S&P Global
Market Intelligence

Hyzon Motors Inc. NasdaqCM:HYZN

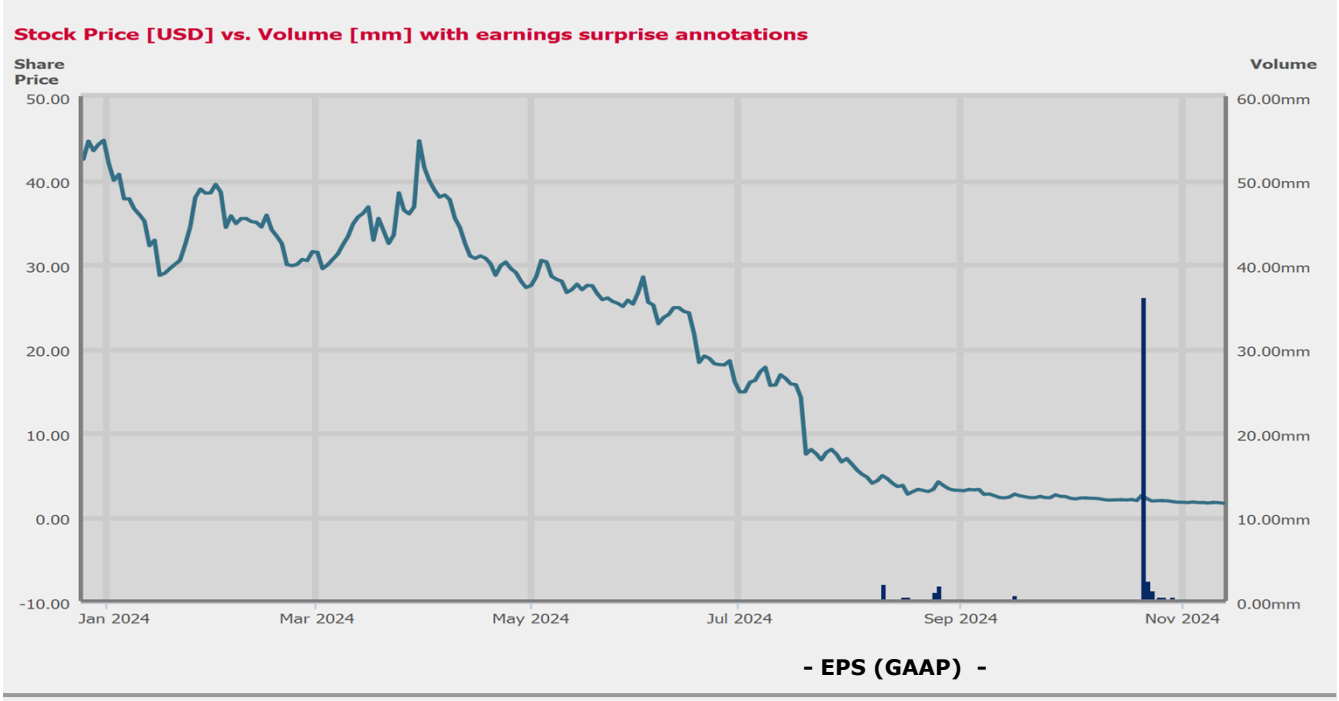
FQ3 2024 Earnings Call Transcripts

Wednesday, November 13, 2024 1:30 PM GMT

S&P Global Market Intelligence Estimates

	-FQ3 2024-			-FQ4 2024-	-FY 2024-	-FY 2025-
	CONSENSUS	ACTUAL	SURPRISE	CONSENSUS	CONSENSUS	CONSENSUS
EPS (GAAP)	(7.50)	(7.74)	NM	(6.50)	(29.00)	(22.50)
Revenue (mm)	1.50	0.13	▼ (91.33 %)	4.00	16.50	25.00

Currency: USD
Consensus as of Jul-26-2024 2:36 PM GMT



- EPS (GAAP) -

	CONSENSUS	ACTUAL	SURPRISE
FQ4 2023	(10.00)	(10.00)	NM
FQ1 2024	(8.50)	(7.00)	NM
FQ2 2024	(7.50)	(10.50)	NM
FQ3 2024	(7.50)	(7.74)	NM

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Call Participants

EXECUTIVES

Parker Stewart Meeks
CEO & Director

Stephen Paul Weiland
Chief Financial Officer

ANALYSTS

Robert Cameron Wertheimer
Melius Research LLC

Steven Bryant Fox
Fox Advisors LLC

Unknown Analyst

ATTENDEES

Tom Cook

Presentation

Operator

Good morning, and welcome to Hyzon's Third Quarter 2024 Earnings Call. [Operator Instructions] As a reminder, this conference call is being recorded. I would now like to turn the call over to Tom Cook, Managing Director at ICR. Thank you. Please, go ahead.

Tom Cook

Thank you, operator, and good morning, everyone. Welcome to Hyzon's third quarter 2024 earnings call. With me on the call today are Parker Meeks, Chief Executive Officer; and Steve Weiland, Chief Financial Officer. As a reminder, you can find a press release detailing our financial results and the presentation accompanying today's call in the Investor Relations section of our website.

Today's discussions include forward-looking statements regarding future plans and expectations. Actual results might differ materially from those stated, and factors that could cause actual results to differ are explained in the forward-looking statements at the end of the press release in Page 2 of our earnings presentation. Forward-looking statements speak only as of the date on which they are made. You are cautioned not to put undue reliance on forward-looking statements.

With that, I will turn the call over to our CEO, Parker Meeks. Parker?

Parker Stewart Meeks
CEO & Director

Good morning. Thank you for joining our 2024 third quarter earnings call. I am pleased to be sharing significant updates from the quarter which show continued commercial and technology advancement, including several major milestone achievements.

At the beginning of the year, we laid out our core objectives for 2024 on the back of a successful 2023. Among those, we highlighted achieving start-up production of both our leading Class 8 fuel cell electric truck and our 200-kilowatt single-stack fuel cell system technology, launching trial programs with major fleets on both our refuse and Class 8 truck platforms, and securing orders with some of those customers on the back of successful trials.

