powerpark

AFIR COMPLIANCE

The complete guide for CPOs

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Executive summary

The EV charging world continues to be permeated by buzz, discussion and newly evolving requirements for charging infrastructure. Constantly building on lessons learned, the market is ripe to grow substantially and fulfill regulatory and consumer demand.

The latest requirements by the Alternative Fuels Infrastructure Regulation (AFIR) by the European Commission are aimed at fixing many of the hurdles that were blocking growth for EV driving, such as the availability of chargers, ease of payment, and more.

While few would disagree that standardization and ease of use for EV charging infrastructure are the way to go, the new regulations introduce new challenges regarding interoperability and data sharing that need to become part of the new technological roadmaps.

This eBook provides a practical deep dive into the requirements that every public EV charging network or service provider should care about and offers recommendations on executing and operationalizing AFIR in practice.

AFIR and EV charging infrastructure

The Alternative Fuels Infrastructure Regulation (AFIR), effective from April 13, 2024, establishes targets and requirements for using publicly available charging infrastructure in the EU.

AFIR stipulates critical requirements for the widespread availability of public EV charging infrastructure across the Trans-European Transport Network (TEN-T). It also sets forth several provisions to ensure fair and transparent pricing at charging stations and simplify driver payment processes.

Articles 3 and 4 of AFIR specify capacity-based targets for charging stations located at least every 60 km for light-duty electric vehicles by the end of 2025 and by 2030 for heavy-duty electric vehicles.

- From 2025 onwards, fast recharging stations of at least 150 kW for cars and vans need to be installed every 60 km along the EU's main transport corridors, the so-called 'trans-European transport (TEN-T) network.

- Charging stations for heavy-duty vehicles with a minimum output of 350 kW need to be deployed every 60 km along the TEN-T core network and every 100 km on the larger TEN-T comprehensive network from 2025 onwards, with complete network coverage by 2030.

Article 5 sets out specific requirements for CPOs and eMSPs regarding transparent and non-discriminatory pricing, the use of widely used payment instruments, and smart charging.

- Operators of publicly accessible charging stations must allow EV drivers to charge on an ad-hoc basis (without a need for a subscription) using widely accepted payment instruments, including electronic payments via payment card readers, contactless devices, and internet-connected devices capable of processing transactions via QR codes, for example.

- Prices at publicly accessible charging points must be transparent, clearly comparable and non-discriminatory. This includes displaying prices and their components (e.g., price per session, per minute, and per kWh) visibly to ensure users are informed before initiating a charging session.

New infrastructure will have to:

- Allow ad-hoc charging
- Accept electronic payments
- Clearly inform users about pricing options

Article 20 establishes a framework to ensure transparency and accessibility of essential EV charging infrastructure data.

- EV charging network operators must ensure both static and dynamic data concerning their operations are made available.

- This data must be accessible through National Access Points at no cost, in accordance with Directive 2010/40/EU.

Article 21 lists all technical specifications adopted by the Commission, including international standards such as IEC/ISO/SAE. Although the technical annex remains under development and has not yet been finalized since the AFIR came into effect, the EU Commission continues collaborating with specialists in its Sustainable Transport Forum working groups to refine these standards.

Q&A: Implementation guidelines
The EU Commission has published a Q&A paper, an accompanying document to the regulation, to provide further clarification on provisions and definitions, as requested by the industry. The AFIR Q&A document has no legal weight but can be used in interpreting infringement cases.

Addressing the risks for Charge Point Operators

With new rules now in place, EV charging-related businesses need to reevaluate many aspects of their operations to ensure they can become and stay compliant going forward. Many of the common hurdles faced in the process of EV charger installation and operation are now exacerbated in the race for compliance with the pan-European regulation. To continue forward toward long-term sustainability, CPOs need to consider the implications of different factors affecting their business.

Costs and financial viability

The cost associated with EV charger installation can be a significant barrier to AFIR compliance, including equipment purchases, electrical upgrades, and installation labor. Given the potential need to purchase additional hardware (e.g., payment terminals or new charger points), integrate into existing systems, and maintain, this may mean significant capital investment and cash outlay.

By working with reputable vendors, and comparing solutions and integration opportunities, CPOs can save time and money by avoiding costly mistakes upfront and arriving at the most cost-effective solution as soon as possible.

Technological evolution and compatibility

Another hurdle to complying with new regulations is the potential for quick obsolescence of the equipment. The need for frequent upgrades and the lack of user-friendly features can impact the overall efficiency and effectiveness of EV charging stations.

As a rule of thumb, choosing modular and upgradable components and staying abreast of emerging standards ensures that installed systems can accommodate future technological advancements and legal regulations.

Equipment maintenance and operations

The ability to monitor, control, and obtain data from your charger population is crucial to maintaining AFIR compliance. Incorporating regular maintenance and updates into your operational strategy ensures that your infrastructure remains technologically current. Real-time access to charging sessions and payment data not only supports optimal service for EV drivers but also facilitates the generation of compliance-related data reports.

A centralized management software system is essential in effectively controlling charging stations. It consolidates data on utilization, availability, and revenue, allowing charge point operators to analyze various performance metrics and promptly take appropriate measures.

