



Open Charge Alliance Response: Call for Evidence for the Review of EU rules on Alternative Fuels Infrastructure

We would like to thank the European Commission for its continued leadership, commitment, and constructive engagement in advancing the deployment of alternative fuels infrastructure across Europe. This ongoing work is instrumental in supporting the decarbonisation of transport and achieving the European Union's broader climate and energy objectives.

As the Open Charge Alliance, representing a global community of stakeholders dedicated to open standards and advancing the development of sustainable charging solutions, we strongly support the need for a coherent, future-proof, and interoperable regulatory framework. Such a framework should accelerate the rollout of interoperable and cyber-resilient charging infrastructure, while fostering innovation and competitiveness across the automotive industry.

We believe that the review of the Alternative Fuels Infrastructure Regulation (AFIR) presents a key opportunity to reinforce the role of open, interoperable communication standards as a foundation for a scalable and resilient charging ecosystem. In this context, the regulatory framework should empower market actors to deliver seamless charging experiences, ensure efficient system integration, and support the continued growth of e-mobility as a cornerstone of Europe's clean energy transition.

We welcome the opportunity to contribute to this Call for Evidence via the Have Your Say portal. Please find below our detailed input, structured around the following key principles:

- (1) Accelerating the rollout of sufficient publicly accessible recharging points: IEC 63584 as key enabler of interoperability and market confidence
- (2) Integrating electric charging into the electricity system and accommodating new technology developments: open standards for interoperable and consistent smart charging and vehicle-to-grids readiness.
- (3) Electric Vehicle Charging as Critical Infrastructure: Cybersecurity, System Resilience and the Role of IEC 63584
- (4) Support for the improved enforcement of mandated standards through certification schemes.



1. Accelerating the rollout of sufficient publicly accessible recharging points: IEC 63584 as key enabler of interoperability and market confidence

The Open Charge Alliance views the IEC 63584 standard as a foundational building block for the large-scale deployment of electric vehicle recharging infrastructure across Europe. Its role extends beyond technical standardisation, acting as a key enabler of interoperability, market confidence, and industry competitiveness.

IEC 63584 establishes a common communication framework between charging stations and central management systems, ensuring seamless interaction across different manufacturers, operators, and service providers. This interoperability is essential to avoid market fragmentation and vendor lock-in, enabling charging infrastructure to operate efficiently within a harmonised European ecosystem. By facilitating plug-and-play integration and system compatibility, IEC 63584 directly supports the scalability and cross-border usability of both light-duty vehicle (LDV) and heavy-duty vehicle (HDV) charging networks.

A harmonised and widely adopted standard such as IEC 63584 reduces investment risks by providing clarity and predictability to market actors. Charge point operators, manufacturers, and investors benefit from a stable technological baseline that ensures long-term compatibility and future-proofing of infrastructure investments. This increased confidence is particularly critical in the context of HDV charging, where higher capital expenditure and longer asset lifecycles require robust and reliable technical frameworks.

As an open standard, IEC 63584 promotes vendor neutrality by allowing multiple technology providers to compete on a level playing field. This openness lowers barriers to entry, fosters innovation, and prevents dependency on proprietary systems. In turn, this drives cost efficiencies and accelerates deployment by enabling infrastructure operators to select best-in-class solutions while maintaining interoperability. The scalability benefits are particularly relevant for the rapid expansion of LDV infrastructure and the emerging needs of HDV charging corridors.

While IEC 63584 provides the necessary technical foundation, its impact ultimately depends on consistent and correct implementation across the market. In the absence of robust certification and compliance mechanisms, there is a significant risk of fragmented or partial application of the standard, which can undermine interoperability, weaken market trust, and create uncertainty for investors and operators.

Introducing a mandatory certification framework is therefore essential to ensure that all market participants adhere to the same high level of technical requirements. The OCPP 2.1 Certification Programme, based on IEC 63584-210:2026 test cases, offers a concrete and ready-to-deploy



solution to verify compliance and guarantee that charging infrastructure performs as intended in real-world conditions. By embedding certification within AFIR, the European Commission can ensure that interoperability is not only defined in principle but delivered in practice. This approach reinforces confidence across the value chain, supports fair competition, and provides the necessary assurance that deployed infrastructure will remain reliable, secure, and compatible over time. In doing so, certification and compliance move from a supporting role to a central pillar of a well-functioning and scalable European charging ecosystem.

Recommendation 1: Explicitly Mandate IEC 63584-210 in AFIR

To ensure a harmonised European ecosystem, the revised AFIR framework must explicitly mandate IEC 63584-210 as the standard communication protocol for all recharging infrastructure. This mandate will promote vendor neutrality, lower barriers to entry for innovative startups, and allow technology providers to compete on a level playing field, ultimately driving cost efficiencies for the consumer.

