

October 2023



HIT THE ROAD

VOLUME 1 STATE OF CHARGING INFRASTRUCTURE IN FRANCE

SUMMARY



With the support of:



HIT THE ROAD STUDY

In the context of the 'Hit the Road' project for Avere-France, AFRY has conducted the present study on public charging needs by 2035. It consists of **Volume 1 - State of Charging in France**, as well as two analyses based on modeling needs and proposing key measures to address two specific challenges: **Volume 2 - EV Charging on major roadways** and **Volume 3 - EV Charging in areas to be filled**. These documents are intended to be complementary and offer transversal measures.

The data in **Volume 1** will serve as assumptions for **Volumes 2 and 3**, which will assess the EVCI needs by 2030-2035. Interviews were conducted with stakeholders in the electric charging ecosystem, and with electric charging infrastructure ecosystem stakeholders, which informed the analyses in this report.

The scope includes 100% battery vehicles, whether passenger cars, light duty vehicles or heavy duty vehicles. The study focuses on the analysis of urban, peri-urban, and rural areas at the city level according to INSEE (National Institute of Statistics and Economic Studies), as well as major road axes.

On a European scale, the EU Energy Council has recently adopted a regulation¹ calling for the end of the sale of new light vehicles with internal combustion engines by 2035. This is a strong signal sent to manufacturers and the electric mobility ecosystem, which must already plan for this paradigm shift. Furthermore, through the AFIR² regulation, requirements regarding the coverage of charge points have recently reached a consensus, with the goal by 2025 and on the Trans-European Transport Network (TEN-T), of having at least one fast-charging station³

every 60 kilometers in each direction for light vehicles and at least one ultra-fast charging station⁴ every 120 kilometers in each direction for heavy vehicles.

Support mechanisms are emerging with incentives for the acquisition of electric or hydrogen vehicles, accelerated depreciation for gas, hydrogen, or electric heavy-duty vehicles, as well as objectives for transitioning the professional vehicle fleet. The France 2030 plan has confirmed the state's commitment to cleaner mobility, with the goal of producing 2 million electric vehicles by 2030 and the objective of popularizing electric retrofits.

The increase in electric mobility will be accompanied by investments in the electric charging infrastructure network, which must be reliable and dense to facilitate the adoption of EVs. The French government had set a target of 100,000 charging stations by 2021. To achieve this, the government provided different level of incentives through tax credits, reduced VAT, and budget allocations to support local authorities, condominium associations, private entities along major highways, and more.

¹ Regulation of The European Parliament and of The Council Amending Regulation (EU) 2019/631 with regards to strengthening performance standards for CO₂ emissions from new passenger cars and new light commercial vehicles in line with the increased climate ambitions of the Union, adopted by the Energy Council on March 28, 2023

² AFIR: Alternative Fuel Infrastructure Regulation

³ A station equipped with at least one 150kW charging point and a minimum capacity of 400kW

⁴ A station equipped with at least one 350kW charging point and a minimum capacity of 1400kW

