Distributed Power Plants: *An Opportunity for Nevada*

SOLAR UNITED NEIGHBORS

About SUN

Solar United Neighbors is a vendor-neutral national nonprofit that represents the needs and interests of solar homeowners and supporters across the U.S.

- **We've helped 11,000+ families go solar**
- **We've generated more than $180 million worth of solar investments**
- **We've facilitated 1,100+ solar jobs**

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What we do

Go solar: We help families, nonprofits and small businesses get the information and support they need to go solar.

Join together: We empower you to learn about solar alongside your neighbors and to have fun at events in your community.

Fight for our energy rights: We are protecting solar rights at the federal level and in state houses and at public utility commissions across the country.

Working for equity

We're working toward a new energy system — one that is fair and equitable, where solar is accessible and affordable for everyone.

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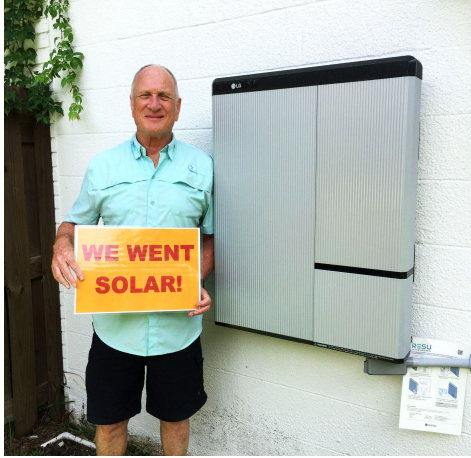

What are Virtual Power Plants?

Virtual Power Plants (VPPs), also known as Distributed Power Plants (DPPs), are geographically dispersed but centrally managed groups of customer resources that supply energy, reduce power demand, and provide services to the electrical grid.

