



Driving Progress on the Zero-Emission  
Vehicle Transition

# COP28 PROGRESS UPDATE →



# Acknowledgments

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This report was prepared by the Accelerating to Zero Coalition, in partnership with CALSTART/Drive to Zero, Clean Energy Ministerial, Climate Group, First Movers Coalition, and Smart Freight Center, as empowered by the Road Transport Breakthrough.



# Overview

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Reducing greenhouse gas (GHG) emissions from transportation is essential for achieving global climate goals.

Overall, transportation accounts for 21% of global anthropogenic CO<sub>2</sub> emissions and over one-third of CO<sub>2</sub> emissions resulting from consumer energy usage, with oil products constituting 91% of the sector's overall energy consumption.<sup>1</sup> Reducing GHG emissions from road transport is particularly critical. In 2022, cars, trucks, and other road vehicles were responsible for approximately three-quarters of the total CO<sub>2</sub> emissions from transportation.<sup>2</sup>

Significantly decarbonizing the road transport sector by 2050, in alignment with the Paris Agreement objective of limiting warming to well below 2°C, will not only require a rapid global transition to zero-emission vehicle (ZEV) technologies capable of delivering very low GHG emissions over their lifecycles, but also additional measures to improve fuel efficiency, reduce car dependence, and improve freight logistics.<sup>3</sup>

For ZEVs, the pace of a Paris-aligned transition broadly aligns with major markets reaching 100% ZEV sales for new light-duty vehicles (LDVs) by 2035 and for new heavy-duty vehicles (HDVs) by 2040, and all other countries following suit within 5 to 10 years, collectively reaching 100% ZEV sales for new vehicles globally by 2045. Such a transition would avoid 95 Gt of CO<sub>2</sub> emissions between 2023 and 2050,<sup>4</sup> an amount equivalent to approximately 3 times the total global emissions from fuel combustion in 2020.<sup>5</sup>

Although global ZEV sales continue to increase every year, the sector is not yet on track for a Paris-aligned emissions pathway. To remedy this, it is imperative that governments, businesses, and other stakeholders align behind timelines by which all new vehicle sales should be zero-emission, and subsequently put in place the effective policies, regulations, investments, and infrastructure systems needed to secure the ZEV transition.





## Progress Toward a Paris-Aligned ZEV Transition

**28**  
countries

representing 17% of global LDV sales, have adopted binding policies for LDVs.<sup>6</sup>

**24**  
countries

representing 13% of global LDV sales, have set voluntary ZEV targets or proposed policies for LDVs.<sup>7</sup>

**0**  
countries

have adopted binding policies for MHDVs.

**27**  
countries

representing 20% of global MHDV sales, have set voluntary ZEV targets for MHDVs.<sup>8</sup>



Photo courtesy of CALSTART.





Realizing the importance of aligning government and private-sector stakeholders behind a shared vision for the ZEV transition, organizations dedicated to accelerating progress have established several initiatives in the last few years.

These initiatives provide platforms for setting common and coordinated ZEV targets and measures to achieve a Paris-aligned emissions pathway, and to provide support for implementing actions.

**These initiatives include:**

- EV100
- EV100+
- First Movers Coalition trucking commitment
- Fleet Electrification Coalition, *under the Sustainable Freight Buyers Alliance*
- Global Memorandum of Understanding on Zero-Emission Medium- and Heavy-Duty Vehicles
- Zero-Emission Government Fleet Declaration
- Zero Emission Vehicles Declaration

This report provides an update on global progress toward a Paris-aligned ZEV transition. It highlights the work across these seven international initiatives to develop coordinated signals on the pace of the ZEV transition and to support implementing actions.





# Global ZEV Progress

Since COP26, there has been considerable progress made in aligning phaseout targets for internal combustion engine (ICE) vehicles and toward implementing effective policies and actions to make these commitments binding. Recent policy developments highlight the growing momentum for the ZEV transition, as leading national and subnational governments lock in the pace of the ZEV transition and bend the road transport CO<sub>2</sub> emissions trajectory downwards.

