



Digital electrification of homes

EEBA webinar



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The energy landscape is changing quickly.

Today our world is experiencing **climate transformation** caused by accelerated **carbon emissions**. The length and frequency of **power outages** is **unprecedented**, causing disruptions to life and safety risks. At the same time, the demand for and **price of electricity** is **soaring**.



Energy resilience and independence

US power outages jumped 73% year-over-year in 2020. Nearly 25 M US homes lost power, with an average outage of 15 hours.



Rising energy demand and costs

Home electricity use is predicted to increase 69% by 2050. With the growth of EVs and home electrification, which will be further accelerated by the IRA, electricity demand and costs will increase exponentially.



Emissions growth

Residential energy use accounts for ~20% of US greenhouse gas emissions, with the average US home's electricity emitting ~12,000 pounds of CO2 annually. That's more emissions than driving a car 12,000 miles.



Government investment and regulations

Ten US states plan to pass legislation requiring solar on new construction. And the passage of the IRA is making home electrification more accessible to homeowners.

Homeowner expectations are evolving, and the IRA will drive this change even faster.



Sustainability

~20% Total CO₂ emissions from housing

34% increase in residential solar 2020 vs 2021

50% of solar installations will have **batteries** by 2030.

52% of new car sales will be **EVs** by 2030.

Resilience

>\$4.2 B of property damages due to electrical fault¹

Solar community maintains **100% uptime** during **hurricane Ian**

18% projected **CAGR** through 2028

EVs will become the **backup “generator”** of the home.

Efficiency

>70% increase of electricity bills in homes

25% increase in electricity rates 2016 -2023

MORE utilities will move to **dynamic pricing** models.

Homeowners will use their **EV** to **lower energy** costs.

Personalization

>50% of consumers could work remotely

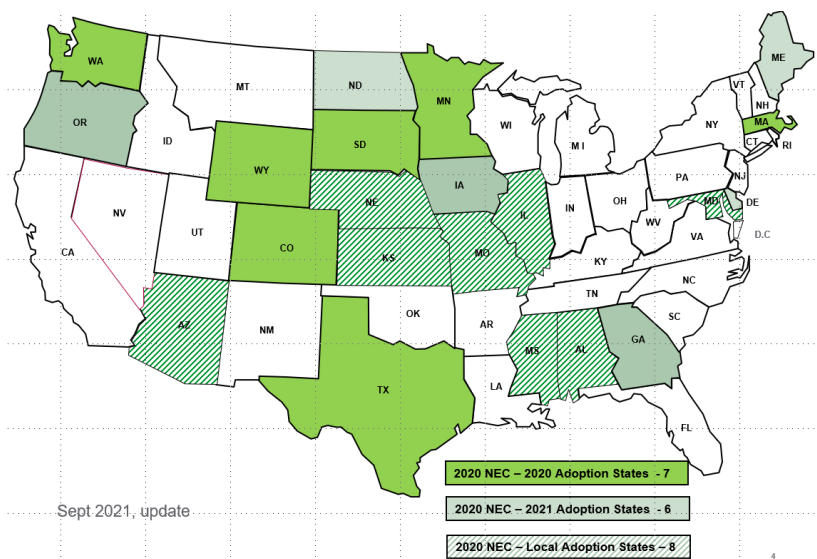
How **often** am I a **net-zero** energy user?

Let **me** manage my own **resiliency** and **savings**.

Let me leverage my **EV** on the **grid** as I choose.

Code and standards continue to focus on safety and efficiency

Continuation of NEC 2020



More states are implementing regulations to drive efficiency.

All
US

Federal tax rebate of 30% on solar extended for three years

CA

Commercial and high-rise multifamily PV and storage requirement

New single-family homes **must be "battery-ready"**.

MA

Massachusetts considers **net-zero standard** for new buildings.

