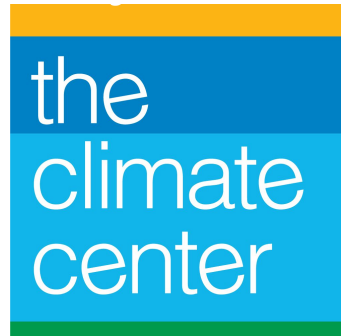


Demand Flexibility as Affordability Solution

California Climate
Policy Summit 2026



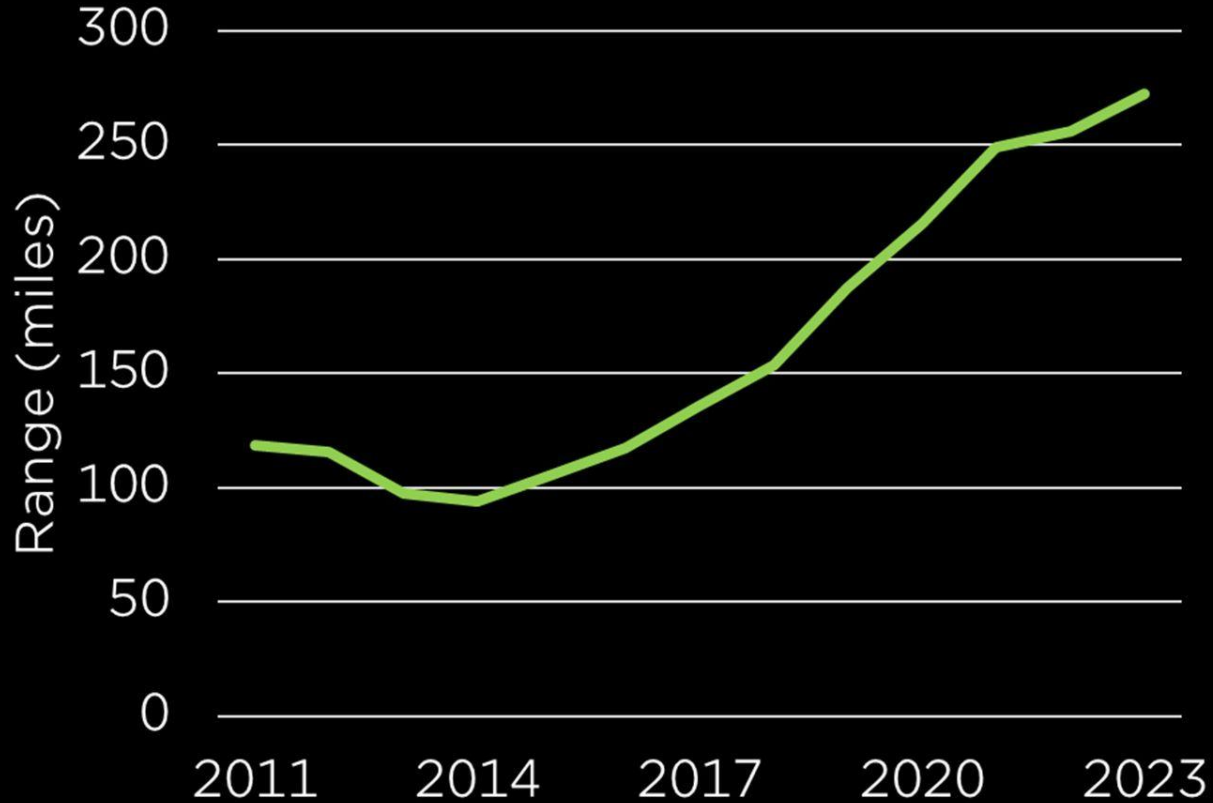


Vehicle-Grid Integration
for an affordable and
reliable grid in California

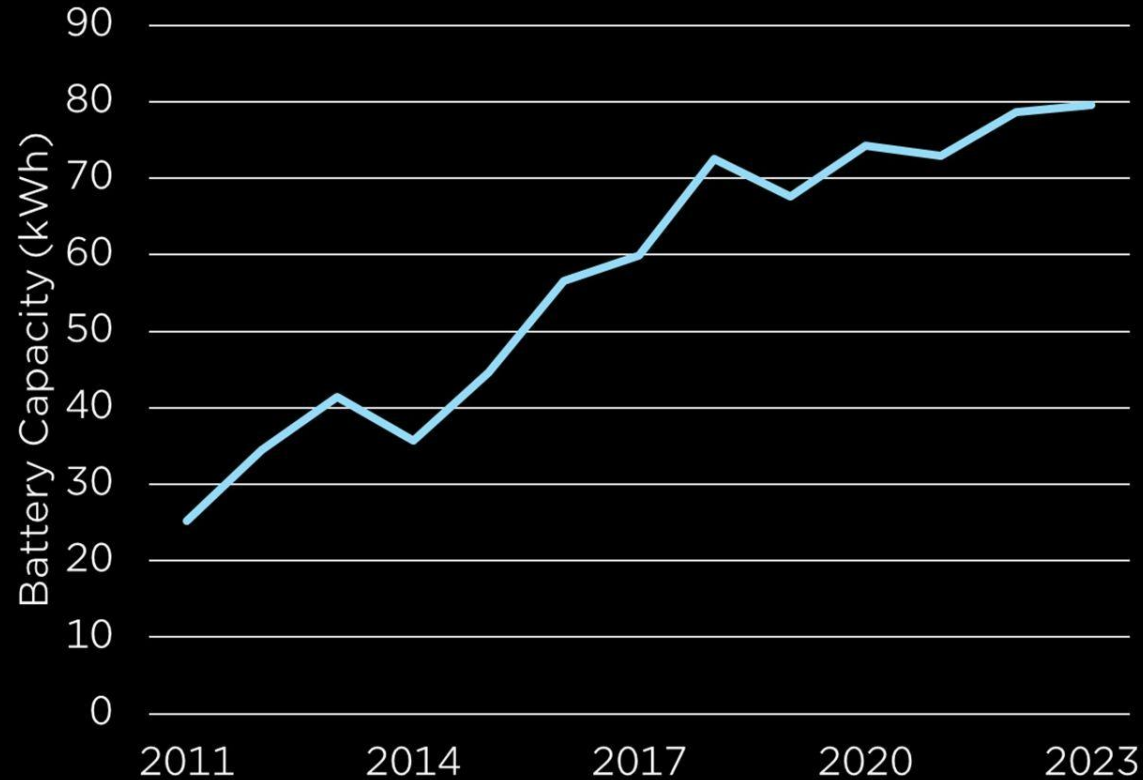
Dr. David Reichmuth
Research Director
Clean Transportation Program

Union of
Concerned Scientists

EV range has increased significantly over the last decade



Average EV battery capacity has grown even faster



Current EVs have the equivalent of >5 Tesla Powerwall home storage units



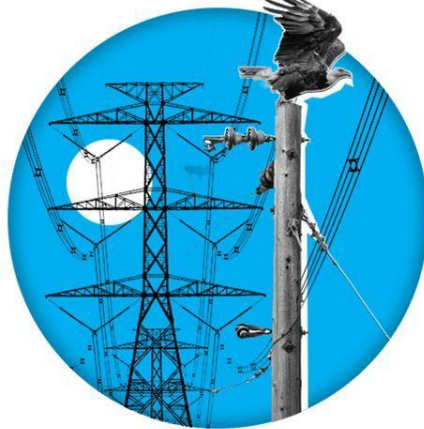
Vehicle-Grid Integration (VGI) has potential benefits across electricity system

GENERATION



- ▶ Use renewable energy **more efficiently, with lower costs**
- ▶ Support the **transition away from fossil fuel use**
- ▶ Build **fewer**, new utility-scale **batteries**

ELECTRICITY DELIVERY



- ▶ **More efficient** use of delivery infrastructure
- ▶ **Reduced peak** electricity demand
- ▶ **Fewer resources needed** for new infrastructure and grid updates