For example, California has adopted regulations mandating that all new cars and light trucks sold in the state be zero-emission by 2035, while also requiring manufacturers to sell only zero-emission medium-and heavy-duty vehicles by 2036. In 2023, the European Union, which is the world's third-largest vehicle market, adopted new CO<sub>2</sub> standards for cars and vans requiring the sale of only zero-CO<sub>2</sub> emission vehicles starting in 2035.

These and other recently adopted policies and market developments will help avoid almost 17 Gt of CO<sub>2</sub> between 2023 and 2050.<sup>9</sup> This is both a sign of the considerable progress developing for the ZEV transition, as well as the scale of effort still needed.

## CO<sub>2</sub> emissions avoided if national governments fulfill international ZEV transition commitments:

### ZEV Declaration



cars and vans

**9.2** Gt<sup>11</sup>

### Global MOU on ZE-MHDVs

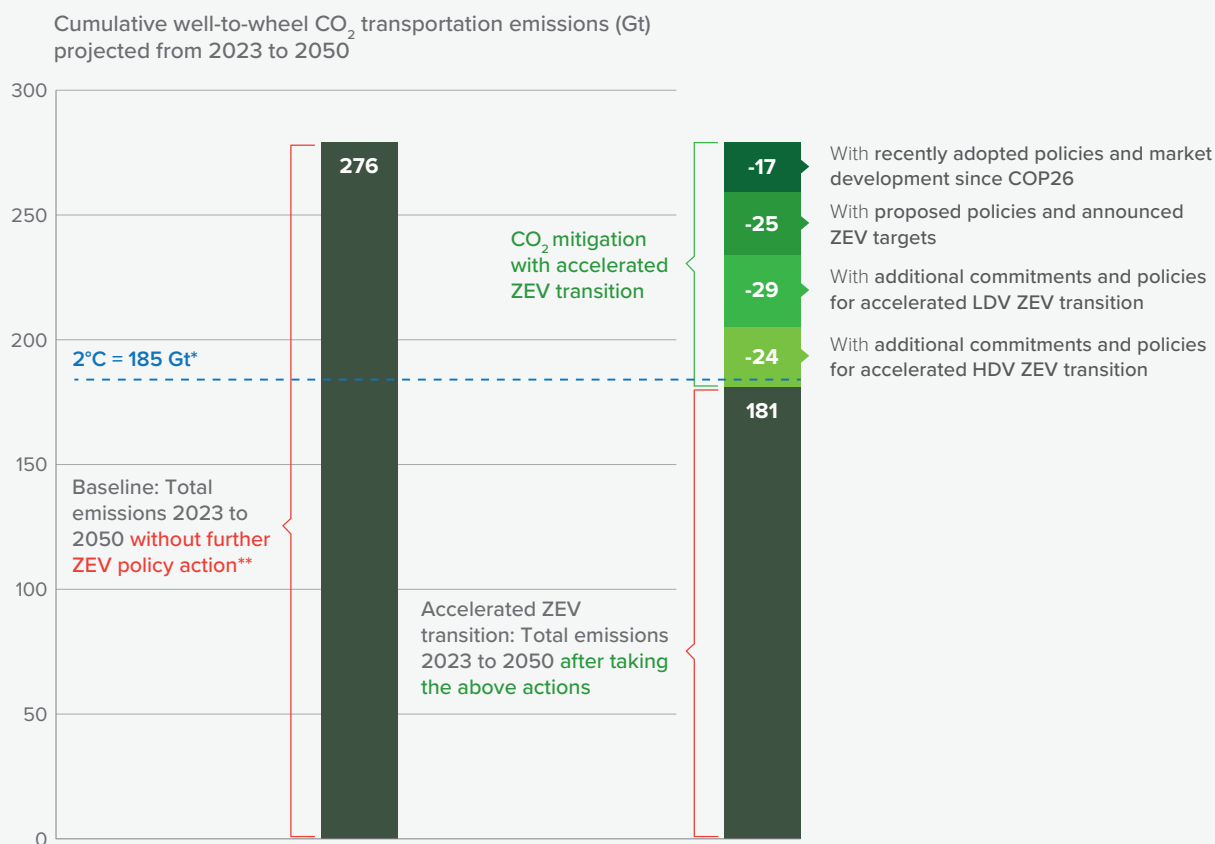


trucks and buses

**7.8** Gt<sup>12</sup>



### Mitigation potential of ambitious ZEV transition.



\*Dashed line indicates 2023-2050 carbon budget from IPCC Sixth Assessment Report, assuming 67% likelihood and 21% share of all emissions from road vehicles.

