



IMPROVING ENERGY RESILIENCY WITH SOLAR + BATTERY PROJECTS

The Climate Center Workshop | 9.21.2022

ABOUT TERRAVERDE ENERGY

*TerraVerde Energy is an independent energy consulting firm
proudly supporting California public agencies since 2009
with solar PV, battery storage, and energy resiliency projects*

\$500 MILLION
in projects developed

150 MEGAWATTS
in projects deployed

\$50 MILLION
in savings delivered



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PETALUMA CITY SCHOOLS

ENERGY RESILIENCY PROJECT CASE STUDY

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ABOUT PETALUMA CITY SCHOOLS

"Petaluma City Schools delivers a high-quality, diverse, equitable, and inclusive education to all student scholars so they creatively explore interests, collaboratively solve problems, and fully develop as resilient, caring, and responsible members of our community."

District Snapshot

7



Elementary Schools

9



Secondary Schools

1



Adult Education School



7,200

Students

\$101
Million

Annual District Operation Budget



850

Staff



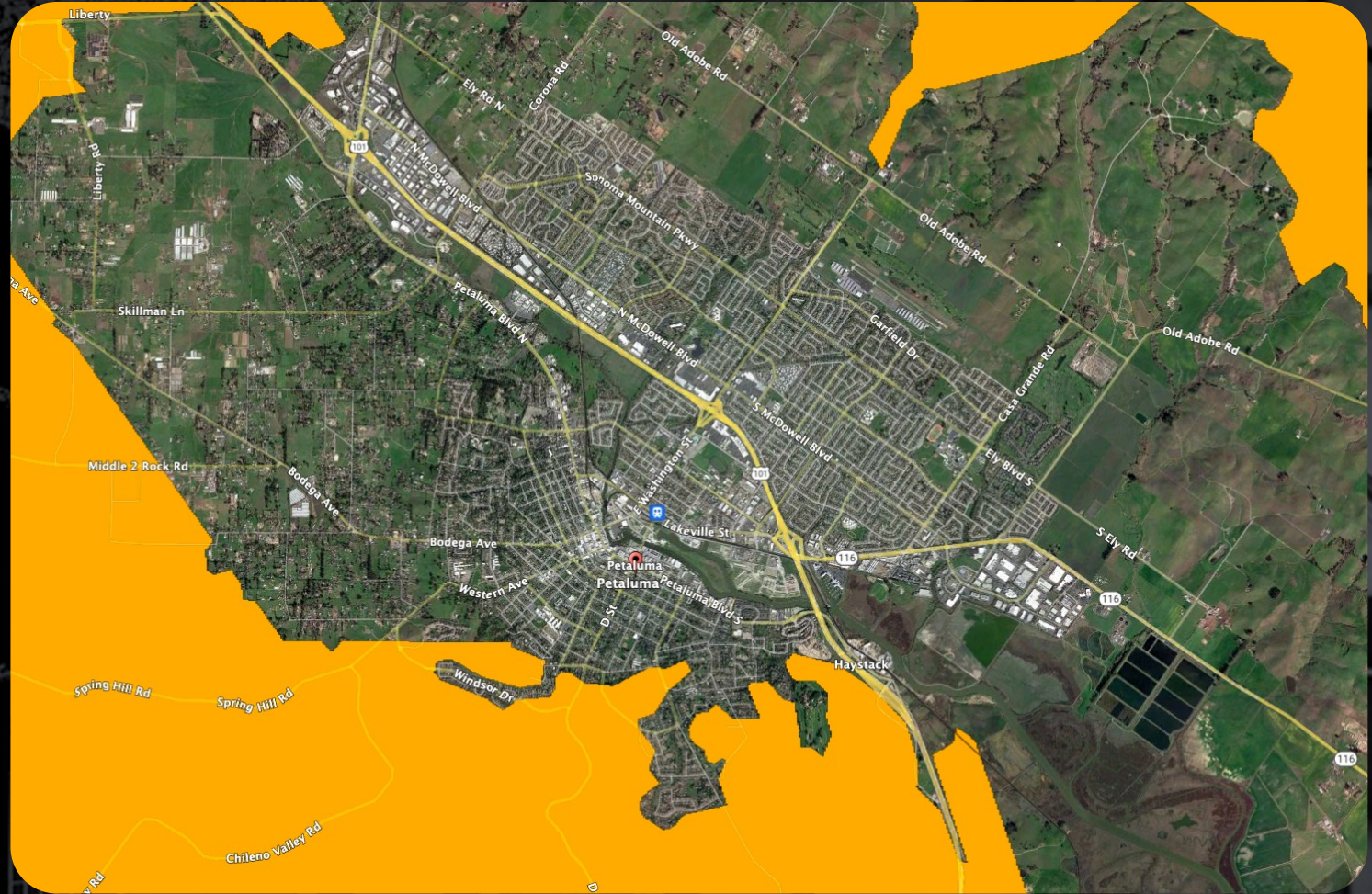
150+ Years Serving Students

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IMPACTED BY WILDFIRES & POWER OUTAGES

