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**‘CA Low Carbon Fuel and Energy Coalition (CLCFE)’**

Purpose: CLCFE is a broad coalition seeking to include biomass/bioenergy, biofuel, geothermal energy, energy storage providers, renewable energy providers, agricultural, forest and recycling interests, air districts, environmental groups, energy and electricity service providers, community choice aggregators, environmental justice groups and stakeholder and interested parties that will, among other things, highlight the lifecycle value of renewable technologies such as bioenergy/biofuels to accelerate carbon and short-lived climate pollutant (SLCP) reductions across sectors in the state in order to meet California’s carbon reduction goals and to move its Cap and Trade Market forward.

The group also addresses the electric grid resiliency and balancing benefits of existing flexible and baseload low carbon renewables as California continues to increase its level of renewable energy (including high concentrations of intermittent renewables) and transitions away from fossil fuel peakers or older non-renewable baseload technologies and as it integrates more energy storage. CLCFE also seeks to highlight the ancillary environmental benefits of these technologies beyond their high value to the electric grid and energy supply resiliency and how utilizing high lifecycle value and diverse resources will also address economic and environmental improvement and inclusion in disadvantaged regions of the state.

The coalition supports a cost-effective use of the best resources available that have the lowest life-cycle carbon and SLC emissions to enhance electric grid reliability and to achieve measurable regional emissions reductions in both the electric and transportation sectors.

The Message Platform: Existing and evolving flexible renewable energy resources, and in many cases their fuel stocks, are critical to achieving California’s world leading quest to reduce carbon and short-lived climate pollutant emissions to levels that will effectively address climate change beyond 2020. There is also significant potential to expand development of biofuels and newer bioenergy resources utilizing these same fuel sources – forest, agricultural and urban landfill waste – to compound the benefits of avoided emissions by diverting these waste products into fuel development and/or electricity generation. This supports local economies, improves local and regional air quality, and helps reduce the cost of balancing out an expanded RPS with flexible and baseload renewables that enhance grid resiliency and reliability.

Specifically, California has the opportunity in the critical period between now and 2020, and to map out an inclusive and diverse resource plan moving forward from 2020, to maximize emission reductions in many environmentally and economically challenged areas of the state where key fuels and generation resources are located by:

1. reducing landfill waste and carbon and methane emissions from these sources
2. reducing particulate matter and other short-lived climate pollutants as well as carbon emissions from agricultural waste that would otherwise be open burned or degrade in place (and preserving agricultural lands that contribute to overall carbon reduction via natural carbon capture and sequestration)
3. removing dead and dying trees and forest waste that acts as tinder in our increasing wildfire situations (and improving and sustaining overall forest health to similarly improve natural carbon capture and sequestration)
4. ensuring that a diverse supply of distributed and transmission level flexible low carbon renewable generation sources that help balance and stabilize the electric grid and replace older, fossil fueled technologies and demand for new non-renewable peaking generation are able to compete in the market for wholesale generation (to preserve a resilient, reliable, affordable energy supply as we move to 50% renewables and beyond)

California can achieve these objectives by accurately identifying the avoided emissions associated with landfill, agricultural and forest waste diversion into renewable biofuels and bioenergy, by determining the offset value of these avoided/eliminated carbon and short-lived climate pollutants and monetizing it via a funding stream (GGRF, for example) for diversion of these feedstocks into biofuels and bioenergy, and by creating appropriate rate and tariff incentives that reflect the full value of flexible renewables. including geothermal, bioenergy, and paired solar/wind with energy storage and the avoided costs their deployment represents.

**The Process:**

**Achieving Key reductions in the fuels sector and avoiding fuel stock emissions:** The CA Low Carbon Fuel and Energy Coalition has developed a preliminary valuation study and continues to work collaboratively with agencies and the University of California to outline a broad lifecycle study and obtain funding to conduct an expanded, peer reviewed study via one of the University of California energy programs. This study and valuation will allow for the monetization of the non-energy benefits of waste diversion into fuels for transportation or generation of electricity and can be utilized to validate the need for use of Greenhouse Gas Reduction Fund (GGRF) or other appropriate state funding (existing fee expansion, etc.) to buy down the cost of these fuels and to create economic incentive for their diversion from open burning or other carbon intensive end use - so they can compete at market price ranges as end use renewable fuels or as source fuels for biomass/bioenergy generation that keeps the wholesale cost of these types of high value electricity in the market range as well.