Timely regulatory action is equally critical. Any delay in mandating IEC 63584 and its associated certification framework would prolong uncertainty in the market and risk entrenching non-interoperable or proprietary solutions. In a fast-scaling sector such as e-mobility, early infrastructure investments have long lifecycles and create path dependencies. If these investments are made without clear interoperability requirements, this can lead to stranded assets, increased retrofitting costs, and persistent fragmentation across Member States.

Regulatory uncertainty also creates space for the parallel emergence of alternative standards and technical approaches, both within Europe and in global markets. In the absence of a clear and timely mandate for IEC 63584, market actors may adopt different solutions to address immediate deployment needs, particularly in rapidly scaling segments such as HDV charging or grid-integrated services. This risks creating divergence rather than alignment, increasing complexity and costs for interoperability over time. As global markets tend to align around frameworks that provide early regulatory clarity and consistent implementation, prolonged uncertainty in Europe may lead to other approaches becoming more widely embedded internationally. This would require European companies to adapt to multiple technical frameworks, adding unnecessary complexity and reducing their ability to scale efficiently across borders. Providing timely regulatory clarity would therefore support both internal market coherence and broader international alignment.

Moreover, the absence of a clear mandate reduces market confidence by leaving key technical choices open-ended, which can slow down investment decisions and infrastructure rollout. A timely mandate provides regulatory clarity and sends a strong signal to the market, aligning stakeholders around a common framework and accelerating deployment. Ensuring early and



consistent implementation of OCPP-based standards is therefore essential to safeguard interoperability from the outset and to enable a scalable, future-proof European charging ecosystem.

In this context, a timely mandate of both IEC 63584 and its associated certification schemes would act as a powerful accelerator for the deployment of recharging infrastructure. By ensuring interoperability, reducing investment risks, and enabling competitive market dynamics, such a mandate would directly contribute to scaling both LDV and HDV charging networks across Europe. This is particularly crucial to meet the increasing demand for electrified transport and to deliver the objectives of the Alternative Fuels Infrastructure framework.

Recommendation 2: Prioritise Timely Regulatory Action

The European Commission must act urgently to include these specifications either in the main revision of AFIR, or in a new Delegated Act. Providing immediate regulatory clarity sends a strong signal to the market, aligning stakeholders around a common framework and accelerating the deployment of the recharging networks necessary to meet EU climate objectives.

2. Integrating electric charging into the electricity system and accommodating new technology developments

IEC 63584, and in particular IEC 63584-210 (Edition 2), is a critical enabler for delivering on the objectives set out in AFIR. Indeed, with regards to electricity system integration, and new technology developments, the functionalities of IEC 63584-210 (Edition 2) go beyond basic communication between charging stations and backend systems and enable smart, bidirectional, and system-responsive charging. These provide the technical foundation required to ensure that electric vehicle charging contributes to a flexible, resilient, and decarbonised electricity system.

AFIR establishes clear expectations for smart charging capabilities, requiring recharging infrastructure to be capable of adjusting charging processes based on external signals such as electricity prices, grid conditions, and user preferences. IEC 63584-210 directly supports the implementation of these requirements by enabling advanced smart charging functionalities through standardised communication between charging stations and backend systems. These include the exchange of dynamic charging profiles, power limits, and scheduling parameters, which allow charging to be optimised in response to system needs. By providing a harmonised framework for these interactions, IEC 63584 ensures that smart charging functionalities can be



deployed consistently across the internal market, thereby supporting the effective implementation of AFIR provisions related to system efficiency and user-oriented charging.

AFIR introduces forward-looking requirements for recharging infrastructure, including the progressive integration of advanced communication capabilities between electric vehicles and charging stations. In this context, the upcoming obligation for recharging stations to comply with ISO 15118-20 from 2027 requires a complementary backend communication layer capable of supporting these functionalities. IEC 63584-210 provides this layer by enabling the exchange of detailed information related to charging sessions, including energy transfer parameters, flexibility signals, and contractual data. This ensures that the advanced functionalities enabled at the vehicle-charger interface through ISO 15118-20 can be effectively integrated into system-level operation, thereby supporting both regulatory compliance and operational efficiency.

A central objective of AFIR is to ensure that recharging infrastructure contributes to the efficient functioning of the electricity system. IEC 63584-210 supports this objective through the introduction of functionalities related to the management of distributed energy resources. By enabling charging infrastructure and connected electric vehicles to be treated as distributed energy resources, IEC 63584 facilitates their participation in system-level processes such as load management and flexibility provision. This allows charging demand to be aligned with grid constraints and renewable energy availability, reducing peak loads and supporting overall system stability. Importantly, IEC 63584 does not perform optimisation itself but provides the standardised communication framework necessary for system operators, service providers, and market actors to implement such optimisation strategies in a coordinated manner.

