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Nikola Corporation IEPR Vol 1 Comments

Additional submitted attachment is included below.

February 3, 2021

California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512
Docket Number: 20-IEPR-01
Submitted Via Email to: docket@energy.ca.gov

Subject: Nikola Corporation's Comments on DRAFT 2020 Integrated Energy Policy Report (IEPR) Update, Volume 1

Introduction

Nikola Corporation appreciates the opportunity to provide feedback to the Draft 2020 IEPR Update, Volume 1. Nikola supports the conclusions set forth in the report, especially pertaining to the importance of continuing state support for battery-electric vehicle (BEV) and fuel cell electric vehicle (FCEV) commercialization and associated infrastructure. Nikola specifically appreciates the report's particular recognition of the role of FCEVs and hydrogen infrastructure build out "to ensure there are ZEV options to meet different user needs" with the medium-duty, heavy-duty, and off-road sectors as priority focus areas and recognition of the advantages FCEV technology may offer to rapidly address decarbonization challenges. Nikola also echoes the comments of the California Hydrogen Business Council (CHBC), which acknowledge that hydrogen and fuel cell technology have an important role to play in decarbonizing and reducing harmful emissions from the transportation sector.

Background Nikola Corporation

Nikola is a company dedicated to advancing innovative transportation and energy technologies. As a manufacturer of zero-emission heavy-duty battery-electric vehicles (BEV) and fuel cell electric vehicles (FCEV) and a developer of fueling infrastructure that will support them, Nikola plans to address the historic concerns of vehicle underutilization and/or stranded infrastructure assets. Additionally, through Nikola's energy operations, the company plans to develop and install hydrogen production facilities and refueling stations to support the increasing presence of zero-emission heavy duty fleets and passenger vehicles thereby contributing to the creation of a comprehensive zero-emission transportation ecosystem. Nikola is a strong believer that the future of zero-emission transportation is not a case of battery-electric versus hydrogen-electric technologies, but rather, a blend of both. As such, Nikola is working to build ecosystems that support both technologies. Testing of the Nikola TRE BEV started in late 2020 with a second set of TRE BEV test vehicles planned for production in mid-2021. The TRE BEV production is anticipated to begin at factories in Ulm, Germany and Coolidge, Arizona by the end of 2021. Nikola's FCEV truck prototypes are anticipated to begin testing in early 2022, and production starting approximately mid-2023.

Future and Role of Zero-Emissions Heavy-Duty Vehicle Technologies

Nikola's approach to the zero-emissions heavy-duty marketplace supports both battery-electric vehicles (BEV) AND fuel cell electric vehicles (FCEV) as each technology has a valuable role to play in successfully advancing the most optimal zero-emissions transportation ecosystem. While Nikola's BEV and FCEV models have similar goals to ultimately achieve zero-emissions in the heavy-duty transportation space, lower operational cost, and offer the advantages of reduced noise driving, each of the technologies are designed for different applications. The intended use for the BEV is primarily in metropolitan areas, leveraging the existing energy grid, and utilizing onsite recharging. Alternatively, the FCEV is designed to be lighter in weight and is capable of longer range in that it carries an abundant energy dense hydrogen fuel source, which makes refueling faster, and can support quick turn delivery operations with little downtime.

Nikola encourages California to continue investing in the future of both BEV and FCEV technologies in addition to the corresponding recharging and refueling infrastructure. To effectively manage government resources that advance strategic planning and development of hydrogen refueling infrastructure with the adoption of zero-emissions passenger, medium and heavy-duty vehicles across the state, Nikola recommends that California should strongly consider increasing the role of hydrogen production and corresponding fueling facilities. If placed strategically, these facilities could take full advantage of the state's abundant renewable power generation to help address grid reliability and produce electrolytic and green hydrogen at mass-scale to support a resilient ecosystem. Emphasizing the role of green hydrogen to address decarbonization across multiple sectors will accelerate the state's realization of its SB 100 goals for a clean energy future.

Role of Nikola Energy and Development of Hydrogen Production and Fueling Facilities

Nikola takes a holistic approach to revolutionize the transportation industry. By providing both zero-emission vehicles and the infrastructure to support them, Nikola aims to address historic concerns of deploying vehicles without the required infrastructure or conversely, development of infrastructure that will ultimately be underutilized due to a lack of vehicles. Nikola plans to build a robust infrastructure network to include hydrogen production facilities and retail fueling stations. The presence of Nikola's operations in California will likely contribute to: 1) the state's timely achievement of its zero-emission transportation goals; 2) addressing decarbonization goals across multiple sectors presented by SB 100; and 3) increased grid reliability with demand response and ancillary services provided from flexible, interruptible facilities, in addition to the fuel Nikola can provide for distributed generation applications that require long-term storage and dispatch that cannot currently be met by battery energy storage solutions.

