Please find hereafter our comments to

ENERGY STAR® Program Requirements for Electric Vehicle Supply Equipment

Eligibility Criteria

Version 1.1 Draft 1

AddEnergie/Flo appreciates the effort done by Energy Star to include DC EVSEs in its global energy savings plan. We are also convinced that a collective effort must be made to inflect the trend of energy waste.

AddEnergie develops Level 2 and DC EVSEs and as such has certain concerns about the latest Eligibility criteria concerning DC EVSEs:

Power consumption

3.6 No Vehicle Mode Requirements for DC-output EVSE

3.7 Partial on Mode Requirements for DC-output EVSE

Equation 4: Calculation of Maximum No Vehicle Mode Requirement for DC-output EVSE

$$P_{\text{no\_vehicle\_Mode}} = (35.6 \times \ln(Maximum Power)) - 54.3 + P_{\text{display}}$$

We understood from the presentation in the webinar that this equation is based on a very restricted number of units below 65kW and one unit at 350kW, with no data in-between. We respectfully recommend reconsidering this for the following reasons:

1) DC EVSEs are built using AC-DC converter modules in parallel. The higher the power, the higher the number of modules. Therefore, the power tends to increase linearly with the power in a y = mx+b manner, since all models also require the components needed for a main controller, display and connectivity.
   For example, a 50kW DC EVSE will have two 25kW modules. The 100kW version of the same DC EVSE will have four 25kW modules. Both will share the same auxiliary circuits.

   This modularity is necessary due to the availability of components at the power level involved, redundancy, serviceability but unfortunately increases power consumption due to the plurality of the control and safety circuits.

2) The impact of power consumption in no vehicle mode is minor compared to the energy savings provided by higher efficiency during a charge, especially for high power DC EVSEs. In our opinion, the assumption of a 10% usage may be underestimated for the incoming future due to the explosion of the number of electric vehicles. This further minimizes the impact of the power consumption in no vehicle mode. Partial on mode is even less important since it is only temporary.

Partial on-mode for DC-EVSEs

This mode is virtually irrelevant in DC-EVSEs since these chargers are intended to fast and immediate power delivery. The duration of this mode is negligible compared to no-vehicle mode and power consumption is usually identical to no vehicle mode.

Conclusion:

We therefore recommend the following amendments **for DC-EVSEs**:

1) Eliminate partial-on mode,
2) Limit the power in no vehicle mode using a linear equation rather than logarithmic and add a base power consumption similar to that defined for Level 2 EVSEs:

$$P_{\text{no\_vehicle\_Mode}}\,\textbf{(W)} = 2 \times \textbf{Maximum}P\textbf{ower (kW)} + 25 + P_{\text{wake}} + P_{\text{display}}$$