I am proud to sit before you today on behalf of our tremendous Hyzon team to showcase their strong execution, as we achieved these goals and more during the quarter, and have importantly transitioned to the next phase of growth, commercialization, and with it another significant inflection point.

We committed to significant milestones in 2023 and 2024, and Hyzon has done what we said we would do, accomplishing all publicly stated milestones to date over the past 2 years. With confidence, we will complete the final 2 that remain in 2024 by year-end, both being commercial in nature.

Additionally, Hyzon's performance in the third quarter shows significant advancement in commercialization and maturation of both Hyzon and the customer and market landscape evidenced in 4 key areas.

First, Hyzon continues to deliver on our commitments across technical, commercial and financial. Second, Hyzon's large fleet trial program has exceeded expectations, proving to our customers that the Class 8 tractor and refuse fuel cell electric trucks are ready to perform today with clear market leadership.

Third, the hydrogen fuel supply market is improving significantly and at levels that allow Hyzon's fuel cell electric trucks to be operating cost competitively now due to our fuel efficiency advantages. And fourth, our latest commercial agreement with GreenWaste, the first ever in North America for our fuel cell electric refuse truck, is a clear proof point.

Beginning now with just that, our building momentum in commercialization. We recently announced our purchase agreement with GreenWaste, a leader in recycling and sustainability, for North America's first hydrogen-powered refuse collection vehicles. This order for 12 fuel cell electric trucks follow

successful trials throughout the Bay Area and Silicon Valley where our vehicles demonstrated exceptional performance across critical refuse collection industry metrics, including payload capacity, can lifts and range requirements, all essential elements for the demanding duty cycles of waste collection.

What makes this partnership particularly compelling is GreenWaste's track record of leadership in sustainable innovation. Seven years ago, they made history by commercially operating the world's first full-sized electric side-loading waste collection truck. Now they are the first company in North America under contract to commercially deploy hydrogen-powered refuse vehicle.

The refuse sector represents an ideal application for our high-performance fuel cell technology where the demands for power, payload and reliable operation align with the capabilities of our 200-kilowatt fuel cell system and powertrain to run a full-day shift without refueling or recharging.

As you might recall, we are executing this program in partnership with New Way Trucks, a leading refuse truck body manufacturer, combining their deep industry expertise with our zero-emission technology.

Together, in August, we embarked on a North American trial program to prove real-world viability of the technology, proof which we believe is shown with the completion of each successful trial, and further evidenced with the GreenWaste's purchase order, representing the first commercial agreements on the back of a refuse truck trial.

With deliveries scheduled to begin as soon as Q4 2025, the GreenWaste agreement represents more than just a single order. It's a crucial validation of our technology and yet another demanding heavy duty application. It demonstrates the growing recognition that hydrogen fuel cells offer a compelling solution for hard-to-decarbonize sectors where battery electric alternatives face significant operational constraints.

Moreover, it positions Hyzon at the forefront of innovation in the waste management industry, an industry that is showing substantial market opportunity for our technology, given its advantages combined with many California city and county end customers requiring zero-emission trucks in their upcoming RFPs for refuse collection services.

This milestone adds to our growing commercial momentum and showcases our ability to pioneer zero-emission solutions in sectors that are essential to our economy, but historically difficult to decarbonize.

We believe this first-mover advantage in the refuse sector, combined with our proven technology and strong partnership approach, positions us well to capture additional opportunities, as more waste management fleet operators look to transition to zero-emission truck solutions.

As announced on our second quarter call, we had 25 trials scheduled for both our Class 8 fuel cell electric truck and our refuse fuel cell electric truck. We have completed 10 of these trials in the first 3 months of the program and all have been deemed a success, based on the objectives set forth by the customers trialing them.

As a reminder, the trial, typically 2 to 3 weeks in length, is most often the final step in our development process with fleets, after which we move into commercial negotiations and activation.

Commercial negotiations can vary in duration to reach an agreement and order, driven by factors, including fuel pricing and availability, which is proposed by Hyzon's fuel partners in parallel, along with internal large fleet approval processes. Noting that conditions on both of these fronts have improved materially in the past 3 to 4 months, particularly fuel pricing and availability, providing what we hope is improved timing to contracts.

Feedback from the trials has been overwhelmingly positive from drivers, fleet managers and executives. Drivers have a full range of typically strong positive feedback, including the combination of the truck's quiet, low-vibration and odor-free operation with its ability to perform all the work of combustion without compromise, even with added safety improvements, such as our truck's ability to drive at the speed of passenger car traffic when entering the freeway or when climbing steep grades with a full load, both high-risk situations for diesel trucks.

Fleet managers have noted our refuse truck's fuel efficiency and potential for operating cost parity with diesel at fuel prices as high as $12 per kilogram, along with our Class 8 200-kilowatt truck's combination of power and lightweight, as the lightest zero-emission Class 8 truck on the market with at least 250 miles range and up to 5,000 pounds lighter than some competitors.

And fleet executives have noted the positive response from end customers such as cities and counties, along with citizens and communities who experience our trucks in trial, a key component of their buying decision and the revenue-generating potential for fleets where zero-emission trucks are part of upcoming RFPs for refuse collection services. In that situation, Hyzon is providing not only a zero-emission technology and truck, but also a potential source of competitive advantage, revenue and market share for fleets.

From a performance perspective, our latest generation fuel cell electric trucks have also been operating with near 100% uptime with range, hill climb and fuel efficiency performance that is far beyond our and our customers' expectations and experience in zero-emission trucks.

Our trucks have been executing well on a variety of different use cases and situations. The strong uptime and performance is a result of over 3 years of technology and powertrain development, testing and optimization, which now includes over 300,000 miles of on-road experience for the Hyzon fuel cell powertrain globally since 2021.

For example, our refuse collection truck's stellar performance includes operating routes with significant inclines of up to 27%, picking up trash with high daily bin counts of over 1,300 or more bins per day through neighborhoods, along with heavy trash, which is akin to yard waste, hauling well over 25 tons of trash in a single day without refueling.

These results both match diesel's performance and go far beyond the range of any battery electric refuse truck on the market today, where most battery electric trucks can only perform 50% to 60% of the work our fuel cell electric refuse truck can perform in a day before needing to stop and recharge overnight.

