



ANNUAL REPORT **2023**

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ABOUT THE ICCT

MISSION

Our mission is unique. The ICCT is an independent, nonprofit research organization founded to provide exceptional, objective, timely research and technical and scientific analysis to environmental regulators. Our work empowers policymakers and others worldwide to improve the environmental performance of road, marine, and air transportation to benefit public health and mitigate climate change.

VISION

As we work toward that mission, we envision leaders around the globe using the ICCT's expert research and technical support to develop ambitious, coordinated policies to eliminate air and climate pollution from transportation, consistent with limiting warming to well below 2 °C and pursuing efforts to limit warming to 1.5 °C this century.

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EQUITY AT THE ICCT

Eliminating the transportation sector's climate and health impacts requires bringing people together around the right policies and solutions. Enacting the principles of justice, equity, diversity, and inclusion helps us do that.

OUR ORGANIZATION

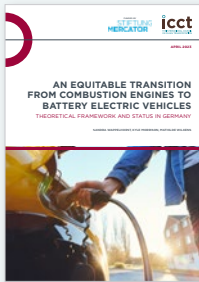
When we employ a diverse workforce, foster and celebrate an inclusive culture, and maintain just and equitable policies, we're creating the organizational conditions that let our staff members do their best work.

OUR PROGRAMMATIC WORK

We support policies that deliver equitable access—locally and globally—to clean vehicle technologies. From historically disadvantaged local communities to countries with still-developing economies, the clean transportation transition must not leave anyone behind.

Achieving the transition will provide a wide range of health, environmental, and economic benefits. We must ensure those benefits are distributed equitably and justly.

Publications added in 2023 to our portfolio of equity-related work include:



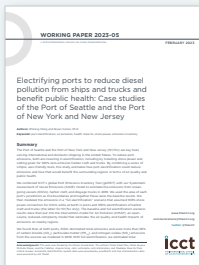
An equitable transition from combustion engines to battery electric vehicles: Theoretical framework and status in Germany

<https://theicct.org/publication/equity-german-transport-april23/>



Low- and zero-emission zones and social equity: Supporting the urban transition to zero-emission vehicles and alternative transport modes

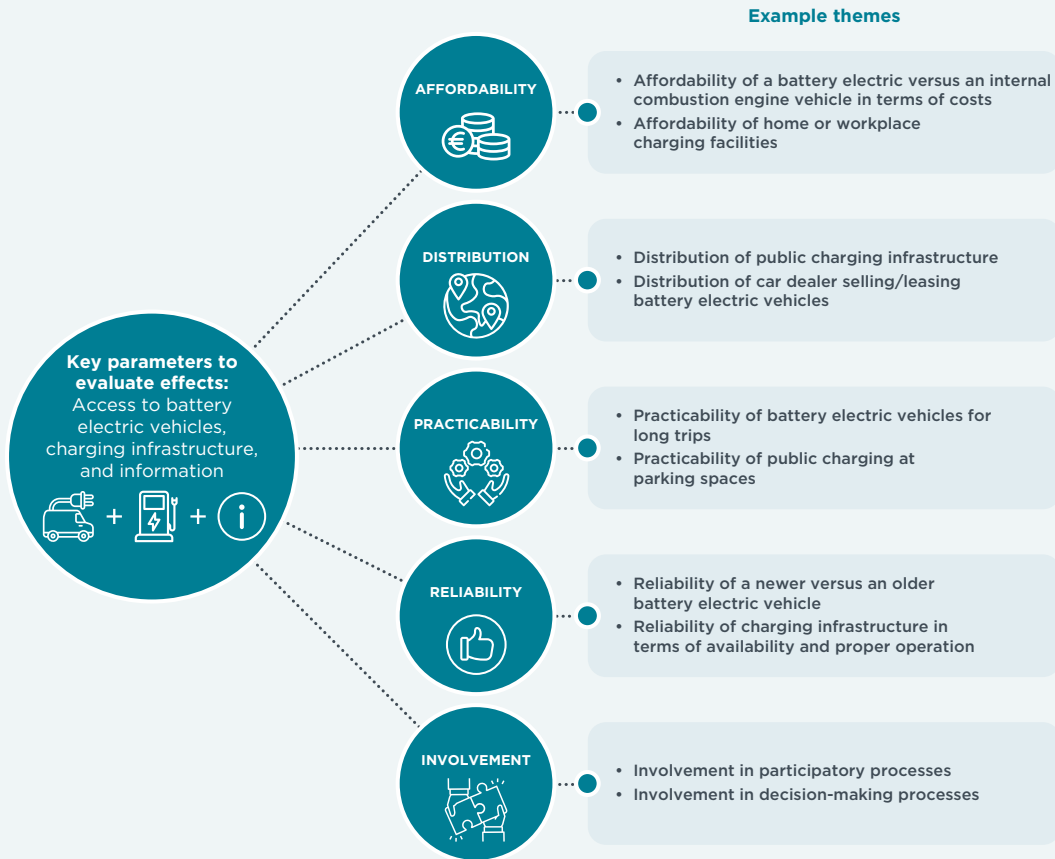
<https://theicct.org/publication/low-and-zero-emission-zones-and-social-equity-oct23/>



Electrifying ports to reduce diesel pollution from ships and trucks and benefit public health

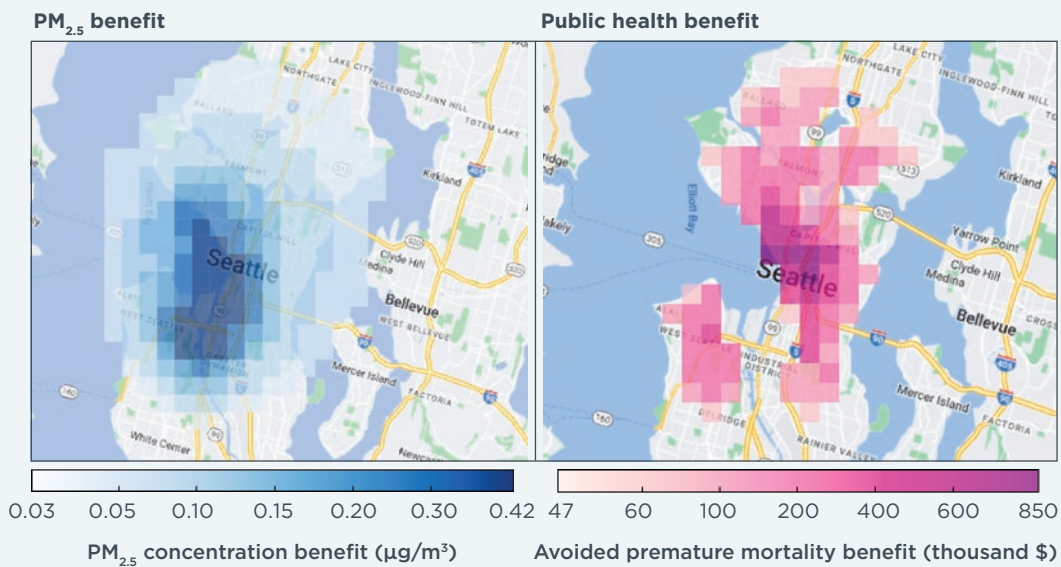
<https://theicct.org/publication/marine-ports-electrification-feb23/>

Parameters of access in the equitable transition to BEVs



(Source: *An equitable transition from combustion engines to battery electric vehicles: Theoretical framework and status in Germany*, <https://theicct.org/publication/equity-german-transport-april23/>)

Benefit of reduced annual average PM_{2.5} concentration and monetized public health benefits in Seattle from port electrification, 2019



(Source: *Electrifying ports to reduce diesel pollution from ships and trucks and benefit public health*, <https://theicct.org/publication/marine-ports-electrification-feb23/>)

IMPACT IN 2023

199

research papers
and blog posts
published

12

webinars
organized with
1,600
registrants

25

videos
produced

1,500,000

website page
views

12,000

X followers

19,400

LinkedIn
followers

6,100

newsletter
subscribers

Mentioned in
18,277

press articles
across globe

VISION 2050 UPDATE

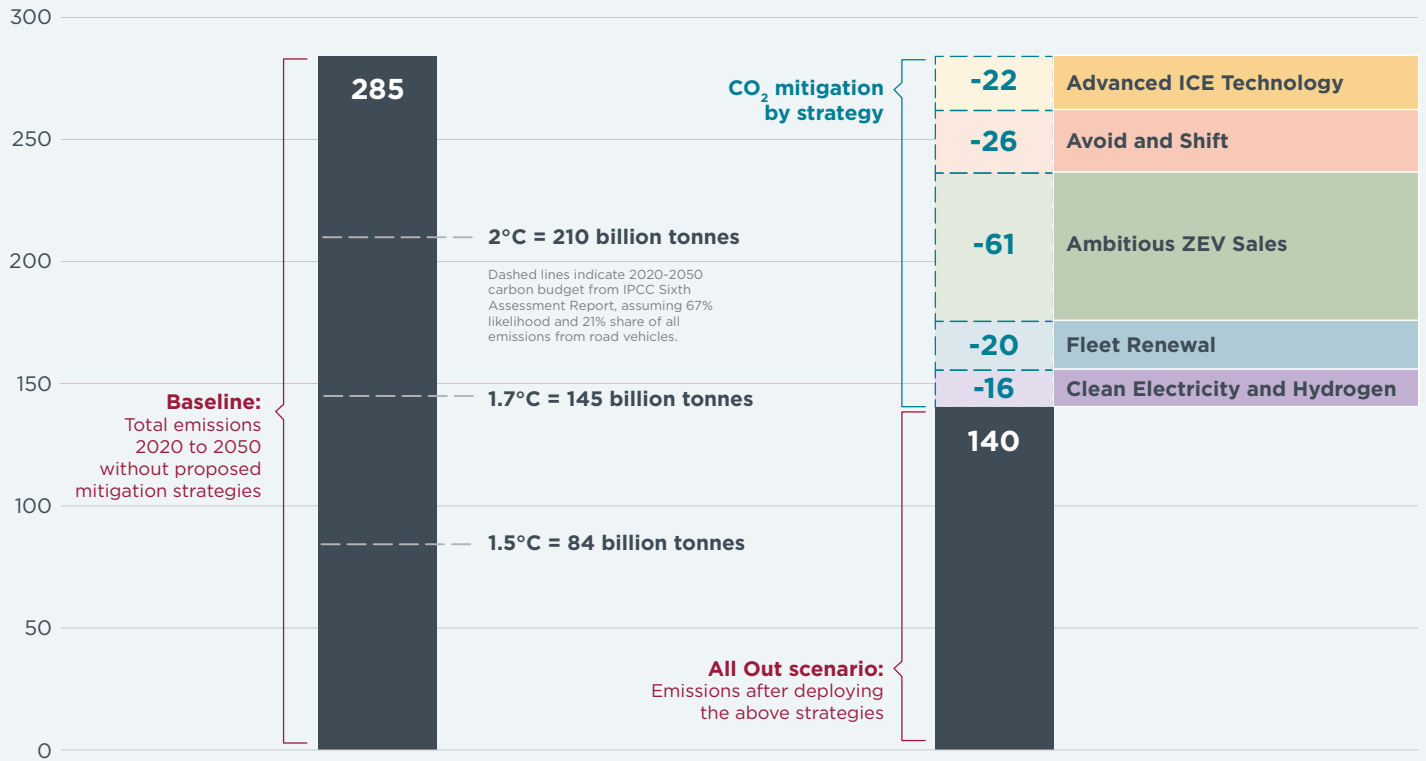
ICCT's Vision 2050 project has its origins in an internal strategic planning analysis, the purpose of which was to systematically test and refine a vision for decarbonizing the global transport sector. As part of this project, researchers in 2023 assessed the potential of five strategies to further reduce carbon emissions from vehicles and align emissions with a well-below a 2 °C or 1.5 °C goal.

The analysis found that a combination of five strategies could cut cumulative CO₂ emissions from vehicles in half through 2050 compared with a Baseline scenario, saving 144 Gt of CO₂ and aligning the sector with a warming target well below 2 °C:

- » Accelerate the global transition to zero-emission vehicles
- » Maximize the fuel efficiency of any new combustion vehicles sold
- » Replace old combustion vehicles faster
- » Reduce the dependence on cars in urban areas and improve freight logistics
- » Decarbonize the electricity and hydrogen used in zero-emission vehicles

Mitigation potential of ambitious but feasible strategies

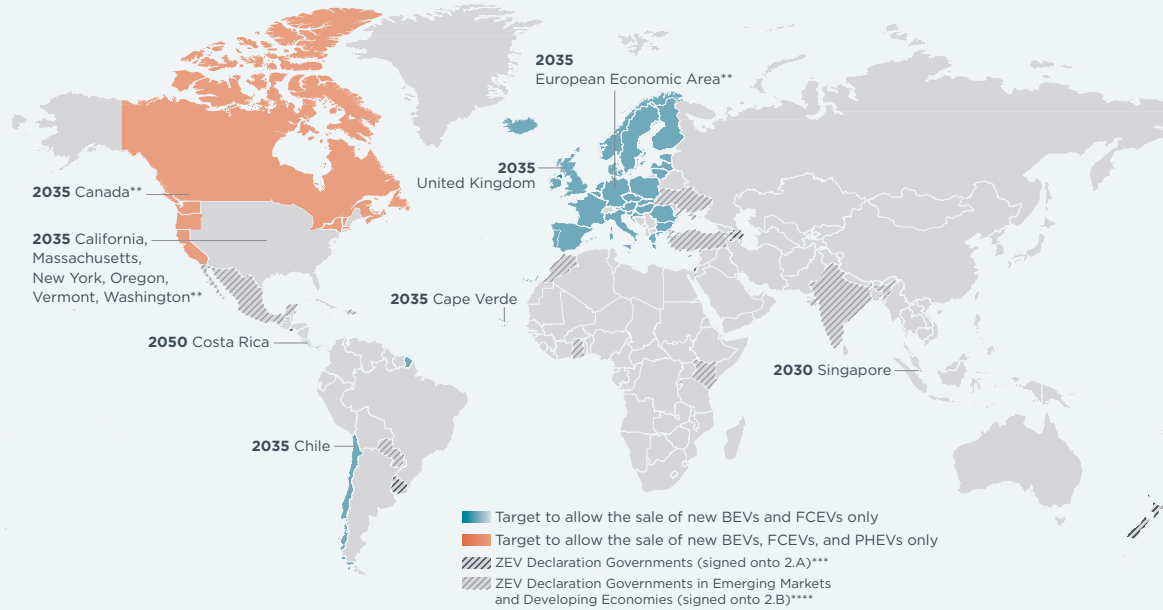
Cumulative well-to-wheel CO₂ transportation emissions (billion tonnes) projected from 2020 to 2050



