

CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE  
 2019 DDRDP Demonstration Projects  
 Applications Submitted to CDFA  
 April 19, 2019

\* The 2019 DDRDP Demonstration Projects application information was extracted from the online application system as submitted by the applicants, therefore, CDFA cannot guarantee accuracy of the information.  
 \*\* Total GHG emission reduction is estimated by the applicant and has not been verified.

	APPLICANT ORGANIZATION	DESCRIPTION	REQUESTED GRANT FUNDS	MATCHING FUNDS	COUNTY	TOTAL EMISSION REDUCTION OVER 10 YEARS (MTCO <sub>2</sub> e)
1	ENV-TWO, LLC	The Flint Dairy Biogas Project near Hanford, CA proposes to build a two-stage anaerobic digester system to treat manure effluent. The digester system includes four upflow anaerobic sludge blanket (UASB) reactors. The reactors allow for the conversion of approximately 80% of the organic material to biogas with methane concentrations of 80-85%. Biogas will be upgraded to renewable natural gas on-site and transported via virtual pipeline to an injection point. The system reduces the nitrogen levels in the effluent by approximately 30%, providing new tools for compliance with the Dairy General Order and SGMA. The project features a scalable and modular future second phase consisting of Moving Bed Biofilm Reactor (MBBR) aerobic tanks paired with algae raceways that can cost-effectively reduce total nitrogen levels in the water by up to 90%.	\$1,750,000	\$3,374,782	Kings	134,900
2	Technology & Investment solutions LLC	The projects objective is to demonstrate hydrogenotrophic methanation at the digester property leased from Phelan Hills Community Services District. As part of this project we will be treating manure and 10-20% of food waste. We will increase the methane content to above 90% by adding hydrogen for biomethanation of CO2 in the digester. The biogas leaving the digester will contain very little CO2 and reduce the need for tail gas flaring. The technology for biogas to hydrogen conversion and injection will be based on USC's biogas catalytic reformer. The project will reduce NOx emissions by 3.08 tons per year by upgrading biogas to pipeline gas and eliminating emissions from biogas combustion for power generation eliminating NOx, SOx and GHG.	\$1,905,000	\$600,000	San Bernardino	1,680
3	Calgren Dairy Fuels LLC	The Jer Z Boyz Ranch Dairy Digester Project is a dairy digester in Tulare County, California. The project is owned by Calgren Dairy Fuels and will be a part of the Calgren Dairy Fuels (CDF) Cluster, developed by Maas Energy Works. This Cluster is operational, producing biogas from five digesters and injecting renewable natural gas into the SoCalGas pipeline. This digester uses new, modular, scalable technology to allow digester installation on smaller dairies and open lot dairies, expanding the market beyond the largest freestall dairies that have previously attracted the most digester development. The methane-rich biogas from this new digester will be transported via the Cluster's adjacent low-pressure pipeline to the central hub. There, the biogas will be conditioned and used to fuel CNG trucks at an on-site compressed natural gas fueling station or injected into the SoCalGas utility pipeline for delivery to contracted CNG fueling stations.	\$1,858,871	\$0	Tulare	83,769
4	San Diego State University Research Foundation	This project will develop the California Agricultural Biogas Energy Research (CABER) facility, consisting of multiple small-scale demonstration digesters on a dairy farm in California's Central Valley. The CABER facility will be a platform to conduct dairy digester research and conduct community and educational outreach. Although the direct impacts of the CABER facility on methane capture and energy generation at the site will be modest, the wider results of the research conducted during the project term and over the life of the facility will have cascading impacts on biogas capture and use across the dairy industry. By developing and testing innovative technologies and practices, the CABER facility can improve dairy digesters across the state of California, which will reduce greenhouse gas emissions and improve energy recovery many times beyond that which can be achieved by a single dairy digester.	\$1,501,462	\$0	Kings	2,721
			<u>\$7,015,333</u>	<u>\$3,974,782</u>		