Rondo Energy, Inc.
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Rajinder Sahota
Deputy Executive Officer
California Air Resources Board

October 22, 2021

Via electronic submittal: Scoping Plan Comment Docket

Re: Rondo Energy Comments on September 30, 2021 Technical Workshop on GHG Scenarios

Rondo Energy appreciates this opportunity to submit additional comments regarding the 2022 Scoping Plan Update. Rondo Energy (Rondo) strongly supports CARB's ongoing efforts to solicit the latest information and the lowest-cost, lowest-risk pathways to achieve California's climate, environmental, and economic goals. Rondo previously submitted broader comments to the Kick-Off workshop[1], as well as initial Scenario comments[2]. This comment letter builds upon those initial thoughts in the spirit of CARB's iterative approach to policy making..

Rondo is a California-based company developing and delivering technology that delivers zero-carbon energy for industrial processes and power generation. We see an opportunity to cut the cost of clean, high-heat energy below the cost of fossil energy, and we see California's policies as critical drivers of the transition to a low-cost, low-carbon future. Therefore, it is critical that such zero-carbon industrial heat, applicable to multiple sectors, be included in the upcoming modeling runs.

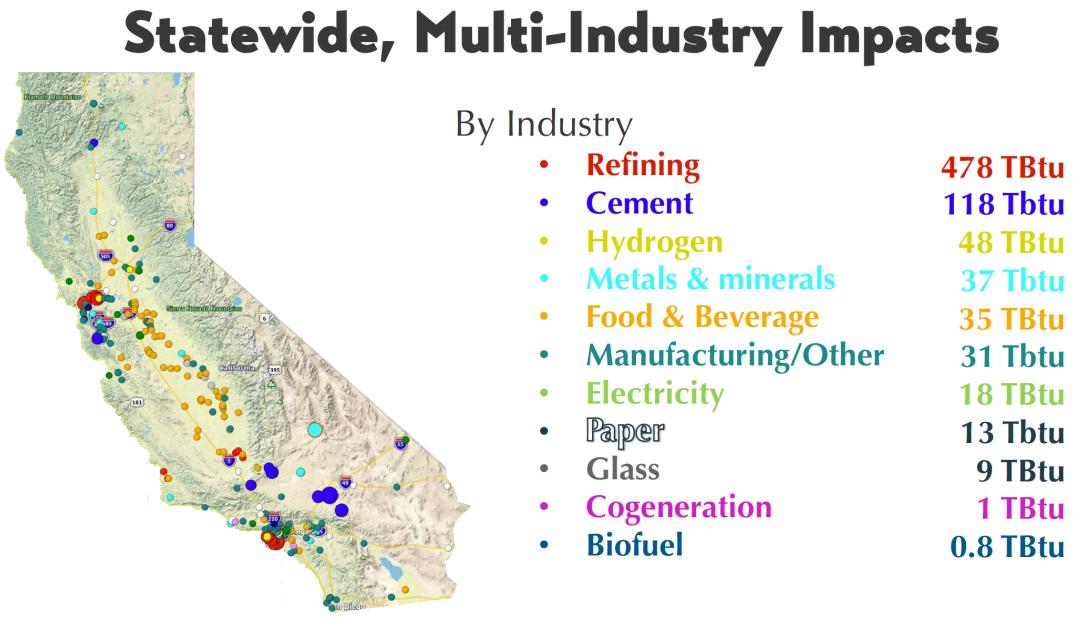
The September 30th workshop refined the initial Scenario for GHG modeling and provided additional background for review and analysis, including the PATHWAYS 'assumptions' document. Rondo appreciates this level of detail. The assumptions document uses the term "electrify" numerous times in reference to decarbonizing industrial heat. Rondo is supportive of an inclusive definition of 'electrify', and suggests that indirect electrification be considered in the modeling as well. We respectfully request that the GHG modeling include indirect electrification of industrial heat for several of the sectors highlighted, including fuels (extraction and refining), metals, food and beverage, cement and glass.