(Source: Vision 2050: Strategies to align global road transport with well below 2 °C <https://theicct.org/publication/vision-2050-strategies-to-reduce-gap-for-global-road-transport-nov23/>)

GLOBAL PROGRESS

Zero-emission vehicle phase-ins: Passenger cars and vans/light trucks (October 2023)



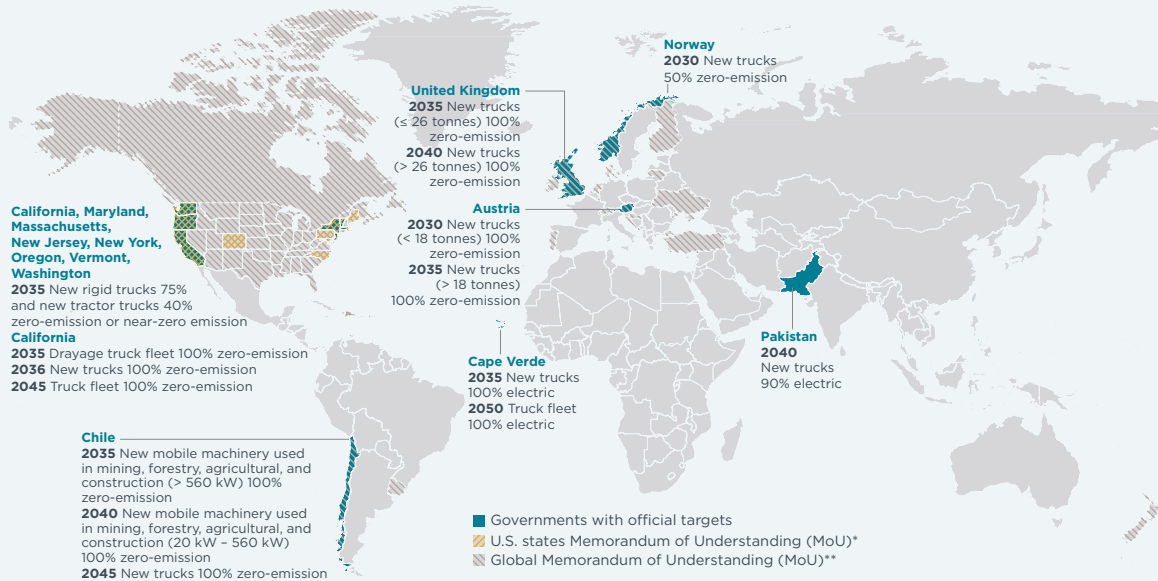
* Includes countries, states, and provinces that have set targets to only allow the sale or registration of new battery electric vehicles (BEVs), fuel cell electric vehicles (FCEVs), and plug-in hybrid electric vehicles (PHEVs). Countries such as Japan with pledges that include hybrid electric vehicles (HEVs) and mild hybrid electric vehicles (MHEVs) are excluded as these vehicles are non plug-in hybrids.

** The Canadian province of British Columbia has a regulation to enforce its 2040 target, as do California, Massachusetts, New York, Oregon, Vermont, and Washington for their 2035 targets. The European Union (EU) also has a regulation enforcing its 2035 target; it is applicable to the member states of the European Economic Area (EEA), that is the 27 EU member states and, pending adoption by the EEA Joint Committee, to some or all EEA European Free Trade Association (EFTA) states, which include Iceland, Liechtenstein, and Norway. Norway has set a 2025 phase-in target and Austria, Denmark, Greece, Iceland, the Netherlands, and Slovenia have set 2030 phase-in targets, but those are not binding.

*** Zero-Emission Vehicle (ZEV) Declaration signatories to 2.A committed to phase-in targets by 2035 for leading markets and by 2040 globally. Countries with existing official targets (binding and non-binding) are not separately highlighted, including Austria, Belgium, Canada, Cape Verde, Chile, Croatia, Cyprus, Denmark, Finland, France, Greece, Iceland, Ireland, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Slovenia, Spain, Sweden, and the United Kingdom.

**** Zero-Emission Vehicle (ZEV) Declaration signatories to 2.B committed to work intensely toward accelerated proliferation and adoption of zero-emission vehicles.

Zero-emission vehicle phase-ins: Medium- and heavy-duty trucks (October 2023)

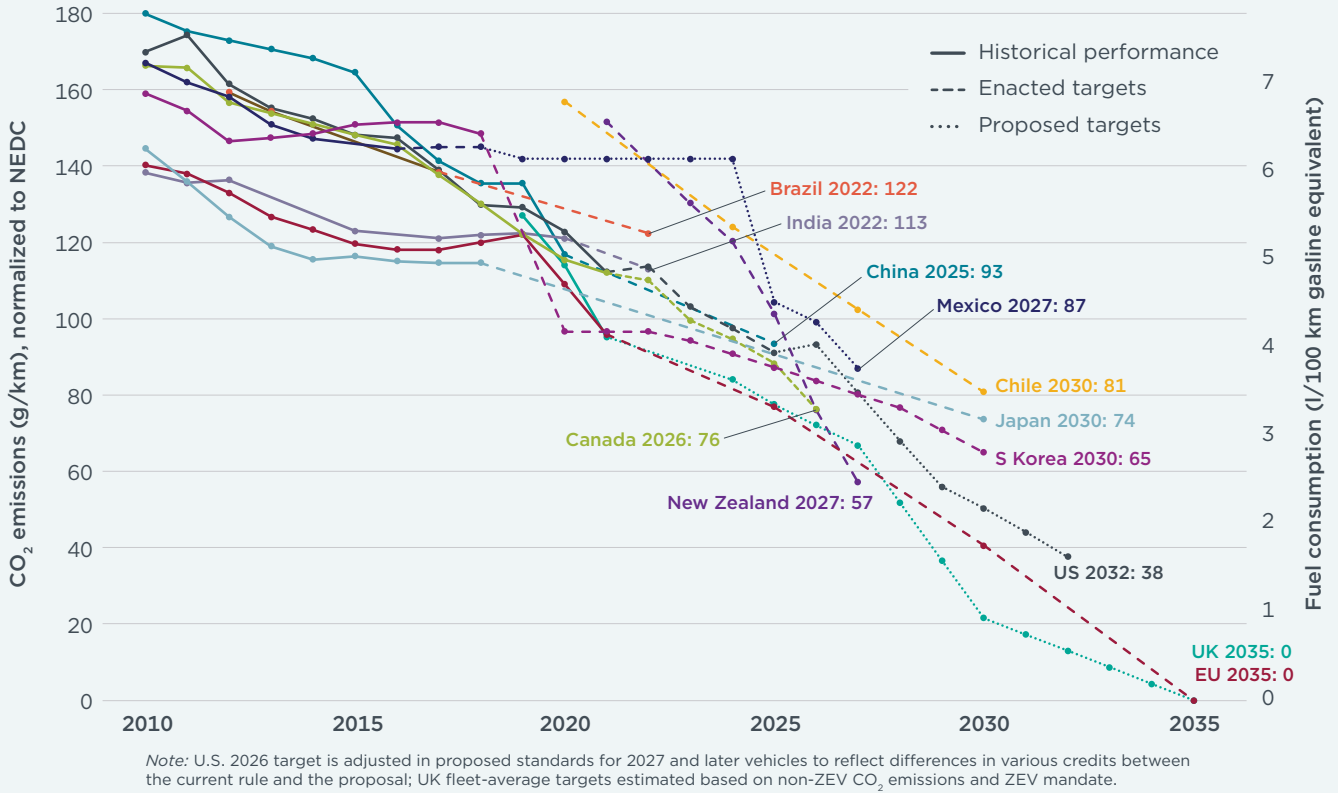


Note: Governments with an at least 40% sales target for zero-emission new trucks.

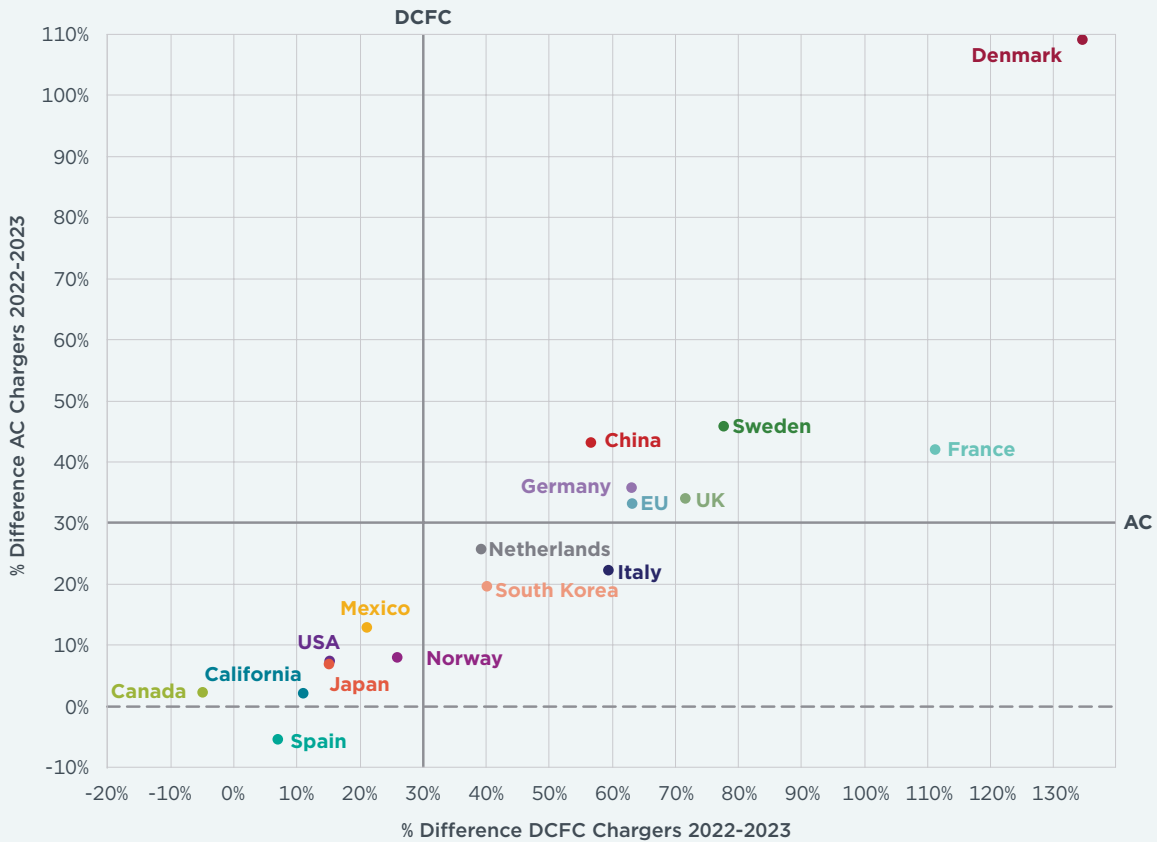
* New medium- and heavy-duty vehicles at least 30% zero-emission in 2030 and 100% no later than 2050. Not necessarily reflected yet in an official state policy document such as a climate or transport strategy/plan, in a law, or in a similar framework.

** New medium- and heavy-duty vehicles 30% zero-emission in 2030 and 100% by 2040. Not necessarily reflected yet in an official national policy document such as a climate or transport strategy/plan, in a law, or in a similar framework.

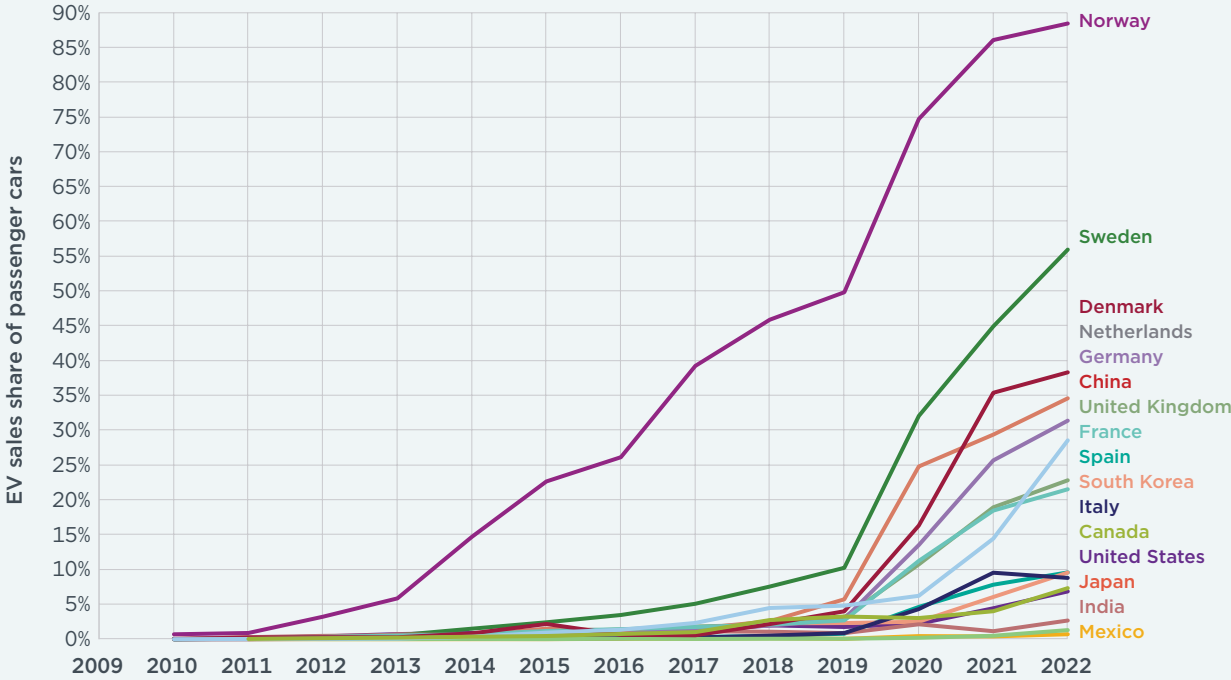
Passenger car emissions and consumption, normalized to NEDC