\*\*The Baseline scenario accounts for the projected effects of adopted policies as of August 2021 and anticipated market developments affecting ZEV sales through 2050.

Source: Adapted from Arijit Sen and Josh Miller, "Vision 2050: Update on the Global Zero-Emission Vehicle Transition in 2023," (Washington, DC: International Council on Clean Transportation, 2023), [https://theicct.org/wp-content/uploads/2023/09/Global-ZEV-update\\_final.pdf](https://theicct.org/wp-content/uploads/2023/09/Global-ZEV-update_final.pdf).



In addition to the impacts of adopted policies, voluntary commitments and proposed policies— if enacted as regulations—have the potential to further reduce CO<sub>2</sub> emissions by up to 25 Gt between 2023 and 2050.<sup>10</sup> These include, but are not limited to, proposed updates to GHG and CO<sub>2</sub> emission standards for light- and heavy-duty vehicles (European Union, United States), the introduction of binding ZEV sales requirements (United Kingdom), and international Paris-aligned ZEV commitments from governments around the world (Zero Emission Vehicles Declaration and Global MOU on Zero-Emission Medium and Heavy-Duty Vehicles).

Despite this positive progress, more needs to be done to align the road transport sector with an emissions trajectory compatible with the objectives of the Paris Agreement. If countries that have not yet adopted Paris-aligned ZEV transition targets do set such targets and achieve them, an additional 53 Gt of CO<sub>2</sub> emissions could be avoided through 2050.

Commitments such as the ZEV Declaration and the Global MOU on ZE-MHDVs offer these countries a suitable platform to align their transition trajectory with targets set out by some of the world's largest markets. It is then important for national, regional, and local governments to translate their commitments into binding policies that phase out ICE vehicles and transition to ZEVs. This would importantly send positive signals to the automotive industry that policy regimes are stable, thus enabling them to commit to large-scale investments in ZEV production.

In addition, greater coordination of efforts among various initiatives could help specify a unified set of expectations and timelines for investment, manufacturing, and infrastructure. Such alignment could promote a faster investment shift throughout the global industry and an accelerated reduction in the costs of ZEVs. This, in turn, could have significant implications for the ZEV transition in emerging markets and developing economies where special attention is needed to enable a truly global transition.



# Leading the Way: Initiative Highlights

The following sections provide details of the seven initiatives collectively working to develop coordinated signals for an accelerated ZEV transition. Each section provides an overview of the respective initiative, as well as the commitments made by initiative partners, the impacts of these commitments, and the wider progress partners are making towards a Paris-aligned transition.<sup>13</sup>

## 2030

- **EV100** 100% signatory-owned and contracted zero-emission van and MDV fleet (<3.5t) and 50% (<7.5t) by 2030; establish charging infrastructure for employees and customers
- **EV100+** 100% ZE-MDV (7.5t to 20t) purchases for owned and contracted vehicles
- **First Movers Coalition:** 100% ZE-MDV and 30% ZE-HDV signatory purchases and contracted fleets.
- **Fleet Electrification Coalition:** At least 30% of sales of new MHDVs are electric by 2030 in the U.S., Europe, China, and India.
- **Global MOU:** 30% ZE-MHDV sales by 2030 in signatory countries and by non-state actor endorsers

## 2035

- **ZEV Declaration:** 100% ZEV sales for cars and vans by 2035 in leading markets
- **Zero-Emission Government Fleet Declaration:** 100% ZEV civil government ownership and operations by 2035 in nine out of 16 EVI member countries

## 2040

- **EV100+** 100% ZE-MHDVs for owned and contracted operations by 2040
- **Global MOU:** 100% ZE-MHDV sales by 2040
- **ZEV Declaration:** 100% ZEV sales for cars and vans by 2040 globally



# EV100

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EV100 is a global initiative that brings together leading companies committed to transitioning to electric vehicles in their owned and contracted fleets by 2030. Members are increasing demand, influencing policy, and driving mass rollout, helping to make electric vehicles more rapidly affordable for everyone.