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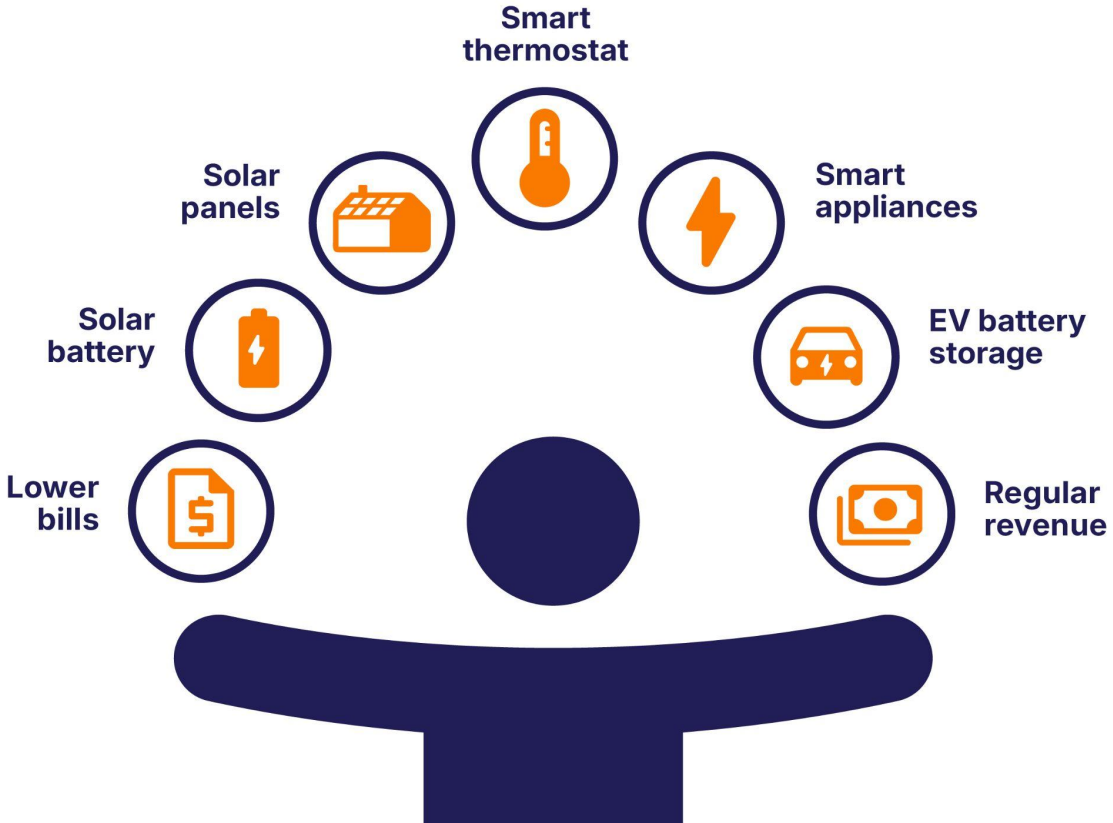
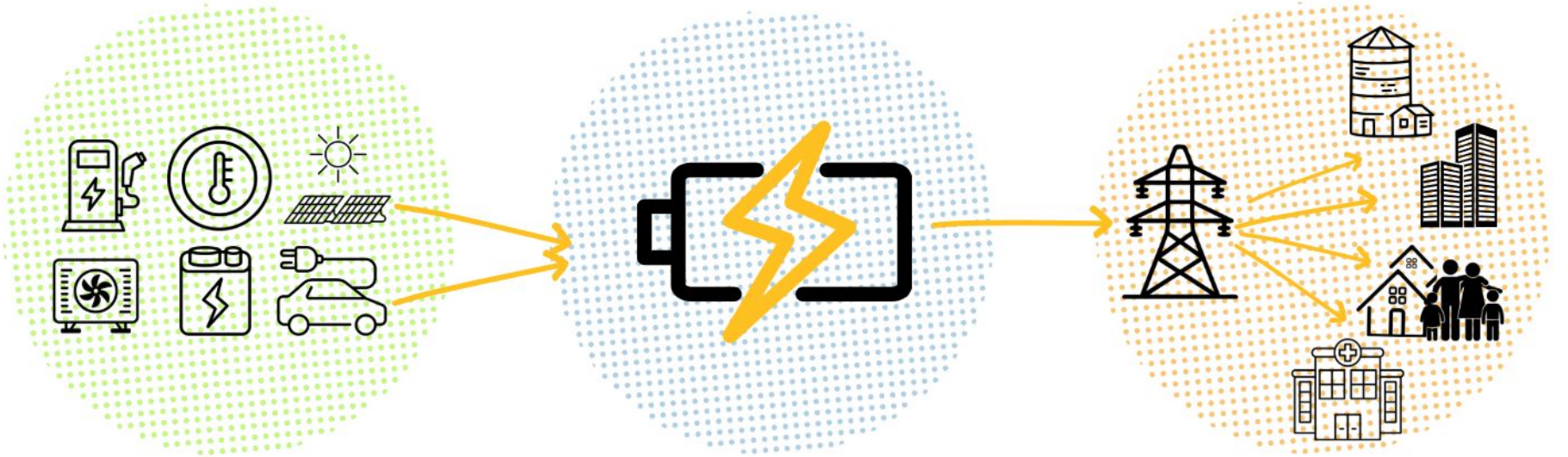
Your building can be a grid resource



The resources are used in a coordinated manner during a grid event — a time when shifting load or adding distributed energy storage can reduce peak power demands and save customers money.



CONSUMER-OWNED ENERGY IS TAPPED

When demand for energy surges, consumer-owned devices provide stored energy to a VPP.