Growth in normal (AC) and fast (DC) chargers, 2022-2023



Electric vehicle passenger car sales share, 2010-2022



ASIA AND PACIFIC

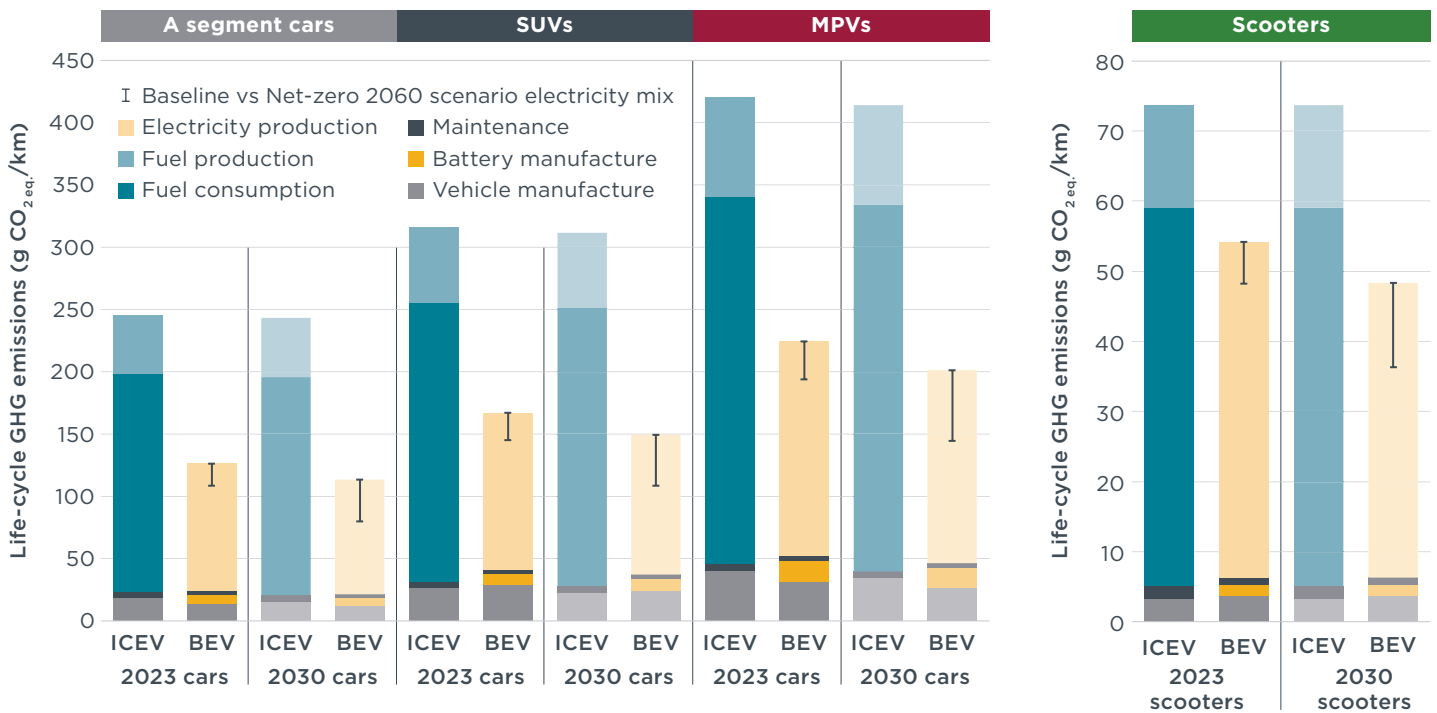
Southeast Asia is one of the largest combined emerging economies in the world, and fuel consumption in the region has more than doubled in the past decade. The ICCT provides technical assistance to governments of Southeast Asia for accelerating the deployment of electric buses in cities as well as supporting a transition to soot-free heavy-duty emission standards. The ICCT currently plays a role in advancing fuel efficiency regulations for light-duty vehicles and two- and three-wheelers, as well as sustainably sourced biofuels.



COMPARISON OF THE LIFE-CYCLE GREENHOUSE GAS EMISSIONS OF COMBUSTION ENGINE AND ELECTRIC PASSENGER CARS AND TWO-WHEELERS IN INDONESIA

Reaching Indonesia's target of net-zero greenhouse gas (GHG) emissions by 2060 will depend in part on the decarbonization of the transportation sector, which today is responsible for about 15% of the country's GHG emissions. Researchers at the ICCT performed a life-cycle assessment of the GHG emissions of passenger cars and two-wheelers with different power trains in Indonesia. The assessment found that BEVs offer the lowest life-cycle emissions across all segments and can bring emission reductions in-line with the net-zero goal.

Life-cycle GHG emissions of gasoline ICEVs and BEVs, as well as electric and combustion engine scooters, sold in Indonesia in 2023 and in 2030



(Source: Comparison of the life-cycle greenhouse gas emissions of combustion engine and electric passenger cars and two-wheelers in Indonesia, <https://theicct.org/publication/comparison-life-cycle-ghg-emissions-combustion-engine-and-electric-pv-and-2w-indonesia-sept23/>)

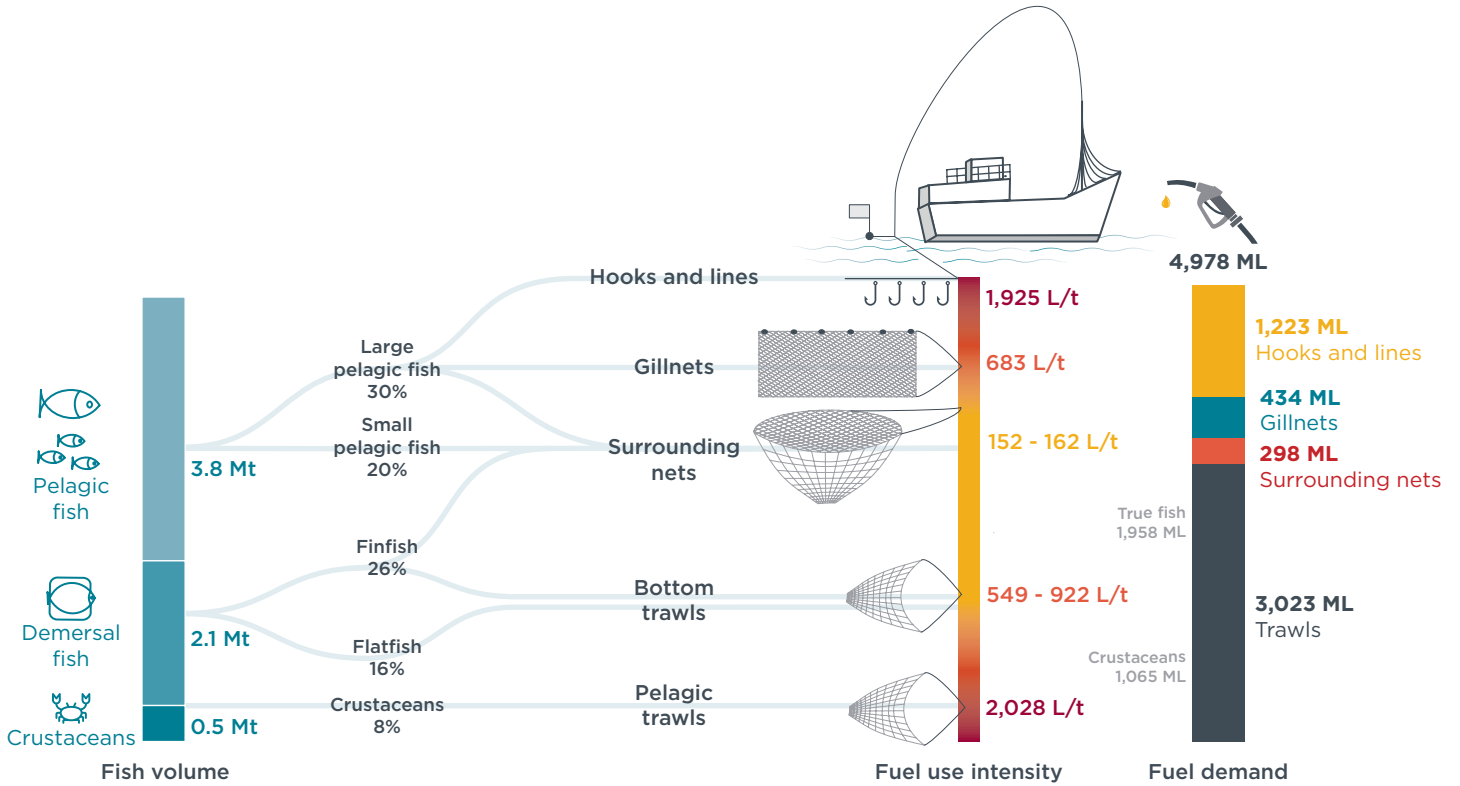
PUBLICATIONS OF NOTE

Light-duty vehicle classification for Australia's fuel efficiency standards
<https://theicct.org/publication/pv-australia-vehicle-classification-apr23/>

Total cost of ownership comparison for electric two-wheelers in Vietnam
<https://theicct.org/publication/asia-pacific-lvs-evs-tco-e2w-vietnam-feb23/>

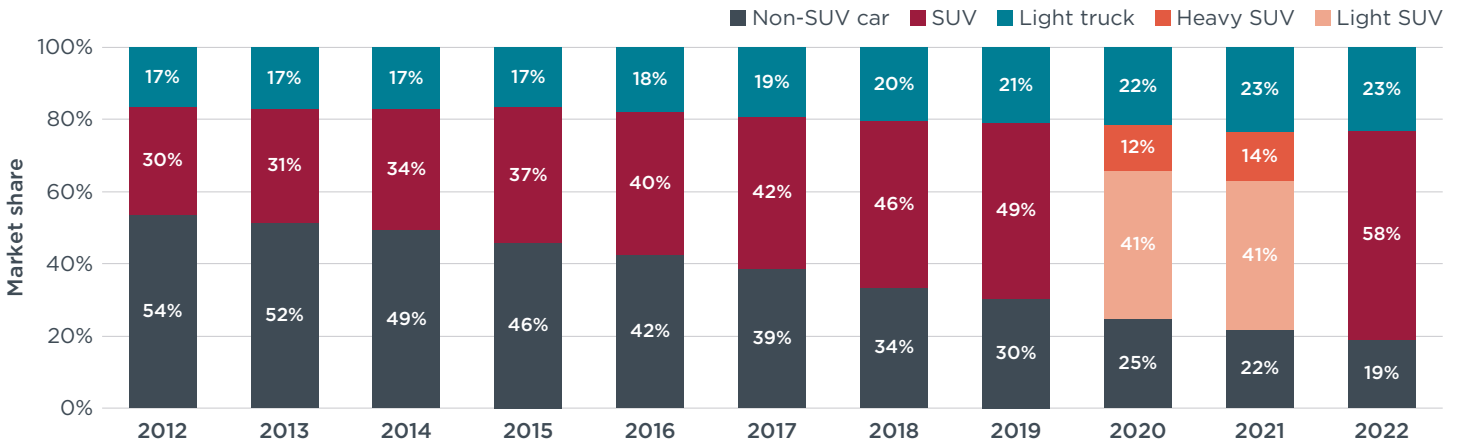
Producing high quality biodiesel from used cooking oil in Indonesia
<https://theicct.org/publication/producing-high-quality-biodiesel-from-used-cooking-oil-in-indonesia-aug23/>

Production volume, fuel use intensity, and fuel consumption of fishing gears by fishing activity in Indonesia



(Source: Used cooking oil's potential to reduce GHG emissions from Indonesia's fishing fleet <https://theicct.org/publication/shipping-indonesia-uco-fishing-fleet-feb23/>)

Australia's LDV market from 2012 to 2022 for non-SUV cars, SUVs, and light trucks



(Source: Light-duty vehicle classification for Australia's fuel efficiency standards <https://theicct.org/publication/pv-australia-vehicle-classification-apr23/>)

CHINA

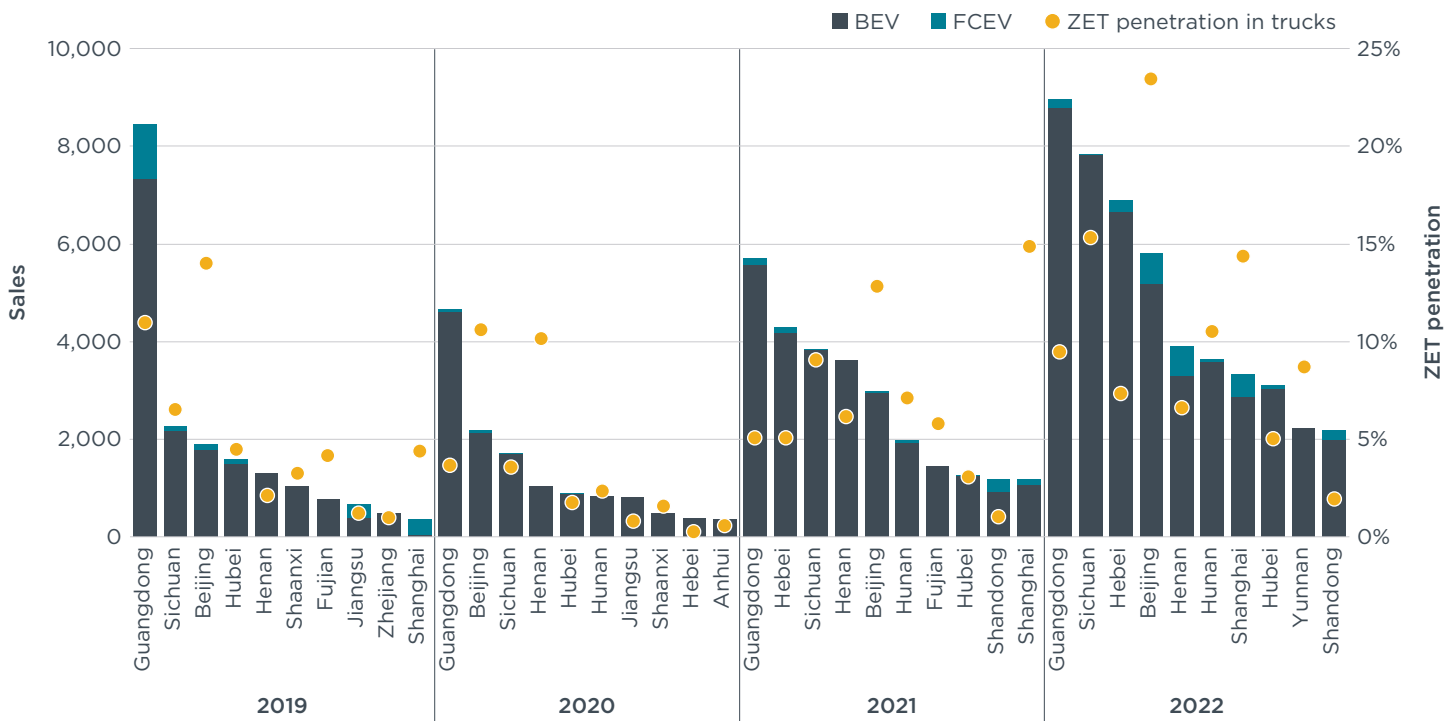
China is the largest market for new light- and heavy-duty vehicles. The ICCT's China staff supports effective regulation of emissions in the transport sector and works to provide officials with sound, reliable technical research. Researchers in 2023 undertook market assessments to better understand the uptake of new energy vehicles across the country and studied applications of new energy cars and trucks.