Our Hyzon refuse truck in some fleet operations has comparatively completed 2 full-day schedules without having to refuel, meaning fleets would need to buy 50% to 75% more battery electric refuse trucks to do the same work as a Hyzon fuel cell refuse truck. Reliability and range are paramount, and we have seen strong performance for our deployed trial vehicles.

Our Class 8 200-kilowatt fuel cell electric truck has shown similarly impressive results in customer trials, including climbing 3,000-foot inclines with full customer loads, keeping up with diesel trucks, and in some cases, keeping up with passenger car traffic, a significant safety benefit, as mentioned before.

The Class 8 200-kilowatt has been fully tested across a full range of challenging routes, operating days and customer use cases, and has performed at least as well as diesel in all cases, including performing over 500-mile days and tackling routes that no other major OEM battery truck has been able to complete.

Additionally, fuel efficiency, a critical metric for total cost of ownership and economic viability of zero-emission trucks, has outperformed our expectations. Our refuse collection vehicle has shown fuel efficiency that is 2.3x to 3x better than diesel, which means fleets can absorb a $10 to $12 per kilogram price of fuel, which is available today and still be at the same operating cost as diesel trucks.

Our Class 8 200-kilowatt trucks are also showing material benefits in fuel efficiency and operating costs with 25% to 50% better fuel efficiency than diesel in customer trials to date. This performance in real customer operations provides our fleet customers confidence that the economics of our trucks can meet diesel and operating cost and total cost of ownership today with subsidies available, and have a direct path to meeting cost parity with diesel as we scale manufacturing over the coming years.

Moving to technology, we're thrilled to announce several significant milestones that underscore Hyzon's leadership in zero-emission heavy-duty transportation and fuel cell technology specifically.

On October 8, National Hydrogen and Fuel Cell Day, we announced the start of production or SOP for our revolutionary single-stack 200-kilowatt fuel cell system at our Bolingbrook, Illinois, facility. This

achievement marks a pivotal moment in our journey, establishing one of the largest fully integrated fuel cell production facilities in the United States.

Our proprietary technology, including the in-house design and production of our 7-layer Membrane Electrode Assembly, or MEA, enables us to manufacture standardized fuel cell systems at volume, accelerating the decarbonization of heavy-duty industries. We have worked tirelessly to bring this facility online and completed 25 A and B-sample units, 27 C-sample and preproduction units, durability testing and additional design and supply chain validation to finally reach this point.

This milestone falls closely on the heels of another crucial development, start of production for our innovative Class 8 200-kilowatt fuel cell electric truck announced on September 16. Through our collaboration with Fontaine Modification in Charlotte, North Carolina, we've successfully transitioned from prototype to production.

Our 200-kilowatt fuel cell system, which is 30% lighter and smaller and 25% more cost efficient than 2 110-kilowatt systems combined, allows for a compact yet powerful vehicle that meets the demanding operational requirements of heavy-duty road transport, while adding the significant fuel efficiency advantages previously mentioned.

Underpinning all of this, we're proud to report that our commitment to quality and excellence has been recognized with ISO 9001:2015 certification for our fuel cell manufacturing, design, and research and development activities. This certification validates that our development and production processes meet the highest international standards for quality. It reflects our dedication to delivering cutting-edge hydrogen fuel cell solutions that are safe, reliable and have the highest quality that our customers expect.

Additionally, it positions Hyzon well on our primary strategic path in the future to supply fuel cell systems to truck OEM partners and stationary power projects at the level of quality those partners require. These achievements collectively represent a new chapter for Hyzon and for the decarbonization of heavy-duty industries.

Our Bolingbrook facility is now capable of producing 700 fuel cell systems per year over a 3-shift operation, all passing through rigorous quality gates and end-of-line tests.

As we scale up production, we're not just manufacturing products. We're setting new standards for zero-emission technology in the United States. These milestones reinforce our position as a leader in high-performance zero-emission solutions and underscore our commitment to building a cleaner, more sustainable future for heavy-duty transportation.

Before wrapping up with what we expect for the balance of the year and beyond, I'd like to spend a minute on the broader market. We continue to see a U.S. market that remains supportive of clean energy initiatives with several significant programs in place.

These include the EPA's $2.6-billion Clean Ports Program, which just awarded over $475 million to hydrogen projects across 6 ports, including hydrogen-powered drayage trucks and fueling, California's HVIP program and the $40,000 commercial clean vehicle tax credits under IRA Section 45W.

The DOE's Hydrogen Hub program has begun funding the 7 awarded regional hubs with a notable $12.6 billion agreement, including the up to $1.2 billion in federal funding for California's ARCHES project among the landmark hydrogen ecosystem funding agreements that are now being reached.

Hyzon has been actively engaging with these opportunities, supporting Clean Ports applications that could lead to substantial orders and supporting fleets in several other subsidy and grant programs.

Additionally, we are seeing strengthening demand for fuel cell electric trucks from large fleets, particularly in the refuse industry, driven by their end customers, the cities, counties and other entities who contract refuse collection services.

Many of those entities have a strong commitment to decarbonization and are including either requirements for zero-emission refuse collection and/or Class 8 trucks in future contracts or scoring bidder responses higher if zero-emission trucks are included.

Given Hyzon's fuel cell electric trucks are materially outperforming battery electric trucks and that Hyzon's refuse collection truck is the only fuel cell electric refuse truck in the market today, several customers see Hyzon's trucks and fuel cell technology as a market share and revenue enabler, not just a decarbonization enabler.

Finally, a brief update on a critical enabler for our commercial pathway, fuel availability and economics. Hydrogen fuel has been a significant challenge, which we have commented on over the past year.

We have seen very positive progress in both fuel availability and pricing, and our fleet customers are seeing the same as we work with them to finalize potential hydrogen fuel cell truck contracts alongside fuel agreements with our hydrogen fueling partners.

While available fuel pricing spiked to above $40 per kilogram as recently as 6 months ago, we are now seeing fuel pricing quotations for 2025 dispense supply that is, in some cases, as low as $10 per kilogram dispense, which enables cost structures that many fleets can absorb today, while looking forward to further price declines as additional lower cost supply comes online.