Finally, AFIR recognises the importance of enabling innovative services and technologies that enhance the value of recharging infrastructure. IEC 63584-210 includes support for bidirectional charging functionalities, enabling vehicle-to-grid and other vehicle-to-everything use cases. These capabilities allow electric vehicles to act as sources of flexibility, feeding energy back into the grid or supporting local energy systems. In line with AFIR's objectives on system efficiency and sustainability, such functionalities can contribute to balancing supply and demand, integrating variable renewable energy sources, and reducing the need for additional grid investments.

By enabling smart charging, supporting ISO 15118-20 functionalities, integrating distributed energy resources, and facilitating bidirectional energy flows, IEC 63584-210 provides a comprehensive technical foundation for aligning electric vehicle charging with the needs of the electricity system. In this context, mandating IEC 63584 within the AFIR framework would ensure that all newly deployed recharging infrastructure is capable of contributing to these system-level objectives. This would strengthen the resilience, flexibility, and sustainability of European energy systems, while ensuring coherent implementation of AFIR requirements across the internal market.



Recommendation 3: Enable Advanced Grid Integration and V2G Capabilities

The European Commission should mandate IEC 63584-210 to ensure that all newly deployed infrastructure is capable of contributing to system-level stability. By facilitating bidirectional energy flows (V2G), this mandate will allow charging demand to align with renewable energy availability and reduce the need for additional grid investments.

3. Electric Vehicle Charging as Critical Infrastructure: Cybersecurity, System Resilience and the Role of IEC 63584

Electric vehicle charging infrastructure has evolved into a core component of Europe's energy and transport systems, and should therefore be recognised as critical infrastructure. Charging stations are no longer isolated assets, but form part of a highly interconnected cyber-physical ecosystem linking vehicles, charging equipment, backend operators, and electricity networks. As electrification accelerates, these systems support essential mobility services while simultaneously acting as controllable loads within the power grid. This dual function places EV charging infrastructure at the intersection of transport continuity and energy system stability. Disruptions to charging availability can directly impact economic activity, logistics operations, and public services, particularly as fleet electrification expands. At the same time, the aggregated behaviour of charging points can influence grid conditions, including load balancing and voltage stability. As such, EV charging infrastructure must be treated with the same level of attention as other critical energy assets, given its growing systemic importance and cross-sector dependencies.

The increasing digitalisation and connectivity of EV charging infrastructure elevates cybersecurity from a technical consideration to a strategic governance priority. Charging stations represent potential entry points into wider energy and digital systems. Vulnerabilities at the level of individual devices can propagate through backend systems and, ultimately, into the electricity grid. Documented weaknesses across interfaces such as USB ports, Wi-Fi, Bluetooth, and RFID readers demonstrate how malicious actors could gain access and execute attacks that extend beyond a single charging point. The potential consequences are systemic. Cyberattacks could disrupt charging services, compromise sensitive data, or manipulate charging behaviour at scale. In particular, the coordinated control of large numbers of charging points could create artificial demand spikes or drops, posing risks to grid stability. Furthermore, compromised infrastructure could serve as a gateway for lateral movement into utility systems or other critical digital environments.



These risks cannot be addressed solely through market-driven approaches. Individual operators may not have sufficient incentives or capabilities to ensure system-wide security. There is therefore a clear role for European-level governance to establish and enforce common cybersecurity requirements across the Single Market. This is also closely linked to broader objectives of digital sovereignty and strategic autonomy. As millions of connected charging devices are deployed across Europe, it is essential that their operation remains governed by transparent, secure, and European-aligned frameworks, rather than fragmented or opaque proprietary solutions.

In this context, IEC 63584 plays a central role in establishing a secure and resilient charging ecosystem by incorporating advanced security features, including secure communication protocols, authentication mechanisms, and provisions for firmware management and system integrity. Recent work by the Open Charge Alliance has further strengthened its cybersecurity architecture, particularly in IEC 63584-210, aligning with evolving threat landscapes and regulatory expectations.

IEC 63584 provides a standardised security baseline, ensuring that cybersecurity is embedded by design rather than treated as an optional add-on. This reduces the risk of inconsistent or inadequate security implementations across different market actors. It also lowers complexity and compliance costs, particularly for smaller companies, by offering a well-established and trusted framework instead of requiring the development of proprietary security solutions. As an open and transparent standard, IEC 63584 enables continuous scrutiny and improvement by a broad community of stakeholders. This transparency is critical for identifying vulnerabilities, preventing hidden backdoors, and maintaining trust in a software-defined infrastructure. In contrast, a fragmented landscape of proprietary or partially compatible systems increases the attack surface, complicates monitoring, and weakens overall system resilience.

