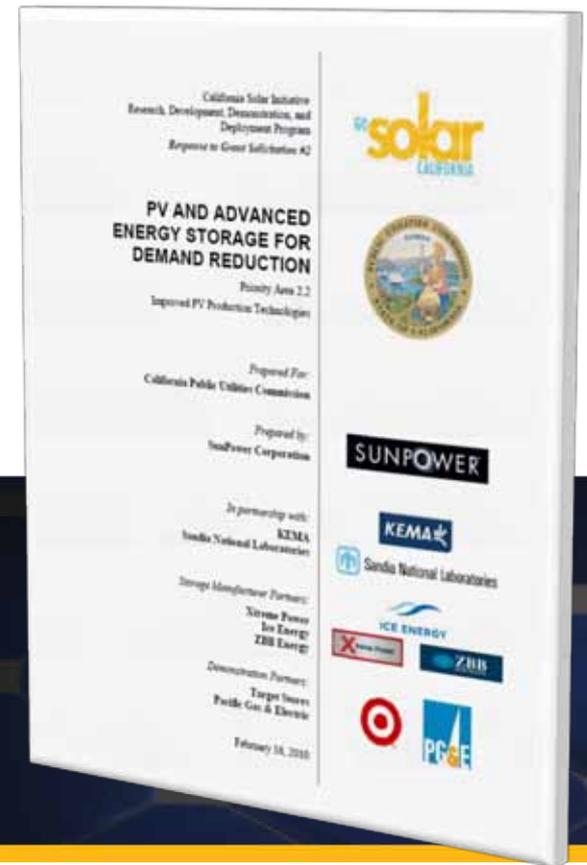


**SUNPOWER®**  
Smarter Solar™



# **PV & Advanced Energy Storage for Demand Reduction**

*Program Overview for CSI Grant Awardee Roundtable*

February 10, 2011

# Safe Harbor Statement



This presentation contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements are statements that do not represent historical facts and may be based on underlying assumptions. SunPower uses words and phrases such as "expects," "believes," "plans," "anticipates," "continue," "growing," "will," to identify forward-looking statements in this presentation, including forward-looking statements regarding: (a) plans and expectations regarding the company's cost reduction roadmap, (b) cell manufacturing ramp plan, (c) financial forecasts, (d) future government award funding, (e) future solar and traditional electricity rates, and (f) trends and growth in the solar industry. Such forward-looking statements are based on information available to the company as of the date of this release and involve a number of risks and uncertainties, some beyond the company's control, that could cause actual results to differ materially from those anticipated by these forward-looking statements, including risks and uncertainties such as: (i) the company's ability to obtain and maintain an adequate supply of raw materials and components, as well as the price it pays for such; (ii) general business and economic conditions, including seasonality of the industry; (iii) growth trends in the solar power industry; (iv) the continuation of governmental and related economic incentives promoting the use of solar power; (v) the improved availability of third-party financing arrangements for the company's customers; (vi) construction difficulties or potential delays, including permitting and transmission access and upgrades; (vii) the company's ability to ramp new production lines and realize expected manufacturing efficiencies; (viii) manufacturing difficulties that could arise; (ix) the success of the company's ongoing research and development efforts to compete with other companies and competing technologies; and (x) other risks described in the company's Annual Report on Form 10-K for the year ended January 3, 2010, and other filings with the Securities and Exchange Commission. These forward-looking statements should not be relied upon as representing the company's views as of any subsequent date, and the company is under no obligation to, and expressly disclaims any responsibility to, update or alter its forward-looking statements, whether as a result of new information, future events or otherwise.

# SunPower 2010: 25<sup>th</sup> anniversary



- World-leading solar conversion efficiency
- >1.5 GW solar PV deployed
- Diversified portfolio: roofs to power plants
- 5 GW power plant pipeline
- Publicly listed on NASDAQ
- 2010: Revenue Guided >\$2 billion
- 5,500+ Employees
- 550 MW+ 2010 production



Residential: #1 US



Commercial: #1 US



Power Plant Pioneer



# Executive Summary

## § Key California Solar Initiative (CSI) objectives:

- Test and demonstrate existing energy storage (ES) technologies
- Capture higher value from the energy produced by PV systems

## § Project Objectives:

- Identify, site, design, install, operate and measure multiple advanced energy storage systems over a 2+ year period
- Utilize 80-125kWp systems with discharge capacity of 2-6 hours
- Integrate ES with existing commercial PV systems

## § Key Activities:

- Assess storage system operations, performance and reliability
- Compare alternatives of deploying PV or ES separately
- Measure the impact on electricity demand reduction, economic modeling and greenhouse gas reduction

# Project Funding

Co-sponsored through California Public Utility Commission (CPUC) grant funding from California Solar Initiative (CSI) Research, Development, Demonstration, and Deployment (RD&D) Program with Itron, Inc. as the program manager.



