



September 17, 2024

MEMORANDUM

TO: Market Transformation Advisory Board

FROM: Rick Dunn, Senior Manager, Emerging Technologies

SUBJECT: Stage 1 Scoring for RFI Submissions

Earlier this year, CalMTA issued a second Request for Ideas (RFI) that allowed interested parties to share their recommendations for cost-effective, energy-efficient products and practices to be considered for development as market transformation initiatives. Phase I of the CalMTA development process includes Stage 1 and Stage 2 scoring of viable ideas. Ideas received in the recent RFI have undergone Stage 1 scoring. In addition, we have brought forward a number of promising ideas received during the first RFI (in 2023) that were held for further review. A complete list of the ideas received and their Stage 1 scores is shown below.

At the upcoming Market Transformation Advisory Board (MTAB) meeting on Sept. 23, we will discuss the disposition of these ideas and prioritize which to move to Stage 2 scoring. Ideas that advance will be further discussed at the MTAB meeting on Nov. 20 and 21.

**Note: Some ideas received relate to other similar ideas previously submitted. The previous (or parent) ideas are marked with an asterisk in the table below.*

Idea #	Idea Name	Description	Weighted Program Score
0085 0126 0219	Combined Heat Pump Cooling-Heating-Water Heating-Thermal Storage* Combi Heat Pump Combined Heating, Cooling, and Hot Water with Thermal Energy Storage	Integrates water heating, space heating, and space cooling into one combined, three-function heat pump system for residential use. These systems can also store some amount of thermal energy for use at a later time.	8.11
0010 0109	High Performance Windows* High Performance Windows	High performance windows are windows that outperform code efficient windows by ~20% or more through the use of two or more panes of glass and /or the use of gases such as krypton or argon. This initiative would promote the top tier of Energy Star rated products which typically requires a thin triple-pane window.	7.51
0024 0112 0172	VFDs on all pumps and fans > 10 HP* Adjustable Speed Drives Leveraging the Power Index Advanced Electric Motors Market Awareness and Demand TFP	Would promote the adoption of variable frequency drives on applicable pump and fan motors greater than 10 horsepower in both industrial and commercial applications. The initiative would leverage the Power Index which is a ratio of rated power over baseline power to calculate the energy savings from adding a variable speed drive to a motor-driven system.	7.32
0193	Building Performance Standards Accelerator MTI	Building Performance Standards (BPS) Accelerator MTI would encourage cities to adopt BPS policies which target existing building stock and improve efficiencies either through a prescriptive design or an energy use intensity benchmark.	7.30

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0111	Efficient Fans Leveraging FEI	Would require adopting the fan energy index (FEI) rating as the key energy metric for fans in state codes. and number so that buyers and sellers can compare products performance, and potentially incentives can be offered at or above a specific performance level.	7.19
0022	Smart Home	Smart home technology enables automation of certain appliances for increased capabilities, security, comfort, and convenience including products such as thermostats, lighting, refrigerators, and cooking appliances. In addition, these appliances can be connected to an overarching smart home energy management system which allows the customer to monitor their energy usage and make changes based on usage patterns.	7.14
0188	Reflective Insulation for Windows	Reflective Insulation for Windows is designed to keep building interiors cool without interfering with the occupants' views by blocking infrared light reducing solar heat gain by 50% in turn reducing summer cooling load.	7.09
0217	High Quality, High Efficiency Light Sources	This initiative would advance linear LED products developed through the Million LED Challenge (MLC), an initiative led by the UC Davis California Lighting Technology Center in partnership with the California Energy Commission EPIC Program and the University of California's Office of the President. In California, there is an estimated 10.4 TWh of commercial lighting energy use that can still be updated for deep energy and GHG savings.	7.09

Idea #	Idea Name	Description	Weighted Program Score
0110 0147 0034	Smart Pumps* IE5 Motor with Integrated Variable Speed Drive for Water Pumping XMP PUMPS	Smart pumps and circulators are a packaged pumping solution that combines a pump, motor, drive, and integrated controls into one product.	6.99
0142	Agricultural Irrigation as a flexible demand load	This initiative would support a new, patented agricultural irrigation technology called Virtual Water Table Irrigation system. This new technology cuts irrigation water consumption by 80% and an equal amount of power consumption from well pumping, booster pumps and canal transportation pumps.	6.81
0218	Hybrid Products for Sustainable Outdoor Lighting	Combines a typical outdoor light fixture with a solar panel, battery, and smart controller. The smart controller decides when to use battery power and when to draw from the grid. Typically, the battery is sized to be charged predominantly by the solar panel during the day.	6.78
0133	Thermal Energy Storage as a Distributed Energy Resource	Proposes using thermal energy storage as a distributed energy resource at commercial sites that traditionally have the highest energy intensities like hospitals, grocery stores, and refrigerated warehouses.	6.60