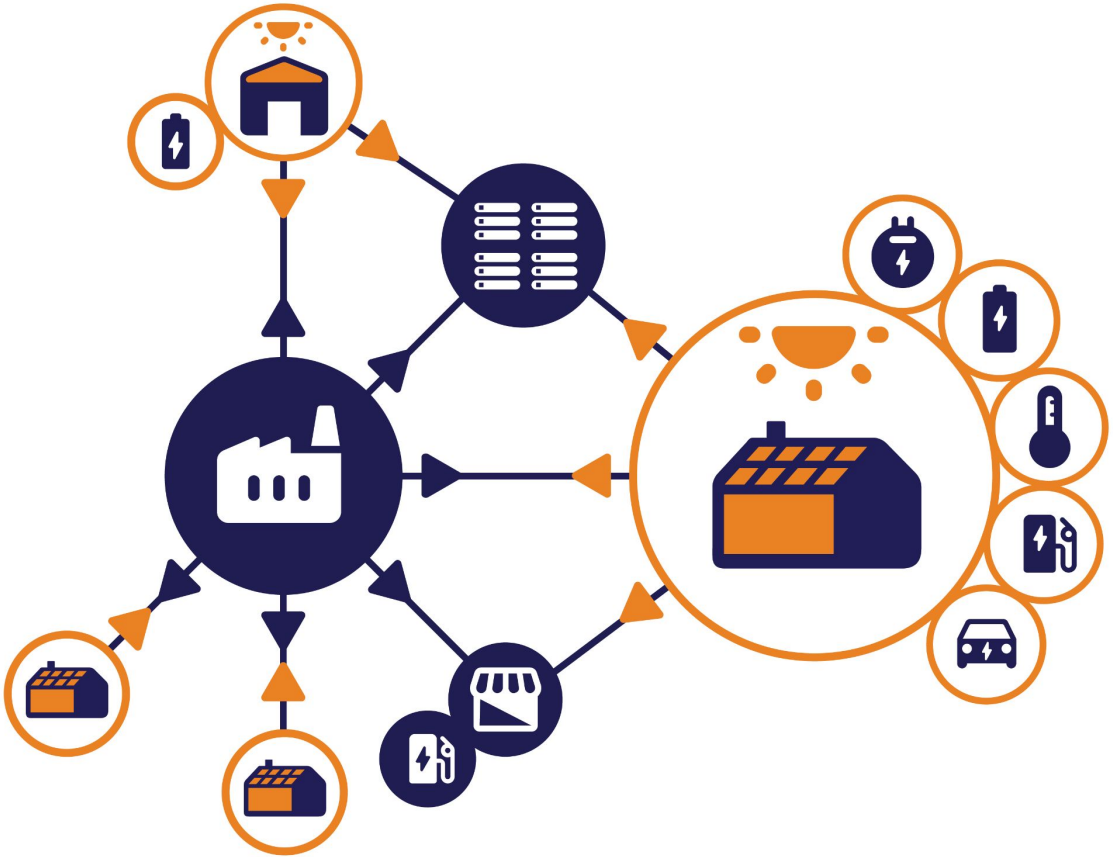
VPPS SEND THAT ENERGY BACK TO THE COMMUNITY

The VPP then distributes that community-supplied energy back to the community, stabilizing the grid and meeting demand.

COMMUNITIES KEEP THE LIGHTS ON & BILLS DOWN

VPPs keep the lights on and energy bills down by providing power close to where it's needed. Consumers who contribute power to VPPs are also compensated.

