Virtual Power Plants

A tool for grid stability and affordability

Interim Science, Technology & Telecommunications Committee

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Michael Barrio, Advanced Energy United



What we'll cover today

1

Virtual power plant (VPP) 101

Devices, software, and the rules that pay for performance

2

What VPPs deliver

Reliability and affordability, with real-world results

3

Where New Mexico stands

The building blocks we have, and what a framework could add

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What a Virtual Power Plant is and how it works

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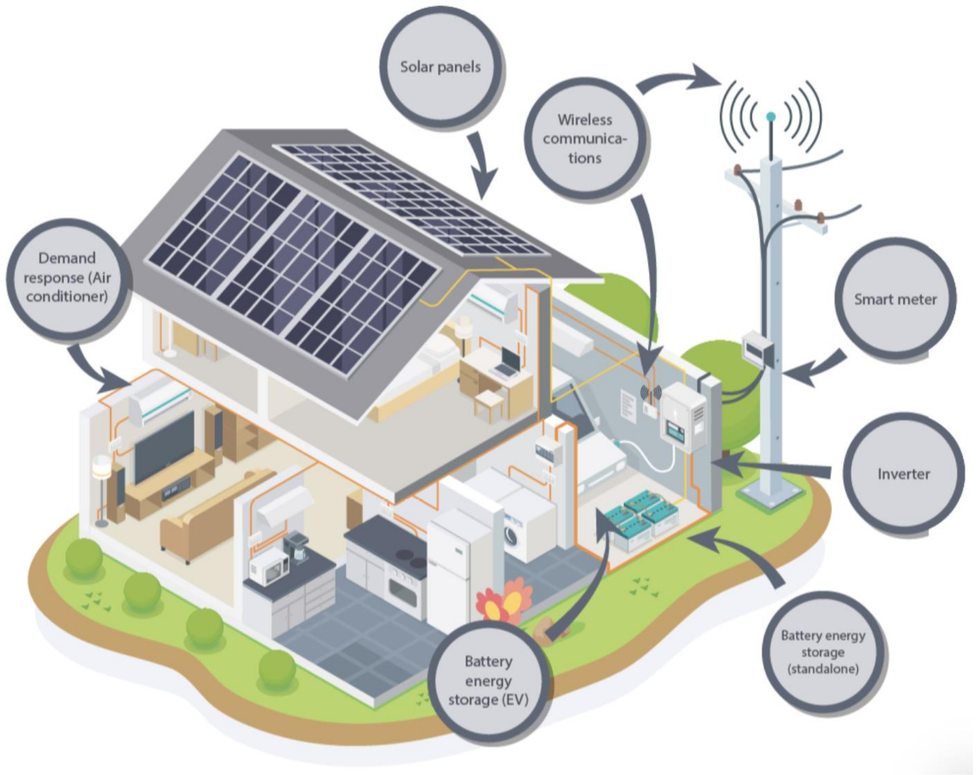
Quick definition

A virtual power plant is:

1. **Thousands of energy resources**
   at homes and businesses: thermostats, batteries, EV chargers, water heaters, rooftop solar

2. **Software that orchestrates them**
   so they respond together to grid conditions in real time

3. **A policy or market framework**
   that pays customers for the grid services their devices provide



Source: Cummins

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Three ways to meet peak demand



Fossil fuel power plants

Coal, gas combined cycle, gas peakers



Large clean power plants and storage

Solar, wind, big batteries, nuclear, hydro



Virtual power plants

Distributed resources and flexible loads at homes and businesses, controlled remotely

All three can keep the lights on. VPPs do it with resources customers already own or are already buying.

