TABLE OF CONTENTS

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623 - Electric Vehicle Guide

SBD's EV Guide provides insight into the current situation for mass-produced passenger and light commercial EVs, their features, charging infrastructure, as well as environmental impact and policy considerations.

EV

Electric Vehicle

#218

EV & Sustainability Legislation Tracker

Electric vehicles have now cemented their place in the automotive mainstream, with their popularity growing exponentially as legacy OEMs and newer automakers continue to announce and roll out new solutions. This growth, and the increasingly strong market opportunity for EVs, has even led non-automotive players to reveal their own solutions with the intent to gain industry footing.

However, regardless of their experience or expertise, all players looking to sell their EVs on a global scale will equally have to navigate the legal landscape for them. They will likewise need to understand how it varies in different regions around the world today, how it is expected to evolve in the future, and the incentives offered by each region to encourage EV adoption.

The EV Legislation & Incentives Guide provides in-depth analysis of how and where legislation is impacting electrification. It aims to help OEMs and lawmakers understand the legal landscape and incentives offered for EVs today, and what legislation is being worked towards by governments in different regions. The guide is released quarterly to provide the latest updates and offers an accompanying Excel version featuring deep, data-driven, analysis.

COVERAGE

GLOBAL | NA | CHINA | EUROPE

FREQUENCY

ANNUALLY | QUARTERLY | ONE-OFF

PUBLICATION FORMAT

PDF | POWERPOINT | EXCEL | ONLINE

PAGES

70+

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Key questions answered

- What is the impact of major legislation on the industry and market?
- What is the likelihood that developing legislation will be implemented, and what is its impact?
- What are the regulations for charging infrastructure?

This research supports

- Product Planners
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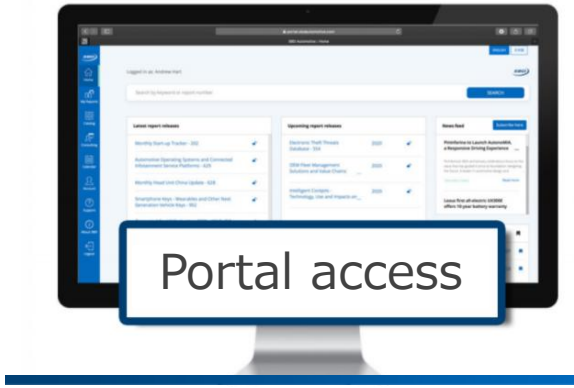

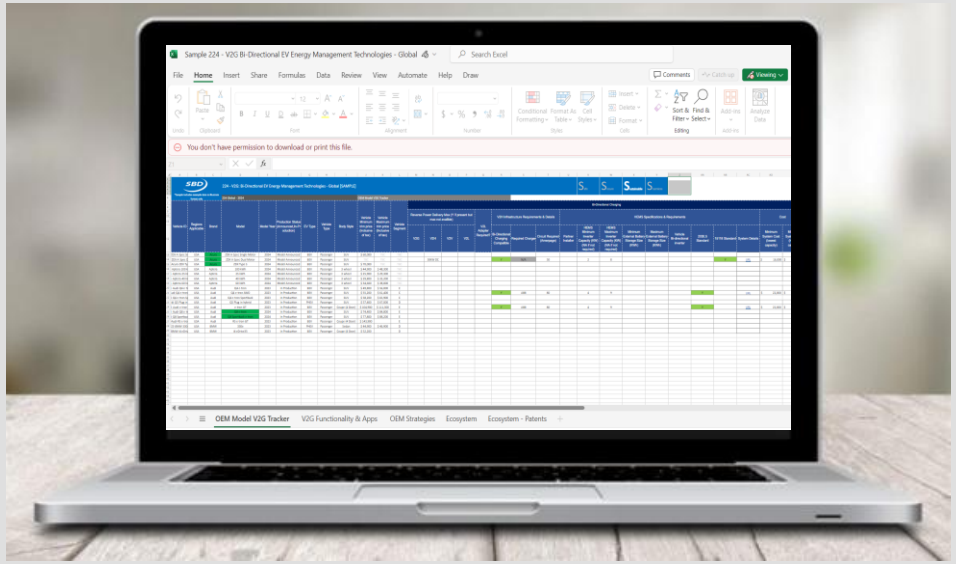

View Excel Data Sheet Sample

EV & Sustainability Legislation Tracker

For an in-depth analysis of how and where legislation is impacting electrification