Making the grid bidirectional



How VPPs work in practice

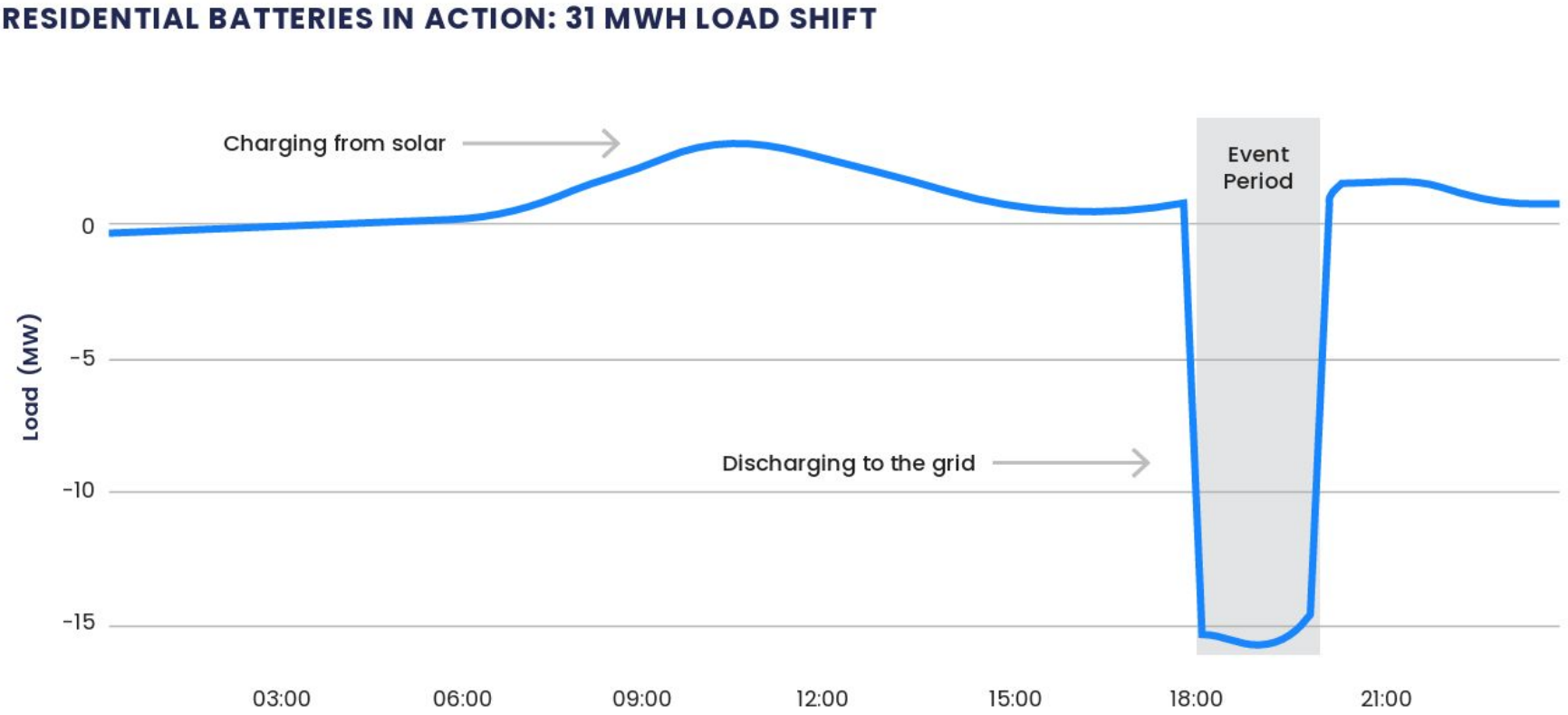
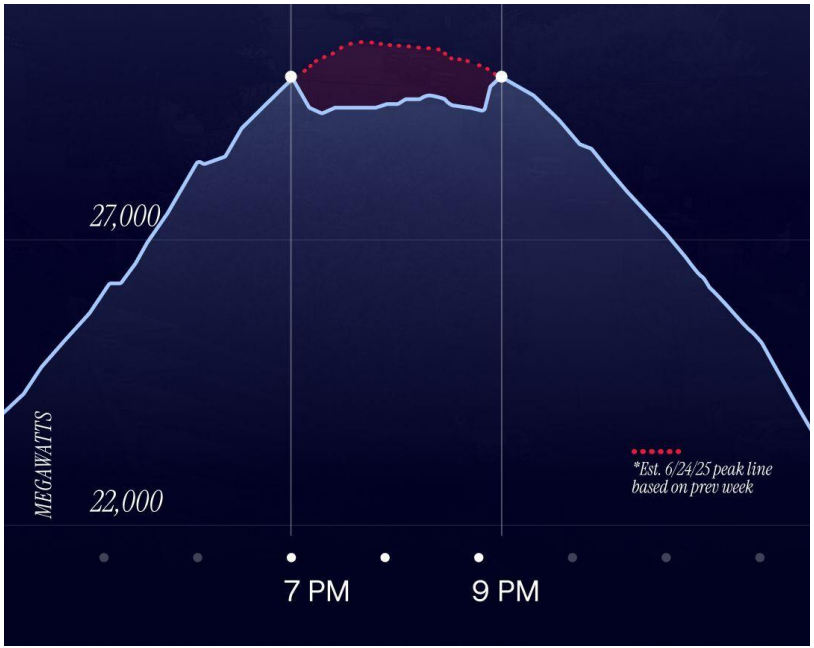


Fig. 3: East Coast utility shifts 31 MWh away from the peak in June, 2025 using residential batteries. (Source: EnergyHub)

VPPs in action



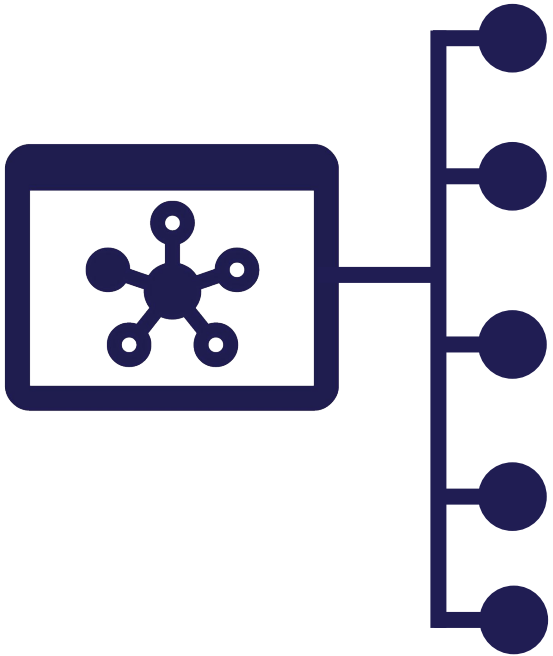
A Virtual Power Plant program can help flatten a peak during a period of high energy demand.

