Route 66 – Electric Vehicle Charging Infrastructure

There is a desire to install electric vehicle charging stations along the entire Route 66 Highway so that travelers can utilize their electric vehicles and recharge along the route. Because of the various technologies and type of connectors that are utilized we propose a "off-board" high power charger that will allow any electric vehicle (within the DC battery pack voltage limits) to charge along the highway once they have converted their vehicle with the matching charger inlet.

The charger proposed for this project is the Lockheed Martin (LHM) 14.4kW charger that was originally developed for the Chrysler EPIC program (Shown in Figure 1.0)



Figure 1.0 Lockheed Martin Charger Installed at the San Diego USPS facility

The control system on the LHM charger would be changed out to the ETEC SuperChargeTM configuration that is utilized in airports across the country to fast charge electric Ground Support Equipment. This would allow the charger to have the smarts

"built-in" and not be reliant on the vehicle to properly charge. The only equipment required on the vehicle would be a battery identifier II module (Figure 2.0) and the fast charge inlet kit which includes the 9-Pin fast charge inlet, temperature sensor and contactor to isolate the power pins.



Figure 2.0 Vehicle Conversion Kit

Anticipated specifications on the new charge system would be as follows:

INPUT

| Voltage: | 208VAC/ Three phase or 220VAC / Single phase |
|---------------|--|
| Current: | 48 Amps continuous (60Amp Branch Circuit) |
| Power Factor: | Greater than 0.97 |

OUTPUT

| kW maximum with three phase input |
|------------------------------------|
| kW maximum with single phase input |
| Amps |
| 0VDC-400VDC |
| |

DIMENSIONS Height/Width/Depth: 61"/19"/18" Weight: 200 lbs.

Estimated Cost: \$10,000 Each (minimum order 20)

In addition to this charger, we recommend installing something similar to the EVI MCS-100 (Figure 3.0) that provides a method for people to charge that want to utilize their own on-board charge system.



Figure 3.0 MCS-100 EV Power Supply

The MCS-100 has the following features:

| INPUT Voltage: Current: | 208/240 VAC, 60 Hz 40 Amps |
|-------------------------------|--------------------------------------|
| OUTPUT Voltage: | 208/240VAC, 60 Hz 120VAC, 60 Hz |
| Current: | 40Amps at 240VAC 20Amps at 115VAC |

Inlet Config: NEMA 14-50 (240VAC) NEMA 14-20 (115VAC)

Switchable between 240VAC and 120VAC

Estimated Cost: \$2,500.00 each (no minimum)

Since these are custom pieces, estimated delivery would be 14-16 weeks.

For additional questions contact:

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