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**Comments on Draft Solicitation Concepts for Renewable Hydrogen
Transportation Fuel Production**

Additional submitted attachment is included below.

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Alternative and Renewable Fuel and Vehicle Technology
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RE: Hitachi Zosen Inova, Comments to the California Energy Commission on Draft Solicitation Concepts for Renewable Hydrogen Transportation Fuel Production Facilities & Systems

Hitachi Zosen Inova (HZI) appreciates the opportunity to provide feedback to the California Energy Commission (CEC) on Draft Solicitation Concepts for Renewable Hydrogen Transportation Fuel Production Facilities & Systems.

HZI strongly supports California's pioneering role and activities in the areas of clean energy and decarbonizing transportation sector. HZI believes that such effort will incentivize clean and low-carbon fuels, which will play a key role in achieving California's GHG emission reduction targets and many co-benefit goals including reductions in oxides of nitrogen (NOx) and particulate matter (PM).

HZI, headquartered in Zurich, is a global leader in energy from waste and other renewable resources. HZI delivers complete turnkey plants and system solutions for energy recovery from waste and other renewable resources. HZI has 13 subsidiaries and locations, and more than 600 reference projects worldwide. The subsidiaries that are most relevant to hydrogen production are: Hitachi Zosen Inova U.S.A. LLC (HZI USA), based in the US; and Hitachi Zosen Inova ETOGAS GmbH (HZI ETOGAS), based in Germany.

HZI USA meets the specific needs of the north and central American markets, and covers a wide range of industry areas including: energy from waste, anaerobic digestion (AD), biomethane upgrade, waste water treatment, hazardous waste management, and some functions related to power-to-gas.

HZI ETOGAS develops and builds turnkey power-to-gas plants based on in-house proprietary technologies. Product segments are power-to-hydrogen, power-to-methane, and hydrogen-to-methane. In 2013 HZI ETOGAS built the largest power-to-gas plant of its kind (6.3 MW power-to-methane plant) for Audi in Germany, which is currently in operation. With our in-house electrolyser and methanation reformer technologies, HZI ETOGAS is uniquely positioned to offer a range of renewable and low carbon solutions to enable zero and near-zero emission vehicles and industrial processes.

Without additional investments in electrolytic hydrogen production, distribution, and fueling infrastructure, we are concerned that California will fall short on achieving its goals on GHG emission reduction and co-benefits, as battery technology still has issues on range, cost,

and recharging time and biomass energy is limited in amount, scale, and location. Also, biomass energy probably would be put in best use if used for jet fuels where no viable alternatives are currently available. In addition, electrolytic hydrogen is an important enabling technology for California to achieve its goal for 100% zero-carbon electricity, as required by SB100.

While we applaud the majority of the proposed draft concepts that are designed to support renewable hydrogen fuel production facilities at meaningful scale in California, HZI is highly concerned about the provisions that prevent other hydrogen uses such as refueling medium- and heavy-duty vehicles (e.g., trucks and buses), off-road vehicles, and storing renewable electricity, from participating in this program.

Given the uncertain and unreliable nature of the refueling pattern of light duty fuel cell vehicles in the pre-commercialization phase, the more realistic and effective way of developing hydrogen production projects is to leverage the hydrogen demand for both light duty vehicles and other applications including refueling heavy duty vehicles and storing renewable electricity. It makes sense for CEC to require that a funded project is strategically located to mainly serve light duty vehicles. It is also reasonable for CEC to require that a funded project makes serving light duty vehicles as its top priority. However, it is not necessary, and is potentially counterproductive, to prevent the participation of other hydrogen use under this program, when light duty vehicle demand falls short of the 1000 kg/day minimum production requirement.

HZI respectfully suggests CEC to allow renewable hydrogen produced under the scope of this program to be used for other purposes including refueling medium, heavy-duty and off-road vehicles, and storing renewable electricity, as long as the funded project makes refueling light duty vehicles as its top priority.

Hydrogen is real. There have been many multi-MW systems installed or announced worldwide in recent years. HZI, among other Hydrogen suppliers are ready to invest in California on this important technology. Your support will be important for us to succeed in bringing projects and investment in hydrogen and related areas to California.

We look forward to working with CEC to further refine its Draft Solicitation Concepts for Renewable Hydrogen Transportation Fuel Production Facilities & Systems. Please feel free to contact us via email at: Xuping.Li@hz-inova.com, for any clarification, questions, or concerns.

Respectfully,

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