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## MEMBERS

128

Corporations and businesses

## Commitment:

Transition signatory-owned and contracted van and MDV fleets to zero-emission by 2030 (100% of vehicles weighing less than 3.5 tons and 50% of those weighing 3.5 tons to 7.5 tons). Establish charging infrastructure for employees and customers.

## Impact:

Annual reduction of 6.24 million tCO<sub>2</sub>e is anticipated once all committed vehicles are electrified by 2030.

## Progress:

- Collectively, EV100 members have pledged 5.75 million vehicles to be electric by 2030 across 100 markets; more than 400,000 EVs are already on the road.<sup>14</sup>
- Existing EVs in operation within EV100 member fleets avoided an estimated 429,000 tCO<sub>2</sub>e over the course of 2022.<sup>15</sup>
- Over 30,000 charging units have also been deployed, with 71 members committing to providing some form of charging infrastructure as part of their involvement with EV100.<sup>16</sup>

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## SUPPORTED BY

 CLIMATE GROUP

Climate Group provides EV100 members with benefits that include profiling, peer learning, and policy engagement. Through profiling, members can position themselves as frontrunners in the field by aligning their ambitions with a recognized leadership program. Peer learning offers the opportunity to participate in a global peer group, fostering mutual learning and stakeholder dialogue to further their ambitions. Additionally, members can engage in policy and advocacy efforts, joining a community of leaders shaping the future of EV policies and the market landscape.

Further information on EV100 can be found at: <https://www.theclimategroup.org/ev100>

# EV100+

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Building on the success of EV100, EV100+ is a global initiative launched in September 2022 that brings together leading companies who have committed to transitioning to zero-emission medium- and heavy-duty vehicles in their owned and contracted fleets by 2040. Members are increasing demand, influencing policy, and driving mass rollout, helping to make electric vehicles more rapidly affordable for everyone.

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### Commitment:

100% ZE-MDV (weighing 7.5 tons to 20 tons) purchases for owned and contracted vehicles. 100% ZE-MHDVs for owned and contracted operations by 2040.

### Impact:

Over 90,000 trucks will be zero-emission vehicles by 2040.<sup>17</sup>

### Progress:

EV100+ and its members work actively to influence key political decision-making processes, the public, and political debates by showcasing their ambitions, learning, and insights when it comes to the deployment of zero-emission vehicles.

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Further information on EV100+ can be found at: <https://www.theclimategroup.org/creating-market-medium-and-heavy-duty-zero-emission-vehicles>

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### MEMBERS

6

Corporations and businesses

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### SUPPORTED BY

 **CLIMATE GROUP**



# First Movers Coalition — Trucking

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Trucking-sector members of the First Movers Coalition are committed to accelerating the availability of zero-emission medium- and heavy-duty vehicles, using their purchasing power to create early markets for innovative clean technologies. The trucking sector launched in 2021 with nine member commitments and has since grown to engage 15, with expectations to grow even further in the coming years.

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## MEMBERS

**15**  
trucking-sector  
members

**13**  
government partners,  
representing over 50%  
of global GDP

Further information on the First Movers Coalition can be found at: <https://www.weforum.org/first-movers-coalition>

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## Commitment:

- Trucking owners and operators commit to making at least 30% of their purchases of new heavy-duty trucks, along with 100% of their purchases of new medium-duty trucks, zero-emission by 2030.
- Retailers and manufacturers commit to requiring that all their trucking service providers also make at least 30% of their heavy-duty and 100% of their medium-duty new truck purchases zero-emission by 2030.

## Impact:

Estimated 110 million tCO<sub>2</sub>e emissions avoided between 2030 and 2050, if member commitments are fulfilled.

