SM-E-2025-01 ‘Understanding EV Inefficiencies’ Q&A

1. Scope: Is physical testing and real-world test data acquisition expected? If yes, additional questions below. Yes
2. Vehicles: Who provides the test vehicles? The contractor is expected to procure/rent vehicles
3. Vehicles: "How many vehicles are targeted and what is the split between cars and trucks? Are HD trucks (semi's) also to be included?" No specific target. The goal is to understand the inefficiencies in the ecosystem in general and not specific to any EVs. However, if the contractor thinks this varies significantly between EVs, then CRC is open to discuss
4. Infrastructure: how many different charge stations types/manufacturer are needed to get evaluated? Similar to the above, if the contractor thinks the inefficiencies vary significantly between charger manufacturers, CRC is open to discuss
5. Vehicles: Can/should work be conducted in other regions outside US (e.g., China) to assess MCS? No, the scope can be limited to the US market
6. Vehicles: "Is there any need for CRC to have the vehicles at any time (initially for subjective evaluation, post testing,…)? Assuming not, should supplier then plan to rent (or buy/resell) the vehicles?" Yes
7. Instrumentation: What channels are requested (e.g., do we need 'man in the middle' device to review 'handshake' dialogue between vehicle/charger)? Up to the contractor to use any kind of “sniffer” device to get the required data, as needed.
8. Instrumentation: If public chargers are to be used, will be challenging to instrument; assume for public chargers that instrumentation is limited to vehicle-side? Agree
9. Test conditions: How many environmental conditions should be planned for the assessment and is it required to pre-soak the battery to given target temperatures? Prefer to complete this analysis at real-world conditions and hence pre-soaking is not required.
10. Test conditions: How many SOC ranges are targeted for assessment (e.g., 0–20%, 20–80%, 80–100%)? As much as possible, as the inefficiencies vary based on SOC ranges
11. Reporting: Any particular example interim/final reports that can be provided to confirm results meet targeted format & content? Final reports can be found on CRC’s website, https://crcao.org/published-reports-full/
12. Test conditions: same focus on Level 2 and Level 3 charging, or focus only on level 2. Focus on Level 3, i.e. DC fast charging.

13. Test conditions: Are losses from the charge station from interest? This might not be available/accessible on any public charge station Yes, prefer to study if there is a charger in the test facility.
14. Vehicles: Is there interest in comparing different vehicle voltage matching strategies to accommodate 400/800V charging different from the native battery pack configuration (e.g. DCDC converter, pack splitting via means of running modules in series/parallel, utilizing EDU's to provide voltage boost, etc.) Yes
15. Vehicles: Is battery pack design of importance (e.g. cell vs pouch, LFP vs nmc, etc.). If the inefficiencies vary significantly, then the differences between the pack design need to be highlighted.
16. Vehicles: "Can generator powered fast charging stations be utilized assuming they provide up to the typical max charge rate (e.g. 350kW)" Ok