ELECTRIFYING ON-ROAD FREIGHT

Guangdong province has set an ambitious target for new energy vehicles of 20% of new sales by 2025, and the electrification of heavy-duty trucks will be important not only for meeting that goal but also for significantly reducing carbon emissions in the province. ICCT researchers found that zero-emission logistics trucks have already experienced strong growth and commercialization and there are existing zero-emission truck models for specific use cases. Tailored incentive policies and financial incentives for manufacturers of dump trucks and tractor-trailers to promote zero-emission truck adoption would also help to stimulate the market and contribute to Guangdong's decarbonization and air quality goals.

Top 10 provinces by new zero-emission truck sales in China, 2019–2022



(Source: *Real-world use cases for zero-emission trucks: Market review and policy suggestions for Guangdong province*, <https://theicct.org/publication/real-world-zet-guangdong-oct23/>)

PUBLICATIONS OF NOTE

Port of Yangpu 2019 emissions inventory report using goPEIT model

<https://theicct.org/publication/port-of-yangpu-2019-emissions-inventory-report-gopeit-nov23/>

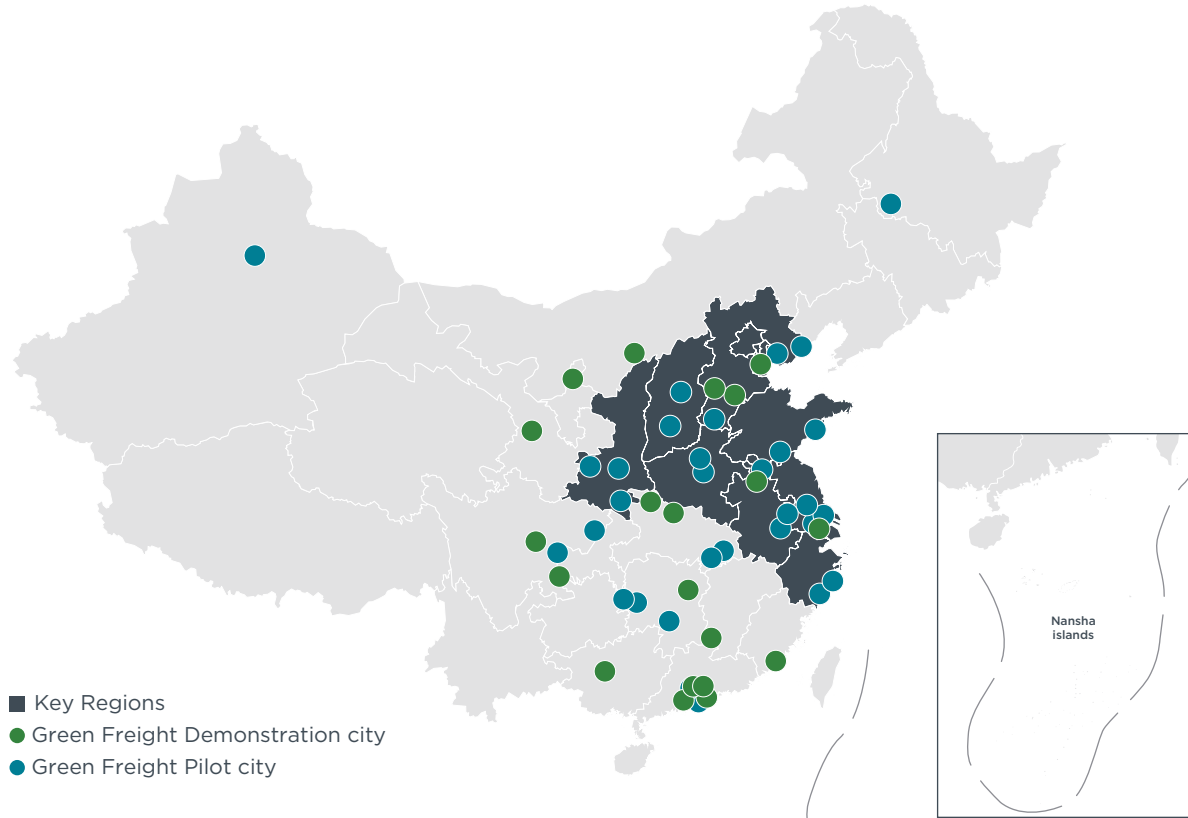
Real-world use cases for zero-emission trucks: A comparison of electric and diesel tractors in Tangshan, China

<https://theicct.org/publication/real-world-zero-emission-trucks-tangshan-sept23/>

Accelerating new energy vehicle uptake in Chinese cities: A 2023 policy update in a post-subsidy era

<https://theicct.org/publication/accelerating-new-energy-vehicle-uptake-in-chinese-cities-2023-policy-update-post-subsidy-era-dec23/>

Key regions for air quality improvement in China, Green Freight Demonstration cities, and Green Freight Pilot cities



(Source: *Zero-emission truck market developments and opportunities in Sichuan province China*, <https://theicct.org/publication/commercial-nevs-cities-policies-jul23/>)

EUROPE

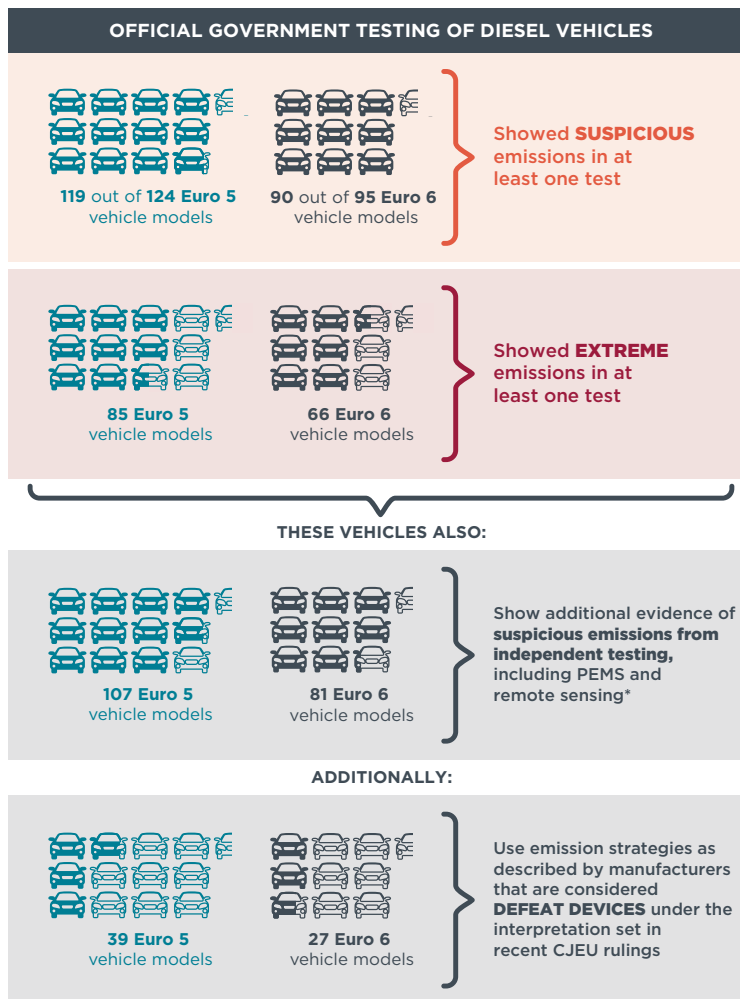
Europe has been a leader in environmental policy, and the European Union plays an indispensable and growing part in global climate change efforts. In 2023, ICCT research in the focused on the latest revisions of the emissions standards for heavy-duty vehicles. Specific research topics included if proposed reduction targets were in line with Europe's overall decarbonization goals, the impact of extending standards to additional vehicle classes, and the risks of crediting alternative fuels in the CO₂ standards.



PREVALENCE OF DEFEAT DEVICES IN THE EUROPEAN UNION

The Court of Justice of the European Union recently clarified the definition of a prohibited defeat device in a series of recent rulings, limiting their use to when “only immediate risks of damage” are present. Researchers at the ICCT analyzed testing data and examined market surveillance interviews to determine how many vehicle models likely have defeat devices under the court’s clarified definition. Using emission thresholds developed for the report, the researchers determined that “suspicious” NO_x emission levels were found in 77%-100% of tests and vehicle averages, indicating the likely use of a prohibited defeat device. “Extreme” NO_x emissions were found in 40%-75% of tests and vehicle averages, indicating that a prohibited defeat device is almost certainly present. The highlighted the widespread prevalence of calibration strategies in Euro 5 and Euro 6 diesel cars leading to excess NO_x emissions and the comparatively limited corrective action taken to date.

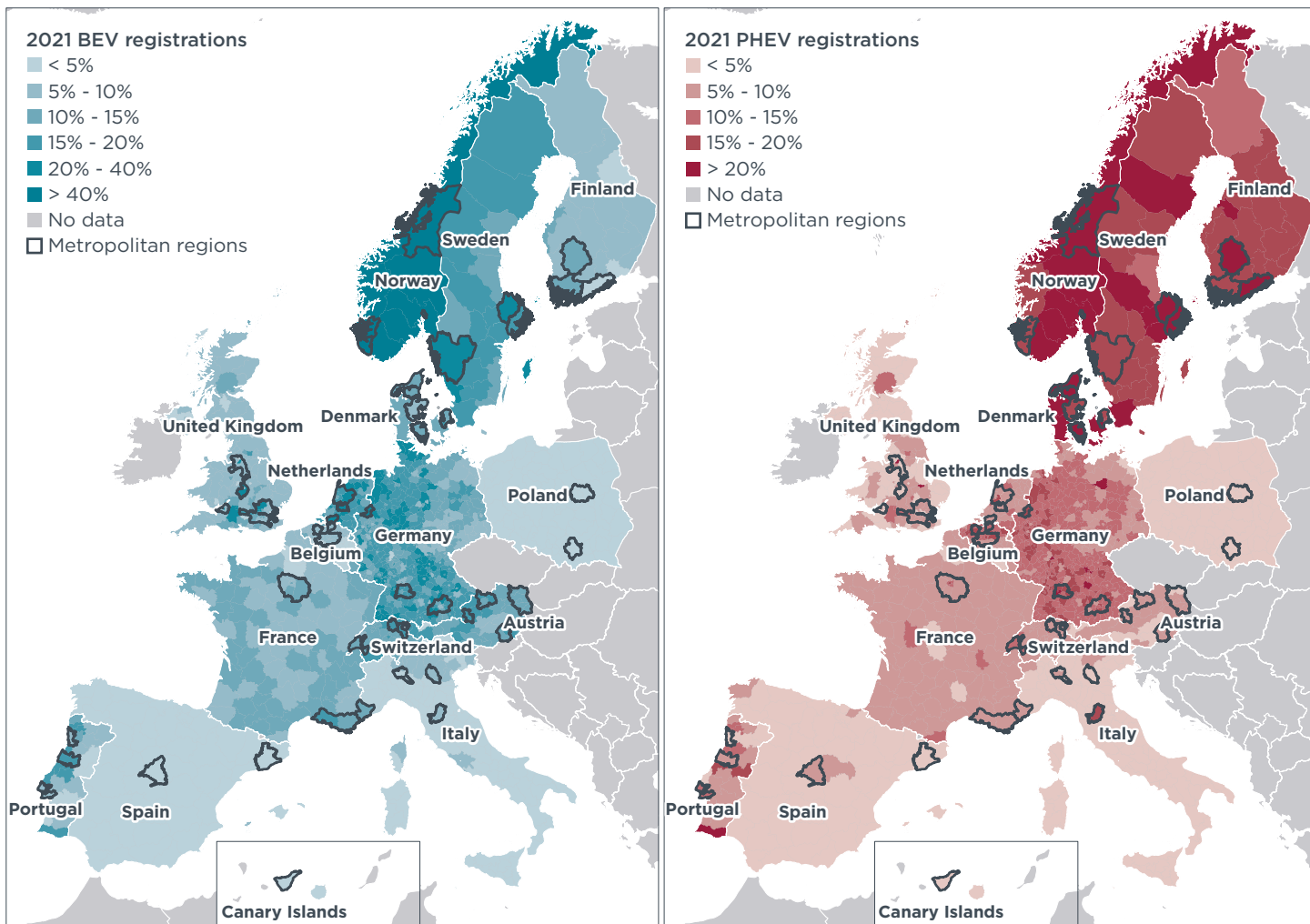
Euro 5 and Euro 6 diesel vehicles not subject to real driving emissions testing showing suspicious or extreme levels of emissions



* Remote sensing results are grouped by engine family. This number includes all vehicle models for which their engine family average show suspicious emissions.

