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*Comment Received From: Sarah Somorai  
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**Plug & Charge and Roaming Concepts Workshop Comments  
(Docket # 22-EVI-06)**

Thank you for the opportunity to comment on the Plug & Charge and Roaming Concepts Workshop held on March 25, 2026. Hyundai's comments are attached. Thank you.

*Additional submitted attachment is included below.*

April 15, 2026

Ms. Nancy Skinner, Commissioner  
California Energy Commission  
715 P Street  
Sacramento, CA 95814

Submitted Electronically:

<https://efiling.energy.ca.gov/EComment/EComment.aspx?docketnumber=22-EVI-06>

**RE: Hyundai's Comments to Plug & Charge and Roaming Concepts, Docket No. 22-EVI-06**

Dear Commissioner Skinner,

Hyundai Motor North America ("Hyundai") appreciates the opportunity to comment on the California Energy Commission's ("CEC") Plug & Charge and Roaming Concepts Workshop held on March 25, 2026.

As of 2025, Hyundai Motor Group<sup>1</sup> (HMG) is the world's third-largest automaker and fourth-largest in the U.S., offering a diverse portfolio of battery electric, plug-in hybrid, hybrid, fuel-cell, and gasoline vehicles. Electrification is central to Hyundai's strategy, with a global target of 3.3 million electrified vehicles by 2030<sup>2</sup> and electrified powertrains projected to represent 77% of North American sales by decade's end. To accelerate adoption, Hyundai is advancing infrastructure and consumer-focused initiatives including being a proud member of IONNA<sup>3</sup>, a joint venture of eight automakers deploying more than 30,000 chargers nationwide, and Evolve+<sup>4</sup>, try-before-you-buy electric vehicle ("EV") subscription program. We will continue to pursue innovative solutions to spur EV adoption among early-majority buyers.

Hyundai recognizes the CEC's hard work and dedication in the development of Plug & Charge and Roaming requirements to enhance the consumer charging experience and we share in that desire.

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<sup>1</sup> Hyundai Motor Group includes brands Hyundai, Genesis, and Kia.

<sup>2</sup> [Hyundai Motor Company Unveils Bold 2030 Vision and product Roadmap at 2025 CEO Investor Day](#). Hyundai Releases. September 18, 2025.

<sup>3</sup> See [ionna.com](https://ionna.com).

<sup>4</sup> See Press Release, Hyundai Newsroom, [Hyundai Announces Evolve+ EV Subscription Program at the Chicago Auto Show](#) (February 9, 2023), <https://www.hyundainews.com/en-us/releases/3763>.

In response to the request for feedback on the workshop materials, we provide the following:

### **ISO 15118-2 is Sufficient for the Purpose of Plug & Charge**

Considering the Plug & Charge service compatibility of EVs already sold and on the roads, ISO 15118-2 is the most suitable and realistic minimum standard. Most EVs and charging stations are already compatible with ISO 15118-2. Setting ISO 15118-20 as the minimum standard would introduce compatibility issues with EVs already sold and in the market, and it is more complex to implement on existing charging stations. Neither OEMs nor charging operators are currently prepared for full-scale ISO 15118-20 implementation. The key reasons are as follows:

- The hardware and software definitions required to support TLS 1.3, as mandated by ISO 15118-20, remain insufficiently developed and standardized across the industry.
- Critical Public Key Infrastructure, including the ISO 15118-20 V2G Root Certificate Authority, has not yet been established at an industry-wide level.
- Full industry-wide adoption is estimated to take a minimum of 5 to 10 years.

### **Charging Infrastructure Should Maintain ISO 15118-2**

Since ISO 15118-2 is not compatible with ISO 15118-20, it is important that all charging infrastructure maintain ISO 15118-2 backward compatibility, ensuring that existing EVs continue to utilize Plug & Charge services without disruption as infrastructure standards evolve.