Given the critical nature of EV charging infrastructure and the systemic risks associated with cybersecurity vulnerabilities, the formal mandate of IEC 63584 within the Alternative Fuels Infrastructure Regulation is both necessary and proportionate. A mandatory approach would ensure that all charging infrastructure deployed across the European Union adheres to a common, high level of cybersecurity and interoperability requirements. Without such a mandate, the continued deployment of heterogeneous and potentially insecure systems would increase systemic risk, undermine trust, and create long-term vulnerabilities within Europe's energy and mobility systems. Conversely, a clear regulatory requirement would provide certainty to market actors, align investments with secure and interoperable solutions, and strengthen the resilience of the entire ecosystem. Mandating IEC 63584, complemented by robust certification and compliance mechanisms, would therefore constitute a decisive step towards securing Europe's charging



infrastructure, safeguarding the stability of the electricity system, and reinforcing the Union's digital sovereignty in an increasingly connected energy landscape.

Recommendation 4: Establish a Standardised Cybersecurity Baseline

Cybersecurity must be elevated from a technical consideration to a strategic governance priority within AFIR. Mandating IEC 63584 ensures that security is embedded by design through secure communication protocols and authentication mechanisms. This approach is vital for safeguarding European digital sovereignty and protecting the grid from systemic risks that market-driven approaches alone cannot address.

4. Support for the improved enforcement of mandated standards through certification schemes.

The Open Charge Alliance supports the European Commission's objective to strengthen the enforcement of mandated standards under the Alternative Fuels Infrastructure Regulation, notably through certification schemes.

AFIR sets out important functional requirements for recharging infrastructure, including interoperability, smart charging capabilities, and system integration. However, experience from the deployment of charging infrastructure across Europe shows that the existence of standards alone does not ensure their correct and complete implementation. Divergent interpretations, partial implementations, and the absence of harmonised testing frameworks can result in infrastructure that is formally compliant but does not deliver the intended level of interoperability or functionality. This creates fragmentation in the internal market, increases integration costs, and ultimately undermines user experience and system efficiency. To address this enforcement gap, it is necessary to complement mandated standards with mandatory certification schemes that verify compliance in a consistent and transparent manner.

In this context, OCA considers that mandating IEC 63584-210, together with its associated certification framework, would provide a concrete and effective mechanism to ensure consistent implementation of AFIR requirements across the European Union.

IEC 63584-210, based on OCPP 2.1, is accompanied by a comprehensive certification framework developed by the Open Charge Alliance. The OCPP 2.1 Certification Programme, based on IEC 63584-210:2026 test cases, is currently in its final development phase and will be available by mid-2026. This certification programme is specifically designed to validate the correct implementation of the functionalities required under IEC 63584-210, including advanced smart



charging, support for ISO 15118-20, and bidirectional charging capabilities. It provides a harmonised and standardised testing environment to ensure that charging stations and backend systems interact reliably and as intended. As such, it constitutes a ready-to-deploy solution that can directly support the enforcement of AFIR requirements, without the need to develop new compliance mechanisms from scratch.

Mandating IEC 63584-210 as well as its corresponding certification requirement would ensure that all market actors meet the same verified level of compliance. This would:

- ensure that smart charging functionalities required under AFIR are effectively operational
- guarantee that ISO 15118-20 capabilities are properly supported at system level
- enable reliable deployment of bidirectional charging and flexibility services
- reduce interoperability issues and integration costs across Member States

In doing so, it would directly support the objectives of AFIR related to user experience, system efficiency, and cross-border operability.

In light of the above, the Open Charge Alliance recommends that the revised AFIR framework explicitly mandates IEC 63584-210 as the standard communication protocol for recharging infrastructure, together with its associated certification scheme.

Leveraging the OCPP 2.1 Certification Programme would allow the European Commission to operationalise its objective of improving enforcement through certification in a timely and effective manner. This approach would ensure not only that common standards are defined, but that they are implemented consistently across the market, thereby strengthening interoperability, accelerating deployment, and supporting the integration of electric mobility into the European energy system.

Recommendation 5: Implement a Mandatory Certification and Compliance Framework

To close the enforcement gap, AFIR must complement mandated standards with mandatory certification schemes. The European Commission should leverage the OCPP 2.1 Certification Programme, based on IEC 63584-210:2026 test cases, as a ready-to-deploy solution to verify that infrastructure performs as intended in real-world conditions. This will ensure that all market actors meet the same verified level of compliance, reinforcing trust across the entire value chain.