## Progress:

- Holcim has pledged to deploy up to 1,000 Volvo electric trucks by 2030.
- PepsiCo deployed four 750kW Megachargers to support its fleet of 21 Tesla Semi Class 8 electric trucks at the company's bottling plant in Sacramento, California.
- Vattenfall partnered with Coca-Cola to install three truck charging stations in Jordbro near Stockholm, Sweden.
- Cemex is spearheading the adoption of electric concrete mixer trucks.
- Fortescue is actively conducting trials for emission-free mining transport solutions.

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## SUPPORTED BY



The First Movers Coalition (FMC) is a coalition of companies using their purchasing power to create early markets for innovative clean technologies across eight hard-to-abate sectors responsible for 30% of global emissions. Although formulating purchase commitments and aggregating demand against these commitments is core to the FMC, the Coalition's activities go beyond this; activities include providing support to members in delivering on their commitments and creating an enabling environment.

# Fleet Electrification Coalition

The Fleet Electrification Coalition (FEC) helps fleet owners speed up large-scale electric truck deployments by leveraging the power of demand aggregation. FEC works directly on three workstreams, including demand aggregation and joint procurement, charging infrastructure, and financing solutions.

## Commitment:

Leading shippers and fleet owners commit to deploying 50,000 electric trucks by 2026, adding enough scale to the market so that at least 30% of sales of new MHDVs are electric by 2030 in the U.S., Europe, China, and India.

## Progress:

- Officially launched in April 2023, FEC currently counts on the active support and engagement of over 50 shippers and fleet owners in North America and Europe.
- Initial survey completed by 26 companies identifies tangible demand for 10,000 electric trucks by 2026 and 60,000 by 2030.
- Identification of potential pilot projects for electric truck corridor charging in Europe and North America, with selected parties already demonstrating interest in participating.

Further information on the Fleet Electrification Coalition can be found at: <https://www.smartfreightcentre.org/en/projects/ongoing-projects/fleet-electrification-coalition/>

## MEMBERS

50+

Shippers  
Fleet owners and operators  
Charging infrastructure providers  
Investors and financial institutions

## SUPPORTED BY





# Global MOU on ZE-MHDVs

The Global Memorandum of Understanding on Zero-Emission Medium- and Heavy-Duty Vehicles (MOU) seeks to bolster ambitions around zero-emission medium- and heavy-duty vehicles, thereby accelerating supportive policies, implementation, and stakeholder alignment. The MOU serves to support healthier air, new jobs, and increased operational and economic benefits for fleets.

## SIGNATORIES

27

National governments

## ENDORSERS

82

Subnational governments

Manufacturers and suppliers

Fleet owners and operators

Utility and infrastructure providers

Financial institutions

Other

## Commitment:

100% zero-emission new truck and bus sales by 2040 with an interim goal of 30% zero-emission vehicle sales by 2030

## Impact:

Cumulative 7.8 Gt CO<sub>2</sub> will be avoided from 2023 to 2050 through new ZE-MHDVs if ambitions of current signatories are achieved.

## Progress:

- The 27 Global MOU government signatories account for 20% of new MHDV sales globally.
- Signatories have experienced an average annual YoY growth of 71% for new sales of ZE-MHDVs from 2012-2022.<sup>18</sup>
- Of the Global MOU signatories, ZE-MHDV sales leaders in 2022 include: United Kingdom (17,950 units), Norway (7,670 units), Canada (8,100 units), and the Netherlands (4,915 units), driven by strong demand for commercial vans and buses.<sup>19</sup>

## Additional Collaboration:

CALSTART/Drive to Zero and the Netherlands launched the ZEVWISE coalition, in collaboration with other knowledge partners, to advance solutions on financing the transition to ZE-MHDVs and infrastructure planning and development.

## SUPPORTED BY



Government of the Netherlands

The Global MOU on ZE-MHDVs is a community and forum where government signatories collaborate, share knowledge and experience, and receive policy support. They also have access to data, experts, and tools—such as the Policy Suite and Zero Emission-Technology Inventory (ZETI)—to advance strategic policy decisions and concrete actions.