Grid operations

Under the new AFIR provisions concerning the availability of charging infrastructure, European countries are required to utilize data on current and future charging points to enhance grid planning. Grid operators must incorporate EV charging strategies into their expansion plans and engage with relevant stakeholders such as CPOs.

Therefore, planning your EV charging operations needs to involve assessing and strategically managing the integration of EV charging infrastructure with the electrical grid. Relying on a system that features dynamic load management and smart charging can help ensure reliability, efficiency, and sustainability and save on capital investments and grid upgrade delays.

Legal risk

Non-compliance with regulations can result in legal action or fines, adversely affecting business operations. Penalties are typically imposed at the national level by the government and relevant courts of the country where the business operates. The European Commission generally does not directly penalize companies for non-compliance. Instead, it may sanction the Member State for failing to enforce rules through a protracted process known as infringement cases. Companies, individuals, or governments can pursue legal action against businesses in their national courts for alleged infringements.

AFIR compliance deep dive

Once you have considered the business and technological implications of rolling out charging infrastructure, it's time to evaluate the AFIR requirements that apply to your particular situation. A solid understanding of these regulations can offer competitive advantages in adapting operations, informing financial decisions, and making cost-effective choices on technology and processes. Ensuring timely compliance can also help avoid business interruption, customer complaints, or potential legal fines, thereby safeguarding your business.

Requirements at-a-glance

AFIR establishes uniform regulations for new public charging points across the European Union (EU). As an EU regulation, it is directly applicable in each member state without requiring local legislation to adopt its rules. Compliance with these regulations is phased over several years, initially affecting new operations while also allowing existing businesses to retrofit their infrastructure to meet the new standards.

The compliance requirements for Charge Point Operators and eMSPs fall into several categories as follows:

- **Payments:** Offer ad-hoc payment options without EV drivers entering into a contract
- **Pricing:** Provide transparent and non-discriminatory pricing to EV drivers
- **Data accessibility:** Be able to provide publicly available information via API
- **Connectivity:** Ability to monitor and control stations remotely and collect data
- **Smart charging:** Provide the ability to schedule charging and adjust electricity consumption

13 April 2024

- Ad-hoc payments for all types of charging points deployed after April 13, 2024
- Clear and transparent price per kWh and per minute
- Smart charging mandate for charging stations deployed after April 13, 2024

14 October 2024

- All charging stations must be digitally connected and support smart charging

31 December 2024

- Public access of static and dynamic data to a common European access point via API

14 April 2025

- CPOs must provide free access to static and dynamic data to end users
- IDRO codes for CPOs/eMSPs

31st December 2025

- Charging infrastructure mandates along TEN-T network

31 December 2026

- A common European access point for all EV drivers

1 January 2027

- Mandatory ad-hoc e-payments above 50 kW charging points

31 December 2027

- Enhanced charging infrastructure at TEN-T and public parking

31 December 2030

- Developing HDV infrastructure

31 December 2035

- TEN-T charging enhancements for LDV

The following is a quick summary of the main requirement areas, deadlines, and minimum compliance criteria, to get you started on your compliance journey.

Compliance area	Requirement	Effective date
Payments	**Charge points< 50 kW, deployed after April 13, 2024** Must accept e-payments via at least one of the following: • payment card readers • devices with a contactless functionality to read payment cards • devices using an internet connection (f.e. QR-code)	**April 13, 2024**
	Charge points ≥ 50 kW, deployed after April 13, 2024 Must accept e-payments via at least one of the following: • payment card readers • devices with a contactless functionality to read payment cards	**April 13, 2024**
	All charge points ≥ 50 kW along TEN-T network and secure parking areas (window for retrofit) Must accept e-payments via at least one of the following: • payment card readers • devices with a contactless functionality to read payment cards	**January 1, 2027**
Pricing	< 50 kW clear and visible pricing and pricing components: • price per kWh • price per minute • price per session • other components	**April 13, 2024**
	≥ 50 kW, deployed after April 13, 2024 • Price in kWh • Occupancy fee in price per minute	**April 13, 2024**

Compliance area	Requirement	Effective date
Data accessibility	Static and dynamic data must be open and available to all data users through the national access points.	**By 31 December 2024**
	This information must be accessible through National Access Points at no cost. These access points serve as centralized platforms where data on alternative fuel infrastructure can be retrieved, ensuring it is freely available to all users and stakeholders.	**By 14 April 2025**
Connectivity	Operators of recharging points shall ensure that all publicly accessible charge points they operate are digitally connected.	**By 14 October 2024**
Smart charging	CPOs must ensure that all publicly accessible charge points operated by them and built after 13 April 2024 or renovated after 14 October 2024 are capable of smart charging.	**From 13 April 2024**

Standards and interoperability

Navigating regulatory complexities and addressing infrastructure challenges, is a collaborative effort from all stakeholders. Implementing AFIR in practice, requires technology providers and their partners to work together on creating interoperable solutions that will deliver compliance across the board.

INSIGHT

The common technical specifications, part of **AFIR Article 21**, are planned to ensure full technical interoperability of the charging infrastructure.

The OCPP protocol remains outside AFIR, with the EU focusing on standards such as IEC/ISO/SAE governed by international standardization bodies.

Nevertheless, the OCPP remains the **de facto standard** for delivering the capabilities such as ad-hoc payment, pricing displays, cost calculations, and smart charging.