Click for Sample

EV Legislation and Incentives Guide

Contents

218 – EV & Sustainability Legislation Tracker

Total number of pages - 73

Introduction

The Trump administration brings in significant changes to the industry

Electrification and sustainability are key areas buildings towards cleaner, more efficient and resource conscious energy system, with the goal of achieving carbon-neutrality. Government across various regions have well-adopted this path to support electrification and sustainability, aiding to zero-emission targets, carbon-conscious transportation, energy-efficiency and resource management.
Government authorities encourage consumers to purchase EVs through various legislative mediums and likewise support vehicle manufacturers to prioritize electrification and sustainability by laying the roadmap through various targets and mandates, allowing automakers to invest heavily and look into the future of EVs and sustainable mobility. This broad government support for electrification and sustainability has been realized through various forms of legislations, regulations, standards and best practices put in place.

The **EV and Sustainability Legislation Guide** examines the opportunities and implications of these laws, regulations, and standards across three primary regions: Europe, the United States, and China. The regulatory developments in other regions have also been captured, and they are collectively listed under 'Global' updates.

Additionally, each piece of legislation, best practice,, and standard is described in the Guide with its current status and timeline.

Note: *This guide only highlights the actual regulatory activities and does not give any recommendations. This guide's analytical and forward-looking statements shouldn't be construed as legal advice.*

Layer	Section	Conclusion
STRATEGY & IMPACT	Executive Summary	While Trump's administrative actions are the highlight of this quarter, EUR and CHN are experiencing their own share of progress, leading the regions in EV and sustainability activities.
LEARNING & ACTION	The Basics	Defining the various legal terminologies (regulation, legislation, standards etc.) covered in this report along with the regions in focus.
	What's New?	Not applicable
	Analysis	Key regulatory activities that are impacting the industry and best practices published by the authorities
CORE INSIGHTS	Summary Tables	The section discusses in depth the most important legislative actions the addressed regions have experienced over a course of time, with the latest ones being updated each quarter.
DATA DEEP DIVE IN EXCEL	Regulation & Legislation Guidelines & Best Practices Standards Related News	View and analyze deep data in your own way
CONTEXT	Birds Eye View	An overview of the tangential trends to this topic, as identified in SBD's neighboring products
	Future Outlook	*Not applicable*
	Next Steps	Can SBD help you with any unanswered questions?

Example slides from the report

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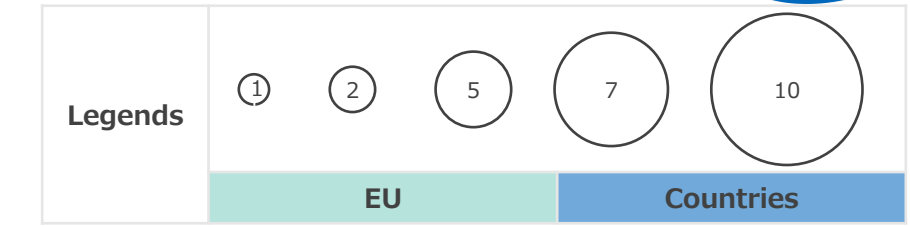
What? Snapshot of Key Regulatory/Legislative updates

