FIRSTELEMENT FUEL
FirstElement Fuel Inc. | 5281 California Ave, Suite 260, Irvine, CA 92617 | 949-205-5553

October 16, 2024

Ms. Rajinder Sahota
Deputy Executive Officer, Climate Change and Research
California Air Resources Board
1001 I Street, Sacramento
California 95814

Subject: LCFS Second 15-day Notice Comments

Dear Ms. Sahota,

FirstElement Fuel (FEF) appreciates your and your staff's continued work in incorporating many of the comments from our industry, in particular, the removal of the 50% derate for the Light- and Medium-Duty Hydrogen Refueling Infrastructure (LMD-HRI) capacity credit. Our biggest remaining concern is the 1.5 times capital expenditure (capex) limit to the cumulative recovery of LCFS credits for an LMD or Heavy-duty (HD) hydrogen refueling station (HRS).

Existing HRI Program Works

The current LD HRI program has a 15-year timeframe and a capacity limit of 1,200 kg/d. The HRI program is intended to de-risk the building of stations before sufficient vehicle demand can sustain the HRS. The program is designed to be self-regulating and self-sunsetting with HRI credits never exceeding revenue from H2 sales. Under this rubric, and when LCFS credit prices were above $100/ton, FEF was able to attract sufficient capital to build stations without capital grants from the state and expand the network of stations. The HRI also enabled us to keep hydrogen prices stable as LCFS prices fluctuated and, for a period of time, helped us maintain pump prices even when credit prices started to fall below $100/ton. In short, the HRI was accomplishing its intent by addressing the "chicken-or-the-egg" conundrum.

Proposed Capex Limit Increases Risk

The revised LMD-HRI and HD-HRI, however, now put significant risks on station providers by limiting the HRI period to 10 years and capping the cumulative incentive amount received to 1.5 times the capex of the station, which is a double constraint. Although the 10-year program limit is challenging, the greater obstacle is the 1.5x capex limit. For example, if LCFS prices rise above $100/ton, which is the intent of the step-down and strengthening of the program, station operators could reach their capex limit well before 10 years. But if vehicle rollout lags and there is limited H2 demand, the station operator will have no other revenue source and will be forced to increase pump prices to maintain operations. This would discourage further vehicle deployments, reduce current demand, and result in further raising of prices at the pump. This scenario is illustrated in the figure below, where there is no financial support once the HRI reaches the capex limit (year 5). This is the exact opposite of what the HRI is intended to accomplish.

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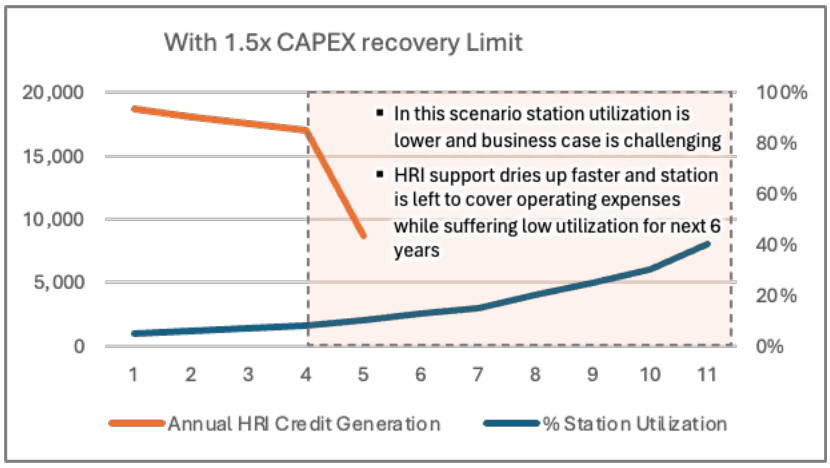


Figure 1: Slow Vehicle Rollout with Capex Limit

We strongly urge removing the 1.5 capex limit to support stations in the event vehicle rollout is slow and demand is low, as originally intended by the policy. Attached to this letter are additional slides with scenarios showing the differences between slow and aggressive vehicle rollouts with and without the capex limit.