It's clear that enormous amounts of low-cost, zero-carbon industrial energy are needed to keep California's economy growing without sacrificing its climate goals. Fossil fuel burning for industrial heat today is significant (see graphic below), and has been one of the areas previously deemed to be "hard to decarbonize" in the transition to a zero-carbon future in past Scoping Plans, but this 2022 Update can be different. **This update can realistically, and finally, project industrial heat emission reductions.** Thermal storage technology is available in the timeframe of this Scoping Plan Update, and therefore should be included as a viable reduction strategy when conducting the GHG, Air Quality and economic modeling.

Indirect electrification can make critically needed contributions to California's future. By 2030, 15% of California's industrial heat load can be converted to zero carbon heat. By 2040, this figure rises to 70%. At the same time that indirect electric heat provides a long-term, low-cost energy strategy for industrial producers in California – and provides incentives for investment in new zero-carbon factories and industries – the large new

[1] https://www.arb.ca.gov/lists/com-attach/86-sp22-kickoff-ws-ATNdagY3B2NWYAkw.pdf
[2] https://www.arb.ca.gov/lists/com-attach/50-sp22-concepts-ws-U2ECNQQ1BW9WYAQ3.pdf

renewable generation facilities delivering this heat will increase the resilience of the electricity grid and reduce electricity prices.



In addition to direct decarbonization of the industrial sector, these industrial heating systems can be coupled to the grid to become large *dispatchable loads* that absorb intermittent peak-hour electricity at very large scale, and serve the very large heating energy needs of industrial facilities with zero-carbon energy as illustrated below.

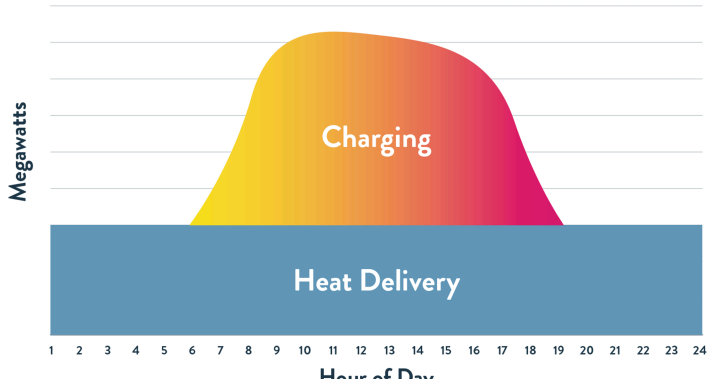


Figure 1 Indirect Electrification: intermittent power to continuous heat

Rondo also respectfully suggests that a wider look at renewable heat, and its link to 'electrification' and California's future decarbonization goal – both in the electricity sector (zero-carbon grid) and the industrial sector. This Scoping Plan can, and should, highlight the way to drive *decarbonization without deindustrialization* – zero-carbon energy supplies for industrial users that become permanently lower-cost than today's carbon-based energy.

Renewable thermal heat replaces combustion, meaning these solutions can decarbonize the "hard to get" reductions that have eluded previous planning efforts. And because this technology directly reduces in-basin combustion, the benefits to local air quality – and the impacted communities in which industrial facilities operate – are direct, significant, and permanent.

We believe the time is now for California to focus on this cross-sector technology, accelerate emissions reductions without increases in cost, and lower criteria and toxic air emissions. It starts with inclusion of zero-carbon industrial heat being modeled. Given the critical and challenging goals of this Carbon Neutrality update to the AB 32 Scoping Plan, the readiness of a variety of new renewable thermal technologies – including those of Rondo and of other enterprises in this important field – should play a key role in policy development, and could be hugely successful in motivating innovation, investment, and industrial growth in the State.

Thank you for the opportunity to provide these comments. We look forward to continued discussions.

Sincerely,
/s/

John O'Donnell
CEO, Rondo Energy