	Draft Introduced* Legislation/Regulations recently introduced	Enforced/Published** Legislation/Regulations recently enforced
China	**Loudi City Electric Vehicle Charging Infrastructure Construction and Operation Management Regulations (Draft for Review) -** The regulation proposes that the city's development and reform department should work with the city's industry and information technology, housing and urban-rural development, emergency management, fire rescue and other departments and institutions to formulate a guide for the registration of charging infrastructure construction to provide standardized guidance for the construction of charging infrastructure.	**Action Plan for Optimizing the Consumption Environment (2025-2027) –**The regulation aims to create more consumption scenarios. It will promote the "first-launch economy" by adapting to local conditions, drive the construction of consumption landmarks, and focus on areas such as digital consumption, green consumption, and healthy consumption to create new types of consumption scenarios. The regulation will also improve the charging and battery swapping service system for new energy vehicles and support the expansion and extension of consumption scenarios for these vehicles.
Europe	No New Drafts introduced in Q1 2025 **Fit for 55 (partially enforced) -** Fit for 55 is a package of legislative proposals introduced by the European Commission aimed at reducing greenhouse gas emissions by at least 55% by 2030 compared to 1990 levels and achieving climate neutrality by 2050. The proposals include revising the Emissions Trading System, introducing a Carbon Border Adjustment Mechanism, increasing the share of renewable energy (enforced from 31st Oct 2023), promoting energy efficiency, setting emissions standards for new vehicles and deal on charging and fuelling stations for alternative fuels. The package will require significant changes across various sectors and involve substantial investments in clean technologies and infrastructure. **Bi-directional regulation (under AFIR) -** The implementation of both smart and bidirectional recharging(V2G) reduces recharging expenses for consumers. All newly constructed or renovated public charging stations in the EU from April 13, 2024, onward should be equipped to facilitate smart recharging.	The **Industrial Action Plan for the European Automotive Sector** has been recently enforced to strengthen European Union at various level of Electrification, Sustainability and Automotive future. **European Green Deal -** This plan was proposed by the European Commission to transform the EU into a sustainable and low-carbon economy by 2050. It aims to reduce greenhouse gas emissions, preserve biodiversity, improve public health, and promote sustainable production and consumption. The plan includes policies such as a Climate Law, Circular Economy Action Plan, Farm to Fork Strategy, Biodiversity Strategy, Renovation Wave, Sustainable Finance Strategy, Sustainable batteries and a Just Transition Mechanism. It is now being enforced, and EU member states are implementing measures to create a sustainable and resilient Europe. With the update on the new EU regulation on "Batteries and waste batteries" from 1, July 2024, only rechargeable industrial and electric vehicle batteries for which a carbon footprint declaration has been established, can be placed on the market.
USA	**S.1066 -** A bill has been introduced to authorize funding for electric vehicle charging infrastructure programs to be used for other highway projects, and for other purposes. **Wireless Electric Vehicle Charging Grant Program Act of 2023 -** Wireless Electric Vehicle Charging Grant Program Act of 2023 legislation provides grants to entities for construction and improvement of existing wireless charging infrastructure and to publish an annual progress report to relevant committees on the operation of wireless charging infrastructure. The latest action on 14th July 2023 was "Referred to the Subcommittee on Highways and Transit" by the Committee on Transportation and Infrastructure. **CARS (Choice in Automotive Retail Sales) -** The CARs ACT aimed to block the EPA's proposal for more stringent light-duty vehicle emission standards for MY27+.The bill includes two provisions: one to block the EPA proposal outright, and another that would prevent the EPA from limiting automotive sales by engine type - effectively preventing the agency from enforcing an EV transition. The bill passed the House and has strong Senate support from Republicans and Dem. Senator Manchin. Though likely to fail in the Senate or, if passed, get vetoed, the bill signals a Republican party agenda to limit regulatory authority on vehicles - something to watch in 2024 elections. The EPA proposal on "Multi Pollutant Emissions Standards MY27" was published in March 2024 before the CARS bill could be passed, though the bill is still active in Congress. A Republican Administration following the next election would be likely to continue the push to restrict EPA programming and may even rollback the new standards, as the original Trump administration did with the SAFE rule.	An important bill has been enforced on **Unleashing American Energy** by the Trump administration to revoke a series of actions from the Biden-era and before. **Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles -** On March 2024, the Environmental Protection Agency (EPA) finalized its new motor vehicle emissions regulation for Model Years 2027 and later Light-Duty and Medium-Duty Vehicles, introducing more stringent emissions standards. The EPA employs performance-based criteria, permitting a blend of technologies to comply with the limits, without mandating specific technologies for automakers. **Inflation Reduction Act (IRA) -** The Inflation Reduction Act (IRA) was signed into law in August 2022 to combat inflation by promoting clean energy, reducing healthcare costs, and increasing tax revenues. The IRA includes tax credits for the purchase of qualifying plug-in electric vehicles, investments in renewable energy manufacturing facilities and provides alternative fuel refuelling property credits to businesses that are in low-income or rural areas. vehicles must not contain battery components manufactured or assembled by a 'foreign entity of concern' beginning in 2024; vehicles may not contain critical minerals extracted, processed, or recycled by a 'foreign entity of concern' beginning in 2025. **CAFE standards amendment** - NHTSA is enforcing the CAFE and HDPUV standards for passenger cars and light trucks MY 2027 -2032 and MY 2030-2035 respectively, with an aim to raise the standards at a rate of 2% per year for PV and 10% per year for HDPUVs.