This example is from an active program in California where more than 340 megawatts of power were dispatched in the peak evening hours of 6/24/25.

That's equivalent to an average of 197,000 homes powered by a VPP program instead of the traditional grid.

Source: Sunrun dispatches more than 340 Megawatts of power in single evening

Who controls a Virtual Power Plant?



- Third-party aggregator companies
- Original Equipment Manufacturers (OEMs), like battery and smart thermostat companies
- Distributed Energy Resource Management Systems (DERMS)
- Directly by the Utility
- Some combination of all of the above

The role of third-parties

VPPs incorporate **readily-available** technology & optimize use of existing distribution and transmission systems.

VPPs embrace the **innovation of non-utility entities** to implement cost-effective solutions.

By allowing customers to bundle systems through third-party providers, a VPP unlocks financing options and creates **competition and economic efficiency**.

By intelligently coordinating thousands of distributed energy resources, we're not just helping families save on electricity costs, we're fundamentally reimagining how communities access reliable, sustainable power during critical demand periods.

Ani Backa, GoodLeap Vice President of Virtual Power Plants

Why should I care?

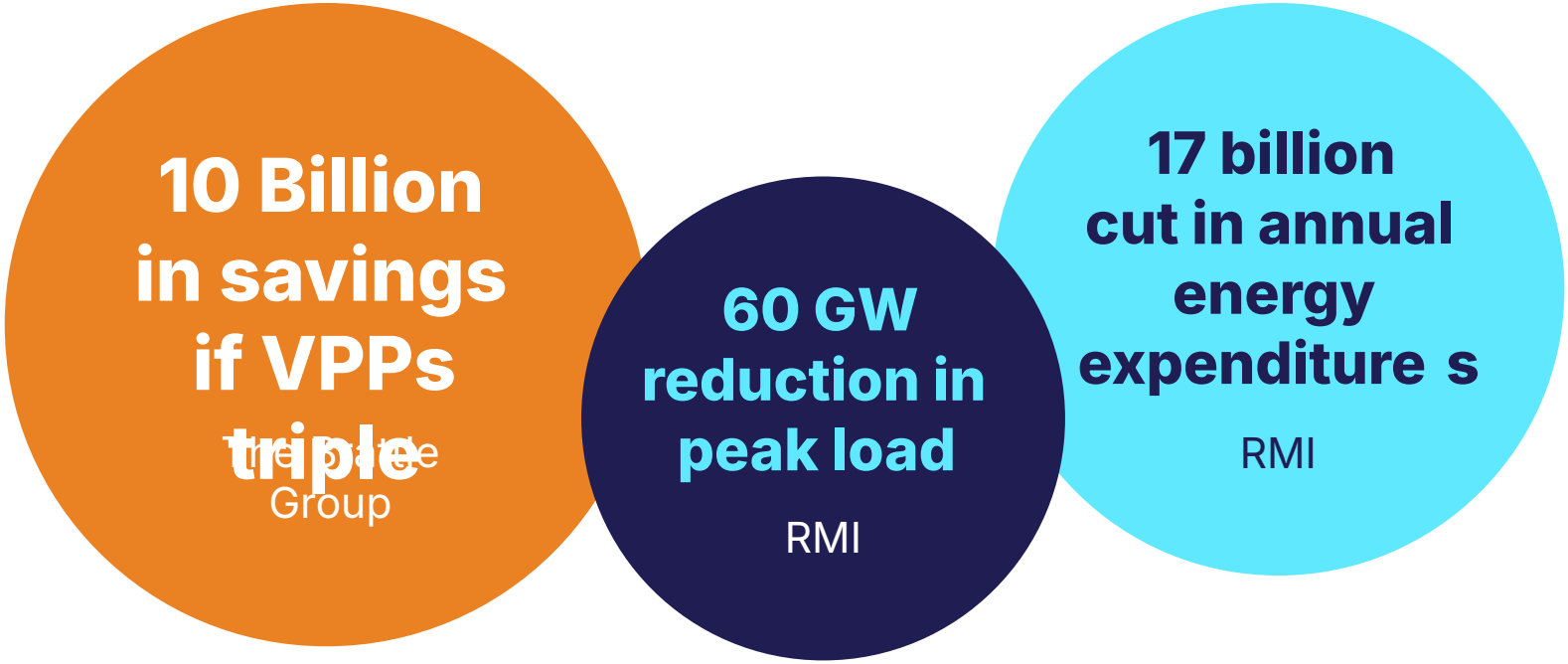
Virtual Power Plants with battery storage are more than just demand response

VPPs create avoided electricity ***and*** avoided capacity

With appropriate siting incentives, VPPs can help the utility avoid transmission & distribution costs

VPPs leverage utility investment in technology and grid modernization creating additional ratepayer benefits for these investments

By 2030, VPPs could lead to...