Before handing the call over to Steve, I'd like to provide some thoughts on the balance of the year and into 2025. We expect to make continued progress on the commercial front as we seek to turn trial success into firm commercial orders.

On the commercial front, we expect to continue executing more than 20 remaining Class 8 and refuse truck trials, driving the total of 30-plus trial opportunities to commercial negotiations on the back of those trials, each providing an opportunity for a major commercial agreement and backlog building.

As a reminder, we target 50-plus truck multiyear agreements with large fleets. So even a 40% success rate in converting trials to contracts of that scale could lead to a 500-plus truck potential order book in Q1 of 2025.

On the technology side, in the fourth quarter, we will continue advancing our ongoing durability testing and continuous improvement activities for the fuel cell system and powertrain, including incorporation of results and learnings from our expanding customer trial programs, activities we'll continue into the first half of 2025.

We plan to provide updates on our durability, cost and design optimizations for our next-generation 200-kilowatt fuel cell system next year.

From a product perspective, in the fourth quarter, we will drive manufacturing planning and execution for the Class 8 200-kilowatt truck with Fontaine. Additionally, we have launched development of our next-generation 200-kilowatt fuel cell electric refuse truck, which will be the production intent of the refuse truck platform at its SOP.

The refuse collection truck is already achieving tremendous performance results in line with combustion and fuel efficiencies that are up to 3x better than diesel with a 110-kilowatt fuel cell system. And we expect to see even better performance, including materially better fuel efficiency and range from the production intent 200-kilowatt fuel cell refuse truck once it achieves its SOP.

As always, we are going to continue to remain laser-focused on positioning this business to be an attractive investment for shareholders and manage our cash resources appropriately to ensure our longevity.

With that, I'll hand it over to Steve to discuss our financial results in more detail. Steve?

Stephen Paul Weiland
Chief Financial Officer

Thank you, Parker. Just to reiterate, we are excited for what's to come after reaching these SOP milestones for our revolutionary single-stack U.S.-manufactured 200-kilowatt fuel cell system and Class 8 200-kilowatt fuel cell electric truck that we were able to complete on time and within budget.

These important milestones support our commercialization as we transition to the new 200-kilowatt platform and focus on converting our active trial program into contracts with customers.

I'm also personally very enthusiastic about our unique refuse collection FCET, the only one in the industry. Our trial partners are not only telling us that it is delivering performance unmatched by other zero-emission vehicles, but also that it is delivering fuel efficiency significantly better than diesel.

During the quarter, we made substantial progress on the wind-down of our operations in Australia and Europe. In terms of status, the wind-down of these operations is now largely complete in support of our strategic focus on the North American market and cost reduction goals.

We remain on track for our previously stated target of reaching an average monthly recurring net cash burn of approximately $6.5 million by year-end. To put that in perspective, our average monthly net cash burn in the first quarter of 2023 was $15.4 million.

While our cost reduction journey has been difficult, I'm very proud of our entire team and especially in the leadership I see from our accounting, finance and IT professionals driving this forward.

Now turning to our results for the third quarter of 2024, our third quarter 2024 revenue was $0.1 million compared to 0 revenue in the prior year period. Given the transition to our 200-kilowatt platform and trial activity, our revenue this quarter primarily reflected continued recognition of 5 previously delivered trucks that are treated as an operating lease for accounting purposes.

Cost of revenue came to $0.3 million in the third quarter of 2024 versus $3.3 million in the prior year period. Cost of revenue in the prior year period was elevated by inventory write-downs in Europe under the 2023 restructuring program. R&D expenses came to $8.1 million in the third quarter of 2024 versus $10.9 million in the prior year period, primarily reflecting lower spend on R&D activities given the advancement to fuel cell SOP and general spend reduction efforts.

SG&A came in at $29.7 million in the third quarter of 2024 versus $21 million in the prior year period. SG&A in the current quarter includes a noncash $11.1 million impairment charge. Excluding the impairment charge, SG&A declined by approximately $2.4 million year-over-year, primarily driven by a charge taken in the year-ago quarter for the SEC settlement, partially offset by higher legal fees incurred in the current quarter.

During the third quarter, we recognized restructuring and related charges of $1.6 million versus $4.9 million in the prior year period. Restructuring charges this quarter consist primarily of retention programs to drive alignment with Hyzon's new strategic focus.

We also recognized a gain on lease termination of $2.1 million in the third quarter of 2024. The gain arises from the closure of our European facilities and a negotiated settlement with the landlord.

Our average monthly net cash burn for the second quarter of 2024 was $8.2 million for a total of $24.7 million for the quarter. This reflects continued spend discipline, initial cost benefits from the Australia and Europe wind-down, and net proceeds from the July capital raise, offset by approximately $8 million in some significant nonoperating items such as the annual D&O insurance premium and elevated legal and consulting spend in the quarter.

As mentioned earlier, we continue to anticipate that our average recurring monthly net cash burn will reach approximately $6.5 million by year-end. As of September 30, 2024, our cash, cash equivalents and short-term investments stood at $30.4 million.

Moving to our capital raising efforts, and as mentioned on the last call, after we became shelf eligible in June, we worked quickly to put in place a shelf filing, enabling us to execute a small equity raise and begin laying the groundwork for better trading liquidity, a critical element for us in this market.

Subsequently, just before quarter end, we also put in place an at-the-market program and have been selectively using it to support our cash position, having raised approximately $5 million in proceeds, primarily in the fourth quarter. This helps to extend the runway for our trial program to convert into potential commercial agreements, a critical funding catalyst.

We continue to remain focused on raising capital and also on the potential for strategic investment, which we believe only gets stronger as we continue commercialization.

With that, I'll hand it to Parker for closing remarks.

Parker Stewart Meeks
CEO & Director

Thank you, Steve. We are invigorated by the recent progress and are excited about the future ahead of us. There is significant demand in industries like refuse and Class 8 trucking for zero-emission truck solutions with Hyzon's fuel cell electric trucks clearly showing that they can do the work of combustion with material advantages over battery electric and fuel cell truck competitors in weight, range and overall performance.