**In some regions (primarily outside the US) the word 'issued', 'proposed' are used for the legislations instead of introduced*
***Standards and Guidelines/Best Practices are often not enforceable by law. They are introduced and reviewed by the subject experts before being published.*

Europe – Legislation Overview

In Europe, most sustainability standards are established at EU level with a focus on emission legislation. Single countries instead apply different emission regulations to limit greenhouse gas emissions.



Renewable Energy in charging infrastructure	Production of EV - Material sourcing	Supply legislation	Charging Infrastructure Deployment	Emission legislations

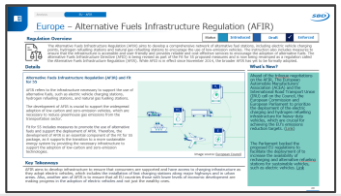
Renewable Energy in charging infrastructure	Production of EV - Material sourcing	Supply legislation	Charging Infrastructure Deployment	Others
	-			

Standards

Charging	Infrastructure	Others

More analysis in this chapter

AFIR



Green Deal and Fit for 55

USA In Detail – Inflation Reduction Act (IRA)

Legislation Overview

Status		Draft Introduced		Draft	✓	Enforced

The Inflation Reduction Act of 2022 (IRA), was signed into law in August 2022, to reduce the impact of inflation by boosting clean energy, reducing healthcare costs, and increasing tax revenues. It helps to reduce the cost and the federal deficit over the next decade. The law provides refundable income tax credits for purchasers of plug-in hybrid vehicles under Sec. 13401. The credit is $3,750 for any vehicle meeting certain critical minerals requirements and $3,750 for vehicles meeting certain battery component requirements. The two credits stack, providing up to $7,500 in credits per vehicle. Also provides tax credits for investments in expanding or establishing energy manufacturing facilities of renewable energy and related storage under Sec. 13501.

Details

The Inflation Reduction Act reduces energy costs and increases cleaner production. It aims to reduce carbon emissions by approximately 40% by 2030. IRA invests $369 billion in "Energy Security and Climate Change" programs over the next ten years which expands tax credits to deploy more commercial clean vehicles, domestic EV supply chains and charging infrastructure. Below are the two parts of the new EV tax credit that are included in the IRA and their requirements:

EV tax credits	Sourcing requirements	Credit amount
Critical minerals	Minimum percentage must be extracted or passed in the US or free trade partners **OR** recycled in the North America	$3,750
Battery components	Minimum package of battery components much be manufactured or assembled in North America	$3,750

IRA effects on EV ownership	IRA effects on EV charging infrastructure
Production and sales of EVs increase as the law makes it easier for anyone to own an EV vehicle by extending the tax credit to used clean vehicles and to previously capped for manufacturers. The Act is stabilizing the EV market in the US, by allocating tax credits for purchases of EVs assembled in the US.	In addition to EV purchases, the IRA also increases the tax credits up to 30% (applicable to the maximum limit of $100,000) of the original cost of EV charging equipment, provided the chargers are installed in either home or business premises. Projects with residential buildings can also receive a 20% bonus. Lastly, projects in low-income communities or on tribal land can receive an additional 10% bonus on top of the 30% credit and 20% residential bonus.

What's New?

