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Johns Manville and Alcal SB 100 Joint Agency Report #19-SB-100

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 after participating in the September 2, 2020 Joint Agencies Workshop. First, the Joint Agency Report should evaluate and incorporate the critically important contributions of energy efficiency 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 just “battery storage” while ignoring other forms of energy storage.

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; 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, 2019,¹ JM and Alcal have had success in working with the South Coast AQMD to retrofit thousands of 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.

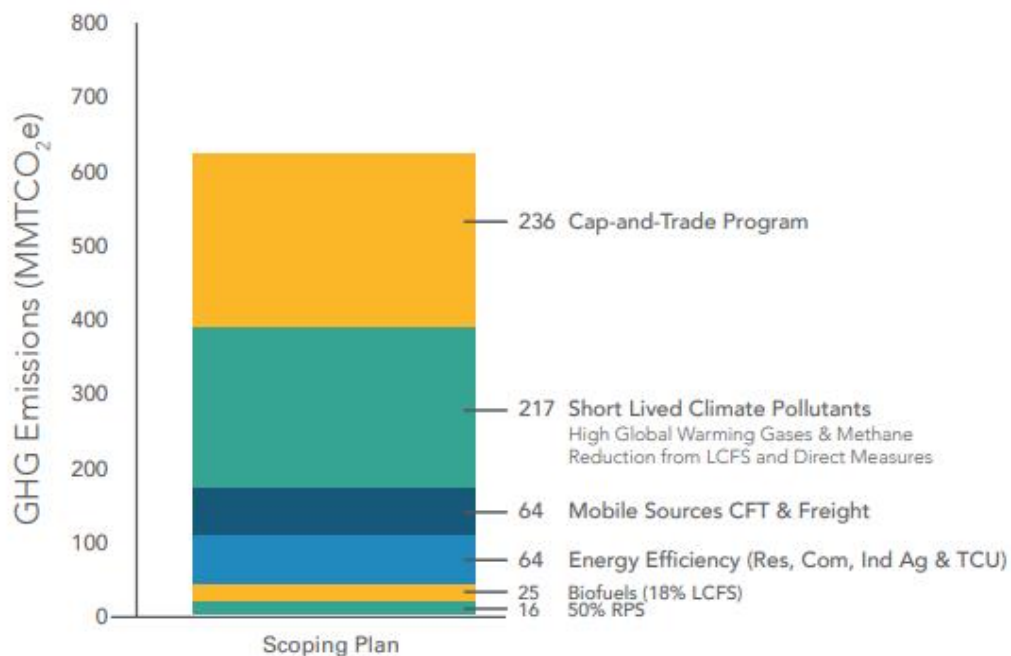
Those benefits can be economic and financial. The CEC has determined that investment in clean energy and energy efficiency within DACs is critical to overcoming barriers to clean energy in those communities:

¹ 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.²

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.³

FIGURE 7: SCOPING PLAN SCENARIO – ESTIMATED CUMULATIVE GHG REDUCTIONS BY MEASURE (2021–2030)⁶⁴



² 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](#).

³ California's 2017 Climate Change Scoping Plan (Nov. 2017) link [here](#), at page 50.

And 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.

Energy Storage

Several workshop participants noted 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 these newly 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 but also provides direct resilience, financial, and equity benefits to DACs.

Thank you for the opportunity to submit these comments.

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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 8,000 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.

About Alcal Specialty Contracting, Inc.

Alcal Specialty Contracting, Inc. Alcal is a large privately held and diversified specialty contractor that has operated continuously since 1971. It employs over 900 people and has branches in California, Nevada, Arizona, Colorado, Washington, and Hawaii. It's installed energy efficiency products and services include insulation, air sealing, duct sealing for new and existing building residential and commercial construction projects. The company is a signatory to several unions including the Roofers, Glaziers, and Carpenters Unions.