Why we need VPPs

VPPs **reduce peak load** , displacing reliance on more expensive energy resources.

Enable greater adoption of **renewable energy**

These **cost savings** are spread among all customers, keeping electricity bills lower.

Facilitate **electrification** of homes and businesses

VPPs are a grid solution for today

Available now to meet rising energy needs with off the shelf technology

VPPs can be deployed in months not years without long permitting or construction timelines

Incentivizes customers to **gain energy independence**

The grid becomes more **flexible, reliable, and resilient**

VPPs are proven as cost effective

Rocky Mountain Power's **Wattsmart Battery** incentive program passes the utility cost test, the total resource cost test, and the ratepayer impact cost test (May 2025 report to Utah PUC, Docket No. 25-035-36)

Puerto Rico's Energy Bureau found that the **Customer Battery Energy Sharing** program's economic benefits are "likely to be, on the order of, twice as large as the cost of the incentives, if not more" (April 2025 order)

Arizona Public Service's **Storage Rewards** program was designed to avoid any cost shifts, setting incentives at a level that ensures program costs do not exceed benefits (March 2025 proposal to Corporation Commission)

VPPs are nonpartisan and market-driven

VPPs "offer a technology-neutral, market-based approach that harnesses the power of consumer choice and private investment to benefit the entire grid."
-Minnesota Conservative Energy Forum

"We should strive toward an energy system that seeks to remove barriers to innovation and enable vibrant ecosystems to accelerate opportunities for consumers to have access to affordable and dependable power systems, decide how and when they consume (and produce) the electricity they want and need, and invest in the solutions that bring them the greatest value." - American Enterprise Institute

Creating co-benefits: Workforce Potential of VPPs

- VPPs create a diverse range of jobs
- Jobs are more distributed within communities
- VPPs create opportunities for training and apprenticeship programs