Some of the imposed tariffs on Chinese supplied components are :

- Steel and Aluminum will increase from 0.75% to 25%
- Semiconductors will increase from 25% to 50%
- EVs will raise from 25% to 100%
- EV battery components will increase from 7.5% to 25%
- Solar cells will rise from 25% to 50%, etc. set to put in place within a year or two.

Key Takeaways

IRA provides several tax credits with the aim of reducing energy consumption and transitioning to renewable energy. It paves the way for US becoming less dependent on oil as well as a growth in the domestic supply chain of critical minerals used in EV batteries. The incentives and investments will help bolster EV manufacturing and battery production. Since the act was signed into law, many OEMs and EV battery suppliers invested billions of dollars in domestic production capacity.

Fall of Chinese EV Dominance with tweaks to ELITE and clean vehicle credits

Status		Draft Introduced		Draft	✓	Enforced

Legislation Overview

Aggressive adoption of electric vehicles in the USA has led to the government revisiting various credits schemes to reevaluate acts and restrict loopholes. The bill H.R.7980 was introduced in April 2024 in order to amend the Internal Revenue Code of 1986. This amendment is expected to disregard vehicles from the 'Clean vehicle credit' scheme that bare components containing materials sourced from prohibited foreign entities.

Additionally, the ELITE Vehicles Act, aims to withdraw the tax credits for purchases of new, used, and commercial EVs; simultaneously evading foreign entities from exploiting loopholes.

Details

➢ **Exclusion of clean vehicle credit of vehicles containing materials sourced from prohibited foreign entities will lead to narrowing Chinese supplies**

- As per H.R.7980, in case of vehicle components and battery materials extracted, processed, recycled, manufactured or assembled by prohibited foreign entities or under a contract with such entitled, the vehicle will no longer be eligible for vehicle clean credit program.
- The H.R.7980 defines prohibited foreign entities as a foreign entity of concern or in union with countries like North Korea, China, Russia, or Iran.
- Under the current law, from the start of 2024, vehicles with battery components sourced from foreign entities will not be eligible for the new clean-vehicle credit. Following which, the amendment will also be imposed upon vehicles with battery-critical minerals sourced from foreign entity, by the start of 2025, loosing eligibility for tax credits.

➢ **The Eliminating Lavish Incentives to Electric (ELITE) Vehicles Act - S. 4237**

This latest amendment to the Internal Revenue Code of 1986 revokes earlier provided tax credits of up to $7500, in case of-

- Purchase of new electric vehicle
- Purchase of used electric vehicle
- Exclusion electric vehicle charging stations

What's New?

S.4237 – ELITE Vehicles Act Update –

Legislations have been introduced to revoke two existing tax credits – i.e.

- **$7,500 federal tax credit for new EV purchases**
- **$4,000 credit for used EVs**

The legislation also eliminates incentive for setting-up EV charging station and adds an additional tax of $1000 on new EV purchases.

Key Takeaways

While abrogating tax credits is a common practice post market expansion, it is also a much-needed move to evade over-exploitation, especially causing major impact towards foreign OEMs and supplier.

Meanwhile, USA's introduction of H.R.7980 will gravely ignite a push toward local component and material management as tax-payers consider tax credit as a crucial parameter for newer technology adoption.

China In Detail – Measures for EV Charging Infrastructure

Status		Draft Introduced		Draft	✓	Enforced

Legislation Overview

China's charging infrastructure has further developed, charging technology has been rapidly improved, the standard system has been gradually completed, and the industrial ecology has been steadily formed. The charging infrastructure system with the largest number, the largest radiation area, and the most complete service vehicles in the world has been built. In order to fully implement the "Notice of the General Office of the State Council on Printing and Distributing the Development Plan for the New Energy Vehicle Industry (2021-2035)", the government supports the development of the new energy vehicle industry, breaks through the bottleneck of charging infrastructure development, and promotes the construction of a new power system.

