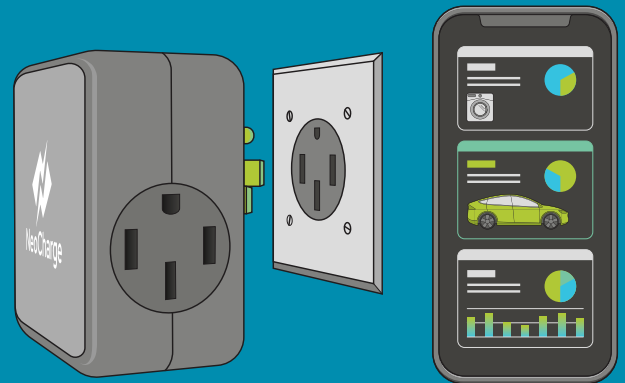


NeoCharge

Simplified EV Charging and Home Electrification



NeoCharge seeks to ease the transition to an all-electric future by making home electrification and EV charging more accessible for all. Their Smart Splitter device allows for plug and play installation for the largest electrical loads in the home, and their Smart Charging Software allows EV drivers to optimize charging during periods when electricity costs and emissions are low. As a self-installable device, the Smart Splitter allows homeowners and renters to gain access to EV charging and additional electric appliances without requiring permits, rewiring, or prohibitively expensive electrical panel upgrades. Through a low-cost retrofit and managed charging, NeoCharge's solution seeks to balance renewable energy intermittency, reduce electrical infrastructure upgrades, and save EV drivers money on their utility bill.

TECHNOLOGY BENEFITS



REDUCED CARBON EMISSIONS

of up to 90% through managed charging.



REDUCED INSTALLATION COSTS

\$2200 in average savings for home EV charging infrastructure.



ONGOING SAVINGS

\$25/mo projected average savings through enabled TOU charging.



REDUCED DEMAND

Enables demand response & peak demand reduction.



INCREASED EQUITY

provides EV charging option for renters and low-income communities.



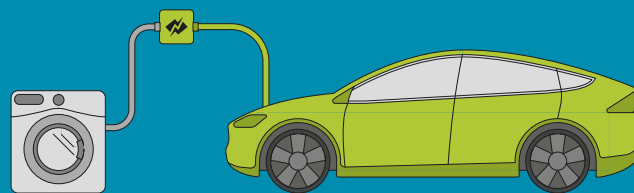
ENABLES ELECTRIFICATION

by simplifying EV charging installation.

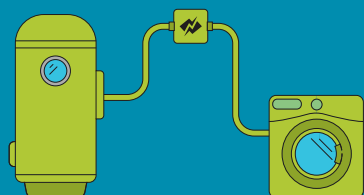
Disclaimer: NeoCharge's technology was chosen for TED because it supports **California's clean energy goals** of increased energy efficiency, reduced GHG emissions, and peak demand reduction. This document does not constitute or imply endorsement, recommendation, or favoring by EPRI or SCE of the product or company described herein. This publication is funded and administered by Southern California Edison's Emerging Technologies Program.

A versatile solution

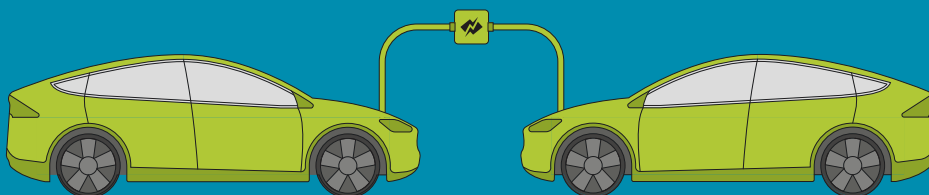
NeoCharge Smart Splitters unlock the benefits of home electrification for homeowners and renters, by sharing a 240-volt outlet with two EV's, an EV and an appliance, or even two appliances.



ELECTRIC VEHICLE + APPLIANCE



2 APPLIANCES



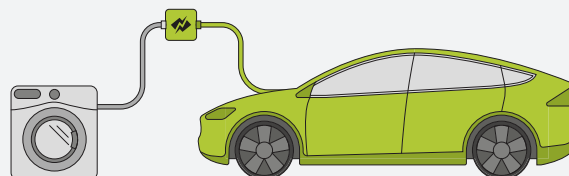
2 ELECTRIC VEHICLES

The Smart Splitter technology

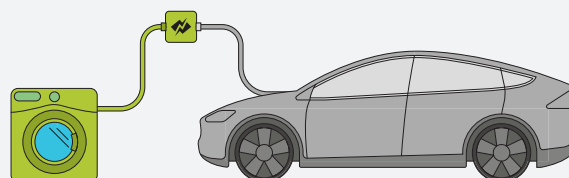
The Smart Splitter has priority switching between its primary and secondary outlet which allows for easy sharing of 240 volt outlets. The Smart Splitter gives priority to the device plugged into the primary outlet. When the appliance is operating, the Smart Splitter will pause EV charging, letting the appliance take priority, and resume charging when the appliance switches off. This ensures safe and reliable charging.