Stations in Queue

FEF has over 40 LD stations yet to be built which were awarded by the CEC under various programs. We have made significant investments in site leases, entitlements, and long lead time equipment with the understanding that the investment risk would be based on the current HRI program of 15 years and 1,200 kg/d capacity. With the introduction of MD trucks at the end of the decade, we will also need to upgrade equipment and increase station capacity, thereby further increasing costs. As such, at the very least, we request that any stations previously awarded through competitive solicitations by the CEC be grandfathered into the existing HRI program at the 1,200 kg/d capacity cap without the capex limit.

We appreciate CARB staff's work on enabling zero-emissions transportation technologies, and our company was built to enable these same goals through infrastructure. Indeed, the LCFS HRI program is critical to our continued success. However, constraining the HRI program with the capex limits puts greater risk on the station developers since the vehicle rollout is beyond our control. We look forward to working with staff to implement this critical change.

Respectfully,

Matt Miyasato, Ph.D.
Chief Public Policy & Programs Officer

2024 Updates to HRI Regulation:

Negative Impacts of the 1.5x CAPEX recovery limitation

October 2024

Overview

Original HRI Policy Rationale and Benefits

The HRI policy was originally designed to spur the development of hydrogen stations ahead of cars, while providing some financial protection against the risk of hydrogen vehicles rolling out slowly. It assures revenue to support a station's operating costs regardless of the pace at which vehicles rollout.

Furthermore, the policy was designed to be self-regulating and self-sunsetting.

- If vehicle rollout is slower, stations generate more HRI to support their operations in lieu of revenue from sales. If hydrogen station capacity exceeds vehicle rollout by too large a margin, then the HRI availability for new stations is exhausted, which is appropriate so that station buildout does not get too far ahead of vehicles.
- If vehicle rollout is faster, stations generation less HRI because they are making revenue from sales. Also, HRI credits remain available for new stations to enter the program to keep the station capacity ahead of vehicle growth.

The original HRI policy yielded the following benefits when LCFS credit values were healthy (this list is not inclusive of all the benefits, such as lower CI and higher renewable content of hydrogen, which were also incentivized by the policy):

- Unlocked private investment to build stations ahead of cars
- Resulted in a lower price at the pump even during early years of lower station utilization
- Spurred significant investment in engineering and R&D to improve hydrogen station performance and reliability
- Encouraged the installation of higher volume stations that could serve more cars with fewer lines and wait times

The 1.5x CAPEX Recovery Limit Undermines the Rationale and Benefits of the HRI Policy

Adding the CAPEX recovery limit to the program incentivizes the opposite of what was intended:

- If vehicle rollout is slower, a station will hit the 1.5x CAPEX limit and exhaust its HRI crediting window faster leaving it without revenue support for station operating costs precisely in a downside situation when the support is needed. Furthermore, HRI credits become available for more new stations to enter the program, further exacerbating a situation when utilization is low at the existing stations. Stations will be faced with a decision to close, or to significantly raise the price of fuel at the pump to bring in more revenue.

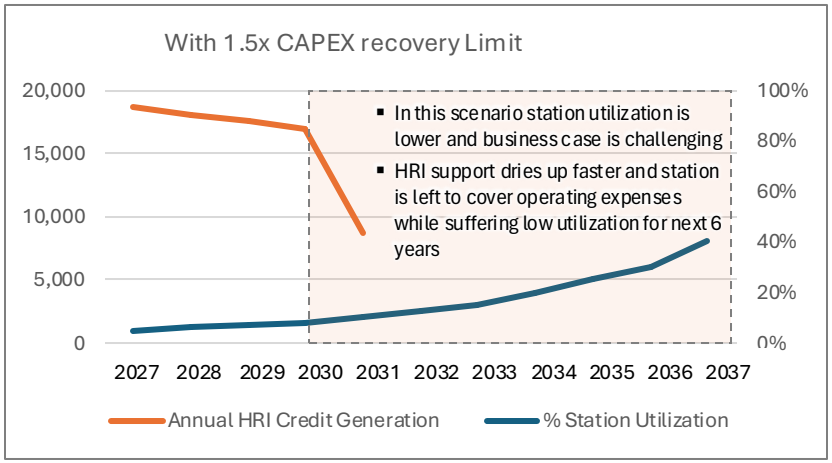
- If vehicle rollout is faster, a station will hit the 1.5x CAPEX limit and exhaust its HRI crediting window more slowly, which means it will benefit from HRI generation for a longer period of time even though revenue from vehicle sales are higher than in a downside case.

