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18-HYD-04 September HySCapE Workshop Comments and Questions

Additional submitted attachment is included below.

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To:	Energy - Docket Optical System
Cc:	Heydorn,Edward C.; Chimenti,John P.; Bonner,Brian B.; Cohen,Joseph P.; Farese,David J.; O"Neil,Brian M.; Heydorn,Edward C.; Kiczek,Edward F.
Subject:	18-HYD-04 September HySCapE Workshop Comments and Questions
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Dear Sir or Ma'am,

After review of written materials and participation in the 3 hour workshop on September 27th, I would like to provide the following comments and questions with respect to changes in how the HySCapE tool will be utilized.

1. During the workshop meeting last week, a point of discussion was that the HySCapE tool would be run with different default input settings when used to evaluate station capacity for the CEC HRS Bid Proposal as compared to how the HySCapE tool would be used to determine the eligible Hydrogen Infrastructure Credit. Please summarize the difference in how the modeling tool is used differently for the two programs and the reason the tool is utilized differently.
2. For CEC 5 bids the scorecard awards up to 15 points for Hydrogen Refueling Station Performance. How are the 24-hour (Chevron Friday) and 1-hour (Peak Capacity) model simulations weighted in determining how many of the potential 15 points are awarded? Please specify what the mandatory inputs into the tool for both the 24 and 1-hour model runs.
3. Does the HRS still obtain a maximum output of 300 kg/day per fueling position which cannot be exceeded? Was a minimum capacity per fueling position specified as a proposed change?
4. For the 24-hour (Chevron Friday) HySCapE model run, the ground storage is assumed to be 100% full starting a 12:00 am and no product re-supply is permitted during the 24-hour period of the model run. Ground Storage for gaseous hydrogen HRS is one of the largest capital costs for the overall HRS. The sizing of the ground storage and trailer supply for a gaseous hydrogen HRS will need to be optimized as a unit to reduce the cost of hydrogen at the dispenser. The desired outcome being that the combination of the capital cost of the ground storage and operating supply chain costs provide the overall lowest delivered Hydrogen cost. Requiring a 24-hour supply of product at the HRS may not always be the most effective means to overall lowest cost for hydrogen at the dispenser. Further the 100 percent full ground storage at 12:00 am depending on the trailer supply may be an unrealistic ending offload of product into the ground storage that will not represent actual daily station performance. As an example under the current rule set, a 600 kg/day gaseous hydrogen station could require 1000 kg of storage that would add more capital costs, foot print, and permitting complexity due to high quantities of onsite storage. It can have the effect of ruling out many potential station sites due to available space and penalize gaseous stations compared to liquid hydrogen stations. What is the intent of the 24-hour capacity requirement and has consideration been given to the above raised concerns?
5. The model assumes a linear relationship for compressor capacity based on the compressor

suction pressure. The input for suction pressure is available supply pressure from a storage bank. Not all compressors can operate through the full range of available supply pressure resulting in the model over estimating the station capacity.

6. Some HRS have capability to scavenge product from lower pressure tubes and consolidate product into tubes with higher amounts of product. This has the benefit of better utilization of available compression, boosting daily capacity for a given amount of capital and improving pressure cascade bump offloads from supply trailers. The HySCapE modeling tool does not permit all these types of station configurations to me modeled given the available inputs. Has consideration been given to this shortfall in the modeling tool?

Thanks,

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