Petaluma City Schools is located in Sonoma County, one of the regions in California that has been most impacted by wildfires and related power outages.

In the past several years, these fires and outages have threatened the District's ability to provide access to in-person instruction and consistent education.



ASSESSING ENERGY RESILIENCY PROJECT OPPORTUNITIES

With the support of TerraVerde Energy, the District evaluated the feasibility of **adding battery energy storage systems** at campuses that had **existing solar** PV systems, to determine whether the District could increase its energy resiliency and have **clean backup power** available on campus during power outages.

Assess Backup Power Needs

Evaluate Potential Project Sites

Determine Solar + Battery System Sizing

Model Pro Forma Cash Flow Analysis

PROCURING PROJECTS

After completing the feasibility assessment, the District and TerraVerde ran a competitive **procurement process** to solicit proposals from qualified firms. As a result, the District engaged **Scale Microgrid Solutions** to install **4.2 MWh of battery energy storage** and microgrid controllers at Casa Grande High School & Petaluma Junior High School.

Develop RFP Package & Project Contracts

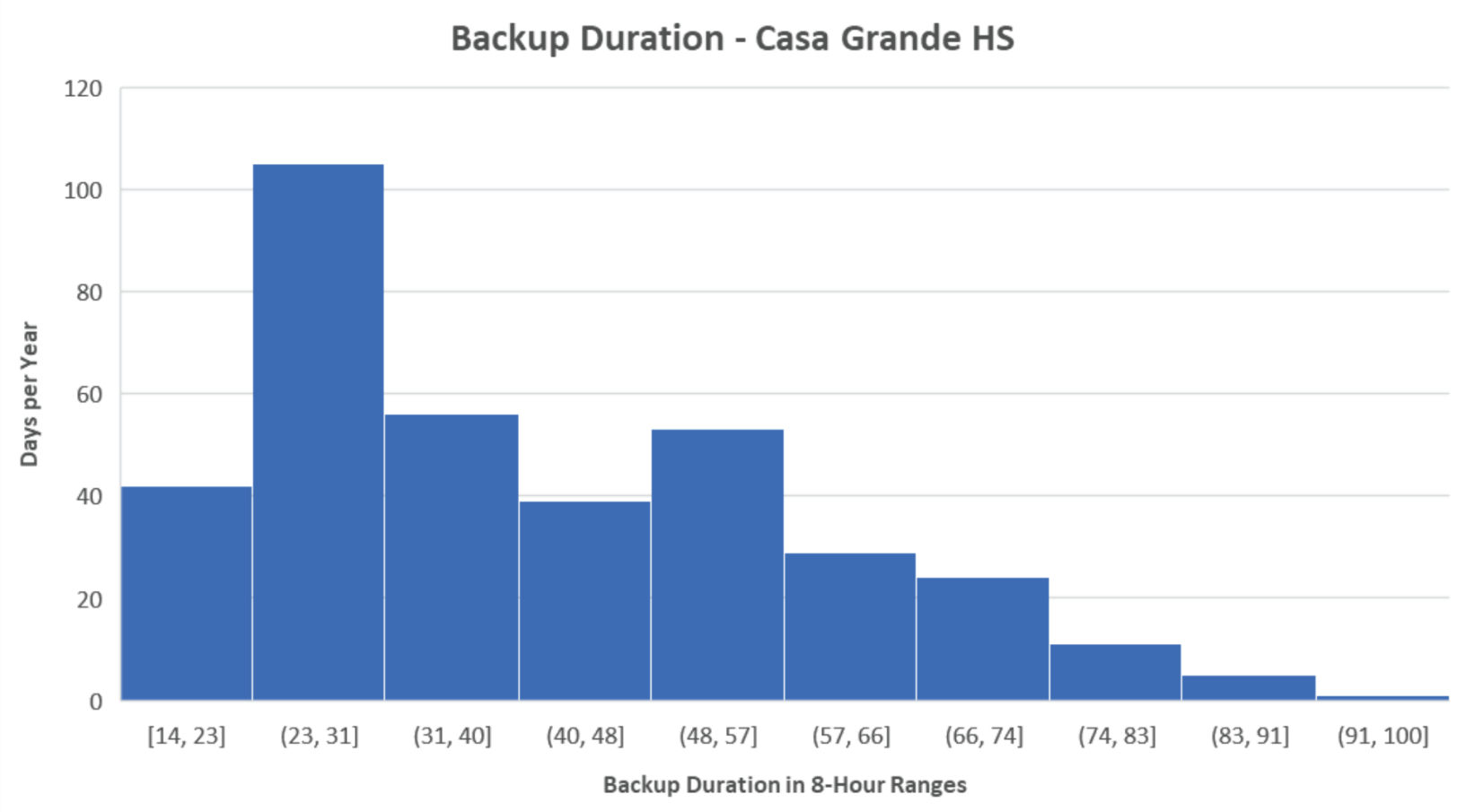
Solicit Proposals from Qualified Installers