The Open Charge Alliance - the governing body for the OCPP protocol - is closely following the latest government requirements and including them in its roadmap, with the latest version, 2.0.1, **directly supporting AFIR implementation without customizations.**

Adoption of the OCPP protocol, therefore, is a surefire way to stay on top of the trend and rely on interoperable solutions going forward.

Achieving interoperability via OCPP

- **Charging station OEMs** need to get their equipment compliant and OCPP-certified.
- **Charging network operators** have to ensure OCPP compliance for their EVSEs and enable the data transfer to their servers using OCPP protocols.
- **Software (CPMS) providers** need to develop functionalities with the latest standard specifications and test the implementations with different vendors.

AFIR compliance solutions for Charge Point Operators

1 Ad-hoc payments

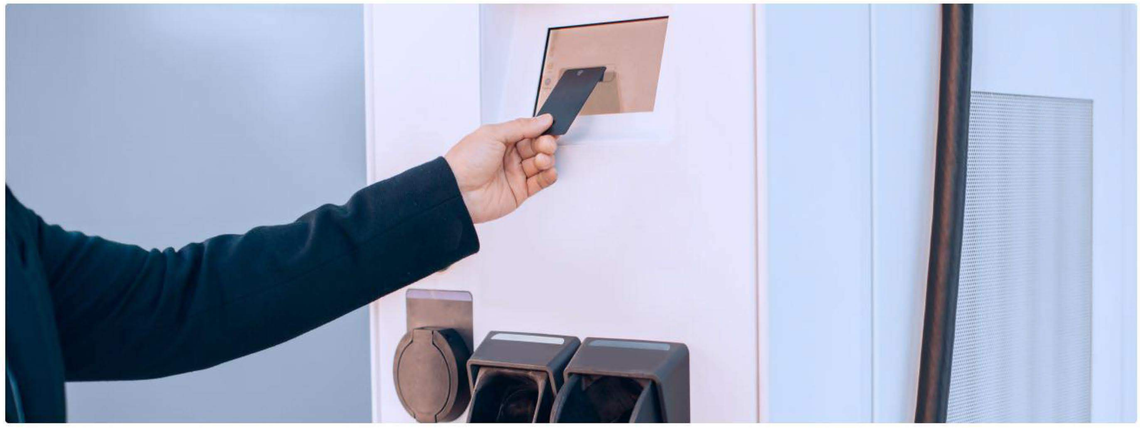
Ad-hoc payment mechanisms allow quick and easy one-time payments at EV charging locations without the need for drivers to download multiple apps or maintain pre-paid subscriptions. Ad-hoc payments can be performed using a credit/debit card terminal or via devices using an internet connection, allowing for secure payment transactions. Ease of payment increases the user-friendliness of the charging experience and helps CPOs accelerate vehicle flow and maximize utilization.

What does it mean for you	
QR-codes	Static QR codes suffice for compliance if they are secure. (for <50 kW only) Dynamic QR-codes are not mandatory.
Smartphone	Use of a smartphone as a digital payment card is accepted, eliminating the need for a physical pin pad.
PIN pad	Installation of a pin pad is only necessary if the payment device requires it in order to fully operate.
e-payments	Debit or credit cards (physical and digital), Digital wallet Mobile phone application issued a financial institution that is used for payment services. Payments are NOT allowed via CPO/eMSP smartphone application.

End users must be able to **override automatic authentication** for added flexibility.

Implementing ad-hoc payment solutions may require working with your hardware and software vendors to select the right equipment and design the user experience.

- Selecting compatible payment terminal models
- Integrating payment terminals with CPMS
- Integrating payment processors
- Designing EV driver web experience and payment flow



How to be compliant with POWER PARK

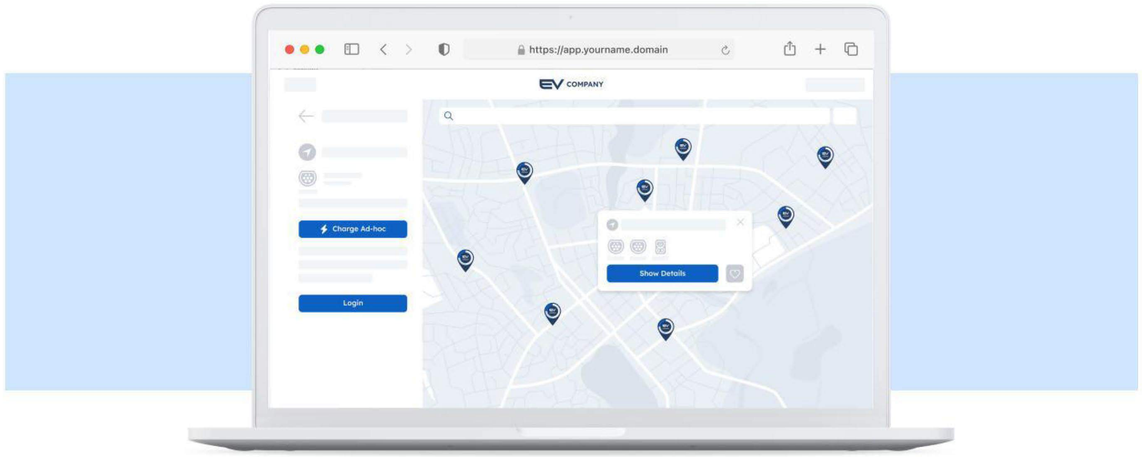
POWER PARK platform allows a variety of payment and authentication mechanisms such as prepaid, credit card, corporate billing, subscriptions, payment terminal, or vehicle ID.