Building codes continue to push for energy efficiency and connectivity

Required for ~40% of US buildings



Building type	When using an energy code to calculated lighting load	>25,000 ft ² tenant spaces > 10,000 ft ²	Non-resident by service type	>25000 ft ²	Segmented and dependent on V4.0 vs V4.1 goals and level of certification
Load types	✓ Lighting (2020) ✓ Anticipate alignment with load types in ECs in next update	✓ Total electrical energy ✓ HVAC systems ✓ Interior lighting ✓ Exterior lighting ✓ Receptacle circuits	✓ Lighting ✓ HVAC ✓ Water pumps, plug loads, elevators, escalators, etc. ✓ Other loads >25kVA ✓ Renewable power sources and loads ✓ EV charging stations	✓ Total electrical energy ✓ HVAC systems ✓ Interior lighting ✓ Exterior lighting ✓ Plug loads ✓ Process loads > 5% total ✓ Other bldg op (long list)	✓ Loads greater than 10% of total
Data recording	Not required	Record at 15 min intervals with a minimum of 36 months data storage and reported by time (hour, day, month, and year)	Data recording inherent in peak demand and over rate period requirements but not explicitly stated	< 1h intervals with a minimum of 36 months data storage Data storage is reported by time (hour, day, month, and year)	< 1h intervals with a minimum of 36 months data storage

The home energy landscape is evolving.

Yesterday

- Buy electricity from their local utility
- Understand electricity usage through their monthly bill

Today

- ✓ Buy electricity from their local utility
- ✓ Generate their own electricity and use it on demand and/or store excess for future use or sell it back to the utility
- ✓ Power their home with their EVs
- ✓ Manage their electricity usage with digital tools



Vision makes homes smart and sustainable.

Resilient • Hyper-efficient • Personal • Sustainable

- Solutions from the grid to the plug
- Partnering with top industry leaders
- Seamless architecture - hardware and software
- Delivering time and material savings
- Open ecosystem that works with other partners

As **Schneider Electric**, we must **own our responsibility** to accelerate the integration and adoption of renewables, energy storage, and EVs into homes and buildings.



Even the most advanced solutions today are unnecessarily complex.



App 1:
Smart Panel



App 2:
Solar storage
management



App 3:
Solar Inverter



App 4:
EV Charging



App 5:
Smart Home

Different manufacturers, all with their own mobile applications to help monitor and control their piece of the home electrification puzzle, don't necessarily talk to each other or use the same information for a clear understanding of how a home uses electricity.

Schneider Home future-proofs installs with a smart panel at the same total cost.

Today

Solar and storage introduce complex systems and app proliferation .



Multiple 3rd-parties drive costly installs with a general lack of interoperability or load management across multiple apps.



Tomorrow

Schneider Home redefines the installer and homeowner experience.



Install four hours faster with a complete single app experience, resulting in a “free” smart panel and future-proof home.

2022 launched the Energy Center Universal offer

Available
NOW



Special features:

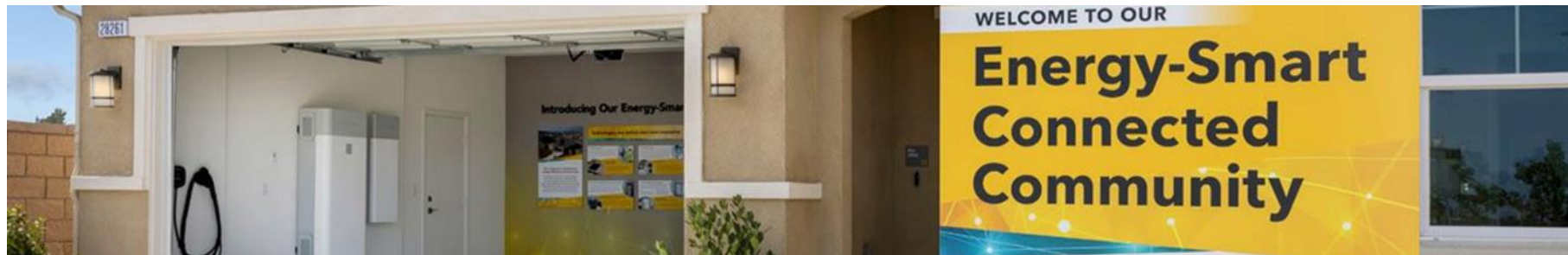
- ✓ Partial or whole-home backup modes
- ✓ NEC code and Title 24 compliant
- ✓ Built-in surge protection and Wiser Energy
- ✓ Storage and generator ready – future proofing electrical system