Nikola Energy is exploring opportunities for hydrogen production under two general approaches: 1) a distributed, on-site production and refueling model and 2) a centralized or "hub-and spoke" production and distribution model. Under the on-site production and refueling model, Nikola would develop a distributed network of stations starting at 20 MW /8 tonne H_2/day production and fueling. On the other hand, with the hub and spoke mechanism, Nikola envisions a network of large-scale facilities, ranging up to 400 MW / 160 tonne H_2/day of hydrogen production or more, with transportation of the hydrogen via tanker truck, rail or pipeline to the distributed hydrogen refueling stations. In both models, the critical

cost factor is electric power. Competitive power pricing is the key to producing hydrogen cost effectively. Creating an optimal environment for hydrogen production and fuel use also enables California to take advantage of its abundant wind and solar resources, while reducing curtailment, and dispatching renewable energy when it is most needed resulting in increased reliability and resiliency. Electrolytic and green hydrogen also provide a viable and scalable solution that reduces reliance on fossil fuels in the gas and transportation sectors, representing a tremendous economic development and export opportunity for California as global demand for hydrogen grows.

Recommendations for Consideration

There are several key areas that need to be addressed to fully enable the hydrogen marketplace to flourish in California by driving down the cost of electrolytic green hydrogen, thereby expanding and accelerating opportunities to decarbonize the transportation and energy sectors. These additional suggestions include:

- Reducing electricity procurement and transmission/distribution costs to catalyze mass-scale green electrolytic hydrogen production.
  - Direct participation within the California Independent System Operator (CAISO) markets to allow for low-cost green hydrogen while supplying valuable wholesale electric grid services (e.g., resource adequacy capacity, energy, and ancillary services products that enable greater renewable integration).
  - Low-cost hydrogen production unlocks opportunities for decarbonizing hard-to-electrify transportation use cases and long-term backup power generation and storage for public safety power shutoffs, distribution deferral, and microgrid applications.

- The CAISO should undertake any necessary studies, market process changes, or new rules or regulations required to integrate loads associated with the production of electrolytic hydrogen and/or generation resulting from the release of chemical energy from hydrogen into the California wholesale electricity markets as flexible demand response, hybrid renewable generation and storage, and/or energy storage resource(s).
  - Enable wholesale market access for hydrogen production facility loads.
  - Develop mechanisms to allow hydrogen production loads to provide grid services such as resource adequacy capacity, energy, and ancillary services.
  - Enable hybrid resource configurations where hydrogen production loads can be paired with associated generation or storage resources.
  - Use station power program to net load and generation, whether co-located or at separate points of interconnection and pricing nodes.

- Modifying Low Carbon Fuel Standard rules to increase the rate at which green hydrogen may be economically competitive with existing fossil fuels.
  - Expand book-and-claim accounting to allow renewable resources to be located anywhere in a reliability coordinating council region from which the feedstock electricity is sourced.

- Better support renewable integration by enabling hydrogen production facilities to locate in areas with renewable oversupply, reducing curtailment and increase value of renewable resources.
- Allow for incremental renewable development tied to hydrogen demand to take place in areas requiring additional local generation.
- Reduce burden on utilities' net energy metering programs.
- Improve economics of hydrogen facilities by permitting locational price arbitrage in wholesale markets.

▪ Enable book-and-claim accounting for process energy requirements.
- Align REC-tagging mechanisms between demand for electrolysis and process energy.
- Enable same flexibility as provided for renewable natural gas and steam methane reformation-based hydrogen.
- Allow electrolytic green hydrogen production to be 100% green.

- Establishing hydrogen-powered electric generation and green electrolytic hydrogen production facilities as zero-emission resources in the state's integrated energy resources plan under all decarbonization strategies.

Closing Comments

Nikola Corporation supports the conclusions of the Draft 2020 IEPR Update, Volume 1 – especially pertaining to continued and increased future investment in heavy-duty zero-emissions vehicles and associated infrastructure as well as recognizing and implementing the promising role of hydrogen and fuel cell technologies. California must take a proactive stance to continue encouraging decarbonization, particularly in harder to decarbonize industries by encouraging the production, distribution, and procurement of hydrogen. Innovative technologies, such as electrolysis, relevant to hydrogen production present a viable near-term solution to address zero-emissions transportation, grid reliability and economic opportunity in the state. California should develop a comprehensive roadmap and funding program to foster large-scale hydrogen production, which would represent an essential component to the state's realization of its zero-carbon goals. Nikola looks forward to working with policy leaders and key stakeholders in California to accelerate the state's ability to achieve its decarbonization goals across multiple industry sectors.

Sincerely,

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