

Multi-Unit Dwelling (MUD)  
Electric Vehicle (EV) Charging  
Technology Solutions:

## Shared Electric Circuit/Rotational Charging



### MUD BARRIERS TO INSTALLING EV CHARGING

**Parking Limitation:** Limited number of parking spaces can be allocated for shared EV charging

**Parking Operation:** MUD Property Managers need ways to: 1) maximize shared EV charging usage to minimize the number of shared parking spots and/or 2) share power among a group of charging stations at assigned parking spots that minimizes disruption to parking spot logistics.

**Electrical Infrastructure Cost:** Conventional solutions require a dedicated circuit/power for each charging station. Properties without sufficient electrical capacity will require costly electrical infrastructure upgrades.

**Charging Station Cost:** MUD property managers want to use cost-effective charging stations that provide the required functionality

**Operating Cost:** Establishing a business case for MUD properties to offer EV charging to residents is challenging. MUD Property Managers want lower charging network provider fees, strategies to reduce power cost, and be able to bill for usage.

### HOW SHARED ELECTRIC CIRCUIT/ROTATIONAL CHARGING CAN ADDRESS EV CHARGING BARRIERS

**Parking Limitation:** Allows for more cost-effectively installing charging ports at more parking spaces to reduce/eliminate the number of shared parking/charging spaces. Can be used in dedicated or shared parking situations.

**Parking Operation:** Power is shared among a group of charging stations. So when charging session is completed drivers do not need to move their vehicle right away (or ever for dedicated parking situations).

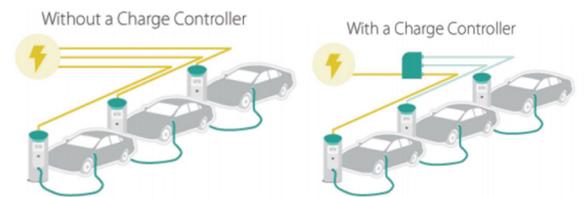
**Electrical Infrastructure Cost:** Maximizes usage of available electrical capacity before infrastructure upgrades are needed

**Charging Station Cost:** Compatible with any low-cost non-networked EV charging station manufacturer/model or an electric outlet for properties that require residents provide their own charging station/cordset

**Operating Cost:** Low monthly subscription fees. If MUD property opts to charge station usage fees, MUD property receives revenue (net after electric and charging network provider fees).

Example VCI-MUD Project Innovative Technologies Demonstrations:

### Cyber Switching EV Master Controller and Liberty Plugins HYDRA-R



Source: Cyber Switching

### TECHNOLOGY OVERVIEW

Cost-effective circuit sharing management system controls low-cost non-networked charging stations. Power management to maximize circuit utilization by only charging connected vehicles that need a charge. Reduces electrical infrastructure requirements. Compatible with any non-networked EV charging station manufacturer/model. Shares the power from one electric circuit between multiple (up to 10) charging ports. Positive user experiences in long-dwell parking situations (overnight parking at home). Systems' web-based interface for MUD Property Manager interface and usage data access. Some systems have mobile app interface for users to initiate/manage charging sessions.

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