(Source: *Reassessment of excess NO_x from diesel cars in Europe following the Court Justice of the European Union rulings*, <https://theicct.org/publication/dieselgate-emissions-diesel-cars-europe-mar23/>)

New plug-in hybrid and battery electric vehicle share in selected European metropolitan regions



(Source: *Battery electric and plug-in hybrid vehicle uptake in European cities*, <https://theicct.org/publication/bev-phev-european-cities-mar23/>)

PUBLICATIONS OF NOTE

Gas definitions for the European Union: Setting thresholds to reduce life cycle greenhouse gas emissions (working paper)

<https://theicct.org/publication/gas-definitions-thresholds-oct22/>

Real-world usage of plug-in hybrid vehicles in Europe: A 2022 update on fuel consumption, electric driving, and CO₂ emissions (white paper)

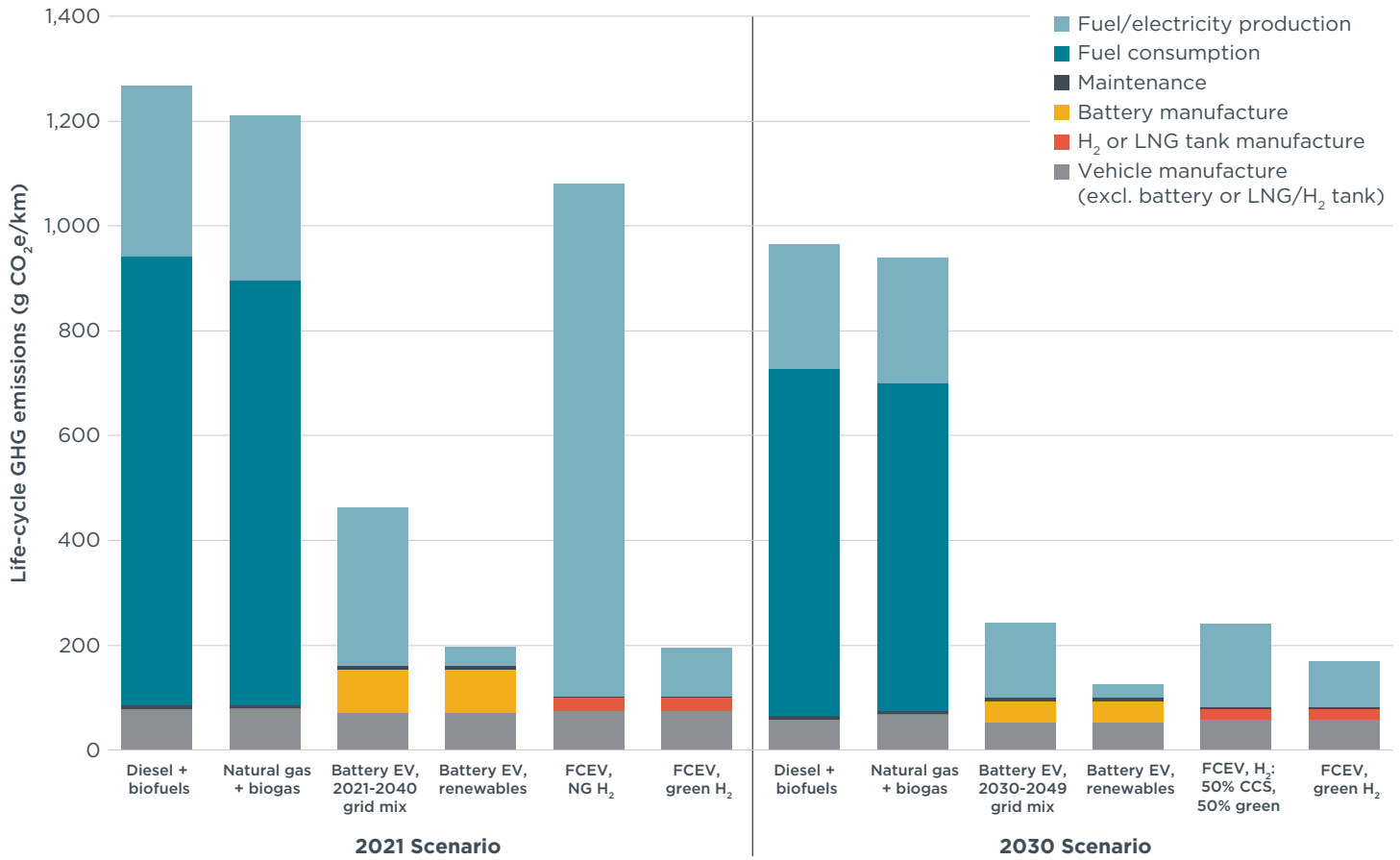
<https://theicct.org/publication/real-world-phev-use-jun22/>

A review of the AFIR proposal: Public infrastructure needs to support the transition to a zero-emission truck fleet in the European Union (white paper)

<https://theicct.org/publication/afir-eu-hdv-infrastructure-mar22/>

Battery electric vehicle access in Europe: A comparison of rural, intermediate, and urban regions (working paper) <https://theicct.org/publication/bev-access-europe-jun22/>

Life-cycle greenhouse gas emissions of a 40 t tractor trailer produced in 2021 and 2030



(Source: A comparison of the life-cycle greenhouse gas emissions of European heavy-duty vehicles and fuels, <https://theicct.org/publication/lca-ghg-emissions-hdv-fuels-europe-feb23/>)

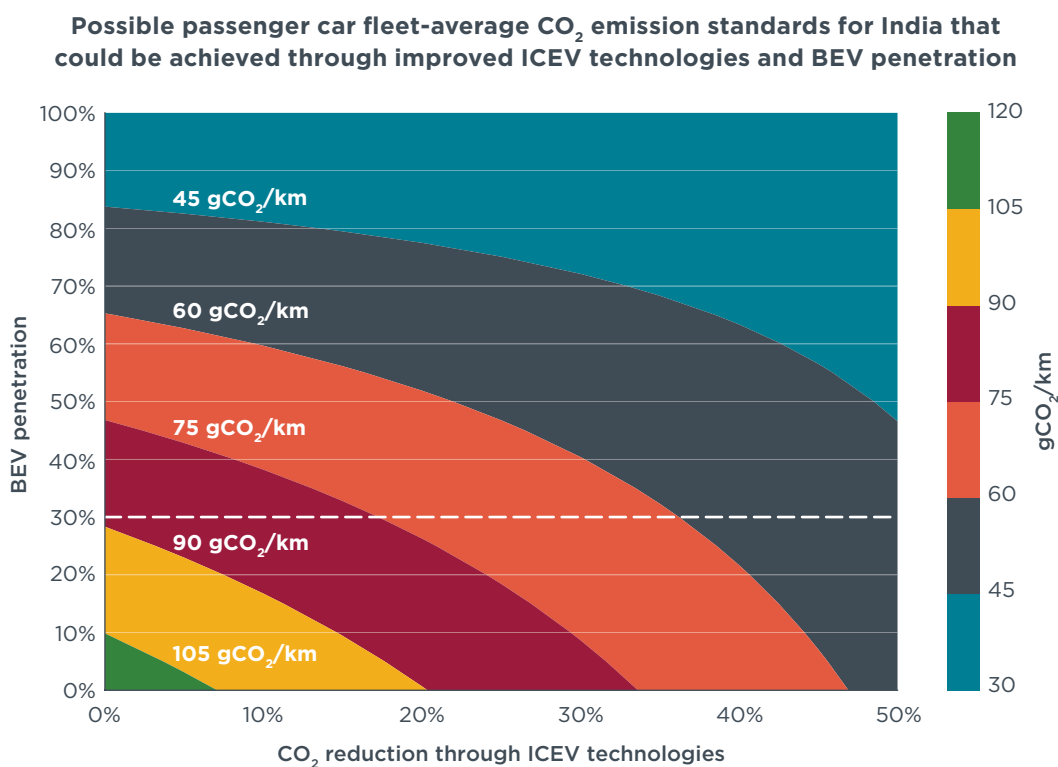
INDIA

India's transportation sector is a significant factor in the nation's air-quality problems and is expected to expand rapidly in the coming years. ICCT work in India focused on various tools and strategies that can be used to address air pollution on multiple fronts. These included an analysis of the CO₂ reduction benefits of the potential next phase of emission standards for passenger cars, an evaluation of non-fiscal incentives to promote electric vehicle sales, and an assessment of vehicle taxation to encourage the purchase of vehicles with lower or zero emissions.



MEETING BATTERY ELECTRIC VEHICLE SALES GOALS IN INDIA

To reduce greenhouse gas emissions and improve air quality in the country, India has set a national goal of 30% battery electric vehicle sales by 2030. ICCT researchers evaluated how fleet-average fuel consumption standards for passenger cars could help meet the 30% target. Two compliance strategies were examined. In one strategy, internal combustion engine technology is used until no further reduction in CO₂ emissions is possible and the reduction limit can only be met with a significant shift in production to battery electric. In the second strategy, the shift from internal combustion to battery electric occurs earlier and at an optimal transition point that minimizes compliance costs. The authors found that 30% BEV penetration is possible at a fleet-average target of 90 gCO₂/km. This implies manufacturers could meet this standard solely by adopting 30% battery electric vehicles in their fleets and with no improvements in internal combustion engine vehicles.



(Source: Costs and CO₂ emissions reduction benefits of potential phase 3 fuel consumption standards for India's passenger vehicles, <https://theicct.org/publication/ldv-india-co2-emissions-reduction-phase3-jun23/>)

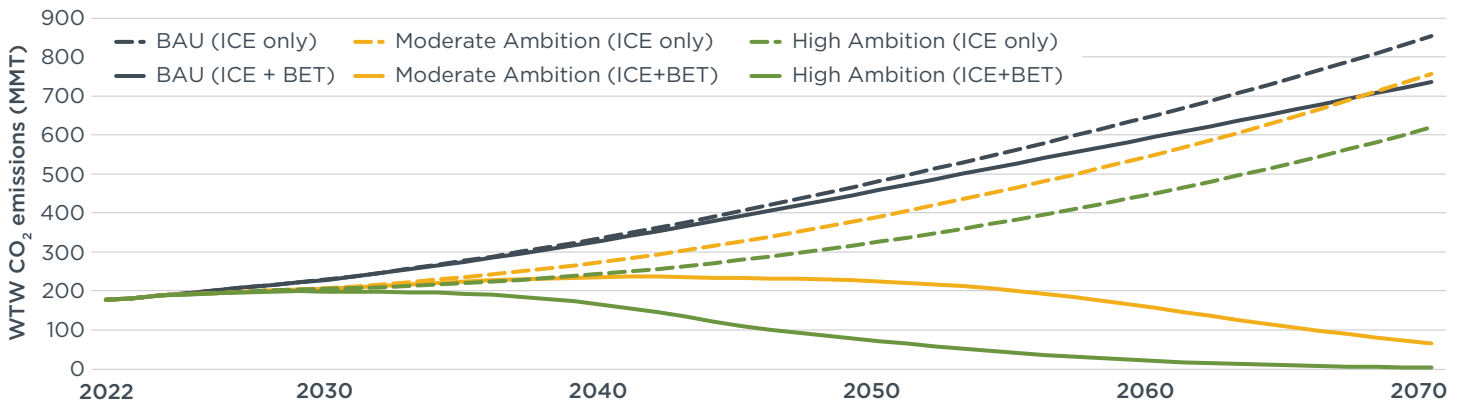
PUBLICATIONS OF NOTE

Passenger car taxation in India: Shifting to an emissions-linked structure
<https://theicct.org/publication/ldv-india-gst-cess-emissions-linked-jun23/>

Comparative evaluation of non-fiscal incentives to promote electric vehicles across Indian states and union territories
<https://theicct.org/publication/evs-non-fiscal-incentives-indian-states-jun23/>

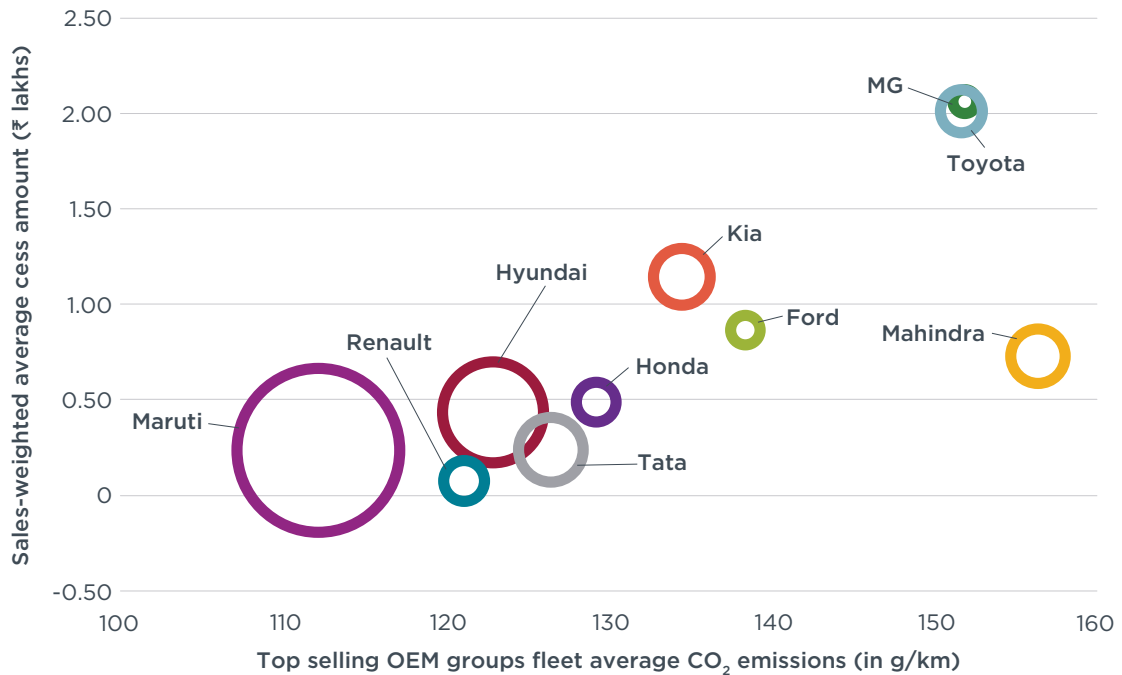
Improving air quality in cities through transport-focused low- and zero-emission zones: Legal pathways and opportunities for India
<https://theicct.org/publication/ldv-india-lez-zez-pathways-jun23/>

Annual CO₂ emissions from heavy-duty trucks under current policies, moderate ambition policy scenarios, and high ambition policy scenarios



(Source: *Heavy-duty trucks in India: Technology potential and cost-effectiveness of fuel-efficiency technologies in the 2025-2030 time frame* <https://theicct.org/publication/heavy-duty-trucks-india-fuel-efficiency-jun23/>)

Comparison of sales-weighted CO₂ emissions and sales-weighted Goods and Services Tax cess for passenger car manufacturer groups in India



(Source: *Passenger car taxation in India: Shifting to an emissions-linked structure*, <https://theicct.org/publication/lav-india-gst-cess-emissions-linked-jun23/>)

