
POLICY NOTE

Roadmap for embedding user-friendly provisions in AFIR on public EV charging prices and data

PROBLEM STATEMENT AND POLICY OBJECTIVE

From a consumer perspective, public charging often lacks the basic price visibility expected in other retail markets such as petrol or diesel refuelling. Users frequently cannot determine the total cost of a charging session in advance. The final price of a charging session at public chargers depends on multiple actors within the value chain resulting in a risk of unreasonably high and unexpected (hidden) costs for the end user. This information asymmetry undermines consumer trust and reduces the ability of users to make informed choices within public charging.

These challenges are not only a consumer protection issue. They also result in slowing down EV adoption, particularly for drivers who rely primarily on public charging infrastructure and do not have access to private charging at home or at work. If public charging prices are perceived as non-transparent or unreasonably high, the total cost advantage of driving on electricity compared to driving with petrol or diesel may be turned into a significant disadvantage.

This policy note is based on an analytical study carried out for Transport & Environment (T&E) and the European Consumer Organisation (BEUC) in the context of the upcoming review of the Alternative Fuels Infrastructure Regulation (AFIR). The objective of the study is to assess how AFIR can better ensure a transparent, predictable and user-friendly charging experience across Europe. The analysis focuses specifically on price transparency, comparability of charging options, and the visibility of all price components before and after a charging session in order to avoid eventual excessive prices.

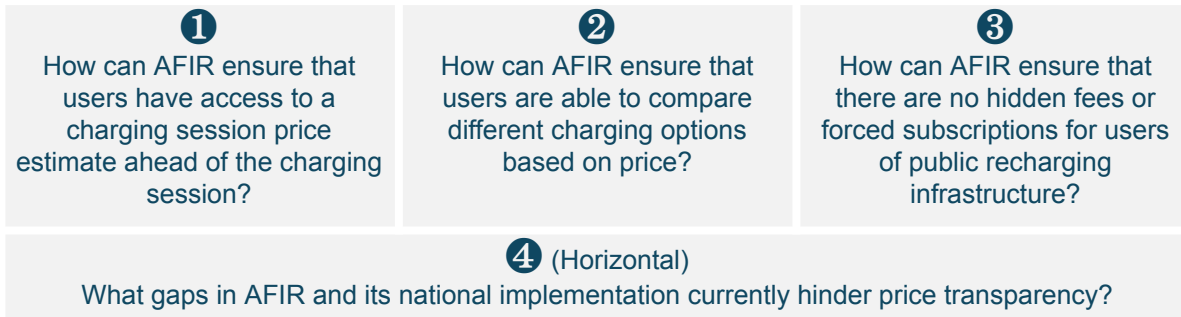
Several structural characteristics of the EV charging market contribute to the fact that prices for EV public charging are often not as easy to understand and compare as in other retail markets:

- 1) The charging ecosystem includes multiple (commercial) actors, including charging point operators (CPOs), roaming platforms and mobility service providers (MSPs). Each layer can influence the final price paid by the user (EV driver). As a result, the final price paid by the EV driver can depend heavily on the access and payment method used (ad hoc payment, CPO or MSP subscription), leading to wide price differences for the same charging session that are often difficult for users to understand.
- 2) Charging tariffs in low power (mostly AC) charging sessions (<50kW) frequently combine several price components, such as energy-based pricing (€/kWh), time-based fees (€/minute), connection fees and occupancy or overstay penalties. In practice, these hybrid pricing models make it difficult for users to estimate the total cost of a charging session before charging begins. For high power DC charging sessions (≥50kW) the energy-based pricing is the basic component with only a time-based blockage fee allowed in addition.
- 3) Roaming services and subscription-based charging plans can lead to very different prices at the same charger, depending on which provider the driver uses. For example, the analysis of [Chargeprice](#) data sample of over 11,000 charging stations across the EU shows that at the same charger the spread between the minimum and maximum MSP price in most cases falls between €0.40-€1.00/kWh, with some chargers showing even wider spreads. In some cases, drivers only discover the final price through invoices after the charging session has ended. These practices reduce price transparency which may cause implicit lock-in effects for users.
- 4) The availability and accessibility of pricing data remain inconsistent across Member States and charging networks. In many cases, price information is fragmented across different platforms or presented in formats that are difficult for users to interpret or compare.

Closely linked to this are the broader issues of reasonable and competitive pricing. While those issues are not the main focus of this study, they are directly related to price transparency and are in part shaped by it. Achieving the transparency objective therefore requires identifying where the current AFIR framework and its national implementation fall short, and assessing which regulatory measures could effectively address those gaps.

RESEARCH APPROACH

To structure the analysis, this study addresses four central research questions on price transparency and the role of AFIR:



The analysis focuses primarily on the consumer perspective (EV driver) and identifies where current AFIR provisions and national implementation practices fall short of delivering transparent pricing for users.

The stakeholder results draw on three complementary research methods:

- First, desk research was carried out to review publicly available reports, policy papers and studies published by industry stakeholders, consumer organisations, research institutions and public authorities across the EU.
- Second, an online survey with semi-structured questions was distributed to relevant stakeholders from across the EV charging ecosystem, including consumer and EV driver associations, CPOs, MSPs, industry associations and other market actors from different EU Member States. The survey combined structured questions with open fields to allow respondents to explain pricing practices, cost drivers and transparency issues in greater detail.
- Third, targeted semi-structured interviews were conducted with selected stakeholders to deepen the understanding of survey responses and to capture qualitative insights on market dynamics, pricing models and operational constraints.

This triangulation of desk research, survey data and interviews was used to ensure that the stakeholder overview reflects both market evidence and a broad range of perspectives.

The following sections first summarise the main and most persistent price transparency detriments identified in the public charging market, together with the key findings from the stakeholder research. Based on these findings, the study further examines the key gaps in AFIR and its national implementation, and sets out a series of policy options aimed at improving pre-session price visibility, price comparability and consumer protection in the European public charging market.