The scale of VPP potential in Nevada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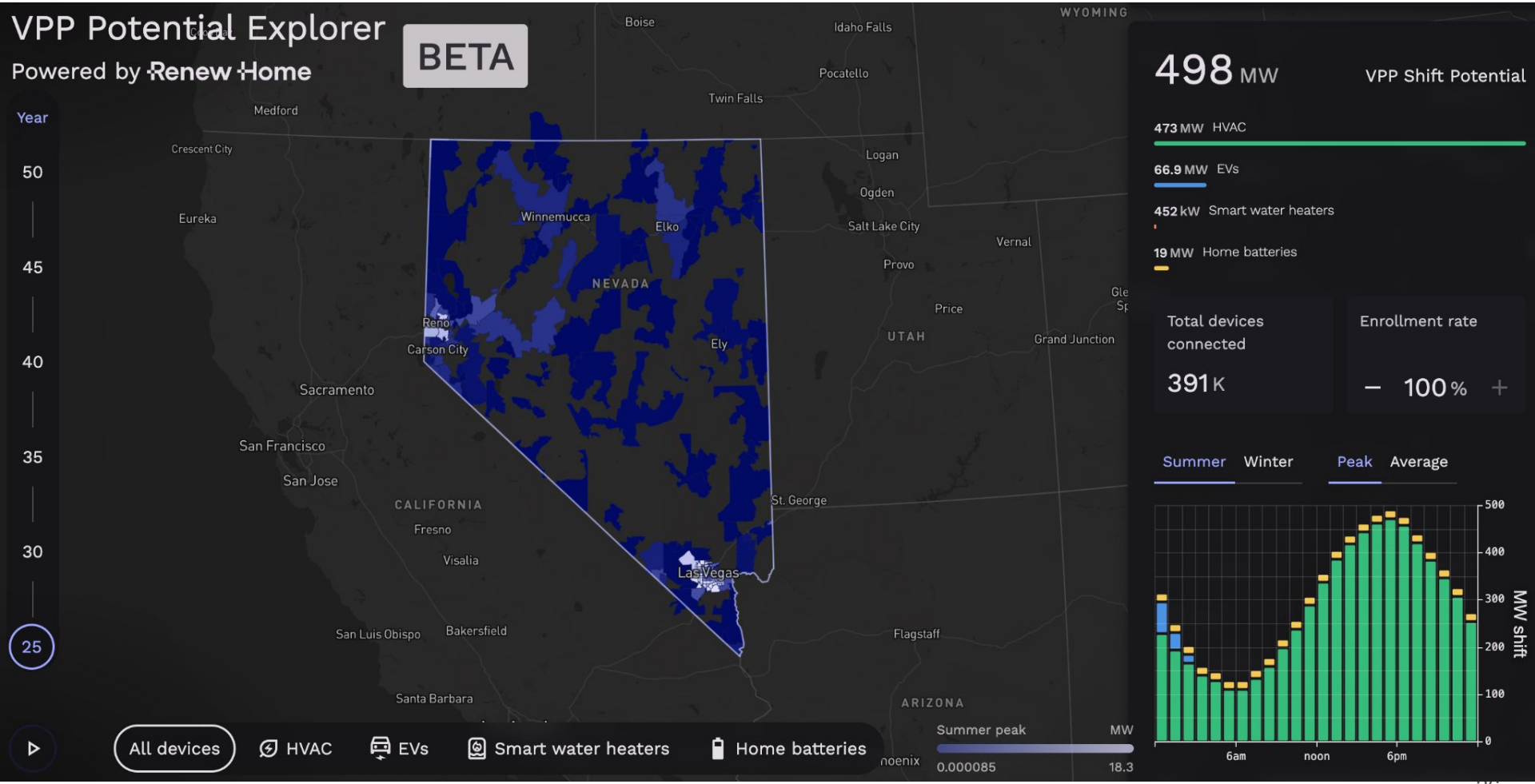
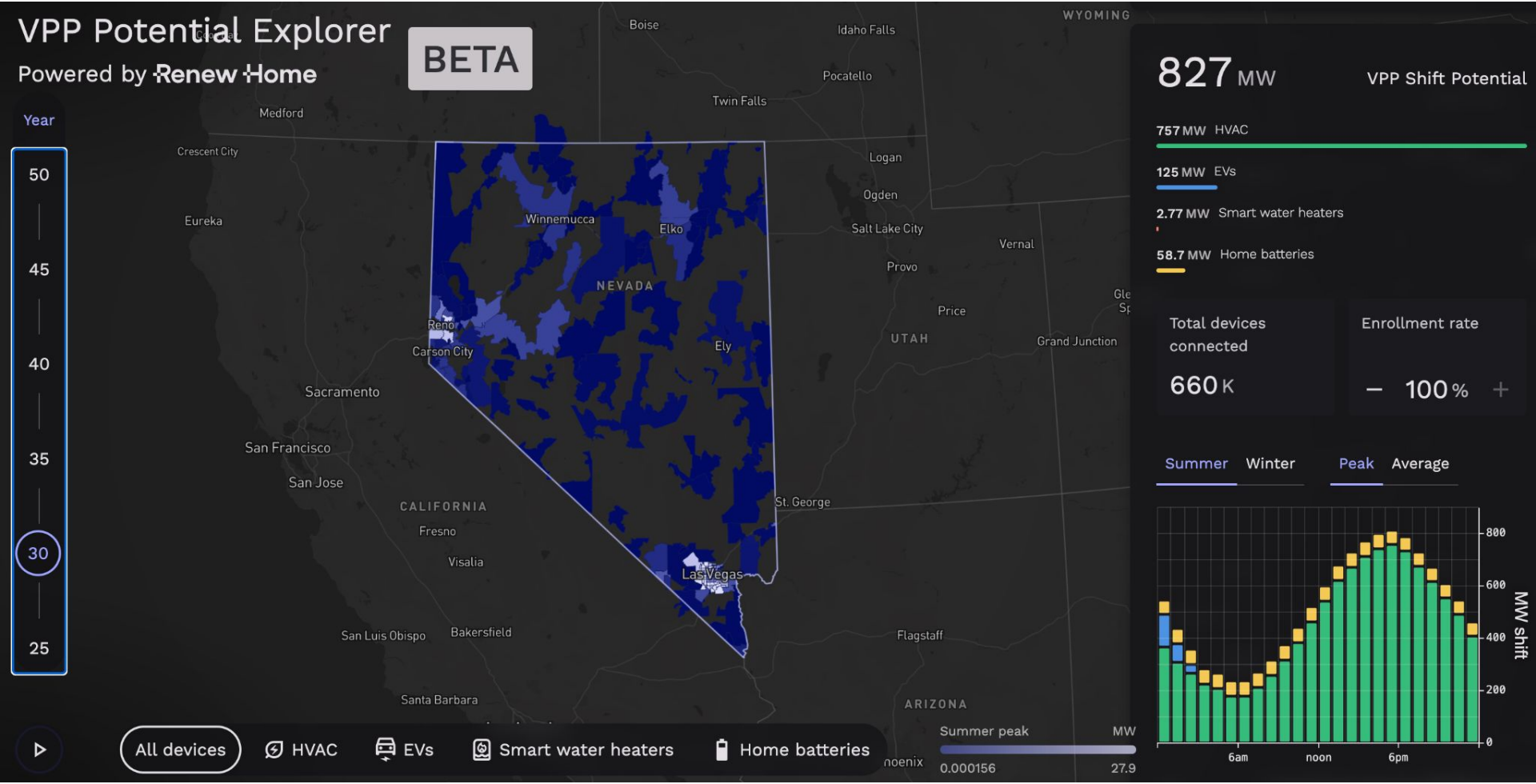