Our industry-leading platforms are actively in commercial activation today, and we are excited to continue driving that commercialization, building on 10 successful trials to date, over 20 major fleet trials to come and our first commercial agreements with major fleets in hand.

I would like to thank the whole Hyzon team for their continued dedication. Finally, I would like to thank our customers and stakeholders for their continued partnership and for sharing our goal of reducing emissions across heavy-duty industries through hydrogen fuel cell technology.
With that, operator, we are now ready for questions.

Question and Answer

Operator

[Operator Instructions] Our first question comes from Steven Fox from Fox Advisors.

Steven Bryant Fox
Fox Advisors LLC

I had a few questions, if I could. First of all, I think at one point, Parker, you mentioned during your prepared remarks that the performance of these trials is exceeding estimates. And I was curious if you could sort of give us a sense for what is doing better either relative to your expectations in the trials or to the customers'? And then I had a couple of follow-ups.

Parker Stewart Meeks
CEO & Director

Steve, thanks for joining and great question. We love to dive in and talk about the performance of our trucks, particularly those that have been in trial, because, as you mentioned, the performance has been exceptional and far beyond both our expectations and the customers' that we've trialed with.

Across all 10 trials that have been completed thus far, 5 on the Class 8 200-kilowatt truck and 5 on the refuse truck, we set goals with our customers on performance, right? And you can imagine, given several of those fleets actually trialed the 110-kilowatt Class 8 truck, they understand, for the most part, zero-emission truck performance. They understand, obviously, their diesel or CNG truck performance.

And they understand that the goal for this, which they tell us, is for these trucks to work as a complete replacement for combustion without compromise. That's what they need.

And in some cases, for instance, in Class 8, if you're a warehouse-based delivery business, you may have 30, 50, 100, 200 trucks going out from the same warehouse every day on a wide variance of routes, some shorter, some longer, some lighter load, some heavier load.

But for the most part, every truck in a facility has to do every route, right? So when you think about what's the standard for these trials, what's the expectation, it essentially is that our truck for that facility can do every route that, that facility does. And when you're in the L.A. Basin, for instance, if you're going anywhere longer than, say, 60 miles, 70 miles radius from a facility, you're probably climbing some pretty steep hills.

So the performance expectations that we set with our customers that they set, which we accept, have to do with load, they have to do with range, they have to do with how long they operate during a day. In some cases, they have to do with doing double shifts.

For the Class 8, for instance, a typical day on trial can be anywhere from 150 miles to 500 miles across these trials. We can be carrying anywhere from 60,000 pounds to, in some cases, close to 90,000 pounds if they're carrying super-heavy loads with permit loads. And in some cases, we're climbing 3,000-foot climbs, 6% to 8% grades. And again, the goal is to do all the work that diesel can do.

On the refuse truck, to do all the work of combustion in refuse, it depends on the route, it depends on the type of waste that you're picking up. If you're a classic neighborhood bin pickup, the standard typically is somewhere between 1,000 and 1,500 bin lifts or trash can lifts per day. And some of these routes, you're picking up 20 to 25 tons of waste in a single day, right?

So those are some of the standards that we set on top of the even more critical standard that very few zero-emission trucks can meet, which is on the cost to operate the vehicle, which comes down to fuel efficiency, and it comes down to the overall cost of that fuel.

So if you take the Class 8, for instance, our trucks across all 5 of those trials to date have tackled 3,000-foot climbs, 6% to 8% grades, have completed some days with up to 500 miles in a single day with a 20-

minute refueling at the base in between shifts, and they're showing up to 50% better fuel efficiency than diesel, which is critical, right?

Because fuel, as we've mentioned many times before, is up to half of the total cost of ownership for Class 8 truck. So when you're 50% better than diesel, let's say that's diesel getting 6 miles per gallon -- sorry, 4 miles per gallon and our truck getting 6 miles per gallon equivalent, that's a significant impact on proving to the customer not only can this truck do the work, but the truck can also be cost competitive to diesel at a hydrogen price of, call it, $7 to $8 a kilo.

On the refuse truck, it's even better. So on the refuse truck, again, I mentioned in neighborhood waste collection, you're anywhere from 1,000 to 1,500 trash can lifts per day. Our trucks have consistently completed every route they've been -- they had put in front of them every operating day either without having to refuel or only having to top-up to avoid range anxiety on extremely long routes that in some cases are longer than what combustion does.

We've achieved over 1,300 bin lifts per day in actual operation on multiple days. Consistently across all of our trials, we look at how much work the truck did during a day, again, completing the full day's work without having to refuel. And based on the fuel that's left over, we project how much work the truck could have done. And we're consistently showing over 1,500 bins per day of potential range, which is tremendous.

Compare that to battery trucks, most battery trucks can only do about 800 bin lifts per day. So we're literally doubling the work rate of battery electric. And by the way, if for some reason, there's an extreme route where we have 2,000 bins to pick up in a day, because these trucks are typically coming back to base multiple times in a single day, we can refill those trucks in about 15 minutes, so you can basically get up to 3,000 bin lifts a range with a 15-minute fill. Whereas battery electric does half a day's work, have to charge for anywhere from 4 to 8 hours.

And then finally, on fuel efficiency for the refuse truck, it's just been tremendous. We're seeing up to 300% better fuel efficiency than diesel. I think the average for our U.S. trials has been about 250% better fuel efficiency than diesel in the exact same routes.

Having 2.5x better fuel efficiency means that we can support the same operating cost as diesel with up to a $15 per kilogram price of hydrogen, which is available now, right? So with the refuse truck tackling 27% great hills in the city of San Francisco, showing it can do up to 1,500 bin lifts per day, showing it can carry up to 30 tons of trash in a single day. And in some route structures, we're doing multiple days of work without having to refuel.

It is a tremendously advantaged truck versus all other zero-emission trucks that are out there in North America that we've seen. It's the only fuel cell-powered truck in North America on the road now, and the battery trucks just really can't come close.

So that's why these 10 trials we've completed, half on each platform, have gotten us and our fleet customers so excited as it's proven, and for some of them, for the very first time, it's the first zero-emission truck they've tried that actually can do the work and that the economics are actually better than they expected given the fuel efficiency advantages that we are showing.