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How a VPP works, step by step

STEP 1

Enroll

Customers opt in a thermostat, battery, EV charger or water heater

STEP 2

Forecast

Operators spot a tight hour coming: a heat wave, an outage, the evening solar drop

STEP 3

Dispatch

Software signals thousands of devices to respond at once

STEP 4

Verify

Meter and device data confirm how much load actually moved

STEP 5

Pay

Participants are paid for verified performance, and customers can always opt out of an event

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What VPPs deliver

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VPPs and grid stability in a multi-source era

Fast response

Batteries and smart devices respond in seconds to minutes, faster than most power plants can ramp

Covers the evening ramp

Shift load and discharge stored solar as the sun sets and demand peaks

No single point of failure

Thousands of small resources spread the risk. Losing one device is not losing a plant

Relief where it's needed

Resources sit on the local grid, so they can ease constraints on specific feeders

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Peak demand, VPPs, and affordability

Peaks hit late afternoon and evening on hot summer days, and higher peaks tend to mean higher bills.

Peaker plants

The costliest power runs during the hottest hours

WHAT A VPP DOES

VPPs are a lower-cost alternative to traditional peaking generation

Grid upgrades

Wires and substations get sized for a handful of peak hours a year

WHAT A VPP DOES

VPPs shift load to cheaper hours and relieve local constraints, delaying or avoiding upgrades

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VPPs and costs: national data points

$15–35B

in conventional investment utilities could avoid over 10 years by deploying VPPs

Brattle Group

50%+

cut in household bill increases over the next five years if utilities use residential VPPs to trim peak demand by 4%

Brattle Group, 2026

$51M

in direct ratepayer benefits from the Northeast's ConnectedSolutions VPP in 2025, on about $19M in cost

EnergyHub

Deferring grid upgrades: NYSEG's Stillwater project in New York used battery storage on the distribution system to put off upgrading an overloaded circuit.

VPPs at scale: national and regional data

22%

of the grid's projected 270 GW demand gap over the next decade could be met by VPPs

RMI

10–20%

of U.S. peak demand could be covered by 2030 if VPP capacity triples from today's 30–60 GW

U.S. Department of Energy

ALREADY OPERATING

190 MW

Arizona Public Service

Smart home devices during a historic 2025 heat wave

380 MW

PJM (Mid-Atlantic)

Hundreds of thousands of DERs on one 2025 peak day (Renew Home)