VPP Potential Explorer
Powered by Renew Home
BETA
Year
50
45
40
35
30
25
Boise
Idaho Falls
Pocatello
Twin Falls
Medford
Crescent City
Logan
Ogden
Eureka
Winnemucca
Elko
Salt Lake City
Vernal
Provo
NEVADA
Price
Reno
Carson City
Ely
UTAH
Grand Junction
Sacramento
San Francisco
San Jose
CALIFORNIA
St. George
Fresno
Visalia
Las Vegas
San Luis Obispo
Bakersford
Flagstaff
Santa Barbara
ARIZONA
WYOMING
All devices
HVAC
EVs
Smart water heaters
Home batteries
Summer peak
MW
0.000085
18.3
498 MW
VPP Shift Potential
473 MW HVAC
66.9 MW EVs
452 kW Smart water heaters
19 MW Home batteries
Total devices connected
391 K
Enrollment rate
100 %
Summer
Winter
Peak
Average
500
400
300
200
100
0
MW shift
6am
noon
6pm


VPP Potential Explorer
Powered by Renew Home
BETA
Year
50
45
40
35
30
25
827 MW
VPP Shift Potential
757 MW HVAC
125 MW EVs
2.77 MW Smart water heaters
58.7 MW Home batteries
Total devices connected
660 K
Enrollment rate
100 %
Summer
Winter
Peak
Average
MW shift
800
600
400
200
0
6am
noon
6pm
All devices
HVAC
EVs
Smart water heaters
Home batteries
Summer peak
MW
0.000156
27.9
WYOMING
Boise
Idaho Falls
Pocatello
Twin Falls
Medford
Crescent City
Eureka
Logan
Ogden
Salt Lake City
Vernal
Provo
Price
Grand Junction
UTAH
NEVADA
Winnemucca
Elko
Reno
Carson City
Ely
Sacramento
San Francisco
San Jose
CALIFORNIA
Fresno
Visalia
St. George
Las Vegas
San Luis Obispo
Bakersfield
Flagstaff
Santa Barbara
ARIZONA

What should Nevada do to make VPPs a reality?

While most utilities are free to implement some form of VPP without any policy or regulatory change, VPP deployment has so far been highest in areas where state regulators and policymakers have implemented VPP-supportive actions. This lines up with a recent report from National Grid Partners, which found that nearly three-quarters (72%) of surveyed utility leaders say innovation at their organization is primarily driven by regulation or compliance.

Power Grid, Jan. 15, 2025, referencing the updated DOE VPP Liftoff report

Pathways to VPPs in Nevada

Legislative: Lawmakers pass a bill to require investor-owned utilities to create a Virtual Power Plant program. That program is then reviewed by the PUCN.

Regulatory: A utility proposes a Virtual Power Plant program through its Integrated Resource Plan (IRP), Demand Side Management (DSM) plan, through a separate tariff proposal, or any combination of these things reviewed by the PUCN.

Best Practices for VPPs

Just compensation and clear benefits to participants:

- **Upfront incentives** to help offset the cost of a battery purchase
- **Ongoing compensation** for participation in the program
- Additional incentives for **income-qualified customers**
- Clear **terms and conditions** and **easy enrollment**
- Clear **customer rights** & opportunity to **opt out** of events
- **Technology** inclusive (many brands of batteries can join)

Questions?

Learn more about VPPs
www.solarunitedneighbors.org/vpps

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