LATIN AMERICA

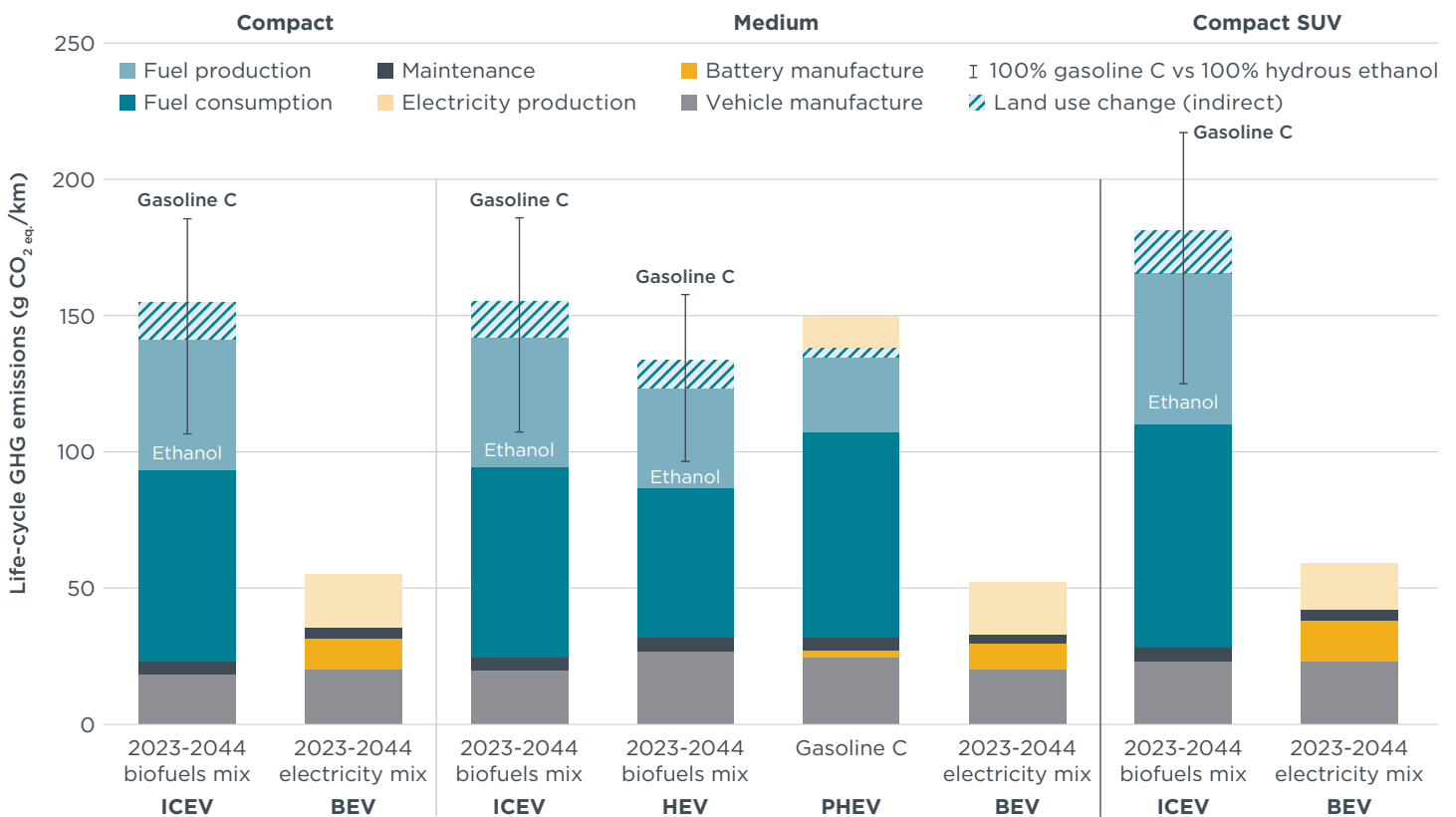
Brazil is the fourth-largest vehicle market in the world and an important factor in the global biofuels industry, and other countries in Latin America offer valuable insights into effective policymaking for smaller economies, including the electrification of mass transport. In 2023, ICCT researchers in Latin America focused on such issues as decarbonizing road freight, the cost and feasibility of using hydrogen for marine fuel, and strategies for setting a national electric vehicle charger standard in Chile.



LIFE-CYCLE EMISSIONS OF PASSENGER VEHICLES IN BRAZIL

The transportation sector in Brazil stands out due to its strong focus on biofuels, with most passenger cars being gasoline-ethanol flex-fuel vehicles. Still, after agriculture and land use change, the transport sector is the third largest source of greenhouse gas emissions in the country. An ICCT study evaluated the life-cycle emissions of various which combustion engine and electric power train types to assess which would allow the largest reduction of greenhouse emissions. The study found that the life-cycle emissions of flex-fuel vehicles vary largely when operated on gasoline C, on ethanol, or on a mix of the two fuels. With the corresponding average electricity mix, current battery electric vehicle were found to emit about one third of the life-cycle emissions of gasoline-ethanol flex-fuel vehicles, and future models can approach zero emissions.

Comparison of life-cycle greenhouse gas emissions of vehicles sold in Brazil in 2023. Error bars indicate the cases of operating solely on gasoline C or hydrous ethanol.



(Source: Comparison of the Life-Cycle Greenhouse Gas Emissions of Combustion Engine and Electric Passenger Cars in Brazil, <https://theicct.org/publication/comparison-of-life-cycle-ghg-emissions-of-combustion-engines-and-electric-pv-brazil-oct23/>)

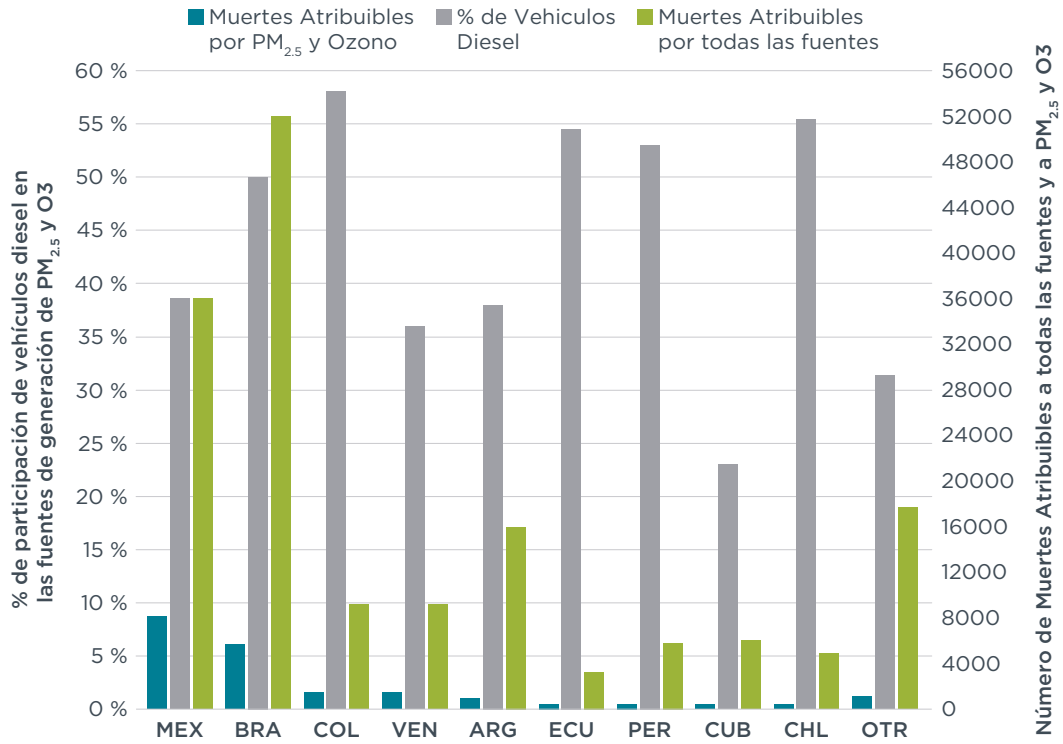
PUBLICATIONS OF NOTE

Life-cycle greenhouse gas emissions of hydrogen as a marine fuel and cost of producing green hydrogen in Brazil
<https://theicct.org/publication/maritime-brazil-hydrogen-costs-mar23/>

Strategies for setting a national electric vehicle charger standard: Relevant factors and the case of Chile
<https://theicct.org/publication/lat-am-evs-choose-charger-std-chile-jan23/>

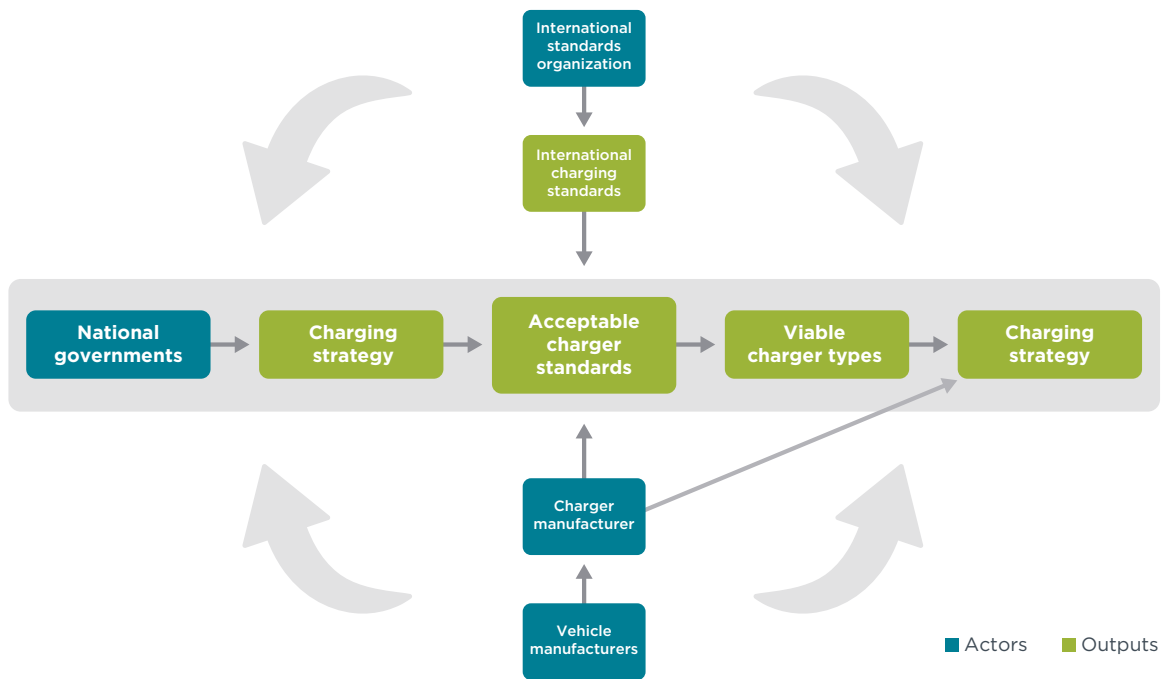
Hoja de ruta para descarbonizar el transporte de carga en América Latina entre 2025 y 2050
<https://theicct.org/publication/hoja-de-ruta-para-descarbonizar-el-transporte-de-carga-en-america-latina-aug23/>

Porcentaje de muertes por PM_{2.5} y ozono atribuibles al sector transporte con relación a todos los sectores en algunos países de América Latina



(Source: Hoja de ruta para descarbonizar el transporte de carga en América Latina entre 2025 y 2050, <https://theicct.org/publication/hoja-de-ruta-para-descarbonizar-el-transporte-de-carga-en-america-latina-aug23/>)

Relationship among key actors and outputs involved in the creation and implementation of charger strategies



(Source: Strategies for setting a national electric vehicle charger standard: Relevant factors and the case of Chile, <https://theicct.org/publication/lat-am-evs-choose-charger-std-chile-jan23/>)

NORTH AMERICA

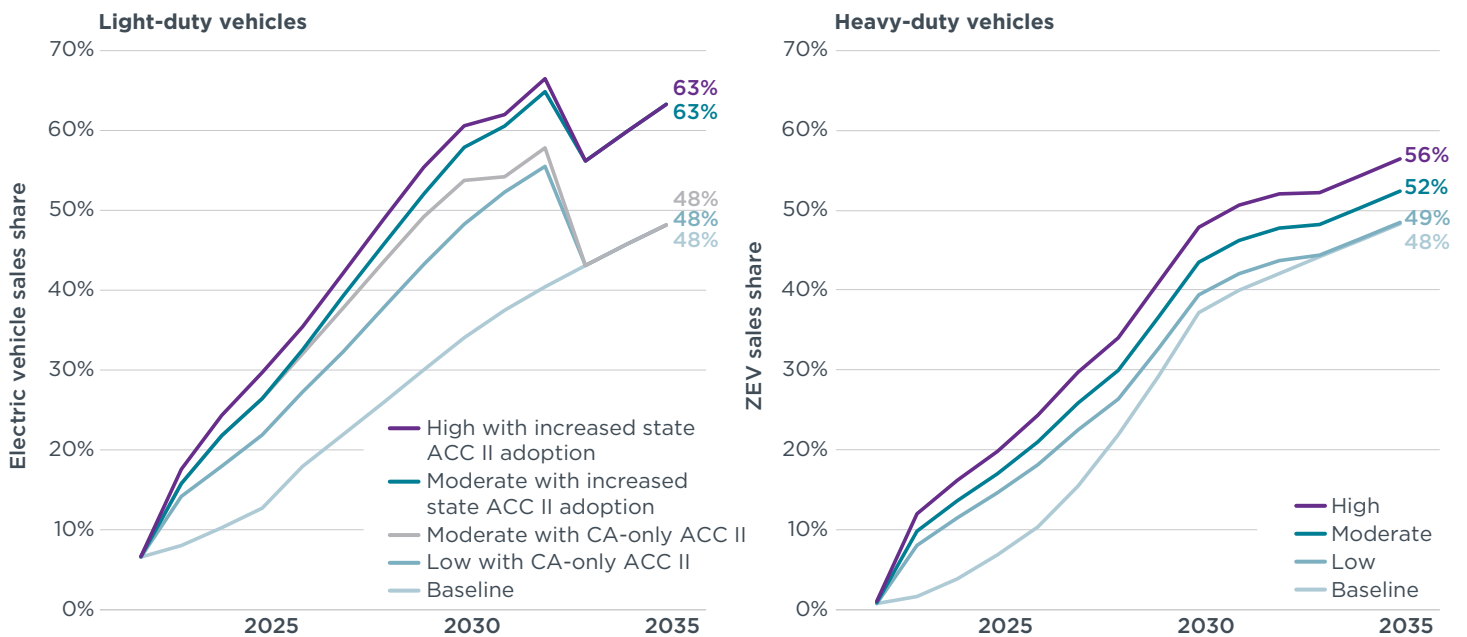
The United States pioneered the regulation of vehicle air pollutant emissions and fuel economy in the 1960s and 1970s, and Canada has largely followed suit. In 2023, ICCT researchers focused on a variety of issues in North America to support transport electrification, including near-term charging infrastructure deployment needs to support zero-emission medium- and heavy-duty vehicles, home charging access, and the cost of ownership of light- and heavy-duty electric vehicles in the United States and Canada.



FEDERAL INCENTIVES FOR ELECTRIFICATION

The Inflation Reduction Act (IRA) of 2022 allocated \$370 billion to climate and clean energy investments, including tax credits and incentives for the deployment of clean vehicles. Researchers at the ICCT assessed the future impact of the IRA on electrification rates for light- and heavy-duty vehicle sales in the United States through 2035, accounting for tax credits, future cost declines, and state regulations. The analysis found that, by 2030, the EV sales share in the light-duty sector would reach 48%-61%, and increase to 56%-67% by 2032, the final year of the IRA tax credits. For heavy-duty, the ZEV sales share would reach 39%-48% by 2030 and 44%-52% by 2032.

