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EXECUTIVE INTERVIEW: Navistar CEO to Emphasize Zero-Emission Tech's Influence on Commercial Vehicles

April 5, 2022



Advanced Clean Transportation Expo
CONFERENCE MAY 9-12, 2022 EXPO MAY 9-11, 2022
LONG BEACH CONVENTION CENTER LONG BEACH, CALIFORNIA

Executive Interview

Mathias Carlbaum
CEO & President



By **Stephane Babcock** (<https://www.act-news.com/author/stephane-babcock/>)

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Until the end of March 2021, Navistar CEO and President Mathias Carlbaum held the role of executive vice president of commercial operations at Scania CV AB. After a long management career at Scania



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with extensive experience in sales and international markets, he began leading the post-merger management of Navistar on behalf of the TRATON Group, taking over as CEO of Navistar last September.

Carlbaum will be a keynote speaker during the 11th annual show at the Long Beach Convention Center from May 9-12, 2022. ACT News sat down with the CEO to discuss the zero-emission commercial vehicle landscape.

ACT News: As a keynote speaker at the upcoming ACT Expo 2022, can you please tell us some of the unique insight you plan on sharing with attendees related to how Navistar is exploring the cutting edge of clean transportation solutions?

Mathias Carlbaum: As a keynote speaker at the upcoming ACT Expo 2022, I plan to share insights into some of the proprietary research Navistar has done on clean transportation solutions that have informed our path forward.

First and foremost, battery-electric power will be competitive with diesel across all key metrics and for all major applications—it's only a matter of time.

Hydrogen fuel cell electric vehicles, which are more flexible than battery electric vehicles, will play a role in specific applications and markets.

In the U.S., we find the strongest battery electric business case driven by the intense usage of long-haul trucks. The biggest advantage will come through in long distance Class 8.

ACT News: What has led to the recent spike in activity amongst OEMs surrounding electrification?

Mathias Carlbaum: The recent spike in activity amongst OEMs surrounding electrification is amplified by three main drivers:

First and foremost, battery-electric power will be competitive with diesel across all key metrics and for all major applications—it's only a matter of time.

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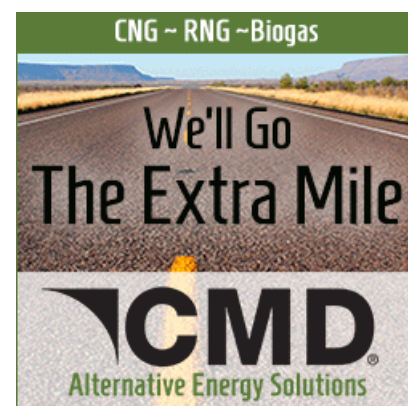
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Increased regulations – Demands have accelerated and escalated since the Paris Agreement. Other factors have also increased speed to electrification, such as greenhouse gas regulations, carbon taxes, cities taking the lead in future pollution policies and investors regulating towards ESG investments.

Market demand – Consumers and the younger generation are demanding electrification. We're already seeing it with passenger cars. In 2020, global automakers spent nearly \$225B on EV capital expenditures. That number is expected to reach \$330B by 2025. In this year's Super Bowl, six of the seven car brands that ran a commercial featured an EV.

Technology – EV batteries continue to get better and cost less. The cost of lithium batteries has declined 90% since 2010. Although EVs are currently more expensive, improvements in technology and increasing volumes will bring TCO advantage to EVs within four to seven years, depending on the application.

ACT News: What will be the key to transitioning the trucking industry to battery-electric and fuel cell trucks?

Mathias Carlbaum: To transition the trucking industry to sustainable transportation, a few key factors will be required:

Zero-emissions vehicles – Navistar, and the commercial vehicle industry as a whole, are fully working on this. The idea is to not only manufacture a zero-emission vehicle, but one that meets or surpasses the same performance metrics as its diesel counterparts and is reaches parity from a cost perspective.

Grid capacity for electric vehicles and natural resources for hydrogen fuel cell electric vehicles – Navistar believes that full electrification of the U.S. heavy-duty truck market would require roughly 20,000 public high-speed charge points. When materialized, the \$73 billion allotted for grid capacity in the Bipartisan Infrastructure Bill will put the U.S. in the lead for EV charging.

In order for hydrogen fuel cell electric vehicles to be a viable option, the hydrogen fuel itself must be renewable and at cost parity with diesel.

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Although EVs are currently more expensive, improvements in technology and increasing volumes will bring TCO advantage to EVs within four to seven years, depending on the application.

Charging/refueling infrastructure – For full electrification of the U.S. heavy-duty truck market, Navistar anticipates 1,500 public charging stations with 10-15 charge points at each will be necessary to support vehicle charging. Additionally, by 2027, about 10,000 miles of the interstate network could be supported by a Megawatt Charging System-based fast charging network — an additional 70 to 80 depots with 10-15 charging stations each — at a cost of approximately \$1B.

Both charging and refueling stations can take a few years to build out once planning starts, so lead time is the most critical factor to get right.

Sustainable energy production – Together, our shared vision must be to leave the next generation a better planet so that everyone can thrive and live their best life. In 2021, 60% of grid energy was from fossil fuels (<https://www.eia.gov/tools/faqs/faq.php?id=