NeoCharge is also developing a smart charging software that will enable carbon aware charging, demand response, vehicle telematics integrations, rewards for cleaner energy, and charging analytics for utilities and EV drivers. This software will reduce peak load, increase utilization of renewable energy, and allow for dynamic charging during demand response events. Ultimately, NeoCharge aims to economically benefit utilities, EV drivers, and ratepayers.

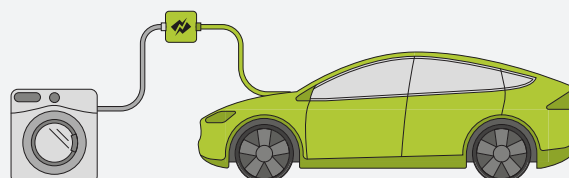
1. EV IS CHARGING



2. APPLIANCE STARTS, EV CHARGING AUTOMATICALLY PAUSES



3. WHEN APPLIANCE FINISHES, EV CHARGING RESUMES



TARGET CUSTOMERS

- ✓ EV charging infrastructure market (~38.9% CAGR in US, Grand View Research).
- ✓ EV drivers who charge at home (85%).
- ✓ Residential customers seeking to electrify their homes.
- ✓ Auto OEMs.
- ✓ Utilities with EV charging and electrification programs.
- ✓ Companies with employee EV incentive programs.

HARDWARE COMPATIBILITY

- ✓ Compatible with homes that have a 240-volt outlet near the garage.
- ✓ These outlets can be used by a clothes dryer, water heater, stove, EV charger, or any 240-volt device.
- ✓ Compatible with most 240-volt NEMA outlets including the NEMA 10-30 (regular dryer outlets), NEMA 14-30 (newer dryer outlets), NEMA 14-50/NEMA 6-50 (EV charger outlets), and NEMA 10-50 (stove outlets).