Application:

- ✓ Single family new construction in EUSERC territories (mainly California)
- ✓ Ideal to reduce footprint and bring convergence of distributed energy resources

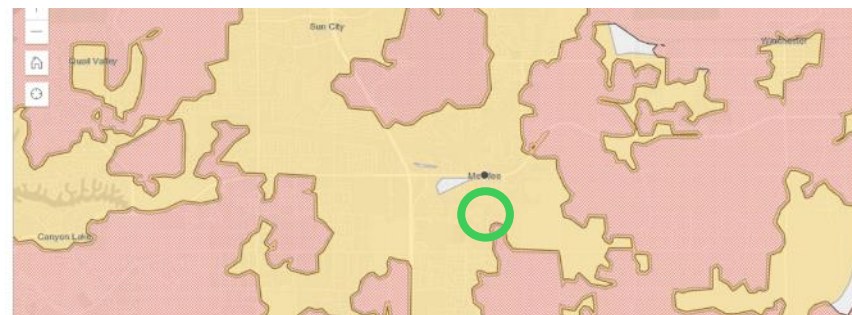
Oak Shade and Durango Community microgrid

Menifee, CA within wildfire-prone service area of Southern California Edison



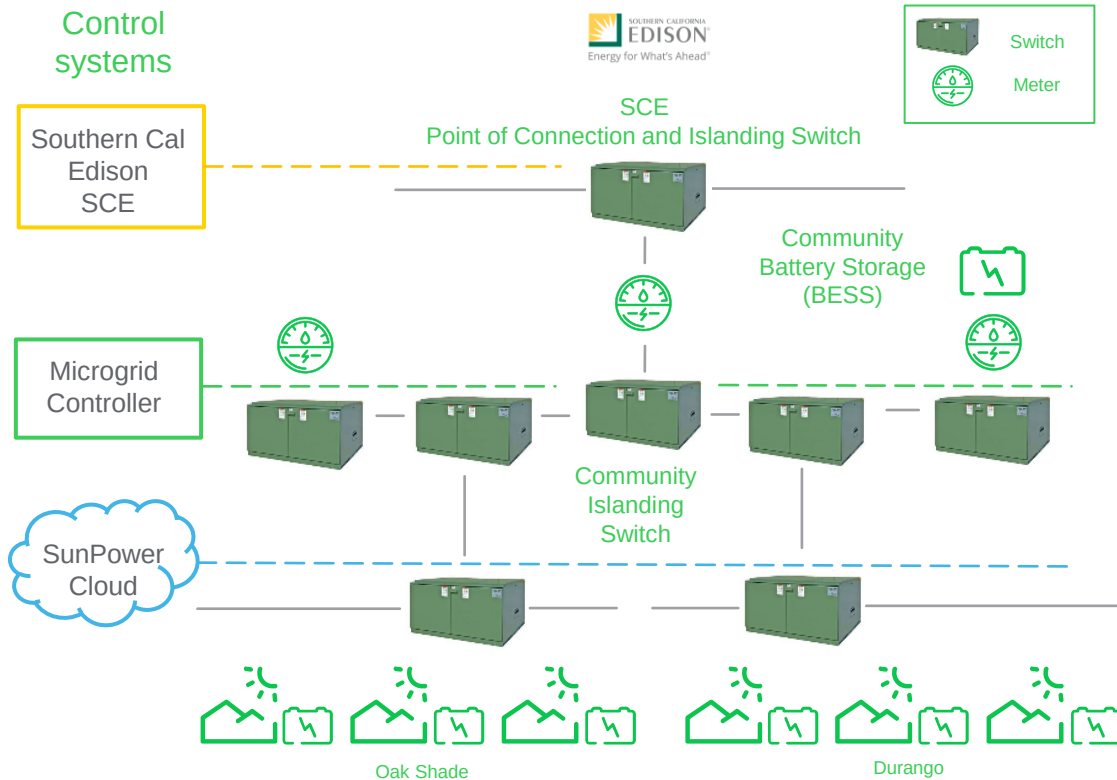
Each of the 219 homes will:

- Have solar with battery storage to generate their own power
- Have automated load management to optimize savings and off grid power usage
- Be a zero-energy ready home
- Be connected to a community microgrid to share community batteries systems (BESS)



Fire-prone Southern California Edison service area surrounds both communities

Oak Shade and Durango Microgrid



The Microgrid Community will:

- Have 1.5 MWh to 2.9 MWh capacity of community battery energy storage
 - Support the individual home PV and Battery Energy Storage System (BESS)
 - Provide off-grid power measured in days not hours
- Manage non-critical load shedding down to the home and circuit level
- Facilitate stronger resiliency measures
- Schneider Electric's Microgrid Controller will optimize the use of the community BESS and the interaction with the individual homes

For a better future: energy-smart, connected communities

California's 1st residential microgrid, at KB Home's Shadow Mountain

Advancing a sustainable energy economy

All-electric, zero-energy ready homes;
clean energy generation and storage;
EV-ready



Advancing climate tech solutions into the mainstream

Lower energy costs coupled with
decarbonization at homes that react
to the dynamic value of energy
through electric load shifting

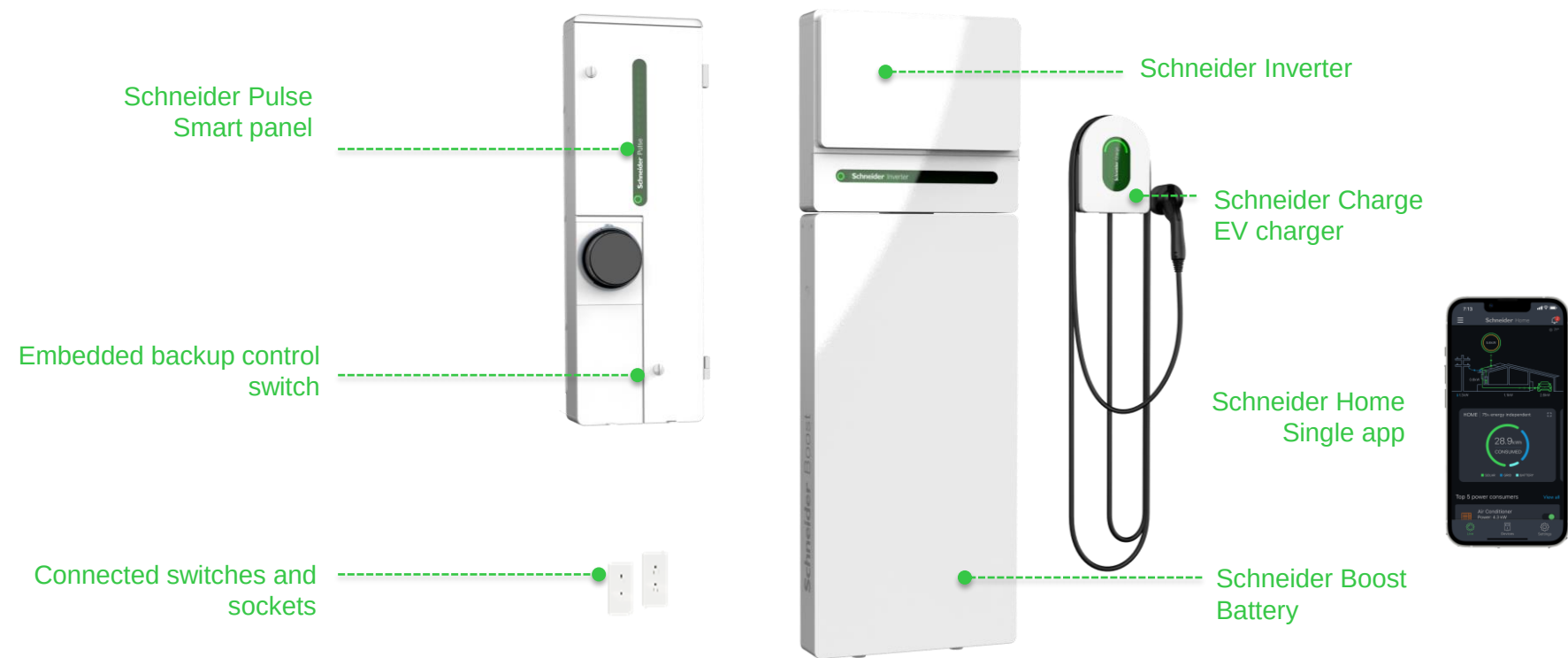


Innovating to increase resiliency

Multi-party collaboration to test the
electric grid of the future with grid-
integrated homes that contribute to
a safe, reliable, and clean energy



We have re-imagined a simple, all-in-one system for home electrification that just works better together.



