



MCE's Virtual Power Plant for the People

City of Pinole City Council
April 2024

Market Challenges

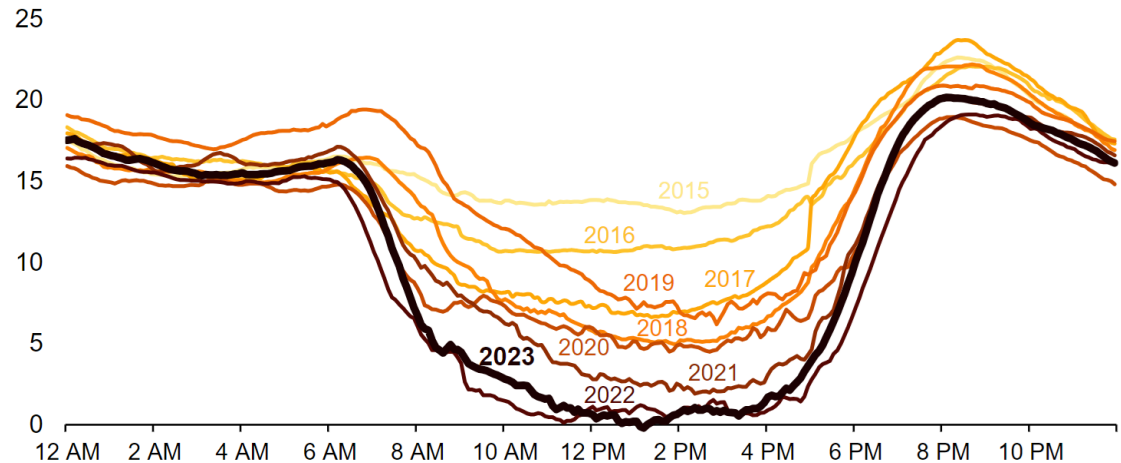
‘**Peaky load**’ results from widespread solar, causing customer demand spikes in late afternoon to early evening as solar power ramps down and household electricity use surges.

This is what we call the “duck’s neck.”

Addressing the Over-Generation of Solar Energy

California's duck curve is getting deeper

CAISO lowest net load day each spring (March–May, 2015–2023), gigawatts

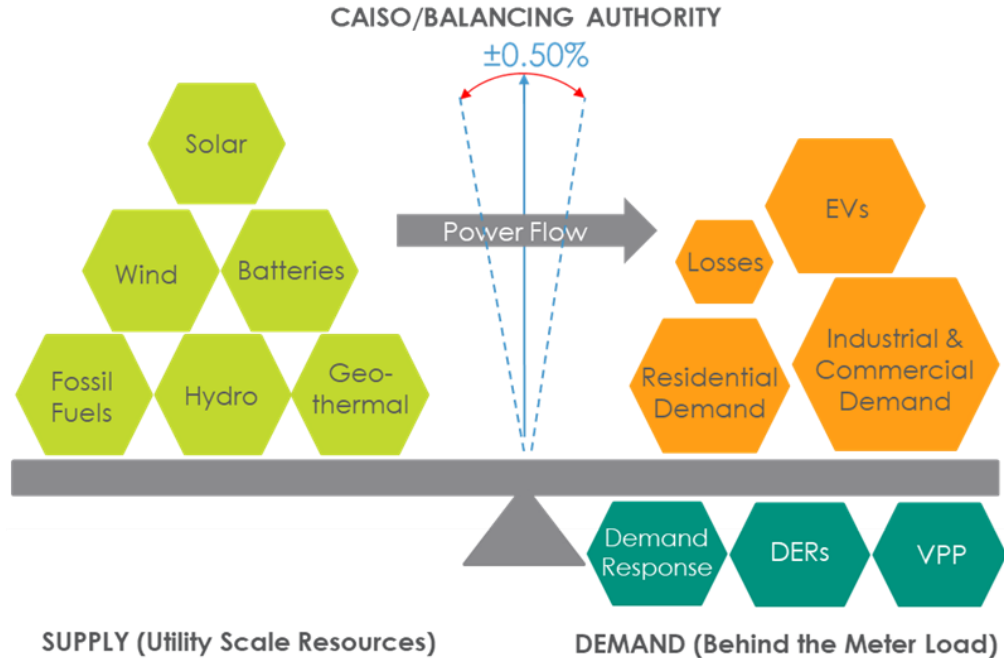


What is a Virtual Power Plant

Instead of an industrial power plant taking up a lot of land, this connects **many smaller physical assets** throughout a community.

A VPP taps into **existing distributed energy resources** - heat pump water heaters, smart thermostats, batteries, electric vehicles - and sends them **digital signals** to charge up or release power to the grid at strategic times.

It quietly and invisibly creates **pockets of power** to support and decarbonize the grid.



Keeping the Balance

DOE GRIP Application

A new paradigm of
⚡ People Power ⚡

Expand MCE's Virtual Power Plant pilot to all MCE communities.

Community members engage at various levels to optimize value through controllable devices and behavior change.

Request: \$50,000,000 from DOE with a \$50,000,000 match over eight years of partnership.



Community Benefits

A decade of MCE programs means communities have years of upgrades already installed and can be more easily integrated into the VPP

Modernized building stock with efficient & grid-smart devices

Energy **resilience** for potential black-outs

Lots of installation jobs, especially important in CalEnviroScreen designated Disadvantaged Communities

Reduced emissions of entire system due to localized usage of power (co-location) and reduced demand for polluting peaker plants

Cost savings from efficient use and from **VPP bill credits**

Alleviate pressure on MCE procurement by helping to **meet evolving settlement requirements**

Transforms passive consumers into **active agents of grid health** by increasing customer awareness and participation in the energy system

Request

This item seeks Council approval of a Resolution (Attachment A) directing the Interim City Manager to sign a Memorandum of Understanding (MOU) (Attachment B) in support of MCE's application for the Department of Energy's (DOE) Grid Resilience and Innovation Partnerships (GRIP) grant program.

The MOU outlines a collaborative effort to expand the Virtual Power Plant (VPP) capabilities within the City of Pinole, aligning with Pinole's goals for sustainable energy management and resilience. Specific commitments are described in Section III of the MOU. The key points include:

- **Collaboration Outline:** Learning about MCE's grant application and, upon successful award, the expansion of the VPP within the City of Pinole
- **Staff Involvement:** City staff will offer guidance to ensure the project aligns with local energy policies. This involvement is crucial for tailoring the VPP's deployment to Pinole's specific needs and opportunities.
- **No Financial Obligation:** The MOU explicitly states that the city is not committing to any financial contributions. The primary request will be staff time for coordination and planning efforts.
- **Mutual Benefits:** This partnership promises several benefits for Pinole, including enhanced grid resilience, greater integration of renewable energy sources, and positioning the city as a leader in sustainable energy innovation

Thank You

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