Steven Bryant Fox
Fox Advisors LLC

That's really interesting and very helpful. And then just a couple of quick follow-ups. On Slide 9, there's only 2 checkmarks missing for the rest of '24 around fleet agreements and advancing the second order tranches. Can you just sort of handicap the ability to get that done by the end of the year? And any kind of preview on what that could mean?

And then just along with that, can you just remind us on the revenue opportunity per 100 trucks or ever how you want to sort of gauge it for us longer term?

Parker Stewart Meeks

CEO & Director

Absolutely. Thanks, Steven. And we're -- again, we're thrilled to be at the stage today where we believe we're showing that the Hyzon fuel cell technology and the Hyzon fuel cell powertrain is proving in the field that can do the toughest jobs in the heaviest and the longest running trucks in zero-emission. And we have customers with a market backdrop that is, if anything, accelerating in many ways.

So we see funding programs like out West in the state of California that are continuing and that are well funded for zero-emission trucks. We have federal programs that we're excited to be supporting, whether it's the DOE H2Hubs or the port programs that were just awarded under the Clean Ports Program and the Inflation Reduction Act and several others that are now being put forward.

And alongside that, our customers, particularly in refuse, have cities and counties who are now requiring zero-emission trucks as a part of the application in their RFPs to award refuse collection services. So if you're a large city in California, and many times, they're awarding 2026, 2027, 5- to 10-year contracts, where for some of the large fleets, it's an incumbent contract that they don't want to lose and for other fleets, large and small, it's an opportunity for them to step in and actually win a contract where part of that RFP response includes advantaged zero-emission trucks given how well our garbage truck in particular, is performing.

So with that backdrop of a strong market backdrop and accelerating in some cases, in refuse, customer view of the opportunity to not just have our trucks be a decarbonization enabler for their ESG goals, but also a revenue enabler and a market share enabler, either defensive or offensive given the RFPs that are coming out from the cities and counties.

We're actively in negotiations on the majority of the 10 trials that have been completed on the first contracts or in some cases, the second order for our trucks. You can see on Slide 9, we say that they are both those goals, a new large fleet multiyear customer agreement and a large fleet advanced to a second order are in negotiations.

And while I can't tell you exactly the timing of when we might get those done, given the performance of our trucks, we are optimistic that we have put everything in place to show the trucks work to show the economics can work. There's subsidy in place today to support today's truck being deployed and the customers are excited to get going. So we certainly will look forward to updating the market as appropriate as we're able to push these customers across the line. And again, we feel good about where we are today in putting checkmarks next to those final 2.

To your question on revenue potential, what I can comment on that we've released previously, we said last year that the 110-kilowatt truck round figures was roughly a $500,000 headline price. And of course, that varies by customer. The 200-kilowatt, we haven't commented publicly on the price of that truck and the economics to us from a powertrain point of view. You can imagine 200-kilowatt is a bit more expensive than a 110-kilowatt, although it's not dramatically so.

So if you're talking about 100 trucks, if you did it on the 110-kilowatt economics that we put out before at a whole truck revenue, you're talking about $50 million of revenue if it is a full sale, full stop, no lease arrangement, no holdbacks, no accounting concerns as to how that revenue is recognized.

In some cases, with our contracts from 2023, and they are now in 2024, we do have trucks that are commercially deployed under a contract where there may be a performance guarantee, there may be a buyback clause, there may be other restrictions that our finance team can speak to.

But long story short, what's the cash potential for Hyzon, what's the potential cash generation for the company? These are today, call it, $500,000, give or take, total cash generation potential per truck. The refuse truck is a bit more expensive than that, given there's a body attached to it as well.

And what we're excited to, hopefully, show is conversion of these trials to contracts, the GreenWaste agreement being the first of those to be announced in the back of trials and then to be able to talk more openly in 2025 about how that's translating to cash generation to revenue potential, including potential

concepts like deposits that we are hoping to land. Tough to do that in the U.S. market. It's not normal for truck companies to pay deposits on trucks.

But our customers also understand that this is a different technology with a different cash profile. So all those are terms and concepts that we're excited to hopefully talk about in more detail as we push forward on the back of this trial program in Q4 and 2025.

Operator

Our next question comes from Craig Irwin from ROTH Capital.

Unknown Analyst

This is [Andrew] on for Craig, and congrats on the operational progress. First one for me, you guys received an order very quickly after your trial from GreenWaste. It seems like those guys were ready and waiting. What does this mean for other customers out there with trials? Is it possible we see an accelerated timeline for orders?

Parker Stewart Meeks
CEO & Director

Andrew, thanks so much for joining, and that's a great topic to dig into, because the most critical aspect of commercializing these trucks, once you are clearly comfortable with the performance of the truck, the quality of the truck and its ability to perform in trial, is how you prioritize your pipeline, how you look at the fleets that are out there. Because there's a lot of fleets that want to try a zero-emission truck.

If you look at Hyzon's history with the 110-kilowatt truck trial program, which started back in 2021, we were doing a lot of trials just to get the truck out there to get it into the environment to learn. Now we're confident in the performance of these trucks with all that 3 years of learning over 300,000 miles globally on road for the Hyzon fuel cell powertrain, and we're very focused on our pipeline.

These are fleets that -- it's not just about fleet size. It's about what is the -- certainly the buying opportunity and the buying capability of that fleet, which fleet size is a good indicator of, but also what's their motivation, what's their ambition? What's driving their buying decision?

Certainly, there's typically an ESG goal. There's typically a clear commitment by the company either as a core part of their business like GreenWaste, to be a sustainability leader, or to be a core part of their value proposition to their employees, to their customers that they are making a difference in transitioning their fleet from carbon to less.

And when you put that together, you see a picture of these fleets that may change your view based on just sort of rough ranking based on fleet size. So GreenWaste is a great example of that. They're a fleet that has a number of trucks is in the hundreds, not the thousands. On a pure screen, if you're trying to sell trucks, you would never put them at the top of the list based on fleet size.