Details

Recent development(s)	Details
Announcement of the General Administration of Market Supervision on the implementation of mandatory product certification management for electric vehicle power supply equipment	• From March 1, 2025, CCC certification for electric vehicle power supply equipment began. From August 1, 2026, uncertified equipment cannot be produced, sold, imported or used. This includes fixed, mobile and on-board charging devices.
Implementation Plan for the High-Quality Development of Green Finance in the Banking and Insurance Industry	• The regulations explicitly state: support the low-carbon transition of the energy system. Explore and improve financial services for the entire industrial chain of new energy vehicles, and increase financial support for the field of charging infrastructure.
Qingfeng County Interim Measures on the Construction, Operation and Management of Electric Vehicle Charging Infrastructure	• The regulations stipulate that public charging infrastructure in operation must be connected to the provincial intelligent charging service platform. New infrastructure must pass completion acceptance by professional third-party institutions before use.
Action Plan for Optimizing the Consumption Environment (2025-2027)	• The regulations improve the charging and battery swapping service system for new energy vehicles and support the expansion of consumption scenarios for new energy vehicles.
Xinzhou City strengthens the construction of electric vehicle charging infrastructure in residential areas	• The regulations mandate that new residential areas must have at least 15% of fixed parking spaces equipped with charging infrastructure and 100% of spaces prepared for future installation, encouraging full coverage to meet electric vehicle charging needs.

Key Takeaways

Behind the rapid development of China's charging infrastructure, there are still outstanding problems such as the difficulty of building piles in residential communities, the unbalanced development of public charging facilities, the user's charging experience needs to be improved, and the industry's quality and safety supervision system needs to be improved. It is urgent to accelerate the innovation of relevant technologies, models, and mechanisms, and further enhance the charging service guarantee capability.

What's New?

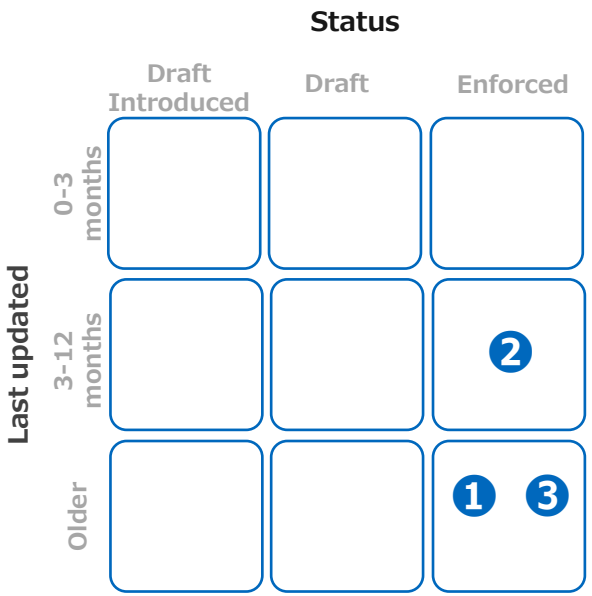
In 2024, some major cities, like Beijing, have issued policies to regulate the construction of new energy storage power stations, key points include (Link):

- Applicable to new energy storage power stations within Beijing's administrative area with a rated power of at least 500 kW or energy capacity of at least 500 kWh (excluding pumped storage).
- Detailed requirements for each stage from planning to grid connection, including project filing, planning permits, construction permits, quality supervision, and final acceptance.
- Specific measures for equipment management, grid dispatch management, and construction safety to ensure the safe and efficient operation of energy storage power stations.

EU – Best Practice/Guidelines

Latest activity vs status

About the policy activity placement in the grid



S. No	Name of the law	Recent development(s)	Next activity/milestone
1	**Promotion of e-mobility through buildings policy**	This addresses the European Parliament and the Council's mandate outlined in Article 8(2) of the Energy Performance of Buildings Directive (EPBD), focusing on how building policies can advance electromobility within the European Union. The report identifies several effective practices including residents' "Right to Plug" enabling simplified approvals for charging stations, easier decision-making in apartments, expedited permitting processes, support for stakeholders through guidance and training, and exploration of pre-financing options for collective charging infrastructure.	Enforced 15-02-2023
2	**A Guide to Driving Your EV in Europe**	This guide will tell you all you need to know about driving your EV in and around Europe. From what documents and accessories, you should bring, to our top tips on how to have the best journey whilst exploring.	Enforced 24-04-2024
3	**Best practice & recommendations for the safe carriage of electric vehicles (EVs)**	The European Automobile Manufacturers Association (ACEA) has gathered data on passenger car registrations in the EU by fuel type, revealing a significant increase in alternative fuel vehicles (AFVs) over the past few years (Figure 1). Electric vehicles (EVs) are expected to match the sales of internal combustion engine (ICE) vehicles by 2030 and surpass them by 2040.	Enforced 31-08-2023