Projected electric vehicle sales shares for light- and heavy-duty vehicles from 2023 to 2035



(Source: *Analyzing the impact of the Inflation Reduction Act on electric vehicle uptake in the United States*, <https://theicct.org/publication/ira-impact-evs-us-jan23/>)

PUBLICATIONS OF NOTE

2030 California renewable natural gas outlook: Resource assessment, market opportunities, and environmental performance

<https://theicct.org/publication/california-rng-outlook-2030-may23/>

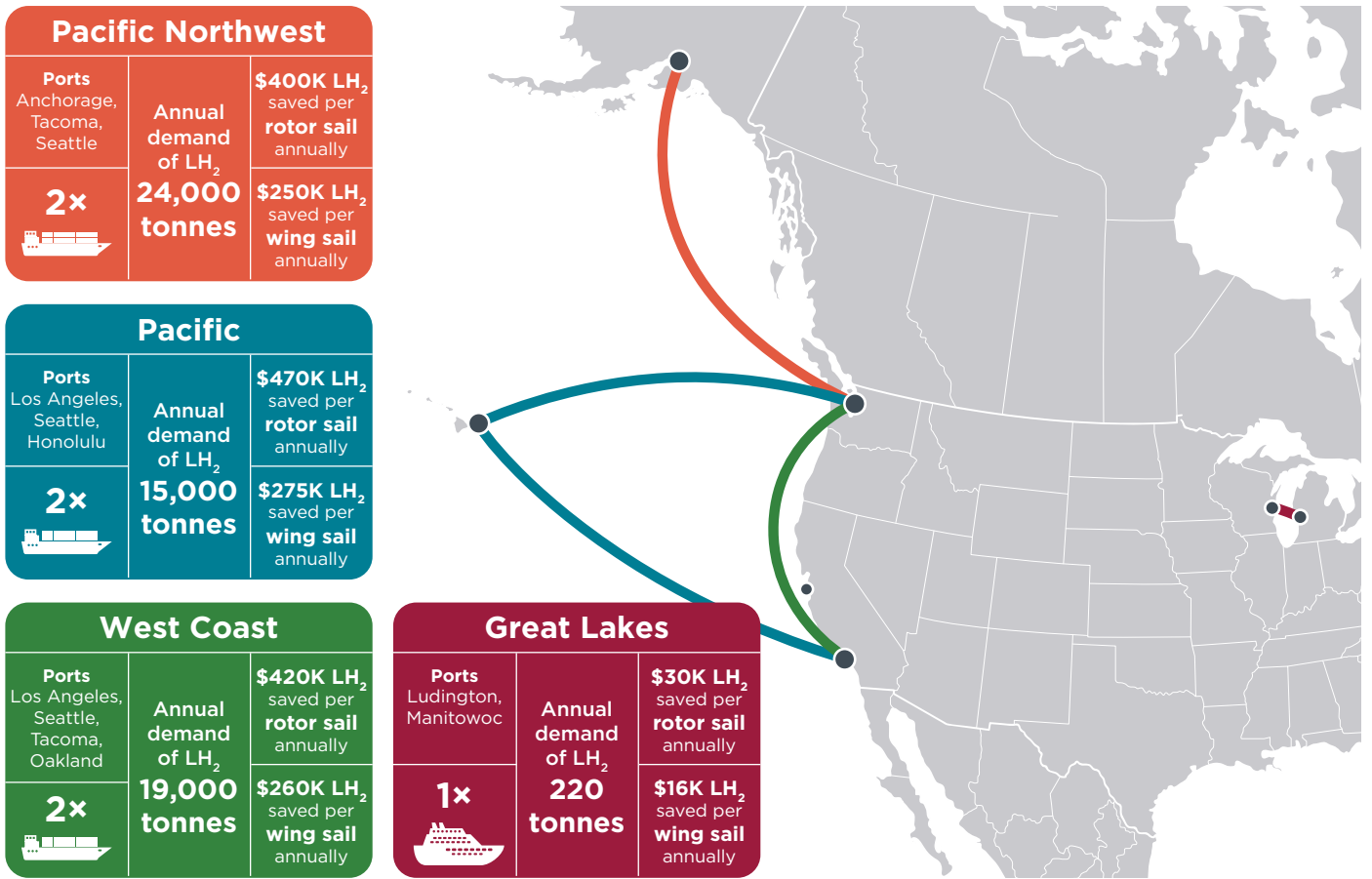
Potential benefits of the U.S. Phase 3 Greenhouse Gas Emissions Regulation for Heavy-Duty Vehicles

<https://theicct.org/publication/hdv-phase3-ghg-standards-benefits-apr23/>

Meeting the SAF Grand Challenge: Current and future measures to increase U.S. sustainable aviation fuel production capacity

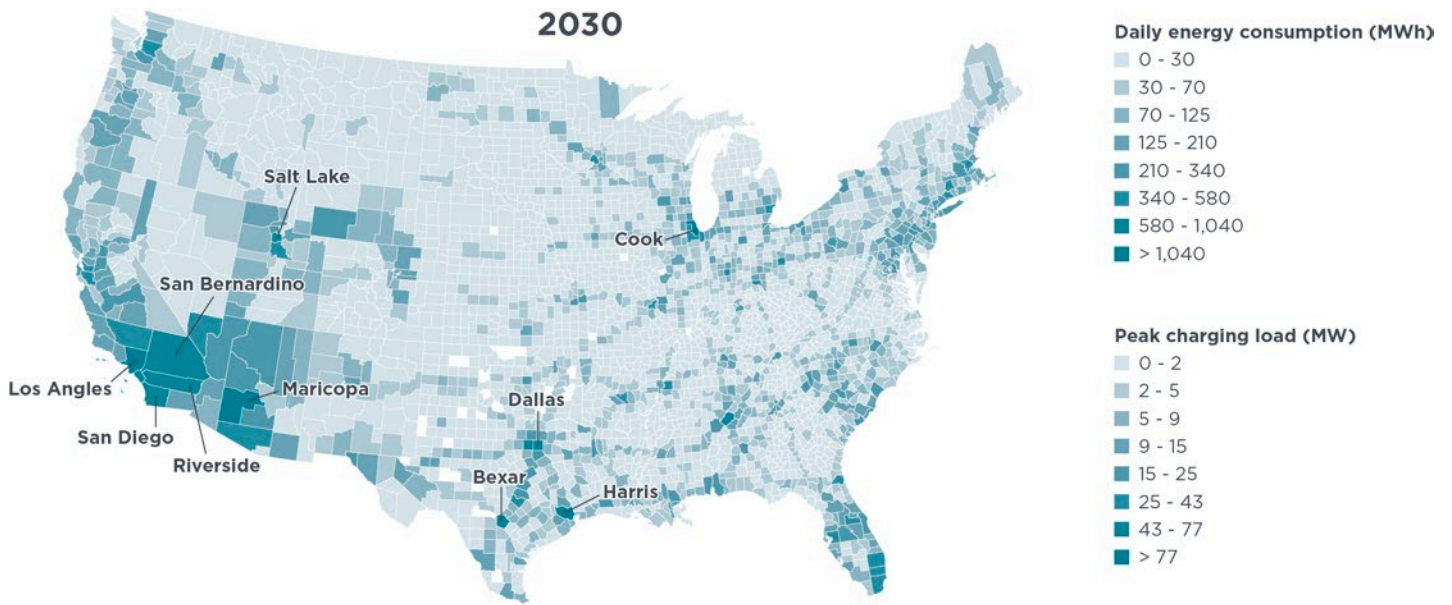
<https://theicct.org/publication/us-saf-production-capacity-nov23/>

Summary of four proposed corridors' liquid hydrogen demands and annual fuel savings provided by wind-assist technologies



(Source: Jones Act shipping case studies: Feasibility of U.S. domestic green corridors with hydrogen and wind assist, <https://theicct.org/publication/jones-act-shipping-case-studies-dec23/>)

Daily energy consumption of medium- and heavy-duty vehicles in 2030



(Source: Near-term infrastructure deployment to support zero-emission medium- and heavy-duty vehicles in the United States, <https://theicct.org/publication/infrastructure-deployment-mhdv-may23/>)

GLOBAL

The climate and air pollution impacts of transportation are felt across international borders. Some sectors, such as aviation and marine, require international collaboration to address greenhouse gas and pollutant emissions. Marine researchers studied the real-world emissions from ships, finding that NO_x emissions were highest under low engine load operation, suggesting that implementing not-to-exceed limits for such operations would be beneficial. In the aviation sector, ICCT researchers assessed the possibility of retrofitting turboprop aircraft that service regional routes to operate using hydrogen fuel cells. The study found that A fuel cell aircraft, fueled by green liquid hydrogen, can reduce carbon intensity by 88% compared to Jet A and by 35% compared to e-kerosene.



RATING THE TRANSITION TO ZERO-EMISSION VEHICLES

The Global Automaker Rating 2022 is a definitive look at how global automakers rate in the transition to zero-emission vehicles (ZEVs). ICCT researchers evaluated the top 20 manufacturers in the world based on their sales, actions, and ZEV strategies in six major global markets. The 10 custom-built metrics were crafted with an eye toward tracking progress over time, and the rating will be updated annually.

Overall scores, The Global Automaker Rating 2022

	2022 rating		MARKET DOMINANCE			TECHNOLOGY PERFORMANCE						STRATEGIC VISION			
			ZEV sales share	ZEV class coverage	Pillar score	Energy consumption	Charging speed	Driving range	Renewable energy	Battery recycle/ repurpose	Pillar score	ZEV target	ZEV investment	Executive compensation	Pillar score
Tesla	83	LEADERS	100	38	69	100	100	100	0	100	80	100	100	100	100
BYD	73		69	88	78	74	38	73	0	100	57	70	79	100	83
BMW	56	TRANSITIONERS	12	50	31	72	52	76	100	92	78	72	20	80	57
VW	53		10	88	49	60	51	82	75	49	63	92	23	26	47
Stellantis	50		8	88	48	28	36	28	0	98	38	81	9	100	63
Geely	48		23	88	55	45	32	68	9	100	51	71	46	0	39
Renault	47		11	75	43	49	13	32	0	90	37	100	45	37	61
Mercedes-Benz	45		10	63	36	55	41	73	50	43	53	96	34	12	47
GM	45		2	38	20	53	31	78	0	99	52	96	36	57	63
SAIC	44		31	100	65	49	0	0	0	90	28	37	81	0	39
Great Wall	38		10	75	43	55	15	30	0	100	40	92	5	0	32
Ford	38		4	25	14	26	49	95	14	91	55	96	36	0	44
Hyundai-Kia	38		8	63	35	32	75	73	11	100	58	39	20	0	20
Chang'an	36		16	88	52	45	4	19	0	0	13	68	56	0	41
Toyota	30		LAGGARDS	1	63	32	43	35	70	6	59	43	39	7	0
Honda	28	0		38	19	51	26	52	0	32	32	73	24	0	32
Nissan	27	4		63	33	19	12	29	0	31	18	60	24	7	31
Tata	27	6		25	15	87	3	21	6	87	41	52	18	0	23
Mazda	10	1		13	7	0	19	3	0	0	4	30	25	0	18
Suzuki	0	0		0	0	N/A	N/A	N/A	0	0	0	0	0	0	0

(Source: *The Global Automaker Rating 2022: Who is leading the transition to electric vehicles?* <https://theicct.org/publication/the-global-automaker-rating-2022-may23/>)

PUBLICATIONS OF NOTE:

Vision 2050: Update on the global zero-emission vehicle transition in 2023

<https://theicct.org/publication/vision-2050-global-zev-update-sept23/>

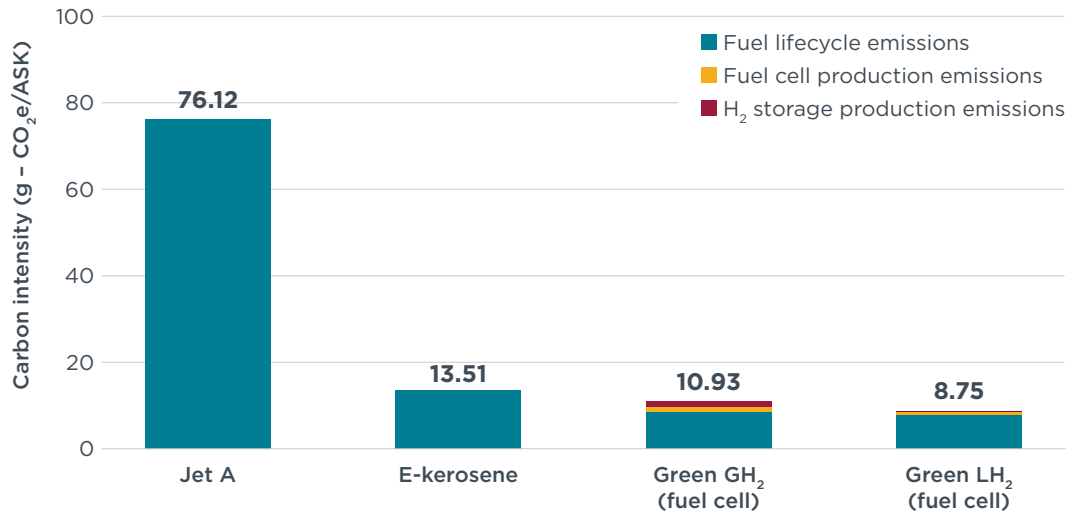
Real-world NO_x emissions from ships and implications for future regulations