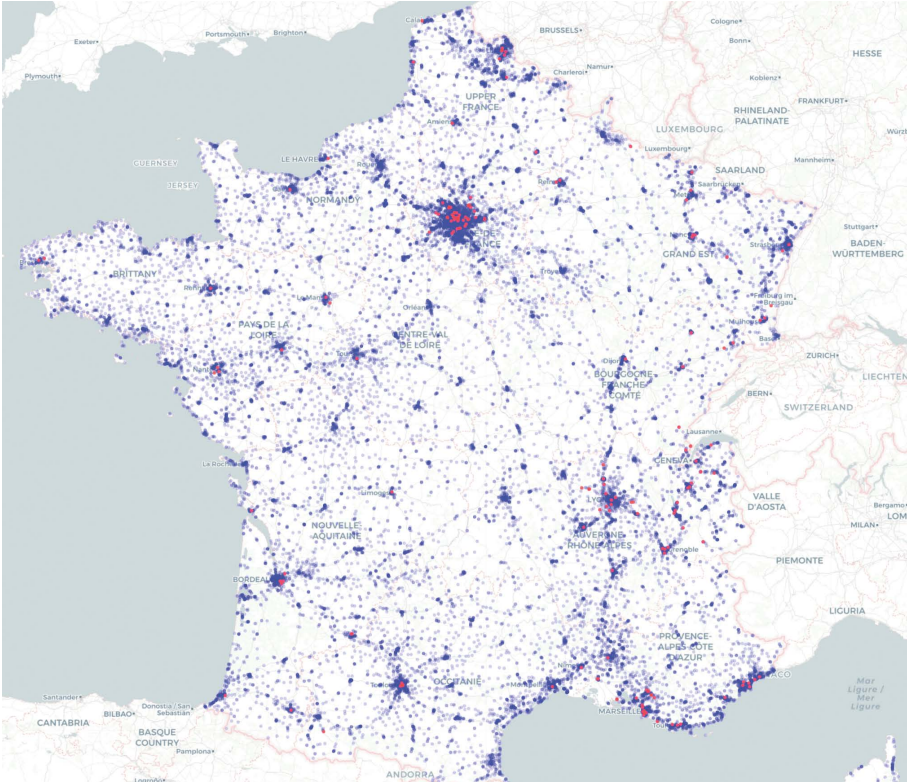
Funded through the Energy Saving Certificates (CEE) mechanism, the ADVENIR program, established in 2016 and managed by Avere-France since then, is a significant support for the deployment of Electric Vehicle Charging Infrastructure (EVCI). It covers various installations, including shared charging stations, whether accessible to the public or not, in business parking lots, public spaces, and private residential areas. The program has been extended until the end of 2025 and represents a cumulative allocation of 320 million euros.

In May 2023, the milestone of 100,000 publicly accessible charge points was reached, according to the Avere-France barometer and the Ministry of Energy Transition⁵. Momentum

has been gained, with a significant growth increase in the deployment of EVCI in recent months. Some areas remain less equipped than others, especially national roads, non-concessionary highways, and, in general, areas with low traffic.

The deployment of EVCI should not overlook areas commonly referred to as “white zones” by the ecosystem, a term this study prefers to call “areas to be filled” These are regions that will not be adequately covered by charging infrastructure without government intervention due to factors like low economic attractiveness, low traffic, or a need for affordable on-street charging.

Figure 1: Map of Charge points Across Metropolitan France⁶



Sources: Data from Eco-Movement (April 2023), AFRY analysis

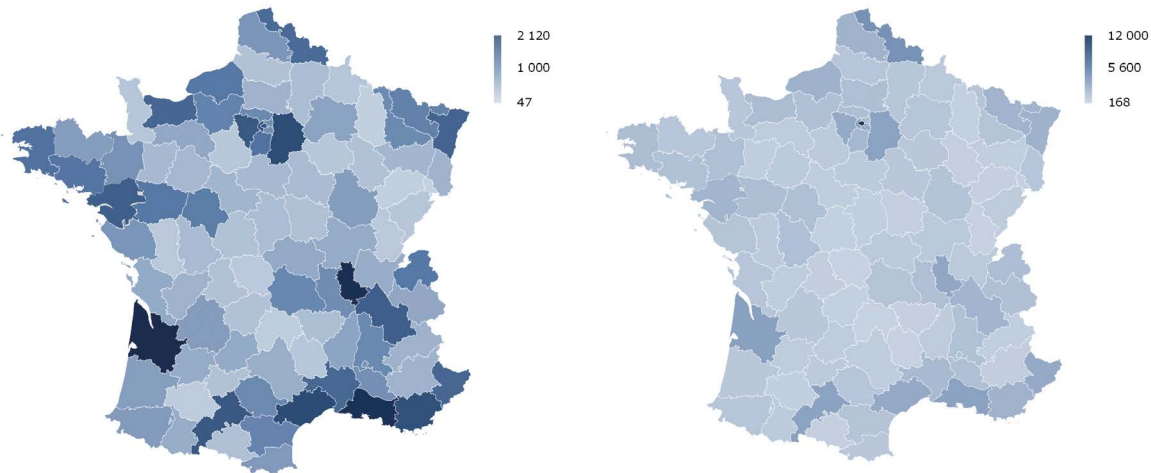
⁵ Common barometer by Avere-France and the Ministry of Energy Transition, based on Gireve data, May 2023

⁶ The map illustrates all existing charge points (in blue) as well as the charge points that will be deployed according to the first 7 winners of the France 2030 Call for Projects (in red)

Outside of concession highways, urban areas host the majority of charge points. The “early adopters” of electric vehicles have concentrated in major urban areas and in departments associated with cities like Lille, the Paris region,

Strasbourg, Lyon, Grenoble, Bordeaux, Marseille, Montpellier, and Toulouse. As a result, there is a greater supply of charging infrastructure in these locations, as illustrated in **Figure 2**.