Evaluate Responses & Host Shortlist Interviews

Negotiate Contracts

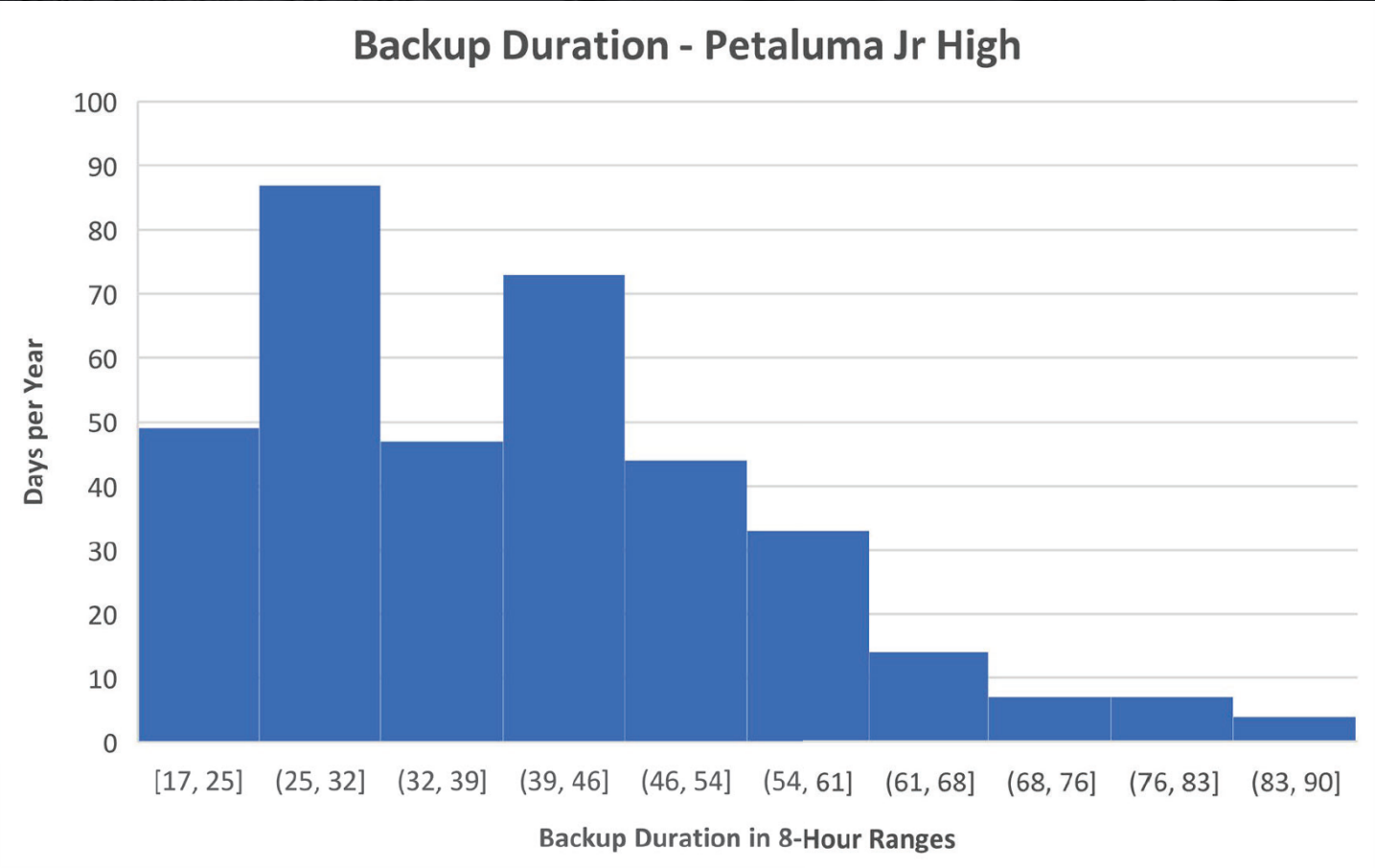
EXPECTED BACKUP POWER BENEFITS: CASA GRANDE HS