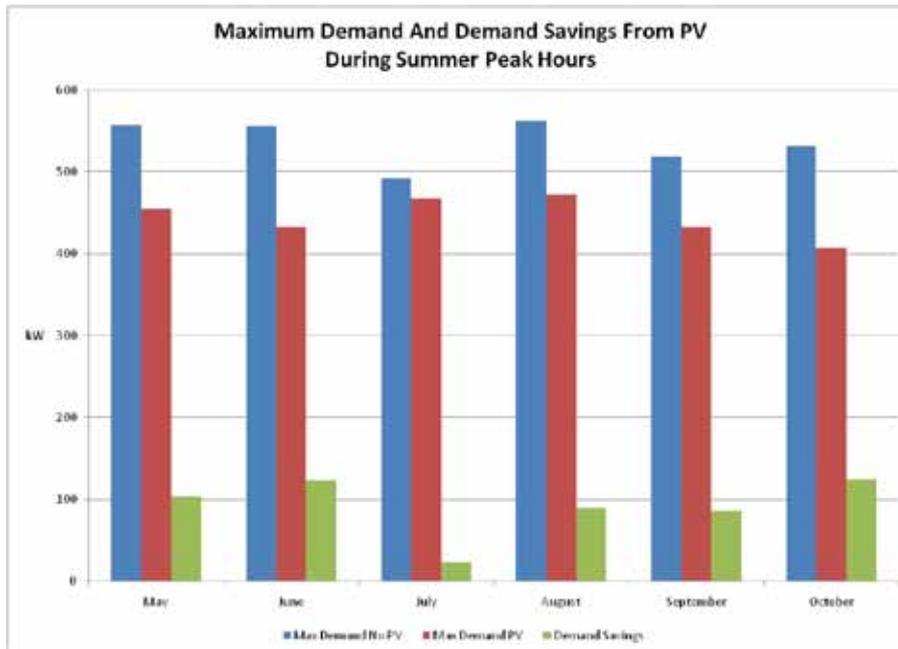
# Project Background

- § PV a proven technology with a well established value proposition.
- § Advanced energy storage: disparate technologies, limited operating track record & unproven value proposition.
- § Project will validate customer benefit in bill savings due to demand reduction during peak periods, and refine installed ES cost targets.
- § Reduction in peak load is key to meeting California GHG goals.

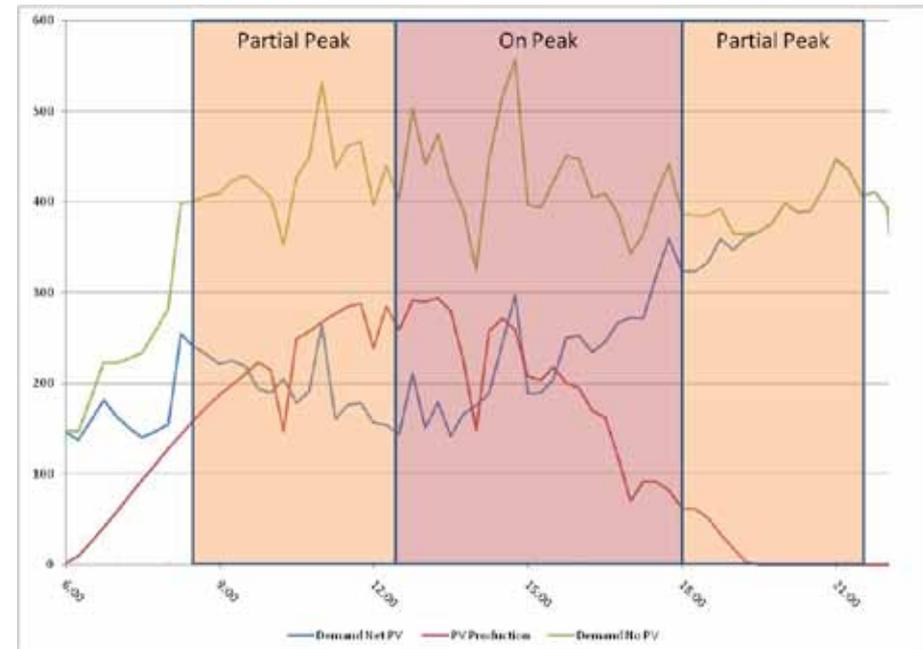


# Value Proposition

- § PV generation coincides with peak loads and can reduce demand charges, but tails off towards the evening peak.
- § Uncertainty exists in level of demand charge reduction for any given month based on weather conditions.