SYSTEM FEATURES



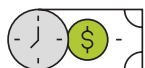
**EASY EV CHARGING
AT HOME**



**SIMPLE, SELF
INSTALLATION**



**NO PERMITS, REWIRING, OR
INFRASTRUCTURE UPGRADES**



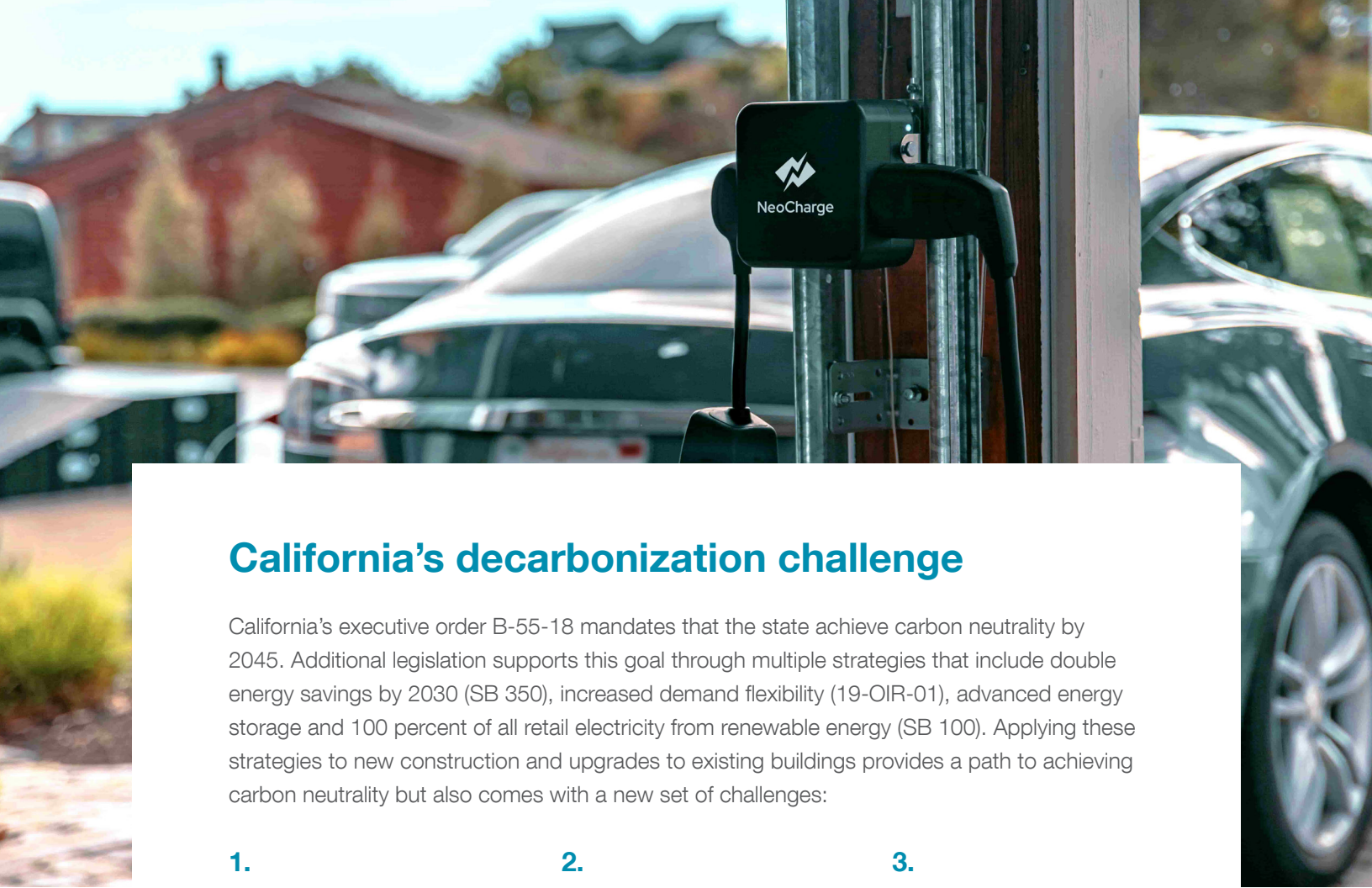
**SUPPORTS TIME-OF-USE
OPTIMIZATION**



**REDUCES EMISSIONS
THROUGH CARBON
AWARE CHARGING**



**REDUCES PEAK DEMAND
THROUGH SOFTWARE**



California’s decarbonization challenge

California’s executive order B-55-18 mandates that the state achieve carbon neutrality by 2045. Additional legislation supports this goal through multiple strategies that include double energy savings by 2030 (SB 350), increased demand flexibility (19-01R-01), advanced energy storage and 100 percent of all retail electricity from renewable energy (SB 100). Applying these strategies to new construction and upgrades to existing buildings provides a path to achieving carbon neutrality but also comes with a new set of challenges:

- 1.**
**New technologies
for buildings**

must support desired outcomes for CA.
- 2.**
**Testing, compliance
& standards**

including utility participation and enabled workforce.
- 3.**
**Establishing
trust**

that replacement of old systems will meet/exceed performance expectations.

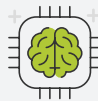
NEOCHARGE SUPPORTS CALIFORNIA’S DECARBONIZATION GOALS



**ENERGY COST, GHG, &
DEMAND REDUCTION**
to improve air quality and
reduce electricity costs.



**SCALABLE SAAS
SOLUTION**
to optimize
residential loads.



**DR & AUTOMATED
EMISSIONS REDUCTION**
to increase demand
flexibility.



**LEVERAGES EXISTING
ELECTRICAL INFRASTRUCTURE**
to increase EV adoption and
home electrification.

Addressing market barriers to EV charging and home electrification

A state-wide emphasis on EV charging and home electrification supports a large potential market for a technology like NeoCharge, with the beach-head opportunity of 100,000 users by 2024 (\$18M) within a serviceable, available market of \$5B for the US residential demand response market. The total addressable market for NeoCharge is \$9.7B in the US alone.

BARRIERS STILL EXIST IN SEVERAL AREAS:

Barriers

CURRENT

- ✓ Smart Splitter Wi-Fi connection can be unreliable. Team is developing software to connect directly with vehicles via cellular connection.
- ✓ Demand response, load aggregation, and carbon aware charging are being built into current mobile app.
- ✓ Lack of real-world data usage from full software platform. Leveraging current Smart Splitter base for real world data.

FUTURE

- ✓ Scale-up of production/manufacturing.
- ✓ Development of distribution partnerships.
- ✓ Additional revenue streams through APIs and data collected.

CREATING A PATH TO COMMERCIALIZATION THROUGH THE FOLLOWING ACTIVITIES:

Opportunities

LEVERAGE POINTS

- ✓ Funding by CEC, NREL.
- ✓ LACI Incubator company.
- ✓ Cleantech San Diego company.
- ✓ EPRI collaboration.
- ✓ Promotion of electrification & residential demand response.
- ✓ UL listed Smart Splitter.
- ✓ Patent pending technology.
- ✓ Utility pilots and validation in progress.
- ✓ SCE disadvantaged communities pilot and utility rebate programs active.
- ✓ 4/5 customers avoid a panel upgrade.