CONSUMER



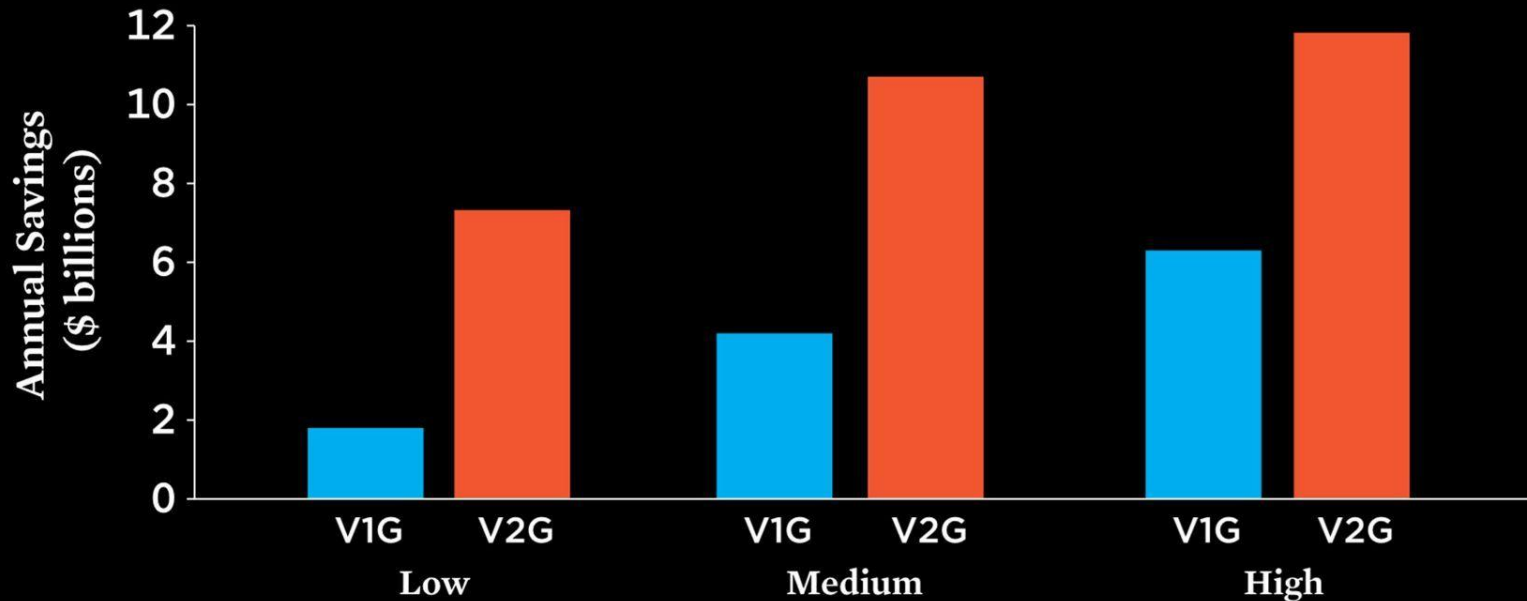
- ▶ More **affordable** and **reliable** energy for everyone
- ▶ Participating vehicle **owners get credit**
- ▶ Owner's ability to use vehicle **batteries as backup** when the grid is down

VGI Enrollment Scenarios

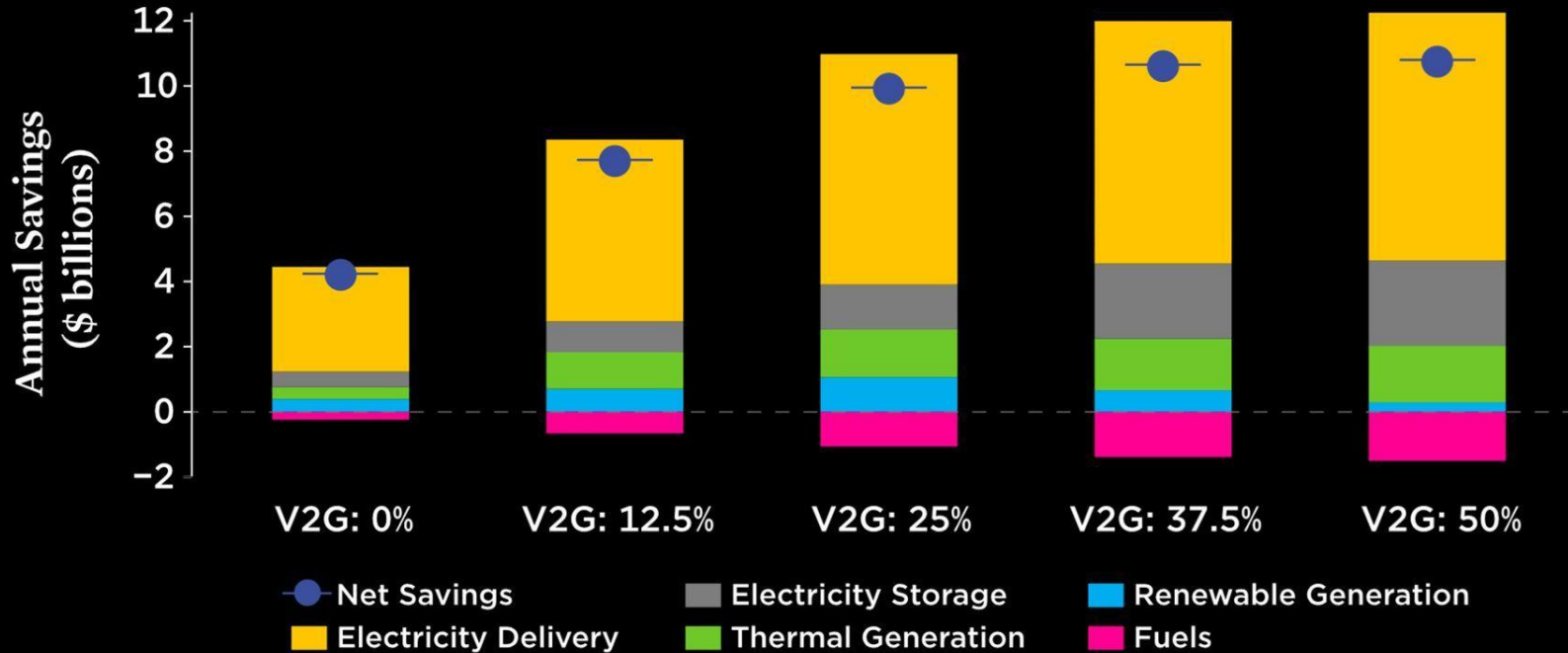
(Level 2 Charging)