500+ MW

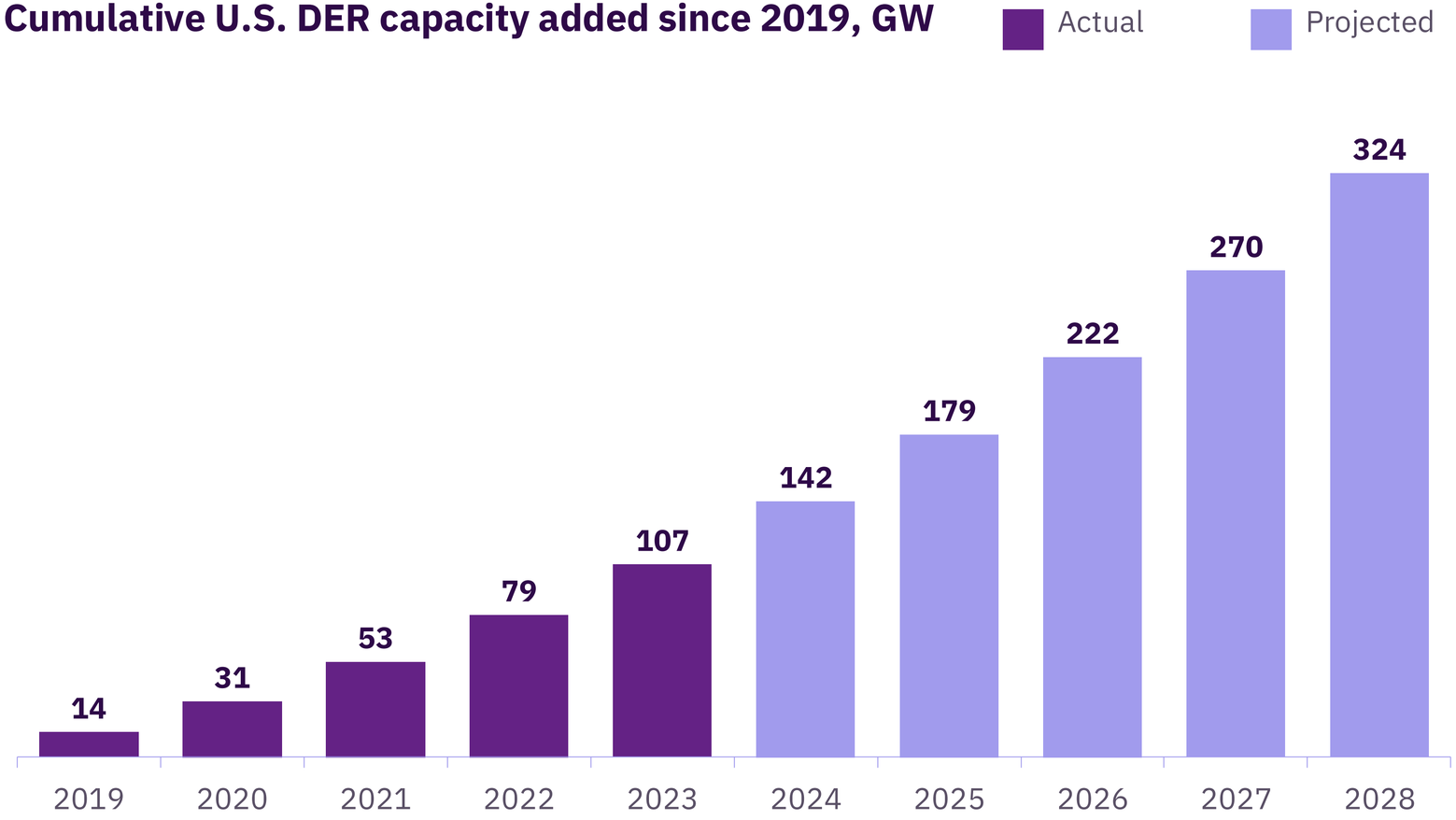
California

Home batteries in a July 2025 dispatch test (Brattle Group)

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Distributed energy resources are taking off

Cumulative U.S. DER capacity added since 2019, GW



324 GW

of distributed resources projected nationally by 2028

For scale: New Mexico's statewide peak demand is about 5 GW. PNM hit a record 2.3 GW this August.

Sources: Wood Mackenzie, 2024 US DER Outlook; Albuquerque Journal (PNM record peak, Aug. 2026)

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Where New Mexico stands

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New Mexico already has the building blocks

PNM Power Saver

AC switches and smart thermostats called on during summer weekday peaks

El Paso Electric thermostats

The PRC approved EPE's smart thermostat demand response program in 2017

PNM federal VPP award

DOE grant to tap small distributed resources, pending a final contract

Managed EV charging

PNM's EV Active Managed Charging pilot is recruiting customers

Smart meters and markets

Smart meter rollouts and western market participation open the door to paying for flexibility

WHAT'S MISSING

One statewide framework. Today it's utility by utility, device by device, and mostly pilots.

Sources: PNM Power Saver; Utility Dive (2017); PNM 2026 IRP draft action plan; EMNRD analysis of HB 311 (2026)

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What makes a VPP framework work

Technology-neutral

Any resource that can reduce, shift or supply demand, on either side of the meter

PRC in the driver's seat

Commission sets rules and approves programs based on system need and cost-effectiveness

Fitted to each utility

Targets come from each utility's resource and distribution planning, not one statewide number

Paid for verified value

Compensation tied to grid value that can be measured and verified

Open to competition

Third-party aggregators compete on fair terms, with customer-consented data access

Customers protected

Override rights, event limits, clear disclosures and a complaint process

Thank you.

Questions?

Michael Barrio

Senior Principal, Advanced Energy United

mbarrio@advancedenergyunited.org

ADVANCED ENERGY UNITED™

advancedenergyunited.org
@AdvEnergyUnited

1801 Pennsylvania Avenue NW, Suite 410
Washington, DC 20006