ANALYSIS: PERSISTING CONSUMER DETRIMENTS

Stakeholder consultations and user feedback from across the EU highlight a wide range of practical issues on pricing that EV drivers currently encounter when using public charging infrastructure. While AFIR introduced several transparency obligations, implementation by Member States remains uneven, and many provisions do not yet translate into a clear and predictable user experience. The following list summarises the main consumer detriments most commonly identified in this study across the EU, structured around the four research questions.

Detriments on price information available ahead of the charging session:

- Prices are still often **not visibly displayed at the charging point**, especially at AC (<50 kW) chargers. AFIR requires prices to be shown at the station (≥50 kW) or made clearly and easily available via electronic means (<50 kW).

- Users frequently **cannot determine the total expected cost before starting a charging session**, despite AFIR's requirement that both CPOs (for ad hoc charging) and MSPs provide all session-specific price information pre-session, due to often fragmented, hard to interpret, or technically incomplete disclosure.

Detriments on the ability to compare charging options based on price:

- **Charging tariffs remain difficult to compare** because they often combine several pricing components, including €/kWh, €/minute, per-session fees, and blockage fees. In practice, these elements are not always presented in a user-friendly or consistent way, even where AFIR requires pricing in €/kWh for chargers of 50 kW and above.
- **Outdated or missing price information** is common in apps and QR-code flows, even though AFIR sets strict timeliness and availability requirements for price, pointing to dynamic data quality failures and insufficient monitoring of National Access Point (NAP) obligations.
- **The same charging point can generate very different end-user prices depending on which MSP the driver uses.** While AFIR prohibits unjustified discrimination by CPOs, the lack of transparency in wholesale and B2B pricing arrangements make it difficult in practice to verify whether these differences are justified or whether some MSPs are being treated more favourably than others.
- **No guaranteed, simple itemised receipt** provided for many charging sessions, as AFIR does not mandate receipts or invoices, which limits consumers' ability to verify charges or seek redress.

Detriments due to potential hidden fees or forced subscriptions:

- **Occupancy and overstay fees often remain complex, poorly explained and inconsistently applied.** They may be triggered even while the vehicle is still charging, especially at AC chargers, or appear in the MSP price even where the CPO itself does not impose them. This creates uncertainty for consumers about whether, when and why such fees apply, despite formal transparency rules.
- **Roaming mark-ups and additional MSP fees** perceived by users as hidden or unexpected, although AFIR requires full pre-session disclosure and bans cross-border roaming surcharges, suggesting persistent enforcement and supervision gaps.
- **Subscription-based and bundled offers continue to create a structural disadvantage for ad hoc users.** While AFIR guarantees ad hoc access and permits differentiated pricing only where it is proportionate and objectively justified, this condition is difficult to monitor and enforce in practice. What may appear objectively justified from the perspective of a CPO or MSP may still be experienced by the consumer as unfair or discriminatory. The concepts of "justified" and "reasonable" are therefore highly dependent on the perspective taken. As a result, consumers may face materially higher ad hoc prices without any meaningful way to assess whether those differences reflect legitimate cost factors or unfair pricing.
- **Dynamic pricing is introduced without clear communication.** Even though AFIR requires pre-session price visibility and timely data updates, consumers often cannot understand when or why prices change.
- **Parking fees are often intertwined with charging costs**, making it difficult for users to understand the total price of a charging session. Since pure parking charges fall outside AFIR's scope, this regulatory boundary can be used in practice to obscure or repackage charging-related costs in a way that weakens price transparency.
- **Low consumer awareness of AFIR rights** (ad hoc payment, price transparency, no roaming surcharges) persists, as AFIR relies heavily on information disclosure without strong, visible consumer-facing enforcement or education mechanisms.

Detriments on national implementations hindering price transparency:

- **Persistent large price variability across CPOs and MSPs within the same city or country**, without AFIR providing a concrete framework or benchmark to assess when such variability

becomes unreasonable or harmful to consumers. For instance, [ANWB's 2025 municipal analysis](#) shows that (ad hoc) public AC charging prices in the Netherlands can vary sharply by municipality due to local concession systems. Prices range from about €0.36/kWh in Zundert to €0.50/kWh in Zoetermeer and €0.55/kWh in Eindhoven, a gap of roughly 51% for the same basic service. For users who depend on public charging, these local choices can directly affect EV affordability. Furthermore, the [EAFO EU-wide figures](#) show that the average MSP prices spread from about €0.27 to €0.65 per kWh for AC charging, while DC prices spread from about €0.32 to €0.85.

- **Fragmented digital implementation** (different Application Programming Interfaces (APIs), data quality issues, means that AFIR's data transparency obligations do not yet translate into reliable, comparable price information for consumers.

Taken together, these consumer detriments indicate that the existing regulatory framework does not yet ensure the level of price transparency and predictability expected in a mature retail market. In many cases the issue is not the absence of information, but rather the way in which pricing information is structured, disclosed and communicated to users.

ANALYSIS: STAKEHOLDER FINDINGS

The table below provides a compact summary of the diverse stakeholder perspectives on the key challenges identified on the topic of price transparency for public charging. It synthesises the main findings from the stakeholder research, including aggregated views on roles in the charging ecosystem, key price drivers, transparency challenges, and the main recommendations and solutions identified by the stakeholders.