Scenario Group	VGI Participation Level
Baseline	0%
Low Enrollment	20%
Medium Enrollment	50%
High Enrollment	80%

California Electricity System Savings from V1G vs. V2G for Each Scenario Group in 2045



California Electricity System Savings by Category, Medium VGI Enrollment Group in 2045



Per-Vehicle Annual Savings are Significant

\$500 - \$1,200

Annual grid benefits per
year per vehicle in 2045

\$6,300 - \$14,700

Cumulative benefits over a
12.5 year vehicle lifetime

Example from Medium Group scenario group in 2045

The Grid Benefits of Power Export can be Achieved with Modest Use of EV Batteries

700 Average miles-equivalent
per vehicle per year

2 Million Vehicles exporting during the
highest V2G need in the year

Example from Medium Group 50% V2G-enrolled scenario in 2045

UNLOCK A BRILLIANT SOURCE OF POWER



ON THE GO

GM Energy is expanding **Public Charging** from coast-to-coast.



Through major collaborations with Pilot, EVgo, IONNA, and ChargePoint, we're adding thousands of DC fast chargers across highways and cities to make long-distance travel and urban charging easier than ever.

250K

Plus, we're helping GM EV drivers plug in with confidence wherever they go by connecting them to over 250,000 public chargers—including over 25,000 Tesla Superchargers—through the myCadillac, myChevrolet, and myGMC vehicle mobile apps**.



The GM vehicle mobile apps let you plan routes, find stations, monitor charge status, and activate Plug & Charge for instant sessions at participating stations.

Adapt. Connect. And Charge Ahead.

Unlock charging freedom with NACS adapters that connect you to fast charging and more options at home and on the go.

Ask a product specialist for more information on which adapter will work best for you.

**App and smartphone are trademarks of their respective owners. **NACS adapters are not available in all areas. Adapter availability is subject to change without notice. ©2024 GM Energy. All rights reserved.

AT HOME

Stay Charged Up and Ready

From unidirectional chargers, like the GM PowerShift 2, that'll get you ready to roll to our GM Energy PowerShift Charger with vehicle-to-home (V2H) bidirectional capabilities that can do so much more—we offer a range of charging solutions.

Home Energy Solutions

Power is a 24-hour resource. Use our V2H generator and EV V2H to store energy and use it when you need it. Charge your GM EV anytime or power your home, support PowerShift 2, and more.

Manage charge status and plug-in readiness

Use the myChevrolet, myCadillac, and myGMC mobile apps to manage your charge status and plug-in readiness. You can also use the GM Energy mobile app to manage your charge status and plug-in readiness.



