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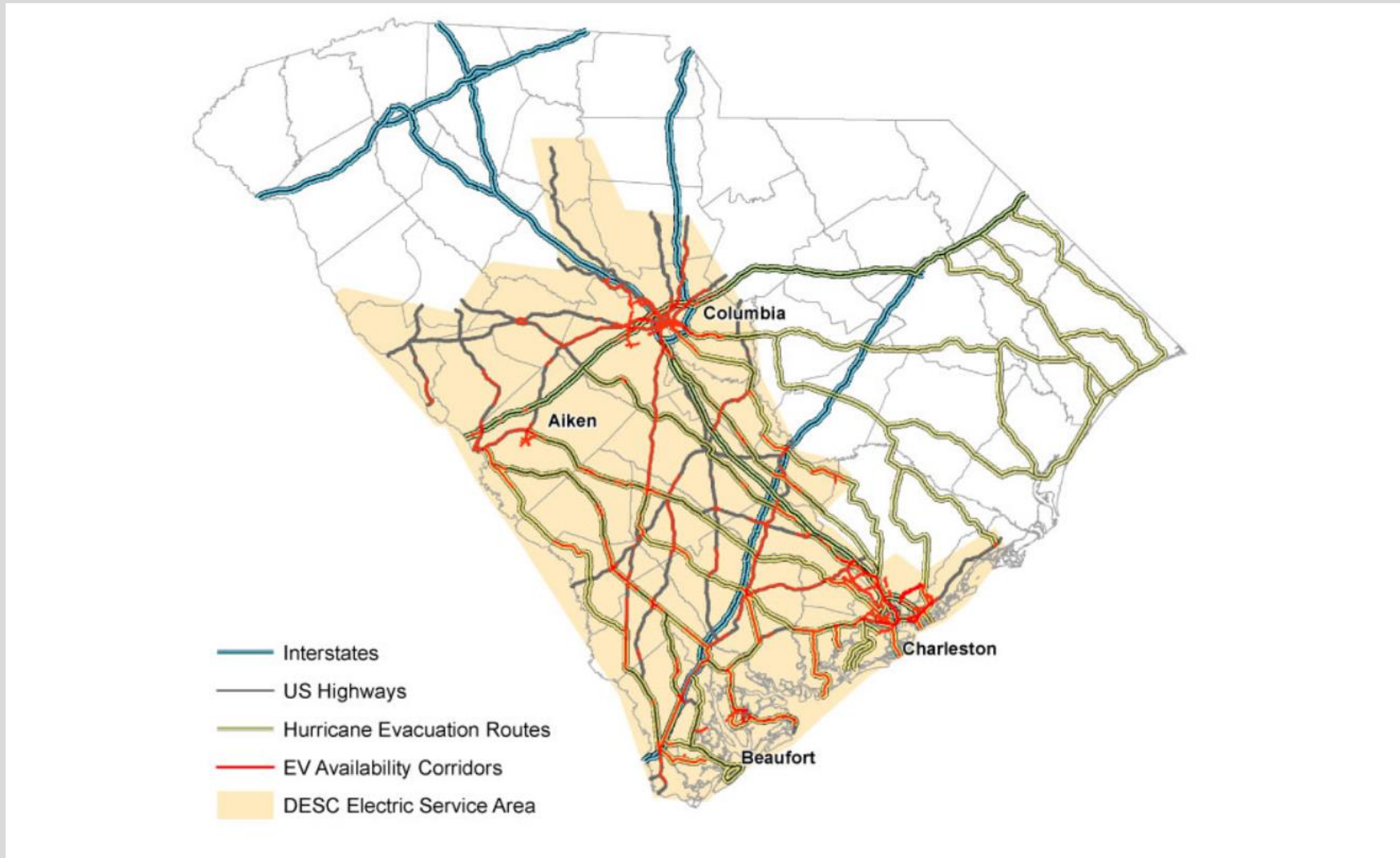
Powering the Palmetto State: Advancing Freight Electrification

