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ADDING RECOVERY TO CALIFORNIA'S RECYCLING TOOLKIT: WHY IT'S TIME GET MORE "REDUCE AND RE-USE" FROM SOLID WASTE… AND HOW TO DO IT

California has a compelling need to manage solid waste processing residuals for beneficial recycling, recovery and reuse. And California environmental policy has created a compelling need for increasing the supply of low carbon energy, fuels and chemicals to achieve GHG reduction and Climate Change goals. Both these needs can be addressed using existing technology to recover low carbon energy, fuels and chemicals from solid waste residuals, but current provisions of the California Public Resources Code make it very difficult to utilize this technology in California. (see attached list of applicable PRC definitions).

Policy clarification and statutory authorization is urgently needed for these reasons:

Recycling Goals. California has two separate policies establishing 75% solid waste recycling goals by 2020 and 2025. But actual recycling is less than 50% and is now in decline for a variety of reasons. To achieve 75% recycling anytime soon will require a full suite of recycling and recovery technologies – supported with effective funding mechanisms and incentives consistent with the goals.

- **Climate Change Goals.** California's demand for low carbon energy, fuels and chemicals.
- **China's "National Sword."** The advent of China's national policy which dramatically reduces California solid waste recycling options.
- **Limited Recycling Capability.** Greatly improved processing of recyclables is now required to meet increasing marketplace standards.
- **Increased Waste Processing.** Greater processing of fiber, plastic and organic waste to meet recycling market demands is now required, resulting in larger amounts of residual waste with low direct recycling potential
- **Residual Waste Recovery.** Greatly increasing tonnage of processed waste residuals for which there is currently no economic options other than land disposal – except for the possible recovery of energy, fuels and chemicals.

Improved Definitions and Clarification of the Role of Recovery in Solid Waste Recycling: A Path Forward

One major and continuing concern which needs to be addressed is whether the use of residual solid wastes to recover energy, fuels and chemicals should be considered "recycling." This concept memo suggests a possible framework for providing a clearer and more supportive regulatory pathway for the recovery of energy, fuels and chemicals from solid waste in California. That framework could include the following principles and concepts:

- The technologies to be incorporated in the "recovery" concept include, but are not necessarily limited to: pyrolysis, gasification, processed engineered fuels (PEF), and refuse derived fuels (RDF) to be

further defined in accordance with standard industrial terms and definitions – *and*, deleting the existing definition of gasification in the California PRC.

- Direct combustion or mass incineration of mixed solid waste not permitted—other than the two remaining waste-to-energy facilities in California .
- Processes to recover energy, fuel and chemicals from solid waste not to be considered "disposal" or "recycling," but instead considered "recovery" (or some other term TBD).
- A solid waste facility processing permit to be required for the processing of residual solid waste to recover and produce low-carbon energy, fuels or chemicals. Compliance with CEQA and all other applicable state and local permits required for the facility at which the recovery process is located.
- Solid waste management hierarchy in PRC 40051 to be modified to include Recovery below recycling but above disposal and transformation.
- Residual energy, fuel or chemicals produced and beneficially used to no longer to be considered a solid waste, provided that low carbon energy, fuel and chemical requirements and specifications are met.
- Solid waste facility permits *not* to be required for facilities and operations which only utilize the recovered energy, fuels and chemicals from residual solid waste.
- Residual waste-derived *liquid and gaseous fuels* to be used to produce *low carbon transportation fuels* that meet CARB's standards for the production of a low carbon transportation fuel. Could include the production of electricity dedicated for use as low carbon transportation electric power or hydrogen, or:
    - Used to *produce low carbon chemicals* that can be used in industrial or chemical processes to reduce GHG emissions.
- Residual waste-derived *solid fuels* to be permitted for use in *industrial furnaces to lower the carbon intensity of products* produced by the industrial facility served by the furnace and meet the energy intensity requirements of the furnace using the fuel (BTU/lb). Emissions from the furnace required to be fully compliant with air district standards.
- Any *solid* fuel produced must be stable, not to break down or compost, to have no odor, and to be easy to transport without nuisance.
- Prior to recovery of energy, fuels and chemicals, the solid waste must be processed to minimize the presence of hazardous waste and maximize production of recyclable metals, plastics, fibers, and biogenic materials that meet the standards in the marketplace, to be further recycled, or directly used as a feedstock for a recycling or manufacturing process. Bulk use of plastic, fiber, and unprocessed mixed waste to recover energy, fuels and chemicals to be prohibited. Only residuals from the processing of plastics, fiber, or biogenic waste to recover directly recyclable materials permitted for use as a feedstock for the recovery technology in addition to allowable biomass conversion materials.
- Regulations could further specify fuel moisture content, chlorine content, sulfur content, mercury content and other limitations with respect to the energy, fuels and chemicals which are produced as necessary to ensure protection of the environment, human health and public safety.
- Provision of additional or alternative economic incentives should also be considered to encourage and expand solid waste recycling and recovery. For example, clarification to ensure that Recovery technologies are eligible for Sales and Use Tax exclusion through CAEATFA could also be pursued, as well as potential favorable financing through CPCFA.