Further information on the Global Memorandum of Understanding on Zero-Emission Medium- and Heavy-Duty Vehicles can be found at: <https://globaldrivetozero.org/>

# Zero-Emission Government Fleet Declaration

The Zero-Emission Government Fleet Declaration commits governments to significantly reduce carbon and air pollutant emissions and catalyze the clean transportation economy by accelerating the adoption of zero-emission vehicles, in all vehicle classes, in their own fleets. The Declaration aims to facilitate further exchanges between governments on how to best design and implement policies intended to increase the public procurement of zero-emission vehicles.

## Commitment:

100% ZEV civil government-owned and -operated light-duty fleets, and acquisitions of ZE-MHDVs, by 2035.

The Electric Vehicles Initiative (EVI) is a multi-government policy forum dedicated to accelerating the introduction and adoption of electric vehicles worldwide. EVI provides a platform for knowledge-sharing, enabling members to understand the policy challenges related to electric mobility and to help governments address them. EVI supports the development of the Global EV Outlook to help identify recent developments in electric mobility across the globe. EVI also facilitates further exchanges between governments on how to best design and implement policies intended to increase the public procurement of zero-emission vehicles.

Further information on the Zero-Emission Government Fleet Declaration can be found at: <https://www.iea.org/programmes/electric-vehicles-initiative>

## MEMBERS

9

National governments

## SUPPORTED BY





# Zero Emission Vehicles Declaration

The Zero Emissions Vehicles (ZEV) Declaration was launched at COP26 by stakeholders from across the transportation value chain—including countries, businesses, and organizations—who are collectively committed to driving forward a transition to a climate-neutral transportation sector.

## SIGNATORIES

228

National governments

Governments in emerging markets and developing economies

Cities, states, and regional governments

Automotive manufacturers

Fleet owners and operators

Investors

Financial institutions

Other

## Commitment:

100% ZEV sales for cars and vans by 2035 in leading markets and 2040 globally

## Impact:

Cumulative 9.2 Gt CO<sub>2</sub> emissions will be avoided between 2023 to 2050 if the ambitions of current signatories are achieved.

## Progress:

- National government signatories represent 22% of the global light-duty vehicle market.<sup>20</sup>
- Electric light-duty vehicle sales increased from 1.5 million units in 2021 to 1.8 million in 2022 among national government signatories, registering an almost 20% increase year over year.
- 23 national government signatories have proposed or adopted binding regulations or standards that align with 100% ZEV sales targets for cars and vans by 2035.
- OEM signatories represent 19% of the global light-duty vehicle market.
- Six automakers—General Motors, Ford, Mercedes-Benz, Volvo Cars, Jaguar Land Rover, and BYD—sold 3.7 million electric light-duty vehicles in 2022, up from 1.8 million in 2021.
- 106 new signatories have joined the ZEV Declaration since its launch in 2021.

## SUPPORTED BY



The Accelerating to Zero (A2Z) Coalition serves as a platform for signatories of the ZEV Declaration to coordinate, align activities, and amplify messaging as they fulfill their ambitious pledges. A2Z provides support for signatories to develop and implement effective zero-emission transportation policies and plans, showcases examples of leadership within the ZEV community, and monitors progress on the global transition.

Further information on the ZEV Declaration can be found at: <https://acceleratingtozero.org/>

At COP27, Breakthrough Agenda governments called on the leading initiatives highlighted in this report to continue working toward setting common and coordinated targets and to send a global collective market signal in support of a Paris Agreement-aligned ZEV transition. They nominated the Accelerating to Zero Coalition to coordinate across the initiatives and to review and communicate progress at COP28.

## ABOUT THE BREAKTHROUGH AGENDA

The [Breakthrough Agenda](#), a platform for international collaboration launched at COP26, is the most advanced plan to accelerate the global deployment of clean technologies in seven high-emitting sectors (power, hydrogen, road transport, steel, agriculture, cement, and buildings). It is currently endorsed by 48 countries and delivered by dozens of partner initiatives working at both the governmental and non-state actor levels. Countries participating in the Road Transport Breakthrough have collectively set a goal of making zero-emission vehicles the new normal: accessible, affordable, and sustainable in all regions by 2030.