Stakeholder Group	Role in Charging Ecosystem	Key Drivers of Prices (according to stakeholders)	Main Transparency Challenges Identified	Key Recommendations / Solutions
Charge Point Operators (CPOs)	Build and operate charging infrastructure and set the base charging tariff	Grid connection costs, electricity procurement, CAPEX for infrastructure, site costs, maintenance, utilisation rates	Users often attribute MSP mark-ups to CPO tariffs; difficulty displaying full pricing information on charger screens	Maintain market-based pricing; ensure transparency at the charger; avoid excessive regulation that may discourage infrastructure investment
Mobility Service Providers (MSPs) / EMSPs)	Provide charging access services through apps, RFID cards, subscriptions, and roaming agreements	Digital services, roaming access fees, payment processing, customer support, invoicing, and transaction costs	Multiple service layers make the final price difficult to predict before charging; price differences between subscription and ad-hoc charging	Improve pre-session price visibility in apps; clearly present price components; ensure better price communication for roaming sessions
Roaming Platforms / Intermediaries	Facilitate interoperability between CPOs and MSPs and manage cross-network transactions	Transaction fees, settlement services, platform infrastructure	Regulatory ambiguity regarding concepts such as "reasonable pricing"; multiple actors influencing final tariffs	Clarify regulatory definitions; ensure interoperability; maintain flexibility for innovation and cross-border charging
Industry Associations / Market Organisations	Represent charging operators, energy companies, and mobility service providers	Market structure, bundled services (e.g., vehicle packages, energy contracts), competition dynamics	Bundled charging services reduce visibility of standalone charging prices; roaming introduces price variation	Improve transparency across the full value chain; promote standardised data sharing and price comparison tools
Consumer Organisations / EV Driver Associations	Represent EV drivers and consumer interests	End-user tariffs influenced by roaming fees, complex tariff structures,	Difficulty estimating final price before charging; complex tariffs with multiple components; inconsistent pricing information	Simplify tariffs (preferably €/kWh); ensure clear price information before charging; limit tariff complexity and improve comparability

		time-based components, taxes		
NGOs / Knowledge Institutions	Provide independent research, market analysis and technical expertise	Electricity procurement costs, infrastructure investment and utilisation rates, combined with additional service layers	Limited availability of reliable and comparable price data across operators and access methods; roaming mark-ups and complex tariff structures reduce the ability of users to predict total charging costs	Improve standardisation and accessibility of price data, including machine-readable tariff information; ensure visibility of all price components before charging and support interoperable data standards enabling reliable comparison tools

GAP ANALYSIS AND POLICY OPTIONS FOR A MORE USER-FRIENDLY AFIR

The stakeholder evidence and list of persisting consumer detriments show that AFIR has established an important legal basis for price transparency in public charging, but that the current framework still does not ensure a predictable, comparable and user-friendly charging experience in practice. In several areas, AFIR requires disclosure of information without ensuring that this information is sufficiently clear, complete or actionable from the user's perspective. The gap analysis and proposed policy options below are structured around the four research questions guiding this study. For each question, the gap analysis identifies where the current design of AFIR, and in some cases its implementation at national level, falls short of delivering effective consumer outcomes. It is followed by a corresponding policy options aimed to help address these shortcomings.

RESEARCH QUESTIONS	AFIR GAPS	POLICY OPTIONS
1 Clear price before charging starts	1.1 Prices are shown in parts, but the likely total cost remains unclear	1.1 Require one clear total price (estimate) before charging starts
	1.2 Price information is not always visible or easy to access before charging	1.2 Require the interface to show both the ad hoc price and the price through the chosen service provider
2 Comparing charging prices	2.1 It is hard to compare prices between charging options	2.1 Simplify pricing for slower chargers (below 50 kW)
		2.2 Introduce a standard comparison basis for charging offers
3 Hidden costs and pressure to register or use subscriptions	3.1 Extra roaming charges are unclear and hard to monitor	3.1 Make roaming costs more transparent and prevent unfair mark-ups
	3.2 Prices are not updated consistently across apps and chargers	3.2 Set clear rules for occupancy and overstay fees
	3.3 It is hard to check and understand the final bill	3.3 Ensure prices are updated quickly and consistently across all user interfaces
	3.4 Parking and occupancy costs are still not fully reflected in the upfront price	3.4 Require a clear, standardised receipt after every charging session
4 Gaps in AFIR that limit clear pricing	4.1 No clear benchmark for what counts as a “reasonable” price	4.1 Define “reasonable price” using benchmarks and monitoring tools
	4.2 Weak monitoring and fragmented data limit effective enforcement	4.2 Ensure pricing and receipt data follow common standards
		4.3 Establish a standardised and harmonised data backbone for AFIR to make static and dynamic data available

1 Clear price before charging starts

This section focuses on a first consumer question: can the user see and understand the likely price before the charging session starts? In practice, this depends both on whether the tariff can be understood as a total price and on whether the relevant information is genuinely visible at the point of decision.

Gap 1.1: Prices are shown in parts, but the likely total cost remains unclear

AFIR distinguishes between charging points of ≥ 50 kW, where the ad hoc price must be expressed in €/kWh and shown at the station and charging points < 50 kW, where several price components may still be used as long as they are communicated in the required order and made clearly available. This improves the formal availability of tariff information, but it does not ensure that users can estimate what they are likely to pay before charging starts.

In practice, charging tariffs often combine several elements, such as an energy price, time-based charges, fixed session fees and occupancy fees. Even when each element is technically disclosed, the overall price may still be difficult for users to interpret. The result is a basic consumer gap: the

user may be able to see the tariff components, but still cannot estimate the likely bill with sufficient confidence before starting the session.

Gap 1.2: Price information is not always visible or easy to access before charging

For charging points <50 kW, AFIR allows price information to be made available electronically, for example through a QR code, instead of requiring it to be directly visible at the charger. In practice, this often weakens effective price transparency. Information may be harder to find, slower to access, poorly presented on mobile interfaces, or dependent on internet access and digital confidence.

As a result, information that is formally available before the session does not always become information that is genuinely visible and usable at the point of decision. From the user's perspective, a price that is technically available but difficult to locate or interpret is not the same as a clear pre-session price.

Policy option 1.1: Require one clear total price (estimate) before charging starts

Require that, before the charging session starts, every consumer-facing interface clearly displays:

- unit price/prices and applicable fees (distinguishing ad hoc CPO price and MSP or roaming-related add-ons, where applicable), and
- a total session cost estimate, or a bounded range, including VAT.

This obligation should apply across the main user interfaces through which a charging session may be initiated, including the charger interface, QR-code, CPO app, MSP app and, where relevant, the in-car interface.