Example Demand Savings Due To PV

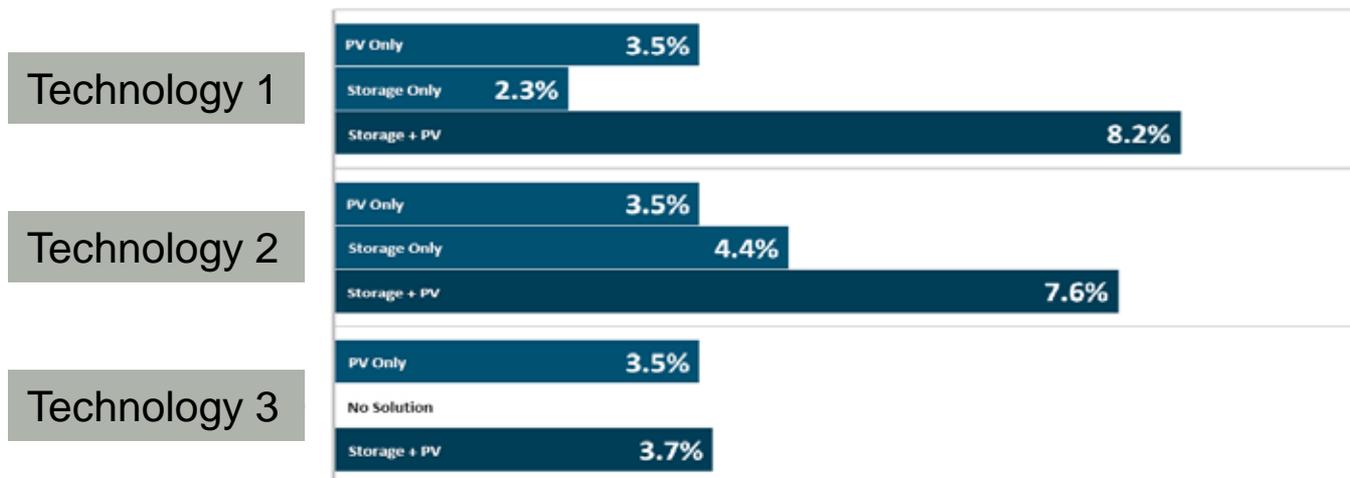


A Variable Solar Day In June

# Value Proposition

- § Energy storage can shift load from on- to off- peak, but without PV, at least 6 hours of dispatch is necessary – may not be cost effective or technically feasible.
- § PV substantially reduces the energy requirement for storage systems as it generates during periods of high load and TOU rates
- § Preliminary analysis indicates that PV + energy storage can have synergistic economic benefits by reliably and cost effectively reducing peak loads further than PV alone, while reducing the amount of energy storage required.