An annual independent expert report by the International Energy Agency (IEA), the International Renewable Energy Agency (IRENA), and the United Nations Climate Change High-Level Champions informs the progress toward this goal. The latest [Breakthrough Agenda Report](#) released in September 2023 identified alignment of the pace of the ZEV transition as a critical area for strengthening international collaboration. This implies agreement across governments on a timeline by which all sales of new road vehicles should be zero-emission while companies commit to the same timeline for vehicle production. Such alignment would help achieve a faster shift in investment throughout the global industry, accelerating cost reductions of zero-emission vehicles.

# Endnotes

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- <sup>1</sup> International Energy Agency, “Transport [Tracking Transport Emissions Data],” 2023, <https://www.iea.org/energy-system/transport>. Note: Only direct emissions from fuel combustion are considered.
- <sup>2</sup> International Energy Agency, “Global CO<sub>2</sub> Emissions from Transport by Sub-sector in the Net Zero Scenario, 2000-2030,” June 14, 2023, <https://www.iea.org/data-and-statistics/charts/global-co2-emissions-from-transport-by-sub-sector-in-the-net-zero-scenario-2000-2030-2>.
- <sup>3</sup> Arijit Sen, Josh Miller, Gabriel Hillman Alvarez, and Patricia Ferrini Rodrigues, “Vision 2050: Strategies to align global road transport well below 2°C,” (Washington, DC: International Council on Clean Transportation, forthcoming).
- <sup>4</sup> Arijit Sen and Josh Miller, “Vision 2050: Update on the Global Zero-Emission Vehicle Transition in 2023,” (Washington, DC: International Council on Clean Transportation, 2023), [https://theicct.org/wp-content/uploads/2023/09/Global-ZEV-update\\_final.pdf](https://theicct.org/wp-content/uploads/2023/09/Global-ZEV-update_final.pdf).
- <sup>5</sup> International Energy Agency, “Greenhouse Gas Emissions from Energy Data Explorer,” August 2, 2023, <https://www.iea.org/data-and-statistics/data-tools/greenhouse-gas-emissions-from-energy-data-explorer>.
- <sup>6</sup> Global LDV sales data based on EV-Volumes, 2023, <https://www.ev-volumes.com/>.
- <sup>7</sup> Global LDV sales data based on EV-Volumes.
- <sup>8</sup> Based on analysis done by CALSTART using data from IEA and other sources
- <sup>9</sup> Sen and Miller, “Vision 2050: Update.”
- <sup>10</sup> Sen and Miller, “Vision 2050: Update.”
- <sup>11</sup> Sen and Miller, “Vision 2050: Update.” This estimate includes 4.4 Gt attributable to countries that have signed the ZEV Declaration and adopted binding policies and an additional 4.8 Gt if remaining country signatories follow through on their commitments.
- <sup>12</sup> Sen and Miller, “Vision 2050: Update.” This estimate includes 1.5 Gt attributable to subnational regions within Global MoU signatories (e.g. California) that have adopted binding policies and an additional 6.3 Gt if remaining country signatories follow through on their commitments.
- <sup>13</sup> Reported data on impacts and progress are provided by each individual initiative.
- <sup>14</sup> Climate Group, EV100 Progress and Insights Report, February 2023, <https://www.theclimategroup.org/our-work/press/ev100-progress-and-insights-report-2023>; pledge information is based on data submitted by members in fall 2022 and included in EV100 annual report.
- <sup>15</sup> Climate Group, EV100 Progress, 13.
- <sup>16</sup> Climate Group, EV100 Progress, 11.
- <sup>17</sup> Climate Group, EV100 Progress, 31.
- <sup>18</sup> Based on data from the International Energy Agency’s Global EV Data Explorer, 2023, <https://www.iea.org/data-and-statistics/data-tools/global-ev-data-explorer>.
- <sup>19</sup> Based on data from IEA Global EV Data Explorer.
- <sup>20</sup> Global LDV sales data based on EV-Volumes.



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