The estimate could be operationalised through some reference session examples, for example, standard reference sessions of 10 kWh, 20 kWh and 40 kWh, adjusted where necessary to charger type and expected use pattern, combined with an optional user-input function (e.g. by allowing the user to enter expected kWh demand or charging duration). Where time-based components exist, the interface should also communicate a maximum expected cost or a bounded price scenario, together with the conditions under which additional fees such as occupancy charges would be triggered.

This would translate AFIR's transparency objective into a user-facing outcome: the driver would no longer only see tariff components, but would also receive a meaningful indication of likely total cost. This would remain an estimate, since the final session cost may be affected by the interaction between charger capacity and vehicle's actual charging performance impacting the charging speed / time and eventual related costs.

- **Feasibility:** *Medium.* A binding EU-wide obligation would likely require an AFIR amendment, although progress could also be made through Commission guidance clarifying what "easily and clearly comparable" should mean in practice.
- **Effectiveness:** *High.* This option directly addresses one of the main consumer detriments identified by stakeholders, namely the inability to anticipate the likely bill before charging begins.
- **Coherence:** *High.* The measure is consistent with AFIR's objective of enabling users to compare charging options and strengthens consumer information without amounting to direct price regulation.

Policy option 1.2: Require the interface to show both the ad hoc price and the price through the chosen service provider

Where charging is offered through an MSP, including via an app, RFID card or plug-and-charge service, the user-facing interface should show both the ad hoc price and the price that applies through the chosen service provider before the session starts. At a minimum, the interface should distinguish clearly between the base CPO or ad hoc tariff and the total price charged through the MSP, including any explicit service-related add-on.

This would make pre-session information more meaningful from the user's perspective. A user who starts a session through an MSP often sees only the price charged by that service, without a clear indication of how it compares with the ad hoc price at the charger. Showing both prices side by side

would help users understand whether the chosen access route is more expensive and would make differences between payment channels easier to identify before charging begins. This measure concerns what the user sees before charging starts. Separate questions about wholesale roaming conditions and competition safeguards are addressed later in the report.

- **Feasibility:** *Low/Medium*. This would require stronger data-sharing obligations and more standardised presentation of tariff information across interfaces.
- **Effectiveness:** *High*. It would improve pre-session clarity and help users compare the price of charging through different access methods.
- **Coherence:** *High*. It supports AFIR's objective of making prices more transparent and easier to compare at the point of use.

② Comparing charging prices

This section focuses on a second consumer question: can the user easily compare the available charging options on the basis of price? Even where price information exists, users may still struggle to identify which option is cheaper, more predictable or gives better value. The issue is therefore not only whether information is disclosed, but whether charging offers are presented in a way that makes comparison realistically possible in the moment of choice.

Gap 2.1: It is hard to compare prices between charging options

The current charging market creates a structural tension between affordability, convenience and predictability. Users are often pushed towards contracts, subscriptions or specific service providers because these can make charging access easier and reduce uncertainty. At the same time, those options may not be the cheapest. The lowest-price option may differ from one charging point to another, and users often need to compare multiple tariffs, apps or payment routes to work out which option offers the best value.

In practice, users are often unable to compare charging options in a simple and reliable way. This problem is particularly visible in AC charging <50kW, where tariffs can still combine several price elements and where practical choice may already be limited by local (monopolistic) market conditions. From the user's perspective, the issue is therefore not only one of information disclosure, but also one of usability. AFIR does not yet ensure that charging options can be compared in a way that is quick, clear and meaningful for ordinary users.

Policy option 2.1: Simplify pricing for slower chargers (below 50 kW)

Introduce an EU-level limit on tariff complexity for publicly accessible charging <50 kW. As a general rule, tariffs should be restricted to a maximum of three consumer-facing price components, with a recommended baseline structure consisting of an energy price in €/kWh, a standardised idle or overstay fee that applies only after active charging has ended, and an optional fixed session fee only where this is objectively justified and clearly disclosed.

The market is already moving towards €/kWh as the main pricing element, but AC <50kW charging remains the part of the market where pricing structures are often hardest to compare. Limiting the number of tariff components would reduce the number of combinations that users need to interpret and would make offers easier to compare across charging points. This is particularly relevant for urban and public-dependent users, who often rely on AC charging and may already face limited practical choice.

- **Feasibility:** *Medium-low*. This would likely require legislative change, as AFIR allows charging points <50 kW more discretion on price components and only prescribes the order of these components.
- **Effectiveness:** *Medium-high*. It would substantially improve comprehension and comparability for urban and public-dependent charging users.
- **Coherence:** *Medium-high*. This proposal is aligned with AFIR's objective of making charging prices transparent and comparable for users. It preserves a degree of pricing flexibility for

legitimate site-management purposes, while reducing unnecessary tariff complexity that undermines effective consumer understanding.

Policy option 2.2: Introduce a standard comparison basis for charging offers

Require charging offers to be presented on a common comparison basis, so that users can compare options more easily across interfaces and providers. At a minimum, this should include

- a clearly displayed €/kWh price where relevant,
- together with one or more standard example session costs shown in the same format across user-facing channels based on the maximum of three components as related to the policy option 2.1.

For example, the interface could show the estimated cost of a typical session size, such as 20 kWh or 40 kWh, alongside the tariff structure.

Unlike **policy 1.1**, which focuses on the likely cost of the specific offer chosen by the user, this measure would create a common comparison format across different charging offers.

This would help translate complex tariff information into a form that users can compare quickly. The objective is not to eliminate different pricing models entirely, but to ensure that users are not forced to interpret each tariff from scratch every time they charge. A standard comparison basis would also support the development of more reliable comparison tools and reduce the practical disadvantage faced by users who do not have the time or expertise to decode complex charging tariffs.

- **Feasibility:** *Medium*. This could be introduced through more detailed AFIR rules or guidance on what meaningful comparability should require in practice.
- **Effectiveness:** *High*. It would directly address one of the main practical barriers to informed consumer choice: users often see price information, but still cannot compare offers easily.
- **Coherence:** *High*. It supports AFIR's comparability objective and complements pre-session transparency rules without amounting to direct price regulation.