The platform's numerous hardware integrations with payment terminal providers and out-of-the-box integrations with industry-standard payment processors allow CPOs and charge point OEMs to implement a variety of AFIR-compliant ad-hoc payment scenarios. Depending on needs or charger types, the methods will vary in cost or complexity.

ad hoc payments from POWER PARK

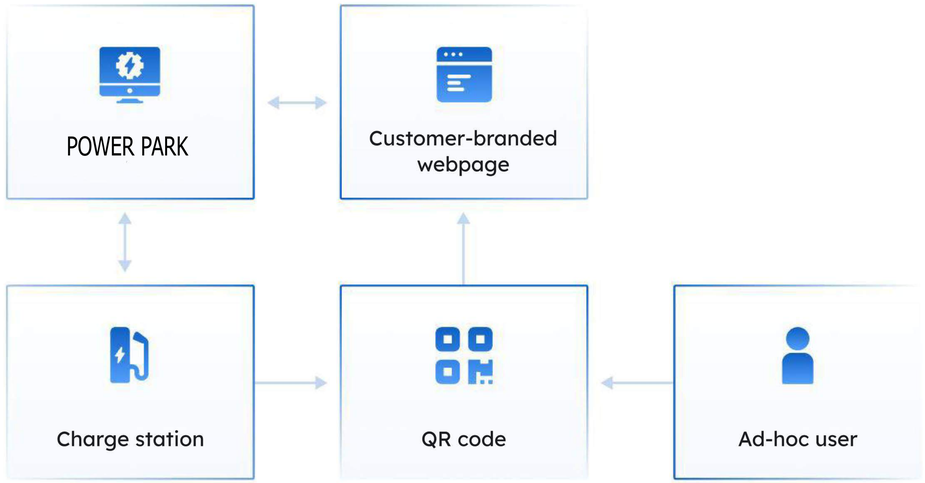
Web Portal	Electronic QR code	Payment Terminal	Payment Kiosk
No charger display required	Charger display required	Integrations with leading brands	Flexible workflows
Branded web URL	Option A: Hardware-generated	Option A: Embedded in charger	POWER PARK kiosk terminal app
Receipt via email (optional)	Option B: Software-generated	Option B: Standalone	Select EVSE at terminal or at station

1.1 Ad-hoc payment using a web portal



POWER PARK white-label capabilities allow you to obtain your own branded web URL of the kind **app.yourname.domain** where users can access chargers and start charging sessions.

CPOs can include the web URL in a convenient location on the station and let drivers charge without registration or downloading a mobile app. The driver can optionally provide an email address to receive a receipt or skip this step altogether. In your backend, this user and session will appear as Anonymous.



1.2 Ad-hoc payment using an electronic QR code

OCPP 2.0.1-compliant charging stations with displays can use the “display message” protocol capability to obtain a QR code pointing to a payment URL for the specific EVSE.

After scanning the code with a smartphone, the user is redirected to a corresponding price display and payment, where they undergo an anonymous workflow similar to option 1.1.

Generating the electronic QR code can be software or hardware-driven, in the form of an OCPP 2.0.1-defined display message. The URL for the QR code is assigned to each EVSE in the system. In the case of a hardware-based implementation, the stations can generate the code using the EVSE URL configuration key available from the platform and handle the dynamic part internally. This second scenario is especially useful in cases of connectivity loss.

INSIGHT

Eliminating paper stickers makes it much easier if and when migrating chargers, as it removes the need for redirecting existing links to new locations. The QR codes will be system-generated for each EVSE and displayed electronically.

Q&A INSIGHT

A dynamic QR code requires the charging station to have a display with a controller that generates these QR codes, features that many AC charging stations lack. Therefore, it has been determined that a static QR code could be in line with AFIR as long as it is readable and the security of the payment transaction is ensured.

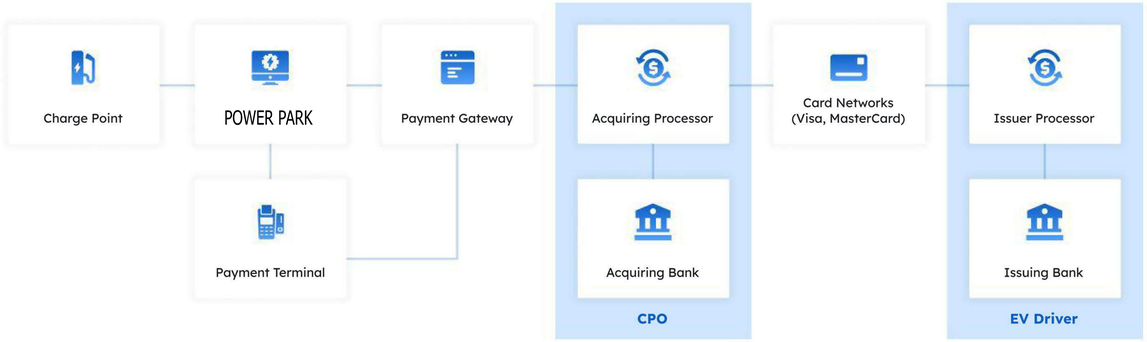
1.3 Installing a payment terminal

Payment terminals, also known as credit/debit card terminals, are devices used to read your credit/debit card. They send the data over to a payment processor to execute the transaction. With a payment terminal, an EV driver can simply swipe their credit/debit card and charge the EV.