The CAPEX recovery limit changes the entire investment profile of the station. Rather than helping assure revenues while the station is operating, it is about CAPEX recovery. The effect is that private investment will be more difficult to tap and hedge against vehicle rollouts.

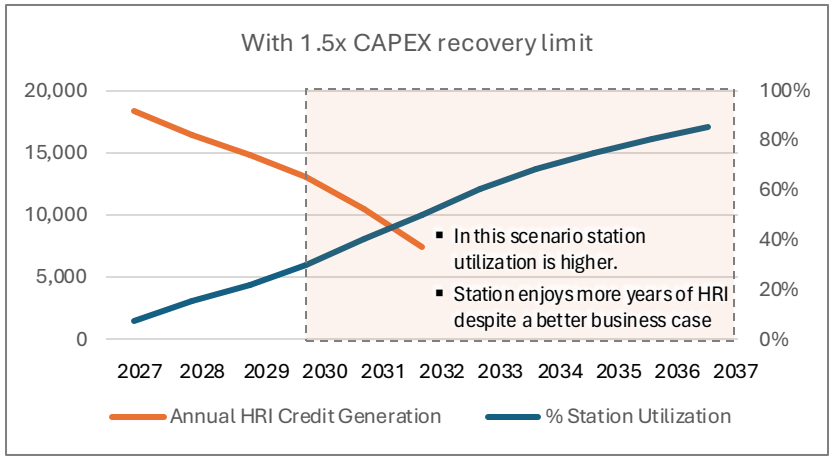
There is also a risk of stations being operated poorly or shut down once HRI crediting hits the limit and is exhausted.

Heavy Duty HRI: Comparison of Slow Vehicle Rollout v. Fast Vehicle Rollout With a 1.5x CAPEX Recovery Limit

Downside Scenario (Vehicle Rollout is Slower)



Upside Scenario (Vehicle Rollout is Aggressive)



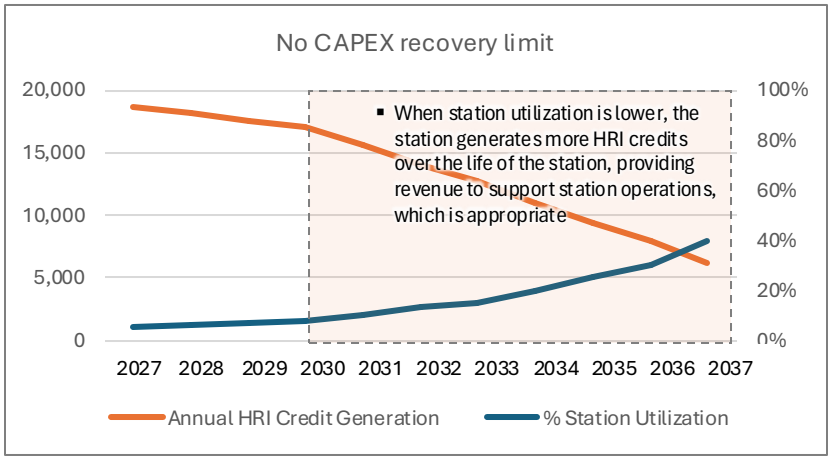
CONCLUSION: Introducing a CAPEX recovery limitation *breaks* the HRI policy – it results in the opposite of its intention

- The CAPEX recovery limitation undermines the HRI Policy's intention: to support a hydrogen station's operations with revenueeven in the case of slower vehicle rollout / lower utilization. It should enable a station operator to put resources towards operating a station well and reflecting a price at the pump that is representative of a higher utilization, even if utilization is not high.
- The CAPEX recovery limitation causes stations with lower utilization to run out of HRI crediting sooner, which is the opposite of the desired effect. Stations with lower utilization should be able to rely on more HRI crediting tomaintain operations.
- Once the HRI limit is reached, stations will be faced with a choice to either (a) shut down, or (b) significantly raise priceof fuel. Raising the price of fuel will kick off a vicious cycle, because high fuel prices are discouraging to the market and will further slow vehicle rollout.

