

DOCKETED

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Public Comment to 22-TRAN-01 Funding Concepts, Hydrogen

See attached document.

Additional submitted attachment is included below.



August 1st, 2022

California Energy Commission
Commission Staff
Delivered via website

Subject: 22-TRAN-01 Funding Concepts, Hydrogen

Shell supports the proposed funding of **Zero and Near Zero Carbon Fuel Production and Supply** in 2022, 2023, and 2024. We believe being **technology neutral** and encouraging utilization of a wide variety of hydrogen production pathways will help to maximize emissions reductions, cost-effectiveness, and lead to a carbon-neutral future that is resilient, reliable, and self-sustaining. Steam methane reformation of biogas/biomethane, electrolysis using renewable electricity, and thermochemical conversion of biomass and waste feedstocks will all play a role in scaling production for California energy systems. The versatility of hydrogen production, storage and end-uses provides many of the same benefits as our fossil-based energy systems as it relates to productivity, reliability, resiliency, and economic benefits, without the negative environmental consequences.

Shell recommends the CEC allow for a wide range of hydrogen production levels, as appropriate to realizing economies of scale, standardization, and products development for commercial viability. That said, seeing the amount of renewable hydrogen that must be made available by the end of this decade to help achieve California's low carbon fuels targets, a **minimum daily production capacity of 10 metric tons per day is reasonable**. We also propose strengthening the future proposed funding for Zero and Near Zero Carbon Fuel Production and Supply because recent grant funding provided to awardees (i.e. GFO 20-609, \$7 Mln total and \$3 Mln max per awardee) only covered ~ 6% of projected project capital costs. This level of funding is not sufficient to support the acceleration of investment in zero and near zero carbon fuel production and supply intended in California. In our experience, the **grant funded share of total capital investment should be at least 40%** to motivate investment net of the associated taxes, cost increases, and administrative requirements for the grant recipient. For awareness, a 10 metric tons per day capacity hydrogen production plant utilizing either steam methane reforming, electrolysis, or thermochemical technologies can cost upwards of \$60 Mln.

For the second solicitation option under Concept 2 (Renewable Hydrogen Production), adding an optional on-site renewable hydrogen production component to a light duty/multi-duty hydrogen refueling infrastructure solicitation currently in development may offer good value to the CEC and California taxpayers **only if** such production provides supply to other refueling infrastructure (i.e., includes an export facility). Such a facility can create a cost-effective hub and regional supply point. In our experience, operating on-site renewable hydrogen production dedicated to only supplying a co-located light-duty/multi-duty hydrogen refueling station, it is difficult to operate efficiently and without significant

hydrogen venting, with associated potential indirect impacts on greenhouse gases. For this solicitation option, we would suggest ***the scoring should weigh heavily on the production plant's ability to supply the co-located refueling infrastructure and also other area hydrogen refueling stations via a hydrogen truck export rack.***

In closing, Shell is committed to a low carbon energy future, with more and cleaner energy, and is working to become a net-zero energy business by 2050 or sooner in step with society. Shell already offers customers a range of decarbonized renewable power, fuels, and energy products, including hydrogen dispensed as a transportation fuel, supplied as an industrial feedstock, and used as a decarbonized energy carrier, in line with LCFS policy intent. Thank you for your consideration.

For further information on this proposal, please contact the undersigned.

A handwritten signature in black ink, appearing to read "Wayne Leighty". The signature is fluid and cursive, with a large loop at the end of the last name.

Wayne Leighty
Hydrogen Commercial Mgr North America
Shell Hydrogen