H2 Production

A Safe and Reliable Solution for Las Vegas

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Pilot scale plant with H2 production based on biomass digestion and steam methane reforming, with the potential to be scaled or replicated in similar Island like locations. The 20 M USD Capex project was evaluated for 15 years, considering 1 $/Kg and 7 $/Kg of Hydrogen selling price, resulting in positive NPV evaluation for both scenarios.

This pilot project is to rely on a 2% portion of the 5 billion pounds of annual food waste generated by more than 1200 restaurants and 260,000 residential dwellings and several stadiums in the city of Las Vegas NV, USA. The food waste would act as feedstock in an anaerobic digester to produce biogas to be used as a fuel and feedstock for producing H2, with a low carbon intensity score based on the GREET model. Tax credits and waste tipping charges were considered in the evaluation as well as potential clients for energy feed in the grid, CO2 production and digestate for agricultural purposes.

The proposed location of the pilot is near the Union Pacific Intermodal Railyard in North Las Vegas, where there is close proximity to natural gas and electricity grid networks. This area would be ideal as the food waste feedstock is often transported on railcars and there is additional truck access. The finished products – H2, Biomethane, and CO2 – can then be readily transported via rail or heavy trucks in a “virtual” pipeline. To ensure the safe transfer of product, a risk analysis and hazop evaluation was prepared.