Clemson University

Mechanical Engineering '90

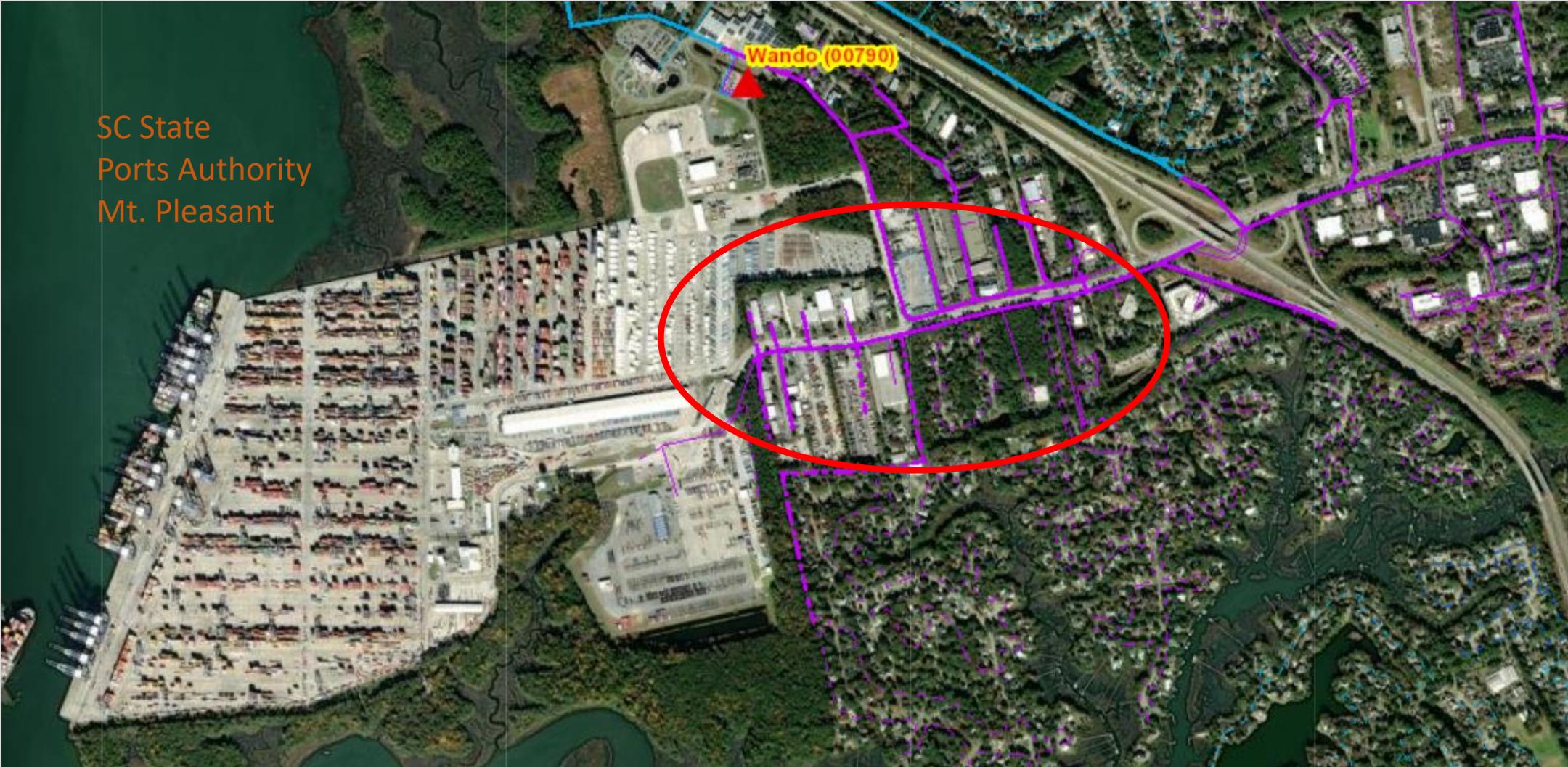


DCFC EV Infrastructure Availability Map



**MHD Charging
Requires 3 phase
480V Power**

Example MHD Distribution Power Circuit



MHD EV Charging Expectations

- **3 Phase 480 V transformers 9-12+ month lead time**
- **Grid capacity for charging is available off-peak times**
- **MHD has flexibility in charging times in most applications**
- **Plan to Incentivize MHD off peak charging (Passive & Active)**
- **MHD will cluster near Ports, Industry & Logistics areas**
- **Site Demand may exceed Distribution capacity (~ 5 MW) requiring Substation**
- **On site Capacity (e.g. BESS) may be needed for buffering**
- **Level 2 charging can support significant part of MD charging**



