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MBAG Comments on CEC's AB 2127 Electric Vehicle Charging Infrastructure Assessment

Additional submitted attachment is included below.

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March 15, 2021

California Energy Commission
1516 Ninth Street
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Docket: 19-AB 2127

RE: MBAG Comments on CEC's AB 2127 Electric Vehicle Charging Infrastructure Assessment

Mercedes-Benz USA, LLC ("MBUSA") and Mercedes-Benz Research & Development North America (MBRDNA), on behalf of their parent company Mercedes-Benz AG (hereinafter "MBAG"), would like to thank the California Energy Commission ("CEC") for the opportunity to provide comments on Electric Vehicle Charging Infrastructure Assessment ("AB 2127"). Our comments focus on cybersecurity concerns in general and on the reasons why we think CEC should continue to recommend that all stakeholders adopt ISO15118.

Frankly, we believe that cybersecurity is essential to the success of the Electric Vehicle Charging Infrastructure. In that regard, please consider the following documents:

1. DOE/DHS/DOT Volpe Center Technical Meeting on Electric Vehicle and Charging Station Cybersecurity (https://rosap.ntl.bts.gov/view/dot/34991)
2. Medium and Heavy Duty Electric Vehicle and Charging Infrastructure Cyber Security Baseline Reference Document (http://www.nmfta.org/documents/hvcs/MDHDEV%20CI%20Cyber%20Security%20v1%202%201%20complete.pdf)
3. NIST's workshop on Cybersecurity of Electric Vehicle Chargers (https://www.nist.gov/news-events/events/2019/09/cybersecurity-electric-vehicle-chargers)

Megawatt Charging, Vehicle-to-Grid and energy flexibility markets will significantly increase the risk portfolio in terms of critical energy infrastructure protection. Plug & Charge and Wireless Charging will significantly increase the risk portfolio of privacy and payment security. While elements of a comprehensive cybersecurity architecture for electric charging systems and infrastructure exist, it is lamentably the case that state-of-the-art cybersecurity controls are still too often optional and that privacy is not comprehensively addressed at all. At the beginning of a widespread adoption and implementation of a vehicle charging infrastructure, all stakeholders should support building a comprehensive end-to-end cybersecurity architecture based on strong standards; help avoid fragmentation of its building blocks; and collaborate on filling gaps in the architecture.

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ISO15118 is an important element of this comprehensive cybersecurity architecture. ISO15118 specifies EV charging communication and thus governs the critical communication link between the Electric Vehicle Communication Controller (EVCC), the Electric Vehicle Supply Equipment (EVSE) and other stakeholders. ISO15118 is an evolving international standard and, to our knowledge, the only EV charging communication standard to address cybersecurity as an intrinsically important aspect. The soon-to-be-released version ISO15118-20 improves on several cybersecurity controls specified by the current version ISO15118-2. In fact, MBAG played an active role in helping to evolve the standard further regarding cybersecurity. Below are a few examples of the cybersecurity controls that are required and supported by ISO15118-20:

1. ISO15118-20 requires a secure communication channel and mutual authentication between EVCC and EVSE by requiring the use of the state of the art Transport Layer Security (TLS1.3) protocol.
2. ISO15118-20 requires AES-256 and supports two cryptographic curves, thereby providing adequate cryptographic key strengths and crypto agility.
3. ISO15118-20 supports the use of certified security hardware such as a Trusted Platform Module ("TPM") for storing payment information and personally identifiable information ("PII").

Despite ISO15118's strong focus on cybersecurity, the standard does not specify requirements for a Certificate Policy. The lack of a Certificate Policy, however, does not weaken the standard's security posture. ISO15118 is conceptually analogous to the HTTP/2 network protocol. Both require Transport Layer Security but neither specifies any requirements for a Certificate Policy. Moreover, CharIN e.V. recently published a Certificate Policy guideline for an ISO15118 V2G PKI (https://www.charinev.org/news/news-detail-2018/news/charin-ev-publishes-certificate-policy-guideline-for-an-iso-15118-v2g-pki/). Such a guideline complements ISO15118 and can serve as another element of a comprehensive cybersecurity architecture.

The evolution of the Open Charge Point Protocol ("OCPP") also illustrates how the gaps in the comprehensive cybersecurity architecture are being filled. Version 2.0.1 of the open standard made significant improvements to its cybersecurity posture and also introduced alignment with ISO15118 (https://www.openchargealliance.org/protocols/ocpp-201/). Further, OCPP will eventually be replaced by IEC63110 - Protocol for the Management of Electric Vehicles Charging and Discharging Infrastructures, where the new standard strives for even closer alignment with ISO15118.

To summarize, ISO15118 is a vital building block of a comprehensive cybersecurity architecture for electric charging systems and infrastructure, and we commend CEC's strong and continued support of this international standard.

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Thank you for considering our comments.

Sincerely,

MERCEDES-BENZ RESEARCH & DEVELOPMENT N.A., INC.

By: Amy Klinkenberger 3/15/21
Amy Klinkenberger, Senior Manager Date

-AND-

MERCEDES-BENZ USA, LLC

By: 3/15/21
Gregory Gunther, Manager Date

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