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Deputy Executive Officer
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July 9, 2021

Via electronic submittal: Scoping Plan Comment Docket

Re: Rondo Energy Comments on 2022 Scoping Plan Kickoff Workshop Series

Rondo Energy appreciates this opportunity to submit comments regarding the 2022 Scoping Plan Update. 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. We respectfully suggest that the 2022 Scoping Plan Update should include evaluation of the potential for indirect electrification of industrial heat.

Rondo is a California company developing and delivering a new technology that delivers zero-carbon energy for industrial processes and power generation. We see an opportunity to cut the cost of clean 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.

California is a global leader in decarbonizing its electricity grid – leadership that has yielded considerable benefits while also creating some significant new obstacles. While renewable power gets cheaper every year, its variable output is a growing challenge to the operation of conventional power plants, the reliability of the electricity grid, and especially the pricing and cost to ratepayers of more intermittent supply.

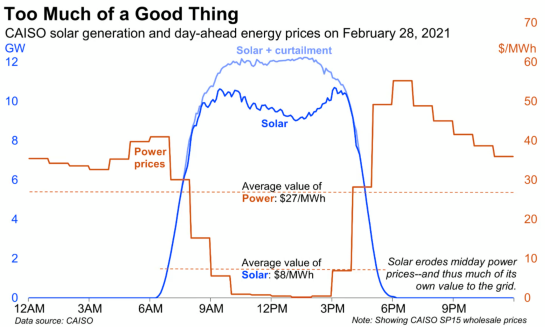

Figure 1 Growing impacts of load-generation mismatch (BloombergNEF)

At the same time, California has not yet achieved similar success in decarbonizing its industrial energy use. Industrial CO_2 emissions are larger than emissions from the electricity sector and have remained level over the past decade. 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.

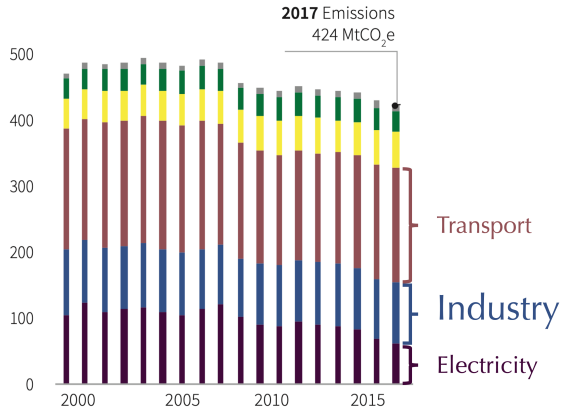

Figure 2 California emissions by sector
(EFI/ Stanford. "Action Plan for Carbon Capture and Storage," October 2020.

Each of these problems holds the solution to the other. Industrial heating systems that are indirectly electrified 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. The deployment of such systems can significantly reduce electricity costs for ratepayers, speed the deployment of renewable generation resources, and greatly improve the resiliency and reliability of the grid.

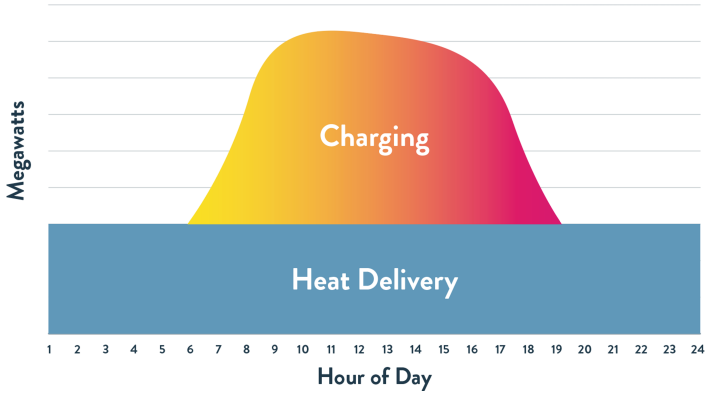

Figure 3 Indirect Electrification: intermittent power to continuous heat

Rondo has developed a new technology – a Heat Battery, charged by intermittent renewable electricity, that delivers continuous renewable heat for industrial use. The heat battery can be charged and discharged an unlimited number of times, powered either by off-grid renewable generation or by the grid, and is designed to serve over 95% of all of California's industrial heat demand.

CARB has previously recognized the potential benefits of renewable heat in the development of the Low Carbon Fuel Standard in delivering emissions reductions in the production of liquid fuels, placing value on both low-carbon energy for biofuel production and innovative crude production. This limited scope is an example of a successful policy that is stimulating technology development and market initiatives that will drive down criteria pollutants and carbon emissions at low costs.

Rondo respectfully suggests that a wider look at renewable heat, and its link to electrification and California's future zero-carbon grid, is a major opportunity in this Scoping Plan Update to create policies that will drive *decarbonization without deindustrialization* – zero-carbon energy supplies for industrial users that become permanently lower cost than today's carbon-based energy.

Whereas previous Scoping Plans and Carbon Neutrality Models largely overlooked the massive opportunities for renewable heat, the 2022 Scoping Plan Update can focus on this underserved market in a significant yet practical way. Renewable thermal heat can meaningfully reduce direct combustion emissions from most of California's manufacturing and process industries, including the production of cement, glass, food and beverage, fuels, and metals.

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.

California's carbon market price signal created the demand for renewable thermal heat. Now that the technology can deliver sustained economic growth while reducing both criteria pollutants and GHG emissions, the Scoping Plan should highlight it. Such a policy and market signal is imperative to the private capital and investment decision-makers necessary to get projects built. CARB should be applauded for instituting, and continuing, such a stable policy price signal.

We respectfully suggest that as part of this Scoping Plan update, CARB should consider mechanisms that go beyond the carbon market, which significantly accelerate emissions reductions without increases in cost, via the development of a Renewable Thermal Standard, or RTS, in this Scoping Plan. The inclusion of an RTS would reinforce the signal to the world that California still believes in the power of the aspirational, technology-forcing policy mechanisms. Such actions were a foundation of the original 2008 Scoping Plan. Given the critical and challenging goals of this Update (2045 Carbon Neutrality), and the readiness of a variety of new renewable thermal technologies, such a policy could be hugely successful in motivating innovation, investment, and industrial growth in the State.

We understand the Scoping Plan sets the targets and policy mechanisms, rather than the details, but it's worth mentioning that a RTS could function like today's Renewable Portfolio Standard, or RPS. Set the statewide goal and let the innovators, market, and compliance entities find the best path forward. Rondo believe such a target could be set and subsequently strengthened over the years, like the RPS, as the technology matures and its uses are expanded.

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

Sincerely,
/s/

John O'Donnell
CEO, Rondo Energy