Schneider Pulse smart electrical panel

The Schneider Pulse panel is the heart of the electrified home, interconnecting various energy sources to the grid.

Unique opportunity to optimize labor content

- Eliminates up to five additional enclosures – MID switch, critical load panel, consumption monitoring box, load control box, and meter socket

Leading load control solution with true smart breakers

- Remotely control smart breakers vs. costly, labor-intensive relay solutions

Leverage strength with codes and standards

- Fully certified system provides a code-compliant solution for all solar, storage, EV, and home electrification opportunities, helping to avoid costly service upgrades
- Embedded load management complies with evolving NEC 702.4 to provide whole-home backup with less up-front battery investment

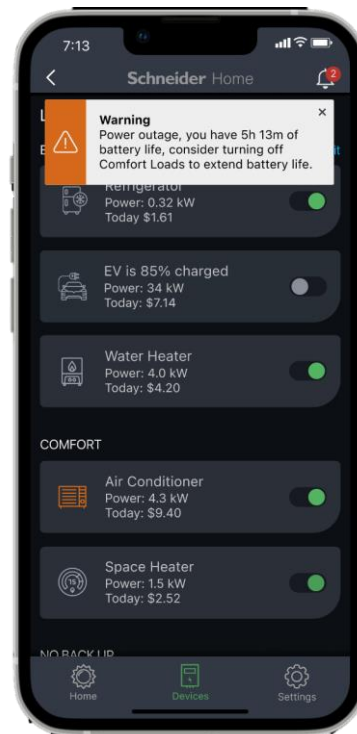


The leading load control solution

Monitoring and control throughout your home...

- Easily upgrade existing circuit breakers and outlets with embedded intelligence in the same footprint
- Reduce the number of batteries needed for whole-home backup and lower your total investment
- Provide complete flexibility when navigating outages, choosing what to power on the fly
- Increase battery runtime by shedding non-essential loads and seeing how that impacts battery life
- Enable control for non-Schneider Electric EV chargers, and help avoid costly service upgrades

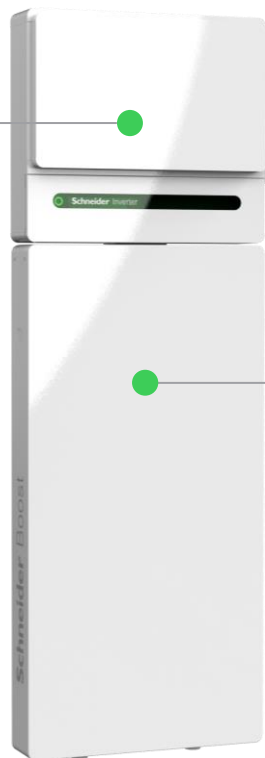
...all at a lower cost than any solution on the market.