Depending on budget and hardware vendor preferences, CPOs may decide to purchase payment terminals separately or buy stations with embedded payment terminals.

- **Embedded payment terminals:** the charge point uses its own integration with the payment terminal, where the charge point can be configured to send authorization requests with a special prefix that will notify the CPMS to authorize the charging session and tag its selected payment as “Payment Terminal”.

- **Standalone payment terminals:** additional work must be done on integration with the payment terminal hardware. Power Park has working integrations with a number of industry-standard payment terminal brands, including **Nayax, Payter, Pax, Worldline, Windcave** and **Crane**.



1.4 Installing a payment kiosk per location

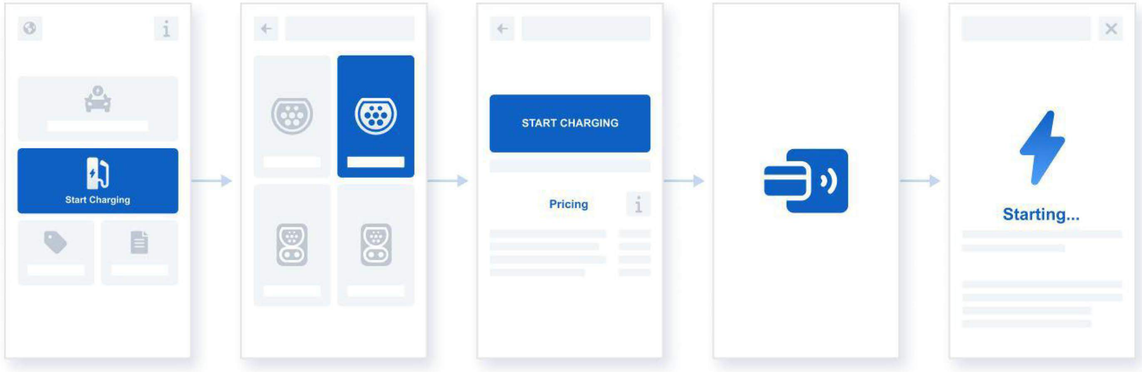
Another AFIR-approved solution is using a central payment terminal per location. In this system, you can control several charging points from one display and tap a credit card to pay for a session.

The kiosk solution requires a payment model terminal whose display can accommodate multiple EVSE selections and a custom application can be created for communication with the CPMS and the stations.

The advantage of such a solution is that no multiple payment terminals need to be maintained, saving both upfront and ongoing servicing costs.

The user experience can be designed in several different ways, such as starting/stopping the session from the payment terminal or the charging station.

Payment terminal workflow

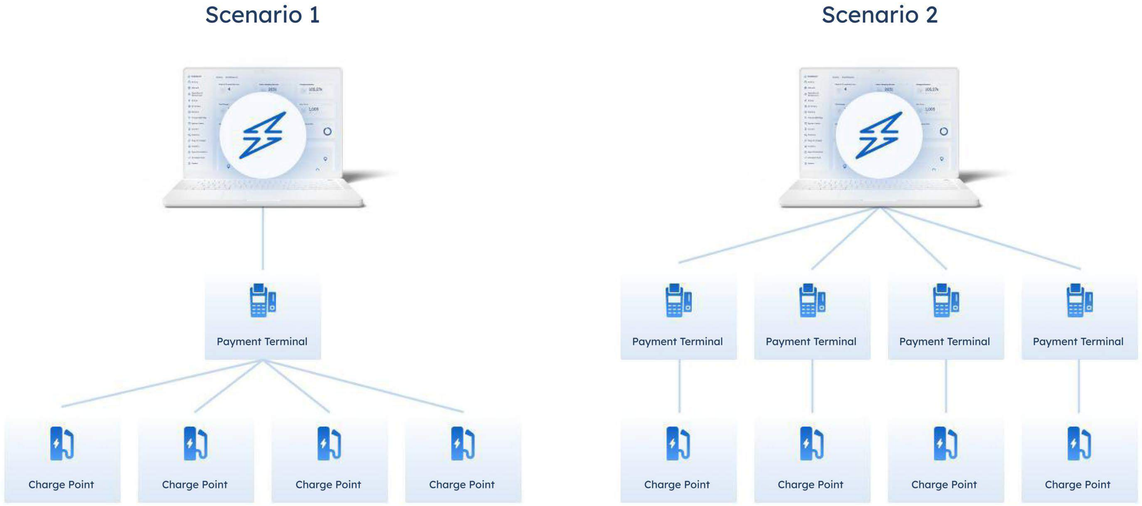


INSIGHT

An example of a kiosk payment terminal is the Worldline Valina brand, featuring a 3.54-inch display and an Android-based environment that allowed POWER PARK to create a kiosk app that works with the connected stations.