Idea #	Idea Name	Description	Weighted Program Score
0106 0182	High-Efficiency Factory-Built Homes* High Efficiency Electric Manufactured Housing Specifications and Factory Design	Homes that exceed ENERGY STAR certification criteria and are fully electric with low impact on the grid. This initiative would advance all electric manufactured housing that includes solar PV or is solar PV-ready.	6.56
0118	Very High Efficiency Dedicated Outdoor Air Systems (DOAS)	Use high efficiency heat recovery combined with a high-performance heat pump as an HVAC system approach which result in significant commercial sector energy savings potential:	6.51
0080	Smart Electric Panels	A smart panel is an electric panel with integrated or add-on software controls, generally in the form of relays, that provide a user with additional information and capabilities beyond a traditional panel. Smart panels are capable of shutting down all non-critical loads, communicating circuit-level consumption, facilitating strategic participation in DR programs, limiting whole-home demand by preventing coincident demand from appliances, managing appliances, and enables electrification by allowing addition of loads in excess of rated panel capacity.	6.44
0146	Work-based Learning to Achieve Equitable Climate Cool Schools	Prepares and supports cohorts of Local Education Agencies (LEAs) to design, build, operate, and repair their facilities to meet state energy, decarbonization, and air quality requirements by providing cohort support, internship pilot programs, roadmaps and implementation activities.	6.36

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0121	Remote Pump Monitor	Uses various sensors to measure a pump's operational data such as suction pressure, discharge pressure, flow rate, and power consumption to provide real-time information to end users. It helps customers monitor their pumping systems and make timely decisions regarding optimizing pumping operations.	6.35
0210 0173	Passive House Standard in Title 24* Scaling Passive House	Passive House is a high-performance building standard (superior to California's Title 24 Part 6). Passive Houses are energy efficient and airtight (highly insulated with no thermal bridging, and with heat-recovery ventilation) which cuts heating and cooling loads by more than half with respect to Title 24. This proposal is to incorporate the Passive House standard as an optional pathway within Title 24.	6.34
0154	Hydronic Heating Supply	A self-contained unit that converts a building's hydronic heating supply by using a proportional control valve and double-wall heat exchanger to provide on-demand domestic hot water for the ultimate in water and energy savings in multifamily, hospitality, assisted-living centers, and healthcare patient towers.	6.33
0160	Low Carbon Calcined Clay Concrete in California	Low Carbon Calcined Clay Concrete is a supplementary cementitious material that can reduce CO2 emissions through material & energy efficiency to meet state net zero goals for the sector. Clay is naturally zero carbon raw material and can be calcined at lower temperatures using less energy.	6.04

Idea #	Idea Name	Description	Weighted Program Score
0221	Light-Duty Commercial Heat Pump Water Heating	The use in a commercial facility of a unitary HPWH similar to those used in single-family residences. Light-duty commercial applications are hot water needs similar to residential customers, such as in bathrooms and breakrooms.	6.04
0216	Television Energy Efficiency Driven by Retailer Incentive Program	Using an existing and proven program infrastructure known as ENERGY STAR Retail Products Portfolio (ESRPP), the program will provide per unit financial incentive on retailers' sale of ENERGY STAR v9.1 televisions.	5.73
0137	Sustainable Refrigeration Transition	Combines practice and technology to demonstrate the value of investing in and managing refrigeration systems more sustainably for smaller independent grocers. The practice involves comprehensive refrigerant leak detection and remediation, and the technology component aims to facilitate the transition to low global warming potential (GWP) and natural refrigerant technologies.	5.56
0025 0164 1059 0129	Industrial Process Heat Pump* Decarbonization for Industrial and Agricultural Sectors, and Hospitals Industrial Heat Pump Market Transformation Industrial Heat Pumps in California	IHPs are powered active heat recovery systems. They generate heat from electricity by concentrating existing inlet heat sources into higher temperature outlet discharge via a refrigeration or phase change cycle. Typical IHP's have a coefficient of performance in the 2.5-3 range. Industrial heat pumps are capable of saving 26-32% of industrial process source energy.	5.54

Idea #	Idea Name	Description	Weighted Program Score
0222	Residential Smart-splitting Solutions for Electrification and EVSE Adoption	Electric vehicle supply equipment (EVSE) technology family, addressing the issue of insufficient electrical panel capacity. Smart-splitting solutions enable multiple devices to utilize an existing 240v outlet to power multiple devices by managing the charge.	5.49
0215	Visit a Heat Pump	This initiative would develop a web-based platform, similar to AirBNB, that would allow individuals interested in heat pump technology to connect with heat pump owners who are willing to allow visitors to see the technology. The service will advance the adoption of heat pump technology by providing "social proof" which is a significant driver of home technology uptake.	5.37