<https://theicct.org/publication/real-world-nox-ships-oct23/>

Regulating international aviation emissions without market distortion

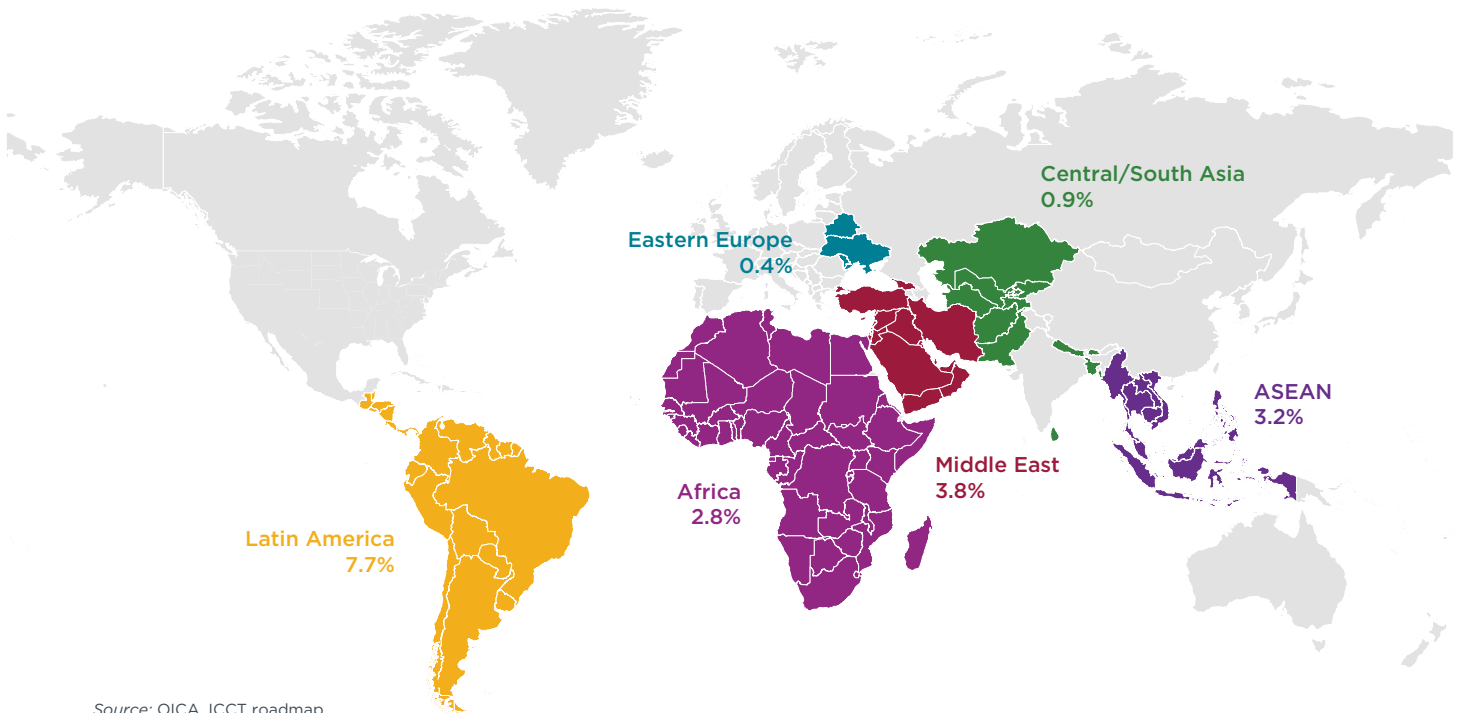
<https://theicct.org/publication/regulating-international-aviation-emissions-without-market-distortion-dec23/>

Carbon intensity of different aircraft fueling options



(Source: *Performance Analysis of Fuel Cell Retrofit Aircraft*, <https://theicct.org/publication/fuel-cell-retrofit-aug23/>)

Share of the global vehicle market in EMDE regions



Source: OICA, ICCT roadmap

(Source: *Charging infrastructure deployment in emerging markets and developing economies*, <https://theicct.org/publication/global-lvs-zev-charging-deploy-emde-jan23/>)

INTERNATIONAL PARTNERSHIPS

The ICCT acts as an organizer of multiple organizations, covering topics ranging from spurring the deployment of electric buses to providing policymakers with best practices for crafting electric vehicle policies. These organizations include the International Zero-emission Vehicle Alliance (IZEVA), The Real Urban Emissions (TRUE) Initiative, the Zero Emission Bus Rapid-deployment Accelerator (ZEBRA), the ZEV Transition Council (ZEVTC), and the Accelerating to Zero Coalition. In addition, ICCT participates in a variety of other partnerships, such as the Global Fuel Economy Initiative, and the G20 Transport Task Group.



ACTIVITIES OF ICCT INTERNATIONAL PARTNERSHIPS

ICCT researchers undertook a variety of work to support international partnerships. Work for the TRUE Initiative expanded to new locations across the globe, with measurement campaigns undertaken in Abu Dhabi and Bogota, and new analysis performed was performed using data from Warsaw, Edinburgh, and Glasgow. The ZEBRA partnership continued to promote the use of electric buses in Latin America, with work focused on the operational performance of such buses in São Paulo and Mexico City. Work for IZEVA has expanded beyond zero-emission vehicle penetration to research on promoting charging infrastructure. ICCT staff and researchers also convened several events, included those held at COP and Climate Week in New York City, in addition to hosting the IZEVA 2023 Annual Assembly in Sacramento.



ZEVTC 7th Ministerial Meeting



IZEVA 2023 Annual Assembly

PUBLICATIONS OF NOTE:

Assessment of real-world vehicle emissions in Scotland in 2021: Emissions testing campaigns in Edinburgh and Glasgow (TRUE publication)

<https://theicct.org/publication/true-scotland-remote-sensing-jun23/>

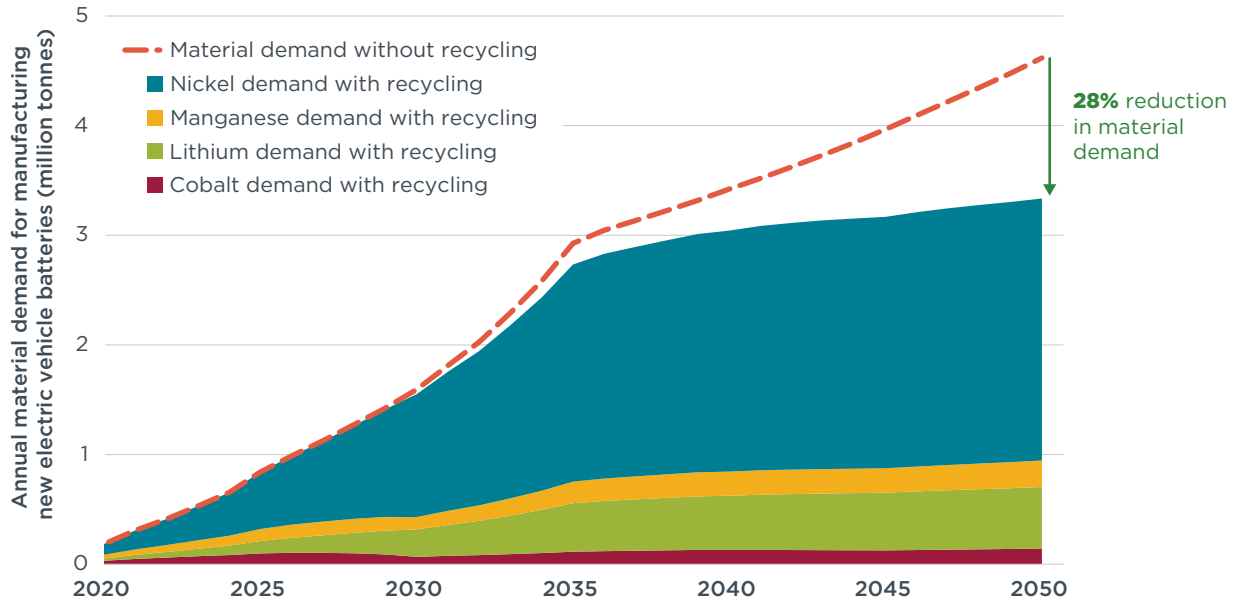
Scaling up reuse and recycling of electric vehicle batteries: Assessing challenges and policy approaches (IZEVA publication)

<https://theicct.org/publication/recycling-electric-vehicle-batteries-feb-23/>

Charging infrastructure for zero-emissions buses — Strategies in Bogotá, Colombia (ZEBRA publication)

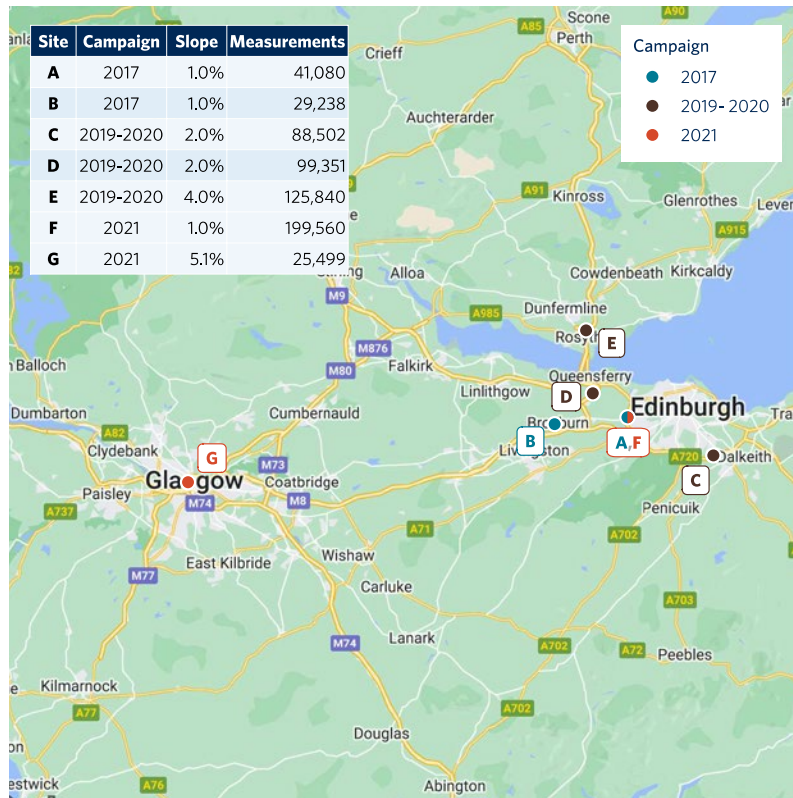
<https://theicct.org/publication/charging-infrastructure-for-zero-emissions-buses-strategies-in-bogota-colombia/>

Lithium, nickel, cobalt, and manganese demand for use in batteries in battery electric and plug-in hybrid vehicles



(Source: *Scaling up reuse and recycling of electric vehicle batteries: Assessing challenges and policy approaches*, <https://theicct.org/publication/recycling-electric-vehicle-batteries-feb-23/>)

Measurement sites and the number of measurements taken during remote sensing measurement campaigns in Scotland.



(Source: *Assessment of real-world vehicle emissions in Scotland in 2021: Emissions testing campaigns in Edinburgh and Glasgow*, <https://theicct.org/publication/true-scotland-remote-sensing-jun23/>)

TRANSATLANTIC TRANSPORTATION DECARBONIZATION SUMMIT 2023

The second Transatlantic Transportation Decarbonization Summit, brought together government, industry, and thought leaders to accelerate one of the most important mechanisms for climate change mitigation: the electrification of all on-road vehicles.

With input from six key government advisors, California, Canada, Germany, the European Commission, the United Kingdom, and the United States, the event intended to nurture deep conversation, relationship building, and ultimately problem-solving collaborations.

The event agenda followed what is essentially the life cycle of a vehicle. Solution-oriented discussions covered topics such as mining the raw materials needed to build electric power trains, the distribution of technology throughout the globe, and ensuring a just transition for the millions of workers tied up in the vehicle supply chain. Discussion topics addressing scaling the demand side included ways to increase the percentage of sales to 100% electric in time to meet our climate commitments and handle the growing need for scrappage and recycling of vehicles and their batteries.



SUPPORTERS

The ICCT employs more than 170 professionals in permanent offices in Beijing, Berlin, New Delhi, São Paulo, San Francisco, and Washington, D.C. Our researchers and policy experts work to decarbonize transportation around the world. Support from foundations and others drives that work. We thank our recent funders, including:

Aspen Global Change Institute

Clean Air Fund

Climate Imperative Foundation

ClimateWorks Foundation

The David and Lucile Packard Foundation

Energy Foundation

European Climate Foundation

FIA Foundation for the Automobile and Society

Google

Heising-Simons Foundation

Oceankind

Pisces Foundation

Quadrature Climate Foundation

The Ronald W. Naito MD Foundation

Seattle City Light

Sequoia Climate Foundation

Mercator Foundation

The Joshua and Anita Bekenstein Charitable Fund

United Nations Environment Programme

The William and Flora Hewlett Foundation

AUDITED FINANCIALS

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

December 31

CURRENT ASSETS	2023	2022
Cash and cash equivalents	\$ 10,383,385	\$ 9,693,447
Promise to give, net	14,549,395	1,006,156
Accounts receivable, net	648,820	1,372,847
Unbilled receivables	386,850	451,810
Prepaid expenses	333,615	104,899
Right-of-use asset for finance leases, net	3,633	7,112
Deposit	36,167	37,217
Property and equipment, net	305,588	398,052
Right-of-use asset for operating leases, net	3,341,008	4,292,860
TOTAL ASSETS	<u>\$ 29,988,461</u>	<u>\$ 17,364,400</u>
LIABILITIES AND NET ASSETS		
LIABILITIES:		
Accounts payable and accrued expenses	\$ 1,922,446	\$ 1,415,666
Refundable advances	9,255	403,962
Lease liability for finance leases, net	3,633	7,112
Lease liability for operating leases, net	3,820,836	4,826,629
TOTAL LIABILITIES	<u>5,756,170</u>	<u>6,653,369</u>
NET ASSETS (deficit):		
Without donor restrictions	(700,676)	(555,439)
With donor restrictions	24,932,967	11,266,470
Total net assets	<u>24,232,291</u>	<u>10,711,031</u>
TOTAL LIABILITIES AND NET ASSETS	<u>\$ 29,988,461</u>	<u>\$ 17,364,400</u>

CONSOLIDATED STATEMENTS OF ACTIVITIES

Year Ended December 31, 2023

	Without Donor Restrictions	With Donor Restrictions	Total
Revenue and support:			
Grants and contributions	\$ 2,992,985	\$ 32,270,739	\$ 35,263,724
Contract income	1,037,321	-	1,037,321
Consulting income	1,041,218	-	1,041,218
Interest income, net	268,544	-	268,544
Other income	245,741	-	245,741
Net assets released from restrictions	18,604,242	(18,604,242)	-
Total revenue and support	<u>24,190,051</u>	<u>13,666,497</u>	<u>37,856,548</u>
Expenses:			
Program services	19,325,764	-	19,325,764
Supporting services:			
Management and general	3,720,221	-	3,720,221
Communications	996,714	-	996,714
Development	292,589	-	292,589
Total expenses	<u>24,335,288</u>	<u>-</u>	<u>24,335,288</u>
Change in assets	<u>(145,237)</u>	<u>13,666,497</u>	<u>13,521,260</u>
Net assets (deficit)			
Beginning	(555,439)	11,266,470	10,711,031
Ending	<u>\$ (700,676)</u>	<u>\$ 24,932,967</u>	<u>\$ 24,232,291</u>



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