GM Energy PowerShift 2 Charger

GM Energy PowerBank

sunrun



Backup Power For Your Home

If power goes out in your neighborhood, rest easy you've got intelligent backup power with an F-150® Lightning®

- Can help power your home automatically when connected to The Ford Charge Station Pro and Home Integration System¹
- F-150® Lightning® with extended range battery can power your home for three days or 10 days if usage is properly rationed

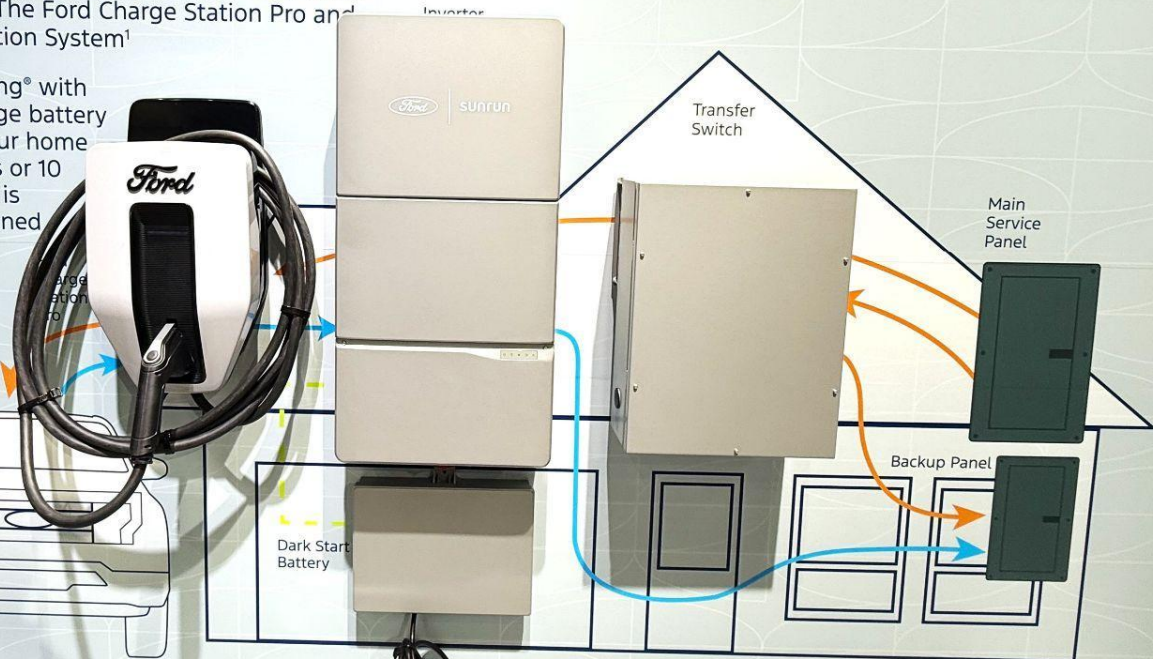
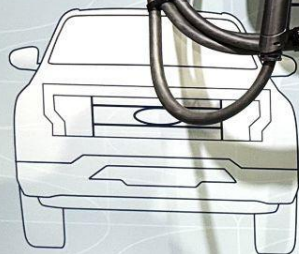
Scan to learn more
(Message and data rates may apply)



Ford Charge Station Pro



Sunrun



1. Sunrun Home Integration System is required. See Sunrun.com for details. © 2022 Sunrun, Inc. All rights reserved. Sunrun, the Sunrun logo, and the Sunrun logo are trademarks of Sunrun, Inc. All other trademarks are the property of their respective owners.



BRILLIANT BACKUP POWER

PAIR THE GM ENERGY POWERSHIFT CHARGER WITH
THE GM ENERGY V2H ENABLEMENT KIT SO YOUR
SILVERADO EV CAN PROVIDE POWER TO YOUR HOME
IN A BLACKOUT WHEN PROPERLY EQUIPPED WITH
REDUCED DAILY ENERGY USAGE.¹



Actual production will vary. The GM Energy Powershift Charger and GM Energy V2H Enablement Kit shown requires an adequately charged V2H-capable GM EV, a properly equipped home, and proper grid interconnection. Weather conditions, life of the battery, vehicle variation and usage, and other external factors may impact the capability and duration of power supply. Power supply may be interrupted.
It is not recommended that the following devices be powered with the GM Energy Powershift Charger and V2H Enablement Kit: Medical Devices.



{ Thank You

[Union of
Concerned Scientists