When implementing payment terminals, choose the approach that best suits your needs. Whether it's implementing a payment terminal for a single charger or for a location with multiple charging stations, consider the specific requirements and select an approach that aligns with your goals.

Payment terminal set-up



2 Pricing

Providing transparent pricing, as provisioned by AFIR, is another way for charge point operators and eMSPs to enhance the charging experience and optimize revenue.

CPOs and eMSPs can take advantage of different pricing strategies to incentivize faster vehicle flow, maximize utilization, encourage off-peak charging to manage cost and attract and retain customers with promotional offerings.

What does this mean for you?

Prices must be reasonable, easily and clearly comparable, transparent and non-discriminatory and available to the end-user before the start of charging.

- Ad-hoc price must be based on kWh delivered
- May contain an idle fee as price per minute
- For charging stations >= 50 kW: price per kWh + occupancy fee in price per minute
- For charging stations < 50 kW: price per kWh, per minute and per session
- No requirement to show a running cost on display
- eMSPs must show their prices in their own app/website
- No extra charges for cross-border e-roaming allowed

How to be compliant with POWER PARK

One of Power Park's strongest platform differentiators is powerful tariff-building capaility. Customers can choose from over a dozen pre-defined basic and complex tariff types, such as Energy+Duration or Time-of-Use (ToU), fully configurable with the customer's own business logic. Tariff components can vary from simple electricity rates to duration to connection and other fees.

Example tariff structure

INSIGHT

Cost and pricing management, along with charging session information and OCPP 2.0.1 display message capabilities (SetDisplayMessage), allows CPOs to deliver robust AFIR-compliant pricing information to EV drivers.

Q&A INSIGHT

eMSPs need to make all applicable price information, specific to their intended charging session, available to end users through freely available, widely supported electronic means prior to the start of the charging session.

Mobile phone applications and publicly accessible websites that are freely available and can thus be downloaded and installed without cost, **could be sufficient**.

3 Data accessibility

One of the goals of providing publicly available information - both static and dynamic data - is to contribute to frictionless EV charging and, ultimately to a positive EV driving experience.

In addition to improving user friendliness and transparency, proper data will be required for mapping and grid planning purposes. To that end, CPOs should be able to provide quality data to other systems, which can then use that data to improve the infrastructure further.

What does this mean for you?

Prices must be reasonable, easily and clearly comparable, transparent and non-discriminatory and available to the end-user before the start of charging.

- AFIR mandates that static and dynamic data for publicly accessible chargers be freely accessible through National Access Points.
- Static data includes the geographic location, number of connectors, connector types, and station power output.
- Dynamic data encompasses the operational status, availability, ad-hoc pricing, and whether the electricity is 100% renewable.

How to be compliant with POWER PARK

Power Park platform contains rich data that can be filtered and organized in reports to enable data-driven decisions. In addition, Power Park public API is available to provide integration and deliver data to any third-party interoperable database. Data points can include:

- Geographic location
- Number of connectors
- Contact information
- Type of connector and current (AC/DC)
- Power output (kW)
- Operational status (operational/out of order)
- Availability (in use/not in use)
- Ad-hoc price
- And more

4 Connectivity

Connected charging unlocks a series of benefits, both for the EV driver as well as the charge point operator or eMSP provider. From the driver's perspective, connectivity enables clear insights and more control over charging sessions, improving the overall experience. For CPOs and eMSPS, it allows for easier performance optimization, remote software updates, and troubleshooting.

What does this mean for you?

By October 14, 2024, all new and renovated charge points within a network must be equipped with digital connectivity, which is essential for transmitting and receiving real-time data about the status of charging stations, availability, and pricing.

- Communicate bi-directionally with the electricity grid and the electric vehicle
- Be remotely monitored and controlled, including to start and stop the recharging session
- Measure electricity flows

How to be compliant with POWER PARK

Power Park enables all key capabilities necessary for effective network operations and workink with third-party systems such as:

- **Remote monitoring:** viewing charging activity and session status reports in real-time
- **Fault detection and maintenance:** accessing faults and connectivity loss for chargers
- **EV driver management:** tracking individual activity per user, session overview, payment information
- **Billing and payment:** creating innovative billing strategies and accepting a variety of payment methods
- **Energy management:** adding chargers to DLM circuits, setting up integration with smart metering hardware devices
- **Data and reporting:** generating dashboard views and filtered reports on key business metrics

Power Park's comprehensive API allows access to all EV charging management capabilities, which can be used to build custom functionality and integrate with third-party systems.

 # 5 Smart charging

Smart charging, such as load management and scheduled charging based on dynamic electricity rates, is crucial for balancing the grid, reducing energy costs and ensuring availability. Achieving AFIR's infrastructure proliferation goals will be made possible by CPOs and utilities working together to carefully analyze expected loads and then use smart charging solutions to move charging off-peak. Analyzing the demand on the infrastructure upfront, can also help individual CPOs to avoid unnecessary upgrades and get the most out of their equipment.

What does this mean for you?

Operators of charge points shall ensure that all publicly accessible charge points operated by them and built after 13 April 2024 or renovated after 14 October 2024 are capable of smart charging.