③ Hidden costs and pressure to register or use subscriptions

This section focuses on a third consumer question: can users trust the price they end up paying, or do extra charges, opaque roaming mark-ups, outdated price information or missing records make the final bill hard to understand and verify? In practice, this is where many of the most frustrating problems arise. Even when price information exists before the session starts, users may still face unclear roaming uplifts, poorly explained occupancy fees, outdated prices in apps, or a final bill that is difficult to check afterwards.

Gap 3.1: Extra roaming charges are unclear and hard to monitor

A major weakness in the current framework is that it is often difficult to see how the final roaming price is built up. AFIR prohibits unjustified discrimination by CPOs between end users and MSPs and between different MSPs, but it does not require the full chain of wholesale roaming prices and intermediary mark-ups to be transparent. As a result, large differences in end-user prices may be visible, while the reasons behind those differences remain difficult to verify in practice.

From the user's perspective, this can make roaming mark-ups feel hidden or arbitrary. A concrete example from the Netherlands, shared by an EV driver with the Dutch EV drivers' association VER, shows two charging sessions with almost the same electricity use at Shell charge points near Muiden, but with a very different final price. In one session, 51.40 kWh cost €12.81 (CPO access via Shell), while in another, 53.65 kWh cost €45.90 (MSP access via Freshmile). This means that a very similar charging session resulted in a price difference of more than three times. For users, the key problem is simple: the same card or app may appear to work normally, but the final bill can still change sharply in ways that are difficult to understand in advance. Austrian EV drivers also reported accidental price premia of 200% to 400% when drivers used the wrong app, card or payment route.

This is not only a transparency problem. It can also create pressure to use a specific app, contract or ecosystem in order to avoid overpaying. Where vertically integrated firms operate both the charging network and the customer-facing service layer, hidden or poorly supervised wholesale conditions can also make it harder for rival MSPs to compete on equal terms.

Gap 3.2: Prices are not updated consistently across apps and chargers

Gap 3.2a: Delay in prices across the value chain. AFIR requires price information to be available before the charging session starts, but it does not ensure that tariff changes are reflected consistently and without undue delay across the full chain of user-facing interfaces. In practice, a price may already be updated at the charger or in the CPO system, while MSP apps, QR-code journeys, public APIs or navigation tools still show an older tariff. This means the problem can affect both MSPs and end users: MSPs may not receive updated data in time, and users may start a session on the basis of incomplete or outdated price information.

Gap 3.2b: dynamic pricing leads to even more complexities. Consistency of prices becomes even more important where pricing is dynamic. In this context, dynamic pricing means that the tariff can change over time, for example because of demand, congestion, electricity costs or commercial strategy. Dynamic pricing is not necessarily problematic in itself and can also benefit EV drivers, for example when lower off-peak prices are passed through. The problem arises when users cannot see clearly when the price changed, which price applies at the exact moment they start charging, and whether that price may increase further during the session. In that case, even a formally disclosed tariff may still produce bill shock.

Gap 3.3: It is hard to check and understand the final bill

AFIR does not specifically regulate invoices or require a standardised itemised receipt after every charging session. This leaves a major gap in post-session verifiability. Without a clear receipt, users may struggle to understand how the final amount was calculated, whether VAT was applied correctly, whether time-based or occupancy fees were triggered at the right moment, and whether any additional MSP or roaming charges were included.

This matters because the final price in public charging is often made up of several layers. The end-user price may combine the CPO's base tariff with additional service, roaming, payment-processing and administrative costs added through the MSP layer. Time-based and parking-related charges are especially widespread at MSP level (for example, time-based fees are used in around 77% of MSP tariffs and parking or blockage fees in about 90%, compared to only 22% and 13% at CPO level), meaning that the advertised energy price alone often does not show what the user will actually pay. Without a standardised receipt, these add-ons remain hard to verify or contest.

Gap 3.4: Parking and occupancy costs are still not fully reflected in the upfront price

Parking and occupancy costs remain a distinct source of confusion. Parking fees often fall outside AFIR's charging-price rules, even where they form part of the effective cost of using a charger, especially in urban kerbside charging. From the user's perspective, however, the distinction between "charging cost" and "parking cost" is not always meaningful. If parking is unavoidable in order to charge, it is part of the real cost of the session.

The same applies to occupancy fees when they are poorly explained or triggered too early (when the car is still charging). Occupancy fees are widely used by service providers and can act less as a way to manage charger use and more as an extra charge added on top of the price (for example, a per-minute fee that continues after charging has finished, increasing the total cost). This weakens price predictability and makes it harder for users to understand the full cost before they begin charging.

Policy option 3.1: Make roaming costs more transparent and prevent unfair mark-ups

To make AFIR's non-discrimination principle enforceable in practice, regulators should have access to the wholesale and retail pricing information needed to understand how roaming prices are formed. In practical terms, this means that regulators should be able to see the wholesale roaming tariff charged to MSPs, the retail tariff charged to the end user, and enough information to assess whether an independent MSP could realistically compete under those conditions. Full public disclosure may not always be necessary, but effective regulatory access should be the minimum requirement.

This would not amount to general price regulation. It would simply make it possible to check whether very large roaming mark-ups reflect real costs or whether they are linked to discriminatory treatment or margin squeeze. A concrete example is the [Enel X Way case in Italy](#). The Italian Competition Authority found in 2025 that third-party MSPs had to buy roaming access at wholesale terms that made it difficult to compete with Enel's own retail offers. The authority imposed a fine of EUR 2.3 million. This shows what the issue means in practice: a vertically integrated operator can favour its own retail channel, not only by offering attractive retail prices to its own users, but also by setting wholesale terms that leave too little room for rival MSPs to compete. The Italian case shows that this type of conduct is not merely theoretical and underlines the need for greater transparency of roaming-related pricing to support earlier detection and prevention of similar abuses in future.