But they have a very active ownership group who is eager to grow that business, focused on sustainability, focused on being a leader and a real innovator in sustainability. They're centered in the market out on the West Coast, where they're most active in San Jose to the Bay Area and looking to expand.

And they have been quite excited about getting their hands on our refuse truck because they see how their customers in cities that we touched during the trial, such as Palo Alto and Portola Valley and Woodside and Atherton, both have the means to invest in their community for their citizens to put zero-emission trucks into their refuse fleet, but that they're willing to also put that into the contracts and the RFPs that they are putting forward.

So GreenWaste is a great example of exactly the kind of customer that we focus on in our pipeline, one that is motivated and driven to be a leader in sustainability, one that has real goals they need to achieve and one that sees the commercial opportunity in front of them based on how their customers and their stakeholders will react to being able to put leading zero-emission trucks that can most importantly do the work into their fleet.

So the rest of our trial program certainly has many large fleets in it. We've updated before. The average fleet size in our trial program across the now 30-plus fleets that are in it is 4,200 trucks. There's 10 fleets over 5,000 trucks. So some of the largest fleets in North America, certainly are in our trial program, several have completed trials. But it's a great example of how Hyzon looks at our customer prioritization and why we are hopeful that we can move as quickly as GreenWaste moves to contracts. Because these are fleets that aren't just trying a truck to see how it works, they're fleets with a real thesis as to why if this works, it could make sense for them.

Unknown Analyst

And a quick follow-up for me. We're still in the early days of the production of the 200-kilowatt stack truck. Can you just kind of talk about what you guys have learned so far through early production?

Parker Stewart Meeks
CEO & Director

On the fuel cell system itself?

Unknown Analyst

Yes. Sorry, just on the 200-kilowatt system.

Parker Stewart Meeks
CEO & Director

Perfect. Yes. So again, we were thrilled to achieve a milestone that we've been working for some time in declaring commercial sort of production of the 200-kilowatt single-stack fuel cell system. We believe it is the highest power output, most compact mobile fuel cell system that's in trucks today.

The facility here in Bolingbrook, Illinois, we believe, is one of the largest fully integrated MEA through complete system assembly, fuel cell system assembly plants in the U.S. and one that we're quite proud, aligns, we think, well with goals that many cities, counties and parts of the federal government have to take this kind of technology forward.

And that SOP process was also culminated importantly with us receiving our ISO 9001 certification, which is a tremendous accomplishment for our team to have a company like Hyzon, who is only 3.5 years post our public listing on the Nasdaq, to achieve an ISO 9001 cert shows our partners and our customers the type of quality that we are not just designing into the fuel cell system, but in designing our supply chain and in our manufacturing process.

So through that process, we learned a lot. We produced close to 50 units from the A sample through preproduction phases, that A-sample, B-sample, C-sample preproduction was about 50 units that we produced. And all those units had a number of things that we observed both performance in different variants that were stronger and performance in different components and design factors that we said, we can actually improve here.

I think there were over 50 major -- significant design changes as we went through that process from A-sample to sort of production. And that's a good thing. When you're making design changes to the process at that scale, you can be comfortable that you're thoroughly testing, that you're doing your durability testing well, that you're testing it at all the right levels, both at the full system level, at the stack level, at the short stack level and at the single cell level.

So all that leads us to a first-generation post-SOP 200-kilowatt fuel cell design that we have a lot of confidence in the quality and the durability. We have additional opportunities we've already identified that we're working into the next-generation design for 2025 that we will have even better durability and start us driving down the cost curve as well.

Because, again, while we believe we're 2 to 3 years ahead of all others outside of China in getting to a 200-kilowatt plus single-stack system for trucks, we have to maintain that edge. And the first step in that is that when they finally do come to market with a 200-kilowatt plus single-stack system, we're hopefully

2 to 3 years already up the durability curve and down the cost curve, right? And that we're at some point working on our 300-kilowatt plus single-stack system for stationary power. So a lot of learnings, a lot of great advancements, and we're very focused on an efficient path to keep that going to maintain our edge.

Operator

[Operator Instructions] Our last question comes from Robert Wertheimer from Melius Research.

Robert Cameron Wertheimer
Melius Research LLC

Congrats on the progress you've made. I had a few questions just around that. Could you talk about the time line from here to delivery of the GreenWaste purchase order? What are the steps? I mean, I don't know if there's further testing, and obviously, you have to get the trucks and convert them. I don't know if there's fuel issues. Just what's the timeline there? And what would a typical or hoped for timeline be on any potential future orders?

Parker Stewart Meeks
CEO & Director

Rob, great to hear your voice. Thanks so much for the question. Yes, we'd love to talk about the path forward for the refuse truck. Obviously, it is performing even better than we hoped it would in what is basically an alpha/beta truck. It is the sister truck to the first refuse truck deployed in Australia about 1.5 years ago.

This truck came to market for the U.S. market. And based on this performance, we're starting on a very strong basis, if you think about that, right? This is basically at best case, a B-sample prototype truck, which has had nearly 100% availability in 5 major trials thus far, result you just don't expect, right, which I think builds on the quality of the powertrain, because it is a powertrain that's been in development now and testing for 3 years on the basis of the Class 8.

Additionally, this is a truck that right now -- that refuse truck has a 110-kilowatt fuel cell in it, right? And it's showing up to 300% better fuel efficiency than diesel and be able to perform full day's work, up to 30 tons of refuse haul, 27% grade without the 200-kilowatt in it. And with the 200-kilowatt in that truck, we believe the fuel efficiency gets even better and the performance gets even a bigger separation from the existing battery electric trucks.

So part of that time line, which we're already in, is developing the refuse truck towards its start of production, right? So the Class 8 has completed its 200-kilowatt start of production that we announced in September. The refuse truck has to go through that process now. It will be a faster SOP than the Class 8, given that we're building on a very similar set of components. It will include adopting the 200-kilowatt into that design.

So some of the milestones to look out for in 2025, when we have our first trial truck available for display of the 200-kilowatt production intent, will be a big milestone for us. As we finalize the BOM and the design towards the end of the SOP process, and we're putting that truck into customer trial as the final pieces of the SOP will be big milestones for us in 2025.