How to be compliant with POWER PARK

Using **Power Park** as a centralized EV charging management system with advanced load management and smart charging capabilities allows CPOs to implement solutions that maximize the utilization of current network connections and electrical infrastructure without unnecessary additional investment.

Dynamic load management (DLM)

Power Park's DLM efficiently distributes electricity between charge points and other consumers and can allow prioritization of vehicles, drivers, or state-of-charge based on location needs.

On the utility side, energy distribution companies (DSO's) can take advantage of **Power Park's** API to integrate with their energy management systems for automating power limit adjustments.

Smart electricity meter integration

Power Park's platform also incorporates smart electricity meter integration that provides comprehensive monitoring of real-time electricity usage across all loads, not just those managed by the charge point operators.

Smart charging in the mobile app

Power Park charging app allows EV drivers at home to schedule their charging by defining the start and end time for the charging, setting the target charge, and tracking the charging cost by setting the price per kWh for the scheduled period.

Q&A INSIGHT

The smart charging definition only addresses the core functionality of a smart recharging point, meaning that they must support recharging operations in which the intensity of electricity delivered to the battery is adjusted in real-time. Additional functionalities that go beyond the functionality described in the definition, such as load management, are not necessary to comply.

In conclusion

Navigating the complexities of AFIR compliance demands a thorough and proactive approach from CPOs and other stakeholders in the EV charging ecosystem. AFIR sets forth rigorous standards for accessibility, transparency, and interoperability in EV charging infrastructure. To meet these requirements, CPOs must consider various factors such as cost, O&M (operations and maintenance), and grid integration.

POWER PARK's EV charging management platform can significantly ease the burden of compliance. By leveraging dynamic load management, flexible and extensive pricing options, smart charging capabilities, and advanced connectivity options, POWER PARK helps ensure that charging networks not only comply with current regulations but are also prepared for future developments.

Additional insights from POWER PARK's regulatory experts

National legislation

Regulations generally have immediate effect without further national implementation.

Any additional national legislation is subject to case-by-case assessment, ultimately decided by the EU Court of Justice.

National measures should align with the provisions and objectives of AFIR.

Topics outside the AFIR scope

AFIR does not address the different components of a charging service with respect to its VAT treatment.

Mandatory e-roaming was assessed in the Commission's impact assessment. It was discarded due to concerns about interfering with operators' contractual freedom. National measures aiming for similar objectives should be assessed against AFIR provisions and objectives.

Potential impact on businesses in case of non-compliance

Several answers still remain vague and ambiguous with the European Commission stating that the EU Court of Justice ultimately interprets the Regulation and rules on it.

INSIGHT

Discriminatory pricing is more likely to lead to infringement compared to violation of payment method provisions

How AFIR is enforced:

- Infringement procedure via EU Court of Justice
- EU may penalize Member States, who then set fines to CPO/ EMSP
- AFIR Q&A as a legal opinion for interpretation of provisions
- Lots to be decided on a case-by-case basis

Additional resources

- **Alternative Fuels Infrastructure Regulation (AFIR) Link**
- **Link to European Commission's AFIR Q&A guide**
- **TEN-T map**

Other (non-AFIR) legislation related to EV Charging

1. eInvoicing

eInvoicing is the electronic exchange of an invoice document between a supplier and a buyer. An eInvoice is an invoice that has been issued, transmitted and received in a structured data format which allows for its automatic and electronic processing, as defined in Directive 2014/55/EU. Challenges persist in eInvoicing adoption and interoperability, with varying levels of uptake across Member States. While the Directive has partially fulfilled its objectives by harmonizing eInvoicing rules and standards and ensuring interoperability, new challenges emerge, such as data security and privacy concerns. The aim is to further enhance eInvoicing adoption by making it the default method from January 2028 and promoting the European eInvoicing standard. Despite progress, challenges remain in reducing costs for economic operators and ensuring harmonization across stakeholders, highlighting the need for continued efforts to enhance efficiency and harmonization of eInvoicing rules within the EU.

VAT in the digital age (ViDA) is a set of regulations introduced by the EU Commission to update the current VAT system to adapt it for the digital age. It aims to ensure that VAT is collected fairly and efficiently for businesses that sell goods or services online to customers in the EU, regardless of whether they are based within or outside the EU. ViDA necessitates additional information on invoices, affecting businesses regardless of their location within or outside the EU. Key benefits include reducing VAT fraud, accelerating digital transformation, and simplifying VAT registration.

The increasing prevalence of eInvoicing mandates across the EU presents a significant impact on businesses operating in various sectors, including the EV charging industry. As EU member states implement eInvoicing regulations, businesses involved in EV charging must adapt their invoicing processes to comply with these mandates. This adaptation involves transitioning from traditional paper-based invoicing to electronic formats, streamlining invoice generation, transmission, and storage in accordance with the specified standards. Additionally, eInvoicing mandates often aim to enhance transparency, reduce administrative burdens, and minimize the risk of tax evasion, which can ultimately lead to improved efficiency and accountability within the EV charging sector. Compliance with eInvoicing requirements facilitates smoother transactions between EV charging providers and their customers, fostering a more seamless and digitally-driven experience in the burgeoning electric mobility market.