- **Feasibility:** *Medium*. Legal design would need to balance confidentiality concerns with enforceability.
- **Effectiveness:** *High*. This option targets one of the main structural mechanisms behind hidden roaming mark-ups and de facto pressure to use specific apps or subscriptions.
- **Coherence:** *High*. Properly framed, it supports both AFIR's non-discrimination logic and wider EU competition law objectives.

Policy option 3.2: Set clear rules for occupancy and overstay fees

Introduce EU-wide guardrails for occupancy fees. As a general rule, such fees should apply only after active charging has ended, or after a clear grace period (logically related to utilisation rates on popular locations), and they should be presented clearly as a site-management measure rather than as part of the energy price. Terminology and user-interface presentation should also be harmonised, so users can easily understand when the fee starts, why it applies and how fast it increases. From the consumer perspective, occupancy fees can also create a significant burden, for example where they force the driver to move the vehicle late in the evening, before the battery is fully charged, in areas where alternative parking is no longer available. For that reason, clear rules are needed to ensure that occupancy fees are used only at highly utilised locations, apply only once charging has clearly ended, and do not apply during late evening or night-time periods where they would impose disproportionate burdens on users.

This would directly address one of the most common sources of bill shock. It would also support a clearer boundary between energy pricing and behaviour-management fees. Where parking fees or local parking rules also apply, the user-facing information should make that visible before the session starts, so that the full effective cost of occupying the charging space is easier to understand.

- **Feasibility:** *High* for interpretative clarification, *Medium* for binding harmonisation.
- **Effectiveness:** *High*. It would reduce unexpected charges and improve price predictability.
- **Coherence:** *High*. It strengthens proportionality and clarifies an area where user confusion remains widespread.

Policy option 3.3: Ensure prices are updated quickly and consistently across all user interfaces

Introduce a maximum 15-minute end-to-end latency rule for price updates, measured from the moment a tariff changes at CPO to the moment the updated tariff is visible in public APIs, consumer-facing apps, QR-code flows and navigation tools. This would ensure that (ad hoc) prices

are not only updated at the charger itself, but are also updated across the full set of user interfaces and invoices afterwards on which consumers actually rely.

Where pricing is dynamic, the user should see the applicable tariff before the session starts, including the dynamic €/kWh logic and any maximum price that could apply during the session. This would allow the user to choose in advance between a fixed price and a dynamic price, with the dynamic option offering the chance of a lower average charging price. **To protect the user, dynamic pricing should only move in the user's favour during the session:** if the user has accepted a maximum price threshold, charging should stop automatically once that threshold would be exceeded, rather than continuing at a higher price. By contrast, where the user accepts a fixed price, the unit price should not change during the session. This would make dynamic pricing more predictable and reduce the risk of bill shock.

This would make AFIR's pre-session transparency requirement more meaningful in practice. The core problem today is not only whether price data exists somewhere in the system, but whether the same current tariff reaches all relevant consumer interfaces in time, and also whether it is calculated accordingly afterwards in the related invoices.

- **Feasibility:** *Low*. Responsibility allocation, audit methods and enforcement design would need to be defined clearly.
- **Effectiveness:** *High* in dynamic and roaming contexts, where outdated app prices currently undermine trust.
- **Coherence:** *High*. It supports AFIR's transparency logic and shifts competition towards accuracy and usability of information.

Policy option 3.4: Require a clear, standardised receipt after every charging session

Mandate that all public charging sessions, both ad hoc and contract-based, generate a standardised itemised receipt that is accessible digitally, for example via app history, email or QR link. At a minimum, the receipt should include the location and charger ID, start and end time, kWh delivered, the price of each tariff component applied, VAT and taxes, the timing and logic of any occupancy fee, and any explicit MSP or roaming-related charge.

This would improve post-session verifiability and make it easier for consumers to understand, challenge and compare what they were charged. It would also make oversight easier, because authorities could more clearly spot problems such as multiple fees being added on top of each other, unclear tax charges, or extra roaming costs that are not properly explained.

- **Feasibility:** *Medium*. This would likely require an AFIR amendment or more explicit implementing rules, but the underlying transaction data already exists for most charging sessions.
- **Effectiveness:** *High*. It would significantly improve accountability, redress and user understanding of charging costs.
- **Coherence:** *High*. It complements EU consumer-protection principles and reinforces AFIR's transparency objective.

4 Gaps in AFIR that limit clear pricing

This section focuses on a fourth question: does AFIR give national authorities enough practical tools to monitor and enforce clear, fair and comparable charging prices? At present, only partly. AFIR sets the right general principles by requiring prices to be reasonable, transparent, easily and clearly comparable, and non-discriminatory. But in practice, those principles remain difficult to supervise because two horizontal weaknesses persist. First, there is still no operational benchmark for identifying when a charging price or price spread should trigger closer scrutiny. Second, the quality and consistency of tariff data is still too weak to support reliable comparison tools, effective monitoring and timely enforcement.

Gap 4.1: No clear benchmark for what counts as a “reasonable” price

AFIR requires public charging prices to be reasonable, but it does not provide practical criteria for deciding when that requirement may have been breached. In supervisory terms, this is a major gap. National authorities can see that price differences exist, but they do not have a common framework for deciding when those differences are still explainable and when they become a warning sign. As a result, enforcement risks remaining reactive and complaint-driven rather than systematic.

This matters because the study shows very large price differences at three levels. First, there are clear differences between countries. Across the six-country comparison, average effective charging prices range from about €0.58/kWh in France to €0.73/kWh in Italy. Second, there are large differences between access routes, and these are wider for MSP charging than for direct CPO charging. At EU level, MSP energy prices range roughly from €0.27 to €0.65/kWh for AC and from €0.32 to €0.85/kWh for DC, with some observed prices above €1/kWh. This shows that the MSP layer often increases the price range faced by users. Third, large differences also exist at the level of the individual charger. At the same charging point, MSP price spreads of €0.40 to €1.00/kWh are common, and in some cases the spread reaches about €1.40/kWh depending on the app, card or contract used. Across all charging scenarios in the six-country analysis, actual user prices range from about €0.36/kWh to €1.17/kWh. These are not small differences. They are large enough to affect affordability, user trust and the overall business case for driving an EV.