1+ MW Charger

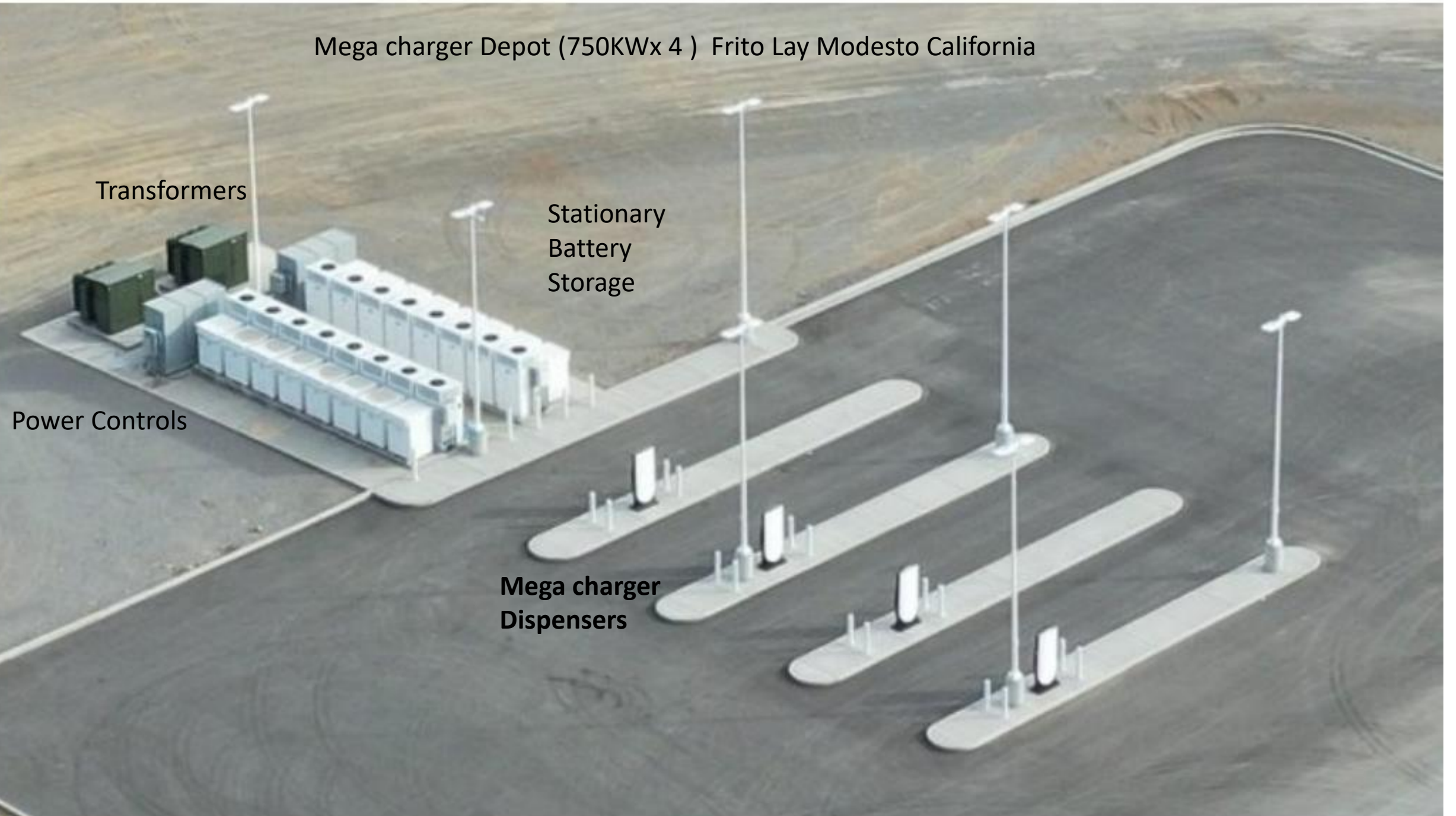
Mega charger Depot (750KWx 4) Frito Lay Modesto California

Transformers

Stationary
Battery
Storage

Power Controls

Mega charger
Dispensers



Commercial



Made in North Charleston

Electric Off-Road Vehicles



17,500 lb
lifting
capacity

Kion (Linde) Summerville, SC



Aircraft: Beta Technologies



Ferry Boats



E-Tug boat

Electric Locomotive



Thank You