Figure 2: Evaluation of the number of public charge points per department (left) and the number of public and open-to-the-public charge points (right)



Sources: Data from Eco-Movement (April 2023)

To enable the widespread adoption of electrified vehicles, the coverage of the territory with charging infrastructure will be fundamental. As of the end of 2022, France had approximately 1 charge point for every 8 to 9 electric vehicles on the road. But more than the ratio of vehicles per charge point, the indicator of installed power per battery-electric vehicle is becoming increasingly important.

AFIR has indeed established recommendations on this subject, with a target value of 2 kW per battery-electric vehicle when the share of light electric vehicles is between 2-5%, and 1 kW when the share of light electric vehicles exceeds 7.5%. According to ChargeUp Europe State of the Industry Report (2023), the current ratio in France is 2.3 kW per battery-electric vehicle, which is slightly below the European average of 2.7 kW per battery-electric vehicle.

Support Mechanisms

France has implemented a wide variety of mechanisms to support the deployment of electric vehicle charging infrastructure.

Figure 3: Support Mechanisms for Electric Vehicle Charging Infrastructure (EVCI) in France

CAPEX		
ADVENIR grants	ADEME tender	Grid connection costs reduction
<ul style="list-style-type: none"> For public on-street charging, the program provides a grant to local authorities or service-delegated CPOs (Charging Point Operators) Up to 30% of the investment expenses can be subsidized, with a total allocation of 320 million euros for the program, in effect until 2025 	<ul style="list-style-type: none"> Grantees of ADEME’s “Support for the deployment of charging stations for light and heavy electric vehicles” tender get subsidies representing up to 30% of CAPEX (40% in some cases) through loans or grants; the associated budget is €300 million until the end of 2024 	<ul style="list-style-type: none"> An exception regime allows CPOs to be subsidized by the TURPE (the French energy network public financing scheme), and under certain conditions (highway service areas, inclusion in a SDIRVE), they can get a -75% reduction of their connection costs
OPEX		
TIRUERT	“Tariff shield” extended to EVCI	
<ul style="list-style-type: none"> The TIRUERT scheme (Incentive Tax on the Use of Renewable Energy in Transport) has been newly introduced in 2022 for EVSE: the supply of electricity to road transport via public Charge Points generate credits for reducing the TIRUERT; fossil fuel distributors can buy credits to pay less of this tax, providing additional remuneration for CPOs (~OPEX support scheme) 	<ul style="list-style-type: none"> Decree No. 2023-62 (February 2023) extended the “tariff shield” to EVCI (EV Charging Infrastructure), which was introduced by the government during the energy crisis of 2022 	

With the achievement of 100,000 charge points, France is now at a turning point in its subsidy policy and will need to precisely target support mechanisms. **Volume 2 - EV Charging on major roadways** and **Volume 3 - EV Charging in areas**

to be filled delve into the details of measures to be considered for the successful deployment of Electric Vehicle Charging Infrastructure (EVCI) by 2035.

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ABOUT AFRY

AFRY provides consulting, digital, design and engineering services to accelerate the transition to a sustainable society.

We are 19,000 dedicated experts in the industrial, energy and infrastructure sectors. AFRY has Nordic roots with global reach, produces net sales of SEK 24 billion and is listed on Nasdaq Stockholm.

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ABOUT AVERE-FRANCE

Avere-France is the national association for the development of electric mobility. Created in 1978 to represent the entire electro-mobility ecosystem in the industrial, commercial, institutional or associative fields, its objective is to promote the use of electric and rechargeable hybrid vehicles.

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The European Climate Foundation (ECF) is a major philanthropic initiative working to help tackle the climate crisis by fostering the development of a net-zero emission society at the national, European, and global level. The ECF supports over 700 partner organisations to carry out activities that drive urgent and ambitious policy in support of the objectives of the Paris Agreement, contribute to the public debate on climate action, and help deliver a socially

responsible transition to a net-zero economy and sustainable society in Europe and around the world.

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