

**DOCKETED**

<b>Docket Number:</b>	19-SB-100
<b>Project Title:</b>	SB 100 Joint Agency Report: Charting a path to a 100% Clean Energy Future
<b>TN #:</b>	236069
<b>Document Title:</b>	Bruce Ray Comments - Energy Efficiency and Storage Critical to California's Future
<b>Description:</b>	N/A
<b>Filer:</b>	System
<b>Organization:</b>	Bruce Ray
<b>Submitter Role:</b>	Public
<b>Submission Date:</b>	12/18/2020 5:15:13 PM
<b>Docketed Date:</b>	12/21/2020

*Comment Received From: Bruce Ray  
Submitted On: 12/18/2020  
Docket Number: 19-SB-100*

**Energy Efficiency and Storage Critical to California's Future**

*Additional submitted attachment is included below.*

**RE: SB 100 Joint Agency Report: Charting a path to a 100% Clean Energy Future  
Docket #: 19-SB-100**

**To the California Energy Commission, Public Utilities Commission and Air Resources Board:**

Johns Manville (JM) and Alcal Specialty Contracting, Inc., (Alcal) are pleased to submit these comments on the SB 100 Joint Agency Report.

JM and Alcal have two principal comments on the ***DRAFT 2021 SB 100 Joint Agency Report*** (December 2020). First, the Joint Agency Report should evaluate and include the critically important contributions of improved energy efficiency in existing homes and buildings towards meeting the goal of a 100% clean energy future. Second, the Joint Agencies note the importance of energy storage in meeting this goal but limit their analysis to just “battery storage” while ignoring innovative forms of emerging energy storage. Energy efficiency and thermal storage helps ensure the benefits (job creation, reduced energy consumption, reduced percentages of household income spent on energy, reduction in GHG production) of energy efficiency remain in the state of California.

***Energy Efficiency***

When additional energy resources are needed, energy efficiency is frequently the best and least cost alternative. Efficiency is also the first resource to be called on in California under the loading order established many years ago. Unlike most types of renewable energy, efficiency has no side impacts or social costs and does not require the use of scarce and sensitive lands; instead, efficiency has numerous non-energy benefits (NEBs) such as increased health and comfort, and reductions in heating and cooling costs.

As stated in previous comments dated December 2, 2019,<sup>1</sup> JM and Alcal have had success in working with the South Coast AQMD to retrofit thousands of older, poor performing homes in the Coachella Valley of eastern Riverside County. Like millions of homes in the State, these were all built years before any tough Title 24 energy codes and hence are under-insulated and under-sealed. Such older, poor performing homes are also frequently located in disadvantaged communities (DACs) so that the efficiency retrofits provide direct and tangible benefits to those who need them the most.

Those benefits can be economic and financial. The CEC has determined that investment in clean energy and energy efficiency within DACs is critical to overcoming barriers to clean energy in those communities:

---

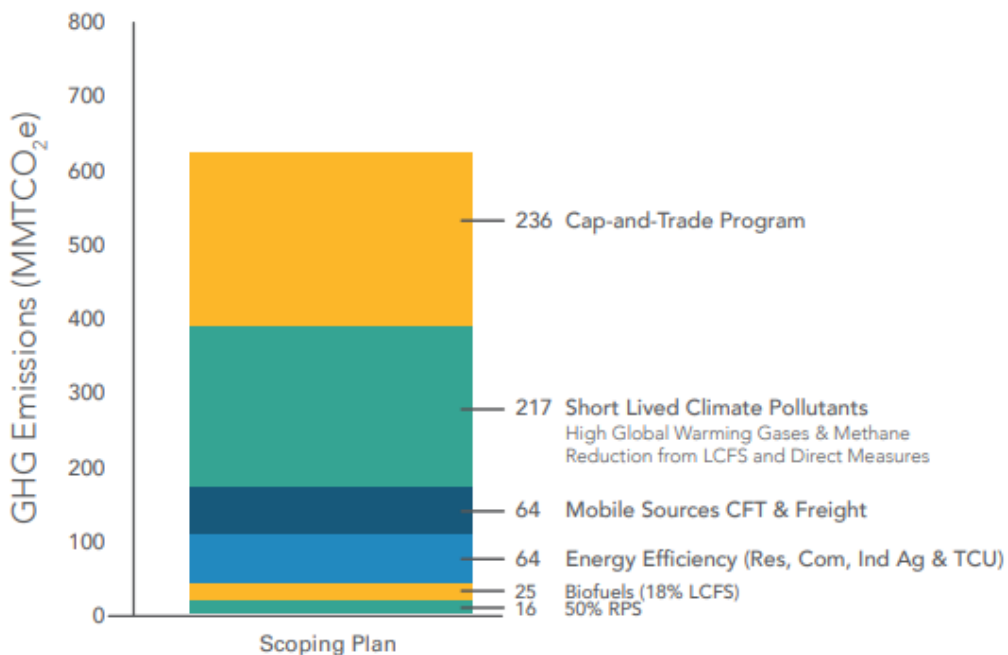
<sup>1</sup> Johns Manville and Alcal Specialty Contracting, Inc., Comments - Responding to November 18, 2019 SB-100 Workshop (Dec. 2, 2019), link [here](#).



Investment within the low-income sector not only helps the neediest achieve the energy bill savings that other Californians enjoy, but such investments also result in substantially larger multipliers for economic development. And developing local workforce participation in clean energy programs is integral to enabling the full range of benefits for low-income customers.<sup>2</sup>

Energy efficiency is also an important source of emissions reduction and avoidance. CARB’s 2017 AB 32 Scoping Plan confirms the critical role to be played by efficiency in meeting the State’s GHG emissions reduction goals. In fact, CARB is counting on efficiency in all forms to achieve over four times the GHG emissions reduction of the 50% RPS.<sup>3</sup>

**FIGURE 7: SCOPING PLAN SCENARIO – ESTIMATED CUMULATIVE GHG REDUCTIONS BY MEASURE (2021–2030)<sup>64</sup>**



<sup>2</sup> Low-Income Barriers Study, Part A: Overcoming Barriers to Energy Efficiency and Renewables for Low-Income Customers and Small Business Contracting Opportunities in Disadvantaged Communities, California Energy Commission (December 2016), Executive Summary at page 1, link [here](#).

<sup>3</sup> California’s 2017 Climate Change Scoping Plan (Nov. 2017) link [here](#), at page 50.

At a time when the effects of climate change can frequently be acute and severe, efficiency improvements can provide much needed resilience. Finally, expanding energy efficiency, especially in making older homes more efficient, entails no land use issues that can be present with renewables. Rather, efficiency retrofits ensure the best and highest use of existing land uses.

Unfortunately, the Draft Report places most energy efficiency focus on the State's tough energy standards for new construction and appliances. While those standards are important to the State's clean energy future, retrofitting the State's millions of older homes and buildings are critical. The SB 100 analysis should include the benefits of basic energy efficiency improvements for at least one million homes

### ***Energy Storage***

The Draft Report notes the need for large amounts of energy storage to incorporate ever increasing amounts of renewable energy on the grid, especially solar. The California Energy Storage Alliance estimates that more than 40 GW/400 GWh of storage is needed by 2045 to meet the clean energy goals. With that truly huge need it will be important to call upon all forms of storage – chemical, kinetic and thermal. But the analysis presented includes only chemical battery storage. With all the innovation underway in the energy storage space, the Joint Agencies Should take a technology neutral stance on energy storage so as to encourage this innovation.

JM has developed an energy storage system that uses the pre-cooled air in newly retrofitted energy efficient homes. The Residential Thermal Energy Storage System (R-TESS) is specifically designed to help mitigate the ever-worsening duck curve as additions to solar energy cause the mid-day net load to drop sharply, which creates an ever-increasing ramp up after sundown.