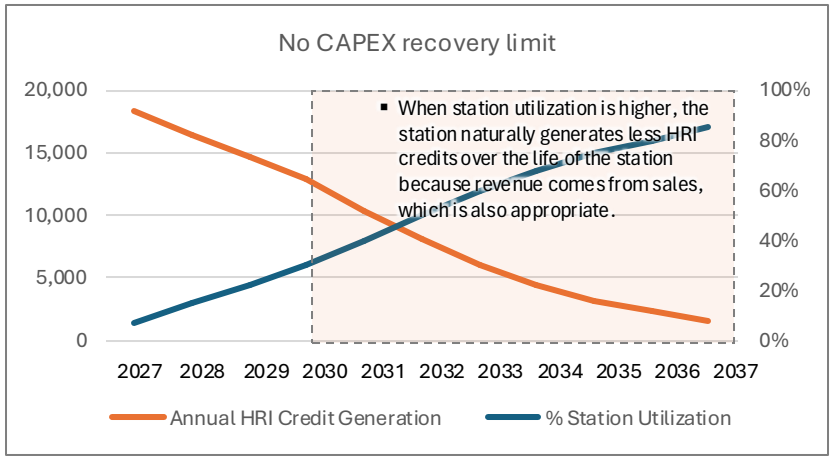
Assumptions:	*LCFS Credit Value*	*Station CAPEX after grant funding*	*Station Capacity*
	$150	*$8,000,000*	*6000 kgpd*

Heavy Duty HRI: Comparison of Slower Vehicle Rollout v. Faster Vehicle Rollout With No 1.5x CAPEX Recovery Limit

Downside Scenario (Vehicle Rollout is Slower) with no CAPEX recovery limitation



Upside Scenario (Vehicle Rollout is Aggressive) with no CAPEX recovery limit



CONCLUSION: The policy is Self regulating and does not need or benefit from a CAPEX recovery limitation

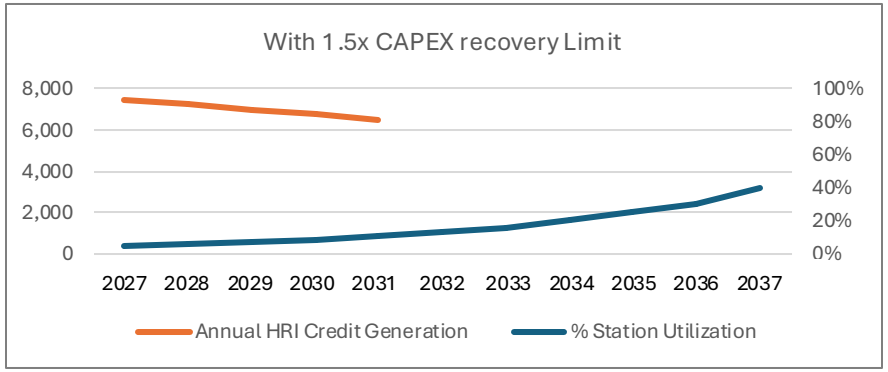
- Lower hydrogen station utilization means that vehicles are rolling out slower. Therefore, it is OK if stations are consuming more of the HRI credits because otherwise the buildout of stations would get too far out in front of the vehicle volumes.
- Higher hydrogen station utilization means that vehicles are rolling out at a faster pace. In this case, the stations are consuming less HRI credits, which makes more credits available to new stations entering the program. This is appropriate in the case that vehicle rollout is more aggressive.