### **TLS 1.2 Security Framework of ISO 15118-2 is Sufficient for Plug & Charge**

Security requirements should be proportionate to the risk level of each service. For Plug & Charge, the TLS 1.2 security framework of ISO 15118-2 is sufficient. By contrast, V2X services (V2G, V2H, etc.) involve bidirectional energy transactions which entail a higher security risk. In this case, TLS 1.3 as provided under ISO 15118-20 would be appropriate.

### **OCPI 2.3 for Network and Roaming is Acceptable but Market Readiness and Lead Time are Crucial**

OCPI 2.3 introduces meaningful advancements including native tax field support, vehicle type differentiation, and an upcoming certification program. However, given that the full OCPI 2.3 specification and its certification program are not finalized, Hyundai strongly requests that market-readiness be considered as well as a phase-in period to provide industry with adequate lead time for OCPI 2.3 certification and implementation.

### **A Trusted Roaming Settlement Intermediary is Needed to Develop and Implement Roaming Agreements**

The most significant challenge in EV charging network connectivity today is the absence of a trusted roaming settlement intermediary between eMSPs and CPOs. A trusted roaming settlement intermediary is needed to contractually interconnect with all CPOs, and that technically standardizes the data and Application Programming Interface (“APIs”) that eMSPs are required to provide for Plug & Charge across all connected CPOs.

### **Plug & Charge Infrastructure Linked to a Neutral Roaming Clearinghouse**

Plug & Charge functions well within a single network, but in roaming environments, it is best if contractual and certificate trust frameworks between mess and CPOs be interconnected. No single entity currently unifies this technically or contractually. Linking Plug & Charge infrastructure to a neutral roaming clearinghouse would enable seamless cross-network Plug & Charge authentication. Furthermore, smaller CPOs face additional challenges. PKI certificate acquisition, OCSP integration, and software implementation represent significant technical and financial burdens for smaller CPOs. This challenge can be effectively addressed through a neutral roaming clearinghouse. If small CPOs can connect to multiple eMSPs through a single clearinghouse integration, they can implement Plug & Charge more easily and cost-effectively without the need to individually manage complex PKI and API relationships with each eMSP.

### **Challenges to Consider in Developing and/or Implementing Roaming Agreements Between Providers or Networks**

- **Bilateral Agreement Complexity:** Each eMSP must negotiate individual agreements with every CPO, creating a web of contracts at scale.
- **Technical Fragmentation:** Inconsistent OCPI implementations across networks create hidden incompatibilities even where the same protocol version is nominally adopted. If the user information required by each CPO differs, eMSP must be developed separately for each CPO.
- **Commercial Friction:** Revenue-sharing models and pricing transparency between eMSPs and CPOs would need to be resolved.
- **Liability Ambiguity:** No standardized framework exists to define liability allocation when roaming sessions fail.
- **Market Incentive Gap:** Dominant networks have limited commercial incentive to open their ecosystems to roaming participation.

### **Challenges to Consider with Roaming Implementation**

- **Ability for smaller CPOs to participate:** Smaller CPOs lack the technical and financial capacity to establish individual roaming integrations. A neutral clearinghouse would allow small CPOs to connect to multiple eMSPs through a single integration point, dramatically lowering the barrier to roaming participation and fostering a more equitable and competitive market.

### **Conformance Testing Beyond ISO 15118-2 and OCPI 2.3**

The most immediate structural gap is the absence of a government-recognized California V2G Root Certificate Authority. Without a publicly anchored root trust, the PKI landscape will continue to fragment due to competing V2G roots proliferating across networks. Since EVs can store approximately 10 V2G root certificates, this can cause communication compatibility failures between vehicles and chargers.

**Closing**

In closing, we support the goals that the Plug & Charge and Roaming program aims to achieve and are happy to discuss our comments further. Please feel free to reach out to Christoph Karkoszka at CKarkoszka@hmausa.com with any questions.

Sincerely,



Yuval Steiman  
Director, Eco-Mobility & Research  
Hyundai Motor North America