Backup Power Duration Summary	Number of Hours
Minimum	14
Maximum	92
75% of the time	26
50% of the time	37
25% of the time	54



EXPECTED BACKUP POWER BENEFITS: PETALUMA JH

Backup Power Duration Summary	Number of Hours
Minimum	17
Maximum	90
75% of the time	28
50% of the time	39
25% of the time	50



PROJECT FINANCIALS

Over the 15-year warrantied life of the batteries, these projects are expected to deliver \$252,612 in net benefits to the District. These benefits are largely driven by Avoided Power Outage Losses (primarily avoided food spoilage) and SGIP Program Incentive Funding.

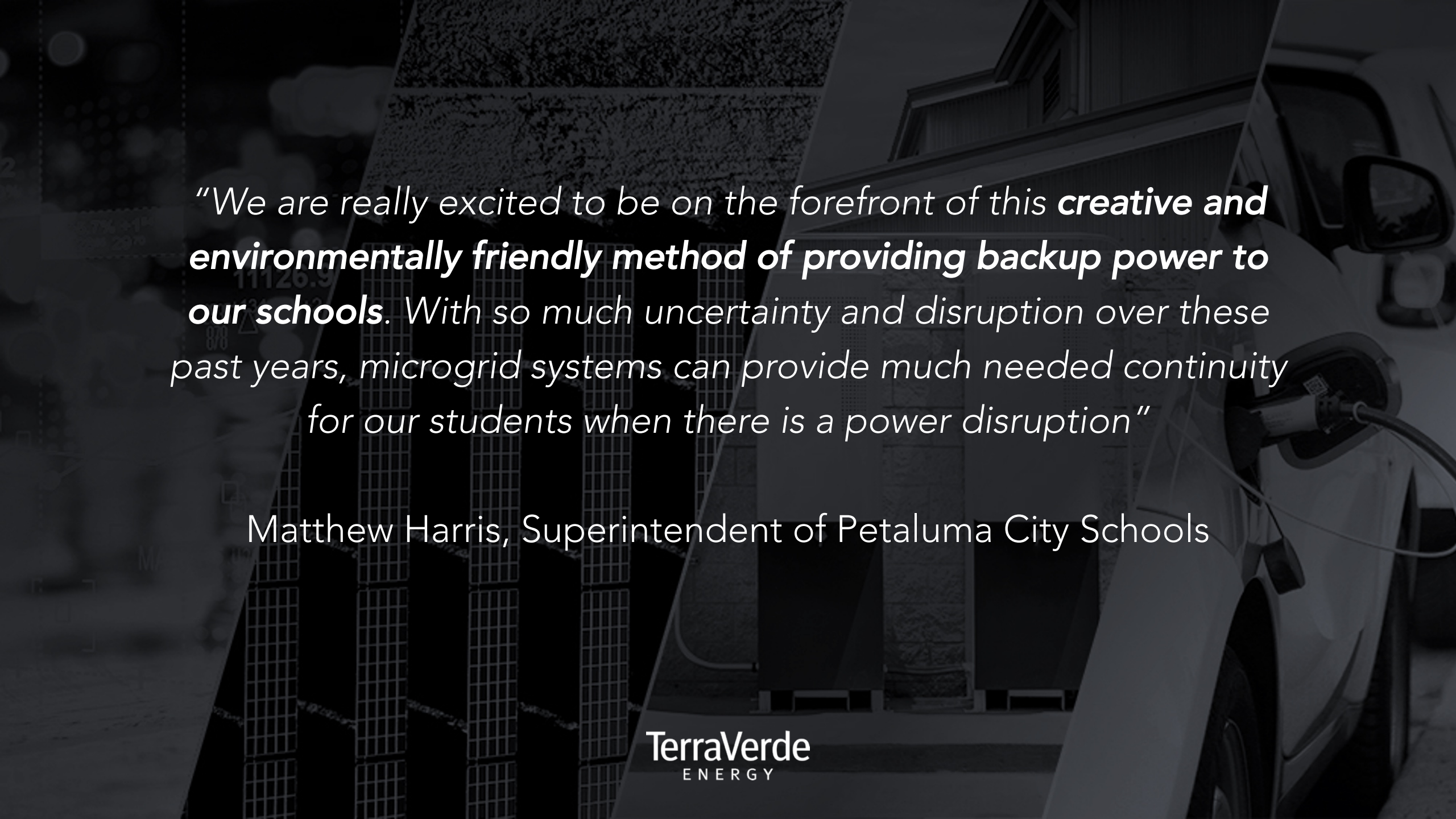
Projected 15-Year Benefits

Project CapEx	(\$2,808,365)
Project OpEx	(\$589,685)
SGIP Funding	\$1,046,470
Avoided Power Outage Losses	\$2,204,911
Utility Bill Savings	\$399,282
Total Net Benefit	\$252,612

PROJECT STATUS

The batteries are currently (September) being installed at both campuses. Installation completion, system commissioning, and receiving permission to operate from PG&E are all expected to be completed by January 2023.



The background is a dark, semi-transparent collage. It features a close-up of solar panels on the left, a building with a gabled roof in the center, and the rear of a white electric vehicle with a charging cable plugged into it on the right.

*“We are really excited to be on the forefront of this **creative and environmentally friendly method of providing backup power to our schools**. With so much uncertainty and disruption over these past years, microgrid systems can provide much needed continuity for our students when there is a power disruption”*

Matthew Harris, Superintendent of Petaluma City Schools

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IN CLOSING | A Couple of Brief Market Updates