Market readiness



5

**TECHNOLOGY
READINESS LEVEL
SCORE**

- Software prototype in development.
- Direct Vehicle integrations, advanced scheduling, demand response, and carbon aware charging will be ready over the next year and a half.
- Active Smart Splitter utility demonstrations.
- Smart Splitter is cUL listed.



1-2

**YEARS
TO MARKET**

- Smart Splitter deployed to over 1500 customers across North America.
- Tech and software build-up needed. Expect 60,000 software users by 2024.



9

**MANUFACTURER
READINESS
LEVEL SCORE**

- Hardware is being manufactured in San Luis Obispo, CA @ 5 minutes per unit.
- Capacity to build up to 1000 units per month and scaling up to support increased production.



3

**KEY
OUTCOMES**

- Cost effective charging through simple plug-in installation.
- Equitable electrification by making EV charging more accessible.
- Will soon enable TOU, demand response and peak demand management.

Supporting utility goals for decarbonization

1.

Decarbonization

Increasing access to EV charging and home electrification through easy and affordable retrofits.

2.

C&S alignment

2020 Load Management Rulemaking (19-OIR-01) for increased demand flexibility.

3.

Demand flexibility

Reducing utility on-peak demand, managed charging, and potential utility bill savings of up to \$80/month.

4.

Program Enrollment

Increasing customer engagement and participation through SaaS platform.

NeoCharge next generation software

Advanced scheduling, tracking and energy cost savings through companion software.

PROTOTYPE

INITIAL MOBILE APP FOR POWER USAGE INSIGHTS



MANUAL CHARGE
SCHEDULING



TRACK CHARGING
SESSIONS



SYSTEM
NOTIFICATIONS

FUTURE SOFTWARE

NEXT GENERATION SOFTWARE FOR EV DRIVERS EVERYWHERE



CONNECTION WITH
VEHICLE TELEMATICS



MOBILE
APP



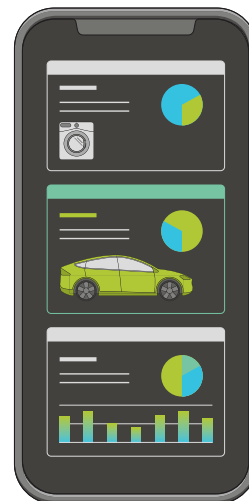
ACCURATE COST
TRACKING



ADVANCED SCHEDULING
FOR TOU RATES



CARBON-AWARE
CHARGING



NeoCharge Utility Opportunity Assessment



TECHNOLOGY CATEGORY

Plug Load and Appliances

Transportation Electrification



ETP PRIORITIES

DECARBONIZATION

Increases access to EV charging and home electrification through easy and affordable retrofits.

C&S ALIGNMENT

Design and verification 2020 Load Management Rulemaking (19-OIR-01).

DEMAND FLEXIBILITY

Eliminates ~6 kW of peak electrical demand, saves ~10 MWh/year.



KNOWLEDGE INDEXES

TECHNICAL PERFORMANCE

Low

MARKET KNOWLEDGE

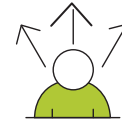
Medium

PROGRAM INTERVENTION

Medium

UTILITY VALUE

- Equitable charging option.
- DR and TOU engagement.
- Cost effective home retrofit.



OPPORTUNITIES

COMPANY GOALS

- Technology/ software enhancements.
- Partnerships and pilots.
- Distribution and sales growth.
- Brand loyalty.

LEVERAGE POINTS

- CEC, NREL funding.
- LACI Incubator.
- Cleantech San Diego.
- EPRI collaboration.
- Electrification & residential DR.
- UL listed Smart Splitter.
- Patent pending technology.
- Utility validation in progress.
- SCE DAC pilot and utility rebate programs.



BARRIERS

GAPS TO FILL

- Advanced scheduling function.
- DR, Load Aggregation, and Clean Energy Synchronization.
- Real-world data usage.

IN PROGRESS

- Prototype in development.
- Software enhancements.
- Pilot demonstration planning.

FUTURE

- Scale production, distribution and partnerships.



NEXT STEPS

COMPANY

- Complete next prototype.
- Launch pilots.
- Scale production.

UTILITY

- Demonstration projects to validate technology use case and saving potentials.
- Reliable commercial partners and customer adoption channels.
- Pathway into Utility Programs (Non-wires alternatives; DER; Energy Efficiency as a Service).



TED is a process where innovative technologies are selected for assessment and review based on the technology application, team strength, and alignment with the Technology Priority Maps, to fulfill the California decarbonization challenge.

FOR MORE INFORMATION

spencer@neocharge.io | (858) 952-8117