Project IRR by Storage Product



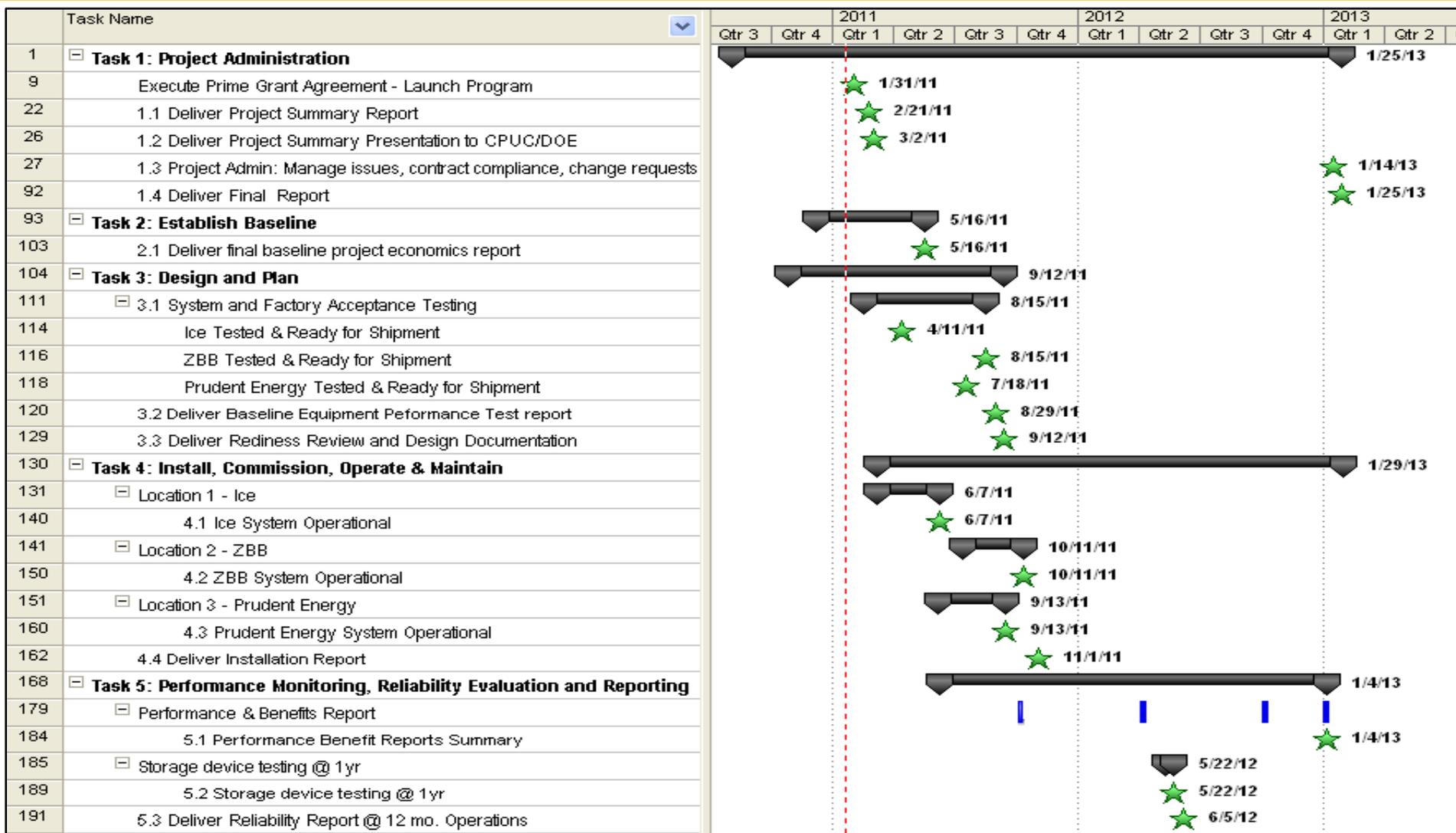
Preliminary analysis – directional only

# Conceptual Operation

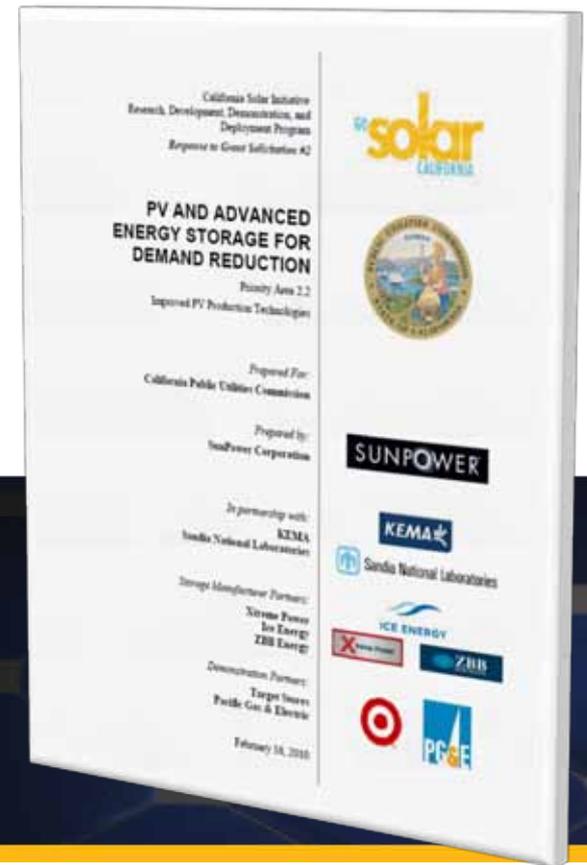


- Energy storage in parallel with existing PV system and operates independently to control net load shape
- Battery operation is based on peak shaving & arbitrage to maximize customer bill savings based on tariff structure
- Not intended to control ramp rates (no need)
- Not a UPS, though this is a potential value add

# High-Level Tasks & Milestone Plan



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# Thank You

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