And we did mention in the GreenWaste contract, announcement that we could deliver initial vehicles to them commercially as soon as the fourth quarter of 2025. We're not committing to the fourth quarter of 2025, but that's how fast this theoretically could go, and it may obviously slip into 2026.

So with that, obviously, the majority of what we do in 2025 commercially will be on the Class 8 200-kilowatt. The refuse truck, we're quite excited to accelerate start of production process on that as much as we can, building on the back of the Class 8. And we're excited to put that truck out in the market with a 200-kilowatt powertrain at some point in 2025, an update on our timing for that SOP for refuse at some point next year.

Robert Cameron Wertheimer
Melius Research LLC

And I'm not sure how much you're going to want to comment on this, so I understand you may not. But any discussion of where you stand with potential strategic partners? I don't know if you're in active conversations or if you're waiting for potentially more orders to come in or potential partners are.

And then any comment on where your potential customers feel about the financing, whether they're making -- potentially making orders contingent on you obtaining a partner or more financing or when they could finance it? I mean there's lots of options out there, and I'm curious if you could explore any of them with us.

Parker Stewart Meeks
CEO & Director

Yes. No, thanks, Rob. Both critical topics for us. So on the strategic partners, what I can say is when we talked about strategic partners in the past, who also could be partners, both in the ecosystem, supplying their -- whether it's fuel or their base chassis as part of our truck or dispensing capital or lease capital, it's both a potential place in the value chain on the back of our customer pipeline, which has only gotten better, right, as we've proven the trucks in trial and we're now announcing the first contract with GreenWaste in the back of those trials, and we're now negotiating with several fleets on the back of their successful trials. But also possibly to provide around base load of capital as a part of that relationship. So all those partners look to our commercial success as the foundation for a partnership and as a foundation for potentially providing capital as a part of that.

And clearly, today, we're in a stronger position in terms of our commercial positioning than we were even 3 months back, right? With 10 trials complete, all successful with the first order announced that's a proof that we can transact, even to your point, in a very uncertain time, right? So our customers are certainly well aware of where we are as a company. The customers experienced our truck typically are very excited that they have a zero-emission truck that actually works and that they have a fuel cell truck with a powertrain that is clearly advantaged in all the ways that we speak to it. And that they have a truck that's based on a legacy OEM chassis that they know and they can be serviced well.

So on the partnership side, what I can say is we're in the strongest position we've ever been with these potential partners. The fuel side continues to lead, right? So fuel providers are -- clearly, to be able to sell trucks, customers have to see where the fuel is going to come from. It's not that they have to have the fuel contract in place when they sign the truck order. But at the same time, they're not going to sign a truck order without having a clear view as to who's going to provide the fuel with pricing that is generally understood.

So fuel providers are putting in their fuel proposals alongside our trucks. These include many of the larger players in that space and some of the newer companies that are trying to forge their way. We're very comfortable, as I mentioned in my comments, that the cost of fuel has come down dramatically from the $40 a kilogram that we saw 6 months ago with all the supply disruptions to we're now getting bids for our customers in the $10 to $12 a kilogram range as soon as 2025. And so that provides an environment where these partners see the path, right?

So we do need to sign a few more contracts to build a pipeline so that these partners see that this is commercially viable for them to commit. And hopefully, once that happens and with the 30 trials that we're conducting between July and February, even with a 40% success rate, that's 10 to 12 potential contracts that given our target of 50 trucks minimum per contract for most of the larger fleets, we're hopeful that leads to a 500-plus soft backlog that could be confirmed as soon as the middle of Q1. So if all that happens, that's going to show these partners a foundation that can create a lot of value for them, and we hope that means that they're going to participate in Hyzon's success.

On the financing front, I'll comment and hand it over to Steve. What I can say to your question on our customers holding back for some reason based on wanting to see us make more progress from a financing standpoint. We are very open with our customers on where we are. Obviously, it's part of their diligence process. You see customers signing contracts. That's a good sign, right? Those customers have gotten comfortable with where we are. If we announce more contracts, clearly, those customers, most of these are conservative companies who take things very seriously.

So to this stage, companies understand our plans, our strategies on how we're going to manage cash and capital. We're very open with them about how we're going to do that. They see our ability to raise capital recently, and they understand that we are hopeful to have similar opportunities to continue to raise capital through the financial markets should that make sense. And that obviously, they also understand where we are with these strategic partners who are proposing fuel and other things to them and that, that also we hope is part of our plan.

So I can say, thus far, our contracts and our negotiations have not included terms like that holdbacks based on financing or things like that. And generally, our customers are understanding and frankly, supportive given we're very transparent with them on our plans to make sure we do all we can to succeed. But Steve, do you want to add to that?

Stephen Paul Weiland
Chief Financial Officer

Yes. I think Parker really hit the main points. I'd just add, I think at the end of the day, it really comes down to now that we've proven our technical and operational capabilities, our ability to convince the market and our customers with commercial contracts. And I think we saw recently when we announced the order with our fantastic first partner in refuse, GreenWaste, what we saw the stock do on that day. And we now put in place the tools through our prior actions of being able to capitalize on equity fundraising opportunities when the price and the volume reacts.

So in terms of near-term comfort in being able to balance that capital raising strategy with commercial progress, I think we feel pretty good that we've got a lot of the tools in place to do that. And then on the back of that, we also believe, as Parker said, that, that only increases our attractiveness from a strategic standpoint. We have a very unique strategic asset here, I believe we're the only fully integrated U.S. producer of fuel cells here.

And as we see large customers, large fleets advance with us, and you can imagine the ecosystems that are attached to that with their preferred vendors, for example, through the OEM system and our stated pathway to become a fuel system OEM provider, a lot of opportunities and interesting things may pop up that we're actively pursuing.

Operator

We have no further questions. I'd like to turn the call back over to Parker Meeks for closing remarks.

Parker Stewart Meeks
CEO & Director

Thank you, operator, and thank you all for joining us. And so we at Hyzon continue to drive our leading technology forward to achieve our commercialization goals, I certainly look forward to updating you all on our progress in the coming months. Thanks so much, and take care.

Operator
This concludes today's conference call. Thank you for your participation. You may now disconnect.