Key highlights

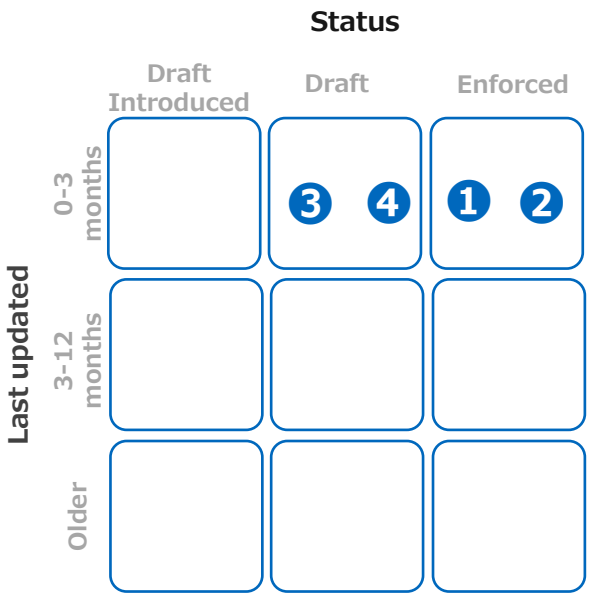
- To facilitate the transition to EVs by simplifying the installation of charging stations and streamlining the decision-making process, this guideline will make it easier for European citizens to adopt electric vehicles. This will contribute to a cleaner and more sustainable transportation system.

- Encourage EV Tourism: For EV owners, this guideline serves as a valuable resource for planning road trips and exploring Europe. It highlights charging station availability, provides tips on route planning, and suggests destinations with EV-friendly amenities. This encourages EV tourism, boosting local economies and promoting sustainable travel.

China – Standards

Latest activity vs status

About the policy activity placement in the grid



S. No	Name of the law	Recent development(s)	Next activity/milestone
1	**On-site testing instruments of off-board charger for electric vehicles**	This standard specifies the terms, technical requirements, testing methods, and packaging, transportation and storage requirements for on-site detectors of non-vehicle-mounted charging machines for electric vehicles with a voltage of 1000 V or less.	No significant change since the last development.
2	**General requirements of electric vehicle battery swap station**	This standard specifies requirements for electric vehicle battery swap stations, including classification, site selection, power supply, charging and swapping systems, monitoring, traffic and parking arrangements, civil engineering, safety, and signage. It applies to the design, construction, and use of such stations.	No significant change since the last development.
3	**Specification for on-board test of traction battery for electric vehicles**	The standard will specify functional safety requirements and testing methods for electric vehicle traction battery management systems to ensure their safety and reliability.	No significant change since the last development.
4	**Greenhouse gases — Quantification methods and requirements for carbon footprint of products — Electric vehicles**	This standard specifies safety requirements and test methods for individual cells, battery packs, and systems of traction batteries in electric vehicles, ensuring their safety and reliability.	No significant change since the last development.

Note: All the listed EV standards launched in China are applicable nationwide

Key highlights

- China has made significant strides in electric vehicle regulations, reflecting its commitment to advancing sustainable transportation. The introduction of standards highlights a comprehensive approach to enhancing EV safety, performance, and environmental impact. “Electric vehicles safety requirements” specify the safety requirements and testing methods for electric vehicles, emphasizing protection against electric shock, safety functions, and insulation resistance.

- These regulations focus on improving battery safety, energy efficiency, and emissions standards, ensuring that EVs meet stringent quality and environmental criteria. By updating these standards, China aims to bolster consumer confidence, promote technological innovation, and maintain its leadership in the global EV market. This regulatory evolution supports the country's broader goals of reducing carbon emissions and fostering a greener economy.

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