Schneider Inverter and Boost battery

Schneider Inverter

- 7.7 kW continuous power with 200% surge
- 4-zone solar for optimal flexibility and efficiency
- AC coupled solar compatibility
- Generator compatibility
- 200 Amp Backup Control Switch, available in multiple configurations for easier installations with fewer boxes on the wall
- Supports whole home or partial home backup
- Up to 3 inverters per site



Schneider Boost

- Store solar energy during the day and use it during peak rates for utility bill savings
- Consume more of your own energy
- 10 kWh battery capacity, expandable to 3 batteries per inverter
- Floor mount or wall mount installation
- LFP chemistry with UL9540A testing for safety

System features

- Outdoor or indoor installation
- 10-year warranty
- One app for a complete home energy system

Schneider Home design

Visualize



Automate

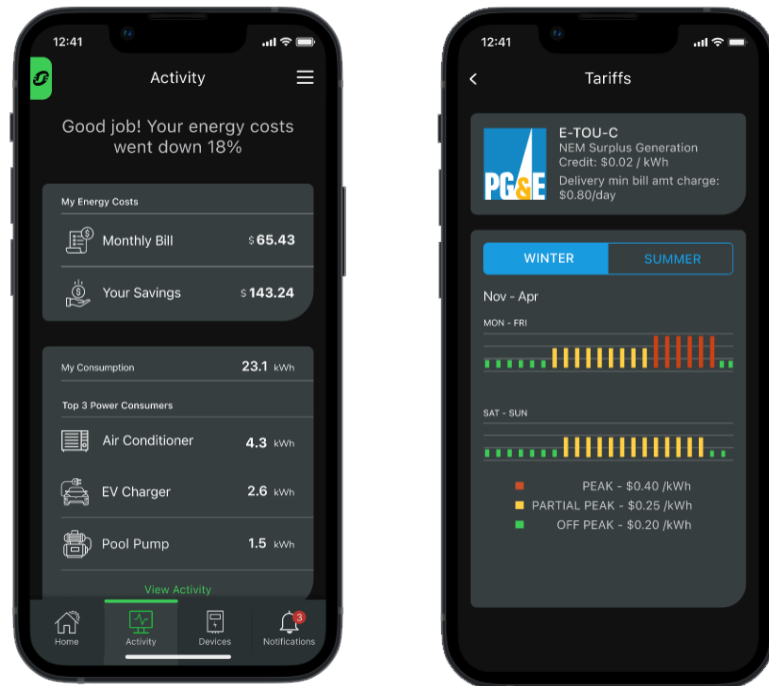


Schneider Home design

Personalize



Save



A comprehensive system from one vendor offers unique value to homeowners, installers, and the grid.



For installers

- Install faster and easier with a system designed for interoperability
 - Embedded monitoring and control eliminates costly relay boxes
 - Embedded backup switch eliminates grid disconnect box
 - Embedded split-bus interior eliminates critical load panel
- Sourcing, support, and warranty from a single vendor
- Streamlined commissioning and maintenance via one installer app



For homeowners

- Lower bills and richer home insights with grid-to-plug approach
- Affordable solar and backup with fewer batteries via load control
- EVs charge faster and help avoid service upgrades
- Future-proof with a modular approach addresses various journeys
- Single app for energy management and smart home



For the grid

- Scalable control of batteries, EVs, and devices for grid services/VPP
- Recurring revenue via integration with partners  AutoGrid &  uplight



Life Is On

Schneider
Electric

Schneider Home – a complete home energy management solution available early Q4-2023



Smart electrical panel and load control



Inverter



EV charger

Battery

Smart wiring devices



Life Is On

Schneider
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What's next

To learn more about smart, sustainable, and reliable energy solutions or to discuss piloting these solutions in your next project, contact me.



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Questions?

Thank You!

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