The R-TESS would use newly energy efficient homes as dispatchable thermal energy storage devices. Implementation is described in the following steps:

- Retrofit many older, poor performing homes, such as has been done in the Coachella Valley;
- Install a Nest or other smart thermostat and network all homes via the thermostat;
- Enroll the homes in a pre-cooling demand response program;
- Pre-cool the homes using solar energy at peak solar time of day (charge the thermal battery);
- Switch off/cycle AC in evening to reduce cooling load (discharge the thermal battery); and,
- Optimize system performance with pyranometer-derived data on local solar irradiance conditions.

Such a system meets the California legal definition of energy storage at PUC Code Section 2835(a)(1) in that R-TESS:

- Meets all 4 criteria in subsection (a)(3) -
  - Reduces GHG emissions;
  - Reduces peak demand;
  - Defers investments; and,
  - Improves reliability.
- Meets 3 of the four criteria in subsection (a)(4) –
  - Stores thermal energy for direct use for heating or cooling at a later time in a manner that avoids the need to use electricity at that later time’
  - Uses thermal process; and,
  - Uses renewable energy.

The R-TESS requires no new land use and achieves reduction in peak load demand by utilizing off peak electricity generated from abundant – and quickly growing – solar resources. We do not think that the R-TESS could be a complete substitute for chemical batteries; rather, R-TESS could provide an interesting supplement to chemical batteries, and one that has none of the safety and land use issues of batteries, and also provides direct resilience, financial, and equity benefits to DACs.

Thank you for the opportunity to submit these comments.

**Bruce D. Ray** | Director of Governmental and Regulatory Affairs | Associate General Counsel 717  
17<sup>th</sup> Sreet (80202) | Denver, Colorado 80217-5108  
P: 303-810-9723 [Johns Manville](#)

**Gregory Sutliff** | Director, Home Services Division – Alcal Specialty Contracting, Inc. 946 N. Market Blvd  
Sacramento, California 95834  
P: 916-206-7286 [www.AlcalHome.com](http://www.AlcalHome.com)

### About Johns Manville

Johns Manville, a Berkshire Hathaway company, is a leading manufacturer and marketer of premium-quality building and specialty products. In business since 1858, the Denver-based company has annual sales over \$3 billion and holds leadership positions in all of the key markets that it serves, including insulations, commercial roofing systems and fiber-based engineered products. Johns Manville employs 8,500 people and operates 46 manufacturing facilities in North



America and Europe. One of JM's flagship fiber glass insulation manufacturing plants is located in Willows, CA (Glenn County), about an hour and one-half north of Sacramento. Additional information can be found at [www.jm.com](http://www.jm.com).

#### About Alcal Specialty Contracting, Inc.



#### **About Alcal Specialty Contracting, Inc.**

Alcal Specialty Contracting, Inc. installs and removes insulation, replaces garage doors, air seals attics, and provides other energy efficiency solutions for residential and commercial clients throughout Northern and Southern California. In addition to offering services and products that are designed to increase indoor comfort and reduce the year-round costs associated with heating and cooling, the family-owned and operated company performs roofing and waterproofing, commercial glass expansion joints and firestop/fireproofing services for commercial and residential customers across six western states out of 15 branch locations. As a subsidiary company to the Pacific Coast Building Products family of companies, the depth and breadth of experience, personnel and financial resources enables it to achieve scaled efficiencies in purchasing and labor management.

Alcal Specialty Contracting, Inc.'s Home Services Division has been a producing contractor in the Energy Upgrade California program and is certified as an Advanced Upgrade contractor, and is also a producing contractor in the Sacramento Municipal Utility District's Home Performance Program for the last year and a half. As the Insulation and Air Sealing contractor working in support of large HVAC contractors, Alcal has participated extensively Energy Upgrade, SMUD HPP and other rebate program residential energy efficiency upgrades over that time. In addition, its partnerships with the South Coast Air Quality Management District, large Military Family Housing management companies, HVAC, Plumbing, Pest Control and Roofing contractors across California drive significant business in the attic retrofit market segment, and will continue to drive Alcal's revenue and business growth in creating green jobs at its branch locations across California.