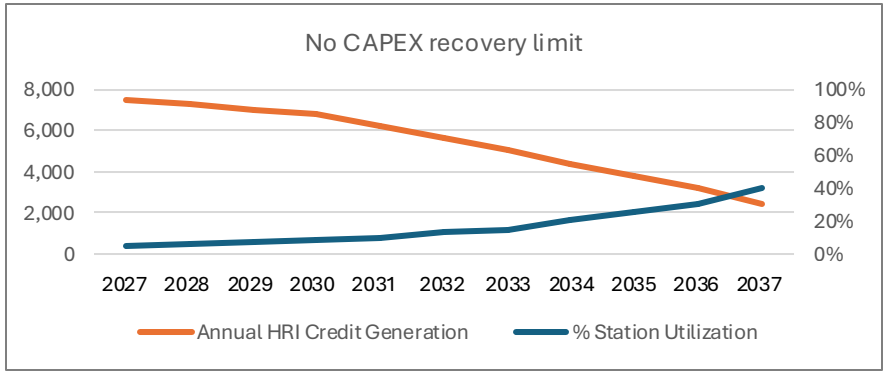
Assumptions:	*LCFS Credit Value*	*Station CAPEX after grant funding*	*Station Capacity*
	$150	*$8,000,000*	*6000 kgpd*

Light Duty HRI: Comparison of Slow Vehicle Rollout v. Fast Vehicle Rollout With and Without 1.5x CAPEX Recovery Limit

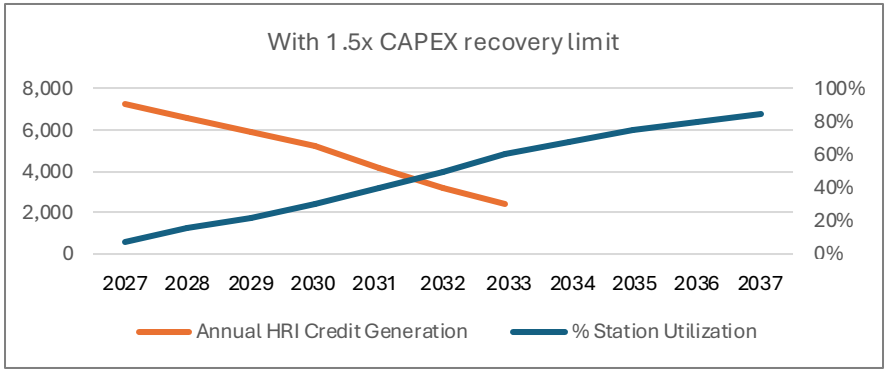
The same conclusions hold true for Light Duty Stations.

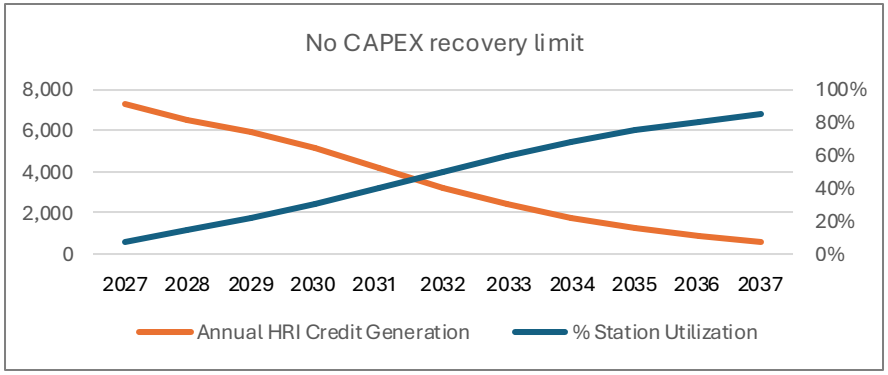
Downside Scenario (Vehicle Rollout is Slower) with no CAPEX recovery limitation





Upside Scenario (Vehicle Rollout is Aggressive) with no CAPEX recovery limit





Assumptions:	*LCFS Credit Value*	*Station CAPEX after grant funding*	*Station Capacity*
	$150	*$3,500,000*	*1200 kgpd*