2. Payment Services Directive II (PSD2)

Payment services enable digital payments through direct debits, credit transfers or payments with cards or similar devices. Within the EU, these are regulated through the revised Payment Services Directive (PSD2), which sets rules for payment services, their providers and consumer protection. Since the adoption of PSD2, technological developments in the market have demonstrated the necessity to modernise PSD2 so as to align the directive's scope with new services and players and their potentially disruptive nature. The importance of non-EU fintech companies for the market, and the increasing prevalence of contactless cards, digital wallets, instant payments and e-money services present challenges in consumer protection and fraud prevention.

PSD2's scope comprises payment services provided within the EU, regardless of the currency that is used. As per the definition of payment services, cash, paper and electronic money transactions are not included. Contrary to PSD1, which was restricted to intra-EU transactions, the revised directive concerns both 'one-leg' and 'two-leg' transactions. 'One-leg' transactions refer to payment transactions where only one of the payment service providers (PSPs) is located within the Union. Conversely, 'two-leg' transactions describe those payment transactions where both the payer's and the payee's PSP (or the sole PSP) are located within the EU.

In both cases, PSD2 only applies to the parts of the payment transaction that are carried out in the EU for payment initiation for:

- payment service providers enabling online purchases without a credit card by offering direct payments from a payer's bank account to the payee's account with an immediate confirmation from the merchant
- account information service providers
- card-based payment instrument issuers

The proposal to revise PSD2 comprises a proposal for a directive on payment services and electronic money services (PSD3) and a proposal for a regulation on payment services in the internal market (PSR).

These proposals include both payment services and electronic money services, which were previously regulated separately. With the forthcoming revision, the Commission aims to harmonise the implementation of rules on payment services across Member States, align the legislation with market and technological developments, strengthen customer protection and improve the level playing field between bank and non-bank payment service providers.

Key requirements:

- authorisation, registration, licensing and supervision by the competent national authorities
- transparency of conditions and information requirements
- strong customer authentication (SCA) for all payment service providers
- consumer protection: PSD2 lowered the liability of payers in cases of unauthorised payments, with the maximum amount to be paid by the consumer reduced from €150 to €50. Additionally, an unconditional refund right for direct debits within a period of 8 weeks after the funds were deducted from the account is included

PSD2 also tasked the European Banking Authority (EBA) with developing a public central register of authorised PIs and drafting guidelines and regulatory technical standards. As a result, a series of delegated and implementing acts have been adopted, for example, pertaining to strong customer authentication and secure communication.

The European Commission's proposed revision of PSD2 aims to address key issues identified with the current framework, including the risk of fraud, challenges in open banking, inconsistencies in supervisory powers, and disparities between banks and non-bank PSPs.

The revision consists of:

1. a directive on payment services and electronic money services (PSD3), and
2. a regulation on payment services in the internal market (PSR)

The proposed changes to the Payment Services Directive II (PSD2) encompass several key areas, including:

- Clarifying and extending provisions related to the authorization of payment transactions.
- Extending access rules and procedures to payment systems designated by Member States under the Settlement Finality Directive (SFD).
- Strengthening rules for Payment Initiation Service Providers (PIs) to access accounts with credit institutions.
- Introducing requirements to provide information on the estimated time of receiving funds for transactions from the EU to non-EU countries.
- Aligning requirements for information on estimated currency conversion charges between intra-EU and one-leg transactions.
- Extending the surcharging provision from credit transfers and direct debits in euros to all currencies of the EU.
- Introducing a requirement for PSPs to offer all customers at least one accessible means of SCA.

3. Energy Performance of Buildings Directive (EPBD)

The Energy Performance of Buildings Directive is a key instrument driving the European Union's ambition to achieve a fully decarbonised building stock by 2050. Recognizing that buildings are the largest energy consumers in Europe, with approximately 40% of energy consumption occurring within them and over a third of energy-related greenhouse gas emissions originating from buildings, the directive prioritizes energy efficiency and decarbonisation efforts. The European Commission's initiative to revise the Energy Performance of Buildings Directive (EPBD) holds significant promise for advancing EV charging infrastructure across the EU and is poised to play a pivotal role in enabling home and destination charging, thus facilitating the integration of EVs into the energy system.

With home charging being the preferred choice for many EV owners due to its convenience and cost-effectiveness, there is a necessity of enhancing provisions for pre-cabling and charging point installations in residential buildings.

Article 8 of the directive states that for new non-residential buildings or non-residential buildings undergoing major renovation with more than ten parking spaces, at least one charging point for electric vehicles and ducting infrastructure for electric cables should be installed. The ducting infrastructure should be installed for every five parking spaces to allow for future installation of charging points. This requirement applies when the car park is located inside the building or physically adjacent to it, and renovation measures include the car park or its electrical infrastructure.

For new residential buildings or residential buildings undergoing major renovation with more than ten parking spaces, ducting infrastructure (conduits for electric cables) should be installed for each parking space. This allows for the future installation of charging points for electric vehicles. This requirement applies when the car park is inside the building or physically adjacent to it, and renovation measures include the car park or its electrical infrastructure.

Member States shall lay down requirements for installing a minimum number of recharging points for all non-residential buildings with more than twenty parking spaces by 1 January 2025.

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+39 035.0667532

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