The problem is not that every high price is necessarily unreasonable. Some differences can be explained by charging power, utilisation, grid costs, location or service quality (MSPs have to integrate hundreds or thousands of different CPOs which is costly). A price can be reasonable if it reflects the actual costs of providing the service and includes only a justified profit margin. But a price can still be transparent and reasonable without being affordable for the user. The problem is that AFIR currently gives supervisors too little help in separating explainable price differences from red flags such as persistent outliers, unexplained same-site spreads, excessive add-ons or systematic disadvantages for certain user groups. Without such benchmarks, the “reasonable price” requirement remains too abstract to guide consistent enforcement.

Gap 4.2: Weak monitoring and fragmented data limit effective enforcement

The second horizontal gap is that AFIR’s transparency rules do not by themselves solve deeper market problems that can keep prices high or make them hard to compare. Several kinds of evidence point in the same direction.

- 1) **There is evidence of local market power in public charging.** In urban AC charging, competition is often local rather than national, because many users depend on the few chargers available near home or work. Dutch municipal data illustrates this clearly: average public AC prices differed from about €0.36/kWh in Zundert to about €0.55/kWh in Eindhoven, a gap of roughly 51% for the same basic service. Where users have little practical choice, even formally transparent prices may remain high because competitive pressure is weak. Where persistent price problems are linked to local market power, strategic site control or unequal business access, AFIR monitoring should be linked more closely to competition authorities, concession design and public tender guidance.
- 2) **There is also evidence of large price differences across access methods.** The formal disclosure alone does not guarantee meaningful competition if users cannot easily identify the cheaper option or avoid the more expensive one.
- 3) **A further concern is vertical integration and self-preferencing.** Even where end-user prices are visible, competition can still be distorted if rival service providers cannot access the network on workable terms. This can weaken price competition and push users towards more closed ecosystems.

These examples have one clear feature in common: they show that formal transparency obligations are not enough on their own. Large price differences, local lock-in, weak comparability and self-preferencing risks can persist even where some price information is available. That is why AFIR

needs not only disclosure rules, but also stronger monitoring triggers, better data quality and closer links to competition oversight.

Policy option 4.1: Define “reasonable price” using benchmarks and monitoring tools

AFIR already requires Member States to monitor compliance, but the current framework gives little guidance on how that monitoring should be carried out in practice. A more operational approach would therefore require common indicators, reporting formats and an EU-level scorecard based on what users actually see and experience.

This option addresses the core enforcement problem identified above: authorities currently lack a practical method for deciding when observed price differences are normal market variation and when they justify closer scrutiny. The purpose for now is not to impose price caps. It is to make supervision more consistent, more evidence-based and less dependent on complaints alone.

An EU-level indicator package should therefore be developed to support Member State supervision under AFIR. This could include, for example, public-to-home charging price ratios by charging segment, spreads between ad hoc, subscription and roaming routes, same-site price-gap indicators, roaming-spread indicators, local concentration or exclusivity markers, and complaint or bill-shock metrics derived from receipt data. These indicators would help authorities detect patterns that deserve closer examination, such as persistent outliers, unexplained gaps between access methods, or repeated cases where users face materially higher prices through certain payment routes.

This would make the “reasonable price” requirement more operational without replacing case-by-case assessment. It would also improve comparability between Member States and make AFIR monitoring more suitable for regular EU-level oversight. In effect, it would turn a broad legal principle into a usable supervisory tool.

- **Feasibility:** *High*. This could be introduced through Commission guidance, common monitoring templates and future analytics linked to the upcoming Common European Access Point (CEAP).
- **Effectiveness:** *Medium-high*. It would reduce ambiguity and help authorities identify problematic pricing patterns earlier.
- **Coherence:** *High*. It supports market-based pricing while enabling more proportionate and evidence-based enforcement.

Policy option 4.2: Ensure pricing and receipt data follow common standards

This option addresses a second practical problem: even the best transparency rules will not work properly if the underlying tariff and session data is incomplete, outdated, inconsistent or impossible to match across systems. In practice, users, comparison tools and regulators all depend on the same basic foundation: reliable data. Where that foundation is weak, price transparency becomes unreliable in practice.

The evidence already shows why this matters. Outdated or missing price information remains common in apps and QR-code flows. Stakeholders also report fragmented digital implementation, data-quality problems and inconsistent use of National Access Points. In addition, AFIR’s current data layer does not yet guarantee a full consumer-facing comparison tool or a reliable all-in price view across interfaces. This means that the legal obligation to make price data available does not yet produce dependable user outcomes.

The solution should be to set clear, common rules so that pricing and receipts are consistent and reliable everywhere. At a minimum, this should include standard identifiers for station, tariff and session, mandatory timestamps and versioning, validation rules for units, currency and VAT consistency, and public compliance scorecards backed by proportionate penalties. The aim is straightforward: when a price is shown in an app, on a charger, through a QR code or on a receipt, those data points should refer to the same session, the same tariff version and the same calculation logic.

This would improve the quality and reliability of the data needed for all-in estimates, dual-price display, comparison tools, receipts and supervisory monitoring. It would also make it easier to detect

mismatches between the price shown before charging and the price billed afterwards. In that sense, data conformity is not a technical add-on. It is a basic condition for making AFIR's transparency and comparability rules work in the real world.

This measure complements Policy 3.4: the earlier measure requires that users receive a receipt, while this measure ensures that tariff and receipt data follow common technical standards across systems.

- **Feasibility:** *Medium*. It requires technical governance and conformity testing, but it can be built on the existing NAP architecture and future Common European Access Point development.
- **Effectiveness:** *Medium-high*. It would significantly improve the practical usability of AFIR's transparency provisions.
- **Coherence:** *High*. It is consistent with broader EU approaches to interoperability, standardisation and compliance-based digital governance.