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THE INFLATION REDUCTION ACT ENHANCED THE ITC

The Inflation Reduction Act (IRA), which was signed into law in August of 2022, includes several new and enhanced incentives for solar PV & battery energy storage projects.

- Boosted the Investment Tax Credit (ITC) back up to 30% of project costs for the next 10 years
- Extended the ITC to stand-alone battery projects
- Provided additional incentives for projects that meet domestic content minimums
- Provided additional incentives for projects in low-income communities
- Provided a direct-pay options for public agencies



NET ENERGY METERING IS CHANGING SOON

On December 13, 2021, the CPUC proposed massive changes to the NEM program, including:

- For New Projects: a substantial discount to the value of exported electricity
- For Existing Projects: a shortened 15-year period for existing solar customers to enjoy their current NEM 1.0 or NEM 2.0 tariff



THE WINDOW IS EXPECTED TO CLOSE SOON FOR NEM 2.0

Proceedings are expected to result in Final Decision as early as September, with an expected NEM 2.0 sunset for new projects coming as early as January 2023. Agencies that are exploring potential new projects should move swiftly to submit interconnection applications and secure the current NEM 2.0 tariff while it is still available.

Milestone	Date
Expected Final Decision	Sep – Oct
Expected NEM 2.0 Sunset for New Projects	Jan – Feb

For the latest on NEM and other market updates, visit: TerraVerde.Energy/News-And-Insights



The background is a collage of three images: solar panels on the left, a house in the center, and an electric car on the right. The entire image has a teal and blue color overlay.

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