**Valuing grid balancing renewables:** By moving forward with development of integration values of flexible existing and new renewable generation, such as geothermal and biomass/biogas/bioenergy, and by applying appropriate capacity factors for the reliability, resource adequacy and resiliency/balancing values of these types of resources, California can maintain and improve upon its low carbon renewable generation goals by maximizing use of these resources and reducing their overall cost. California is battling to balance the growing introduction of intermittent renewables in economically and environmentally sustainable manners. The California Independent System Operator (CAISO) has noted that there is increased peaking in supply that is not coincident with when increases in demand occur and that this imbalance is a result of increased percentages of intermittent renewables coming onto the grid while baseload and flexible resources are declining, exacerbating the so-called ‘duck curve’ of this misalignment.

**How we accelerate emission reductions and renewable energy growth while growing the state’s economy:** In order to keep energy costs down as California increases to 50% and beyond with its renewable energy penetration and faces greater intermittency in the generation mix - while also continuing to reduce carbon and short-lived climate pollutant emissions on a lifecycle basis to cost-effectively and decisively address climate change - we must maintain and improve upon grid-balancing renewable generation (while continuing to move forward with energy storage and other balancing technologies). California can continue to lead the world in reducing reliance on fossil fuels, reducing carbon and other emissions and in slowing and ultimately reversing climate change by accelerating reductions in the electric and fuels sectors as we’ve outlined (by valuing the avoided emissions of fuel stock diversion) at low comparative cost while creating broad environmental and economic benefit across multiple sectors in the state and in some of the state’s most challenged regions. The objectives outlined by this coalition to institute grid integration values also bring down the cost of more flexible renewables, create the bridge to high levels of very low lifecycle carbon renewables and ensure grid reliability during that transition and can sustain it for the long term. The two platforms build a broad, lifecycle approach to meeting both of these needs at low cost and create more immediate results, mitigating the need for higher cost solutions and allowing more time to develop and implement those other solutions across sectors, while also reducing regional emissions, preserving significant high paying jobs in the state and growing ancillary industries and markets.

**How do we do this at low cost?** We can help move California to its clean energy and transportation goals while continuing to grow our economy by utilizing GGRF or other existing funds to offset the fuel stock costs we’ve identified and by appropriately valuing grid balancing and resiliency benefits of diverse and flexible renewables like geothermal, biomass/biogas and other bioenergy sources via a rate mechanism, capacity factor or other means of assessing resource adequacy and other benefits, and through appropriate emphasis on grid balancing in the Integrated Resource Plan (IRP) process and/or cost-sharing accommodation in the RPS proceedings at the CA Public Utilities Commission. Furthermore, maximizing the utilization of renewable generation facilities that are distributed through California, are already operational, connected to the grid and that have enhanced environmental controls that further reduce carbon emissions significantly reduces the lifecycle footprint of the overall RPS and via these specific sources of flexible generation.

Adding to these facilities with new geothermal, bioenergy and other innovative renewable resources that use fuel stocks that reduce carbon and short-lived climate pollutants, that provide other non-energy environmental benefits (such as waste water re-use/treatment) and that continue to balance the grid and make it more resilient, especially in a broader, regionalized system, ensures that we have an ongoing supply of balanced renewable energy for the state’s increasingly dispersed and distributed energy users. It creates market choice for wholesale purchasers that is lower cost and more reliable and will reduce the number of peaker plants or fossil fueled baseload resources that will be needed as we continue to grow energy storage and other solutions, to ensure a fully sustainable, resilient grid supply while achieving significant, sustainable non-energy environmental benefits.

CLCFE will continue to work with academia, regulators, legislators, the administration and personnel at key agencies to help develop and align policies that support moving forward with the best combination of renewable resources for grid reliability, that support optimal and cost-effective use of fuel and electricity from forest, agricultural and landfill waste; and that contribute to immediate and measurable regional emissions reductions both from the fuel source and in the generation of electricity or combustion of biofuels in transportation.