Policy option 4.3: Establish a standardised and harmonised data backbone for AFIR to make static and dynamic data available

AFIR already requires operators or owners of publicly accessible charging points to make static and dynamic data available (ad hoc price data as stated in AFIR), and recent implementing and delegated acts now specify the required data and common API requirements. However, setting data fields and formats is not enough on its own. If operators still have to connect separately to multiple differently designed National Access Points with different standards and datasets, compliance remains burdensome and fragmented, while data coverage and quality remain uneven in practice. This weakens the foundation needed for user-friendly comparison tools, effective monitoring and cross-border interoperability.

The policy response should therefore be to create a single EU data backbone based on a once-only reporting principle. Under this approach, a charge point operator or owner active in several Member States would submit one harmonised and standardised machine-readable dataset through one certified interface, and that submission would then be made available to the relevant National Access Points and, in time, via the National Access Points to a Common European Access Point. This would reduce duplication for operators and reduce the need for each National Access Point to build up their own datasets and structures and/or carry out the same deduplication and data cleaning work separately. At the same time, many National Access Points remain in an early development phase and are not yet aligned on a fully standardised approach. Moreover, even once improved, this system would address only part of the price transparency challenge, since it primarily concerns static and dynamic ad hoc price data and does not cover the broader CPO, MSP and roaming-related pricing dynamics that influence the final end-user price.

- **Feasibility:** *Low*. It requires coordination between the Commission, Member States, NAP operators and market actors, but it builds directly on AFIR's existing data obligations and the new 2025 data package.
- **Effectiveness:** *Medium*. It addresses one of the main implementation bottlenecks: data obligations may exist in law (ad hoc price), but the reporting architecture is still too fragmented to deliver reliable consumer outcomes at scale.
- **Coherence:** *High*. It supports AFIR's transparency, interoperability and internal-market objectives, while reducing unnecessary compliance burden for cross-border operators.

Key issue and final limitation

A final limitation is that price transparency can lead to formally reasonable pricing which still may be unaffordable for users who depend on public charging because they cannot charge at home or at work. This issue goes beyond price transparency alone and is only partly addressed by AFIR, but has huge impact on overall EV adoption. It therefore requires complementary action, including monitoring of the public-to-private charging price gap and explicit consideration of affordability impacts for captive public-charging users.

Glossary

1. **all-in price / final price** = the full effective price paid by the user once all relevant tariff components are included, such as energy charges, time-based charges, session fees, roaming mark-ups, parking or occupancy charges, and any subscription effect where relevant.
2. **blockage fee / parking fee** = an external fee for parking at the charging location. In some cases, it is separate from the charging tariff, but from the user's perspective it may still form part of the real cost of charging.
3. **session fee / start fee** = a fixed fee charged per charging session, sometimes used to recover transaction or service costs.
4. **idle / occupancy / overstay fee** = a fee for remaining in a charging bay after active charging has ended, or after a grace period. In policy terms, these fees are usually justified as a site-management tool, but they can become a source of bill shock if poorly explained or triggered too early.
5. **time-based charging fee** = fee linked to charging duration during the session
6. **session fee** = A fixed fee charged for starting or completing a charging session, regardless of the amount of energy used. It is often applied to cover transaction or service costs and is added on top of other price components such as the €/kWh energy price.
7. **CPO subscription** = a charging arrangement where the user has an account or membership directly with the charge point operator and charges under that operator's own tariff
8. **dynamic pricing** = a pricing model in which the tariff can change over time, for example because of demand, congestion, electricity costs or commercial strategy. It can be beneficial if well communicated, but can also create bill shock if users do not know which tariff applies when the session starts.
9. **eMSP / MSP (e-mobility service provider / mobility service provider)** = a service provider that gives drivers access to charging through an app, card, in-car interface or subscription, often across multiple charging networks. MSPs typically manage customer relations, billing, roaming and payment services.
10. **energy component / energy price** = the part of the charging tariff charged per kilowatt-hour (€/kWh). This is usually the core charging-price component, especially for DC charging and for ad hoc charging at 50 kW and above.
11. **interoperability platform / roaming hub** = a third-party intermediary that connects CPOs and MSPs and supports cross-network charging, including technical communication and commercial settlement.
12. **local market power / local monopoly** = a situation in which users have only a few practical charging options nearby, for example near home or work. This is especially relevant in urban AC charging, where local conditions can weaken competition even if multiple operators exist nationally.
13. **non-discriminatory pricing** = a pricing principle requiring that differences in price treatment should not be unjustified. In AFIR, this applies both to end users and to business relations in the charging market, for example between CPOs and MSPs.
14. **pre-session price information** = price information available before charging starts, including the applicable tariff and any relevant fee components. The report treats this as a core element of price transparency.
15. **price comparability** = the extent to which different charging offers can be compared easily and meaningfully by users. A price may be disclosed, but still not be truly comparable if tariff structures are too complex or presented inconsistently.
16. **price transparency** = a situation in which the user can clearly see the price, or clearly understand how the final price will be calculated, before making a charging decision. The report distinguishes this from both affordability and reasonableness.
17. **reasonable price / reasonable pricing** = a practical, evidence-based concept used in the report to assess whether observed prices can be explained by identifiable cost and service drivers and remain consistent with the regulatory objectives of transparency, comparability and non-discrimination. It is not treated as a single EU-wide price level.
18. **roaming** = a charging arrangement that allows a user to access a charger through an MSP other than the operator running that charger. Roaming improves interoperability, but it can also add complexity and extra costs.

19. **National Access Point (NAP)** = a national data access point through which certain charging-related information are made available in machine-readable form. In the report, NAPs are important for improving tariff transparency and comparison tools.
20. **Common European Access Point (CEAP)** = An EU platform that will collect and standardise charging data from all the Member States (NAPs) to enable easier comparison, digital services and monitoring.