Enerkem

September 1, 2015

The Honorable Mary Nichols, Chair
California Air Resources Board
1001 I Street
Sacramento, CA 95814

RE: Cap-and-Trade Auction Proceeds Second Investment Plan

Dear Chair Nichols,

Enerkem appreciates the opportunity to provide comments regarding the concept paper developed by the Air Resources Board (ARB), Cap-and-Trade Auction Proceeds Second Investment Plan (Second Investment Plan).

Enerkem is a leading waste-to-biofuels and chemicals company. We produce clean fuels and green chemicals from non-recyclable municipal solid waste, thus helping diversify energy sources while offering a sustainable alternative to landfilling and incineration. Converting residual wastes into renewable low-carbon liquid fuels reduces greenhouse gas (GHG) emissions by displacing the use of fossil fuels in transportation, and reduces emissions of methane—a potent greenhouse gas—resulting from the landfilling of organic wastes.

Our facility in Edmonton, Alberta (Canada) is the world's first commercial biorefinery to use municipal solid waste (MSW) to produce biomethanol and ethanol. We are currently developing biorefineries in North America and globally using our proprietary biofuels technology, developed in-house since 2000. We are actively exploring opportunities to invest in future waste-to-biofuels and renewable chemicals facilities in the State of California.

Enerkem supports ARB's Second Investment Plan and believes that investment of Greenhouse Gas Reduction Fund (GGRF) funds in the concepts outlined in the Plan will make a significant contribution to reducing GHG emissions in California. We have a number of specific comments and recommendations in relation to the areas of Enerkem's business and technical expertise: the potential for emissions reductions and

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economic development relating to waste diversion and the production of low carbon fuels and chemicals.

Incentivizing in-State production of low carbon fuels

Given that the transportation sector is the economic sector with the greatest emissions in California, responsible for 37% of all of State GHG emissions[1], we strongly agree with the Concept Paper's inclusion of low carbon fuels as an essential part of ARB's Second Investment Plan. Low carbon liquid fuels such as those produced by Enerkem can be added to the gasoline pool and used in today's vehicles and with existing storage, blending and distribution infrastructure. They can be blended into gasoline at levels of up to 15% for most existing conventional passenger vehicles and up to 85% for use in Flex-Fuel vehicles, of which there are an estimated one million vehicles on the road in California today[2].

Currently, much of the renewable fuel used in California is imported. With the right policy signals however, California can encourage the build-out of in-State production capacity for low carbon renewable fuels. Growing in-State production capacity for these fuels will help to achieve the deep emissions reductions that California is targeting—by increasing the supply of low-carbon fuels on the California market—as well as drive economic development in California's Disadvantaged Communities. Enerkem therefore supports the inclusion of incentives for in-State production of low carbon renewable fuels in the Second Investment Plan, as proposed in the draft Investment Concepts for Transportation and Sustainable Communities (Figure 3, p. 12) in the Draft Concept Paper.

Such incentives, to be effective, should be designed to instill investor confidence and overcome the significant challenges associated with financing of innovative technology projects. Programs and policies that address project financing—including capital grants, loans and loan guarantees, as well as tax and production incentives—are the most effective approaches for attracting private investment. In addition, such programs need to have sufficient time frames to allow for the planning, permitting and construction of commercial-scale facilities.

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[1] California Greenhouse Gas Emission Inventory - 2015 Edition (http://www.arb.ca.gov/cc/inventory/data/data.htm)

[2] Elam, R. and all (2015). E85: A California Success Story. Propel Fuels. http://propelfuels.com/images/uploads/media_kit/CA_E85_Propel_White_Paper_6.1.15.pdf

The Draft Concept Paper further recognizes the importance of investing in waste-to-fuel technology in the list of draft Investment Concepts for Natural Resources and Waste Diversion (Figure 7, p. 21). Enerkem supports the proposal to reduce methane emissions from organic waste by investing in equipment and infrastructure to create transportation fuel from residual biomass. However, to ensure that the opportunity for reducing GHG emissions through the conversion of urban wastes is captured, we recommend that the Second Investment Plan specifically identify the use of mixed non-recyclable MSW, and industrial and commercial wastes, for such ends.

Economic and environmental benefits for Disadvantaged Communities

Waste-to-biofuels facilities are uniquely positioned to co-locate with existing waste management and/or petroleum refining infrastructure. Because conventional waste treatment and refining infrastructure generates air pollution and carries other environmental risks that can negatively impact public health, many potential sites for developing new waste-to-biofuels facilities are located in areas designated as Disadvantaged Communities—communities that are disproportionately affected by environmental pollution and home to low-income and vulnerable populations.

Siting new innovative waste-to-biofuels facilities in such communities will have numerous positive impacts locally on public health and economic development, including:

- Diversion of waste from landfills decreases air pollution as well as other environmental nuisances that negatively impact public health including odours, noise and dust;
- Siting of waste-to-biofuels facilities near waste transfer stations reduces the volume of waste being sent to landfill and thereby reduces the transportation emissions associated with transportation of wastes;
- Waste-to-biofuels facilities generate high quality jobs and stimulate the local economy. For example, an independent study by Doyletech Corporation evaluated that 610 direct and indirect jobs were created during the construction of the Enerkem Alberta Biofuels facility in Edmonton, Canada, while 152 direct and indirect permanent jobs are created during operations. Net local economic benefit is estimated at $50 million USD annually.

Beyond the communities where facilities are located, growth in clean domestic infrastructure for waste conversion and production of biofuels and renewable chemicals will bring economic advantages for all of California. Benefits include securing inward investment, developing new industry expertise in a range of existing and emerging technologies and providing security of supply. Once a California-based industry is established, these companies will be able to export this technology and its associated

service sector elsewhere in the United States and around the world, maximising the return on the initial investment.

Technology and end-use neutrality to maximize GHG emissions reductions and economic benefits

Enerkem supports the use of GGRF funds to drive further reductions in GHG emissions. The Draft Concept Paper indicates that organic waste is responsible for more than half of the State's methane emissions and rightly identifies the importance of diverting waste from landfill to reduce emissions of methane. However, on p. 20 of the Concept Paper, only composting and anaerobic digestion are mentioned as available technologies for redirecting organic matter from landfill for generation of energy and other useful products. As other technologies exist for converting organic material to biofuels and renewable chemicals and bioproducts—including Enerkem's proprietary thermochemical technology—we wish to stress the importance of technology neutrality in the Second Investment Plan. Programs to incentivize organic waste diversion and conversion of wastes to biofuels and other useful products should be technology and end-use neutral, and prioritize projects solely on the environmental benefits that can be delivered, in order to maximize the emissions reductions achieved by the Plan.

Technology and end-use neutrality is particularly important in the context where we see a growing convergence of the biofuels and chemicals industries. Increasingly, companies are developing integrated biorefineries that can produce a range of end-products, including biofuels, biobased chemicals, electricity and a variety of co-products. The multi-product approach allows to capture greater value from wastes and residues and to mitigate market risk, thereby increasing the potential for waste conversion and the associated emissions and other environmental benefits.

We look forward to further engaging with ARB over the process to develop the Second Investment Plan, to ensure that GGRF funds are invested wisely and yield the highest possible dividends in terms of GHG reductions, other air quality benefits, petroleum reduction, benefits to Disadvantaged Communities, and the expansion of California's clean economy.

Sincerely,

Marie-Helene Labrie
Senior Vice-President, Government Affairs and Communications