.pdf?expires=1567175371&id=id&accname=guest&checksum=6B8B138708FC8D8A7D65DFDD01J381E97>

<sup>4</sup> Transport & Environment. 2015. Don't Breathe Here [https://www.transportenvironment.org/sites/te/files/publications/Don't\\_Breathe\\_Here\\_report\\_FINAL.pdf](https://www.transportenvironment.org/sites/te/files/publications/Don't_Breathe_Here_report_FINAL.pdf)

<sup>5</sup> Deloitte Insights. 2018. New Roads to the health care of tomorrow: How the future of mobility promises to change the US health care

<sup>6</sup> IEA estimates that aligning with the Paris Agreement would, among other requirements, need industry to achieve an EV adoption trajectory that would create a global EV population of 250 million by 2030

<sup>7</sup> S Shepard, S Abuelsamid. 2019. Market Data: EV Market Forecasts. Navigant Research <https://www.navigantresearch.com/reports/market-data-ev-market-forecasts>

<sup>8</sup> "Electric Vehicle Battery: Materials, Cost, Lifespan." 2018. Union of Concerned Scientists <https://www.ucsusa.org/clean-vehicles/electric-vehicles/electric-cars-battery-life-materials-cost>

<sup>9</sup> "All-Electric Vehicles." <http://www.fueleconomy.gov/feg/evtech.shtml> (November 5, 2019).

<sup>10</sup> "LeasePlan's new Car Cost Index reveals EVs now cost competitive." 2018. LeasePlan. <https://insights.leaseplan.co.uk/fleet-management/cost-reduction/car-cost-index-2018/>

<sup>11</sup> Staff, A. E. N. 2019. "Levelized Costs of Driving EVs and Conventional Vehicles." EnergiMedia.

<https://energi.media/canada/costs-of-driving-evs-quickly-becoming-competitive-with-conventional-vehicles-neb/> (November 5, 2019).

<sup>12</sup> "LeasePlan's new Car Cost Index reveals EVs now cost competitive." 2018. LeasePlan. <https://insights.leaseplan.co.uk/fleet-management/cost-reduction/car-cost-index-2018/>

<sup>13</sup> "Electric vehicles from life cycle and circular economy perspectives." 2018. EEA.

<https://www.eea.europa.eu/publications/electric-vehicles-from-life-cycle>

<sup>14</sup> W Clarke. 2017. 4 Ways EV Charging Stations Can Benefit Your Business. Smallbizdaily. <https://www.smallbizdaily.com/4-ways-ev-charging-stations-can-benefit-business/>

<sup>15</sup> "Air Pollution Killing More People than Smoking, Say Scientists." World Economic Forum. <https://www.weforum.org/agenda/2019/03/air-pollution-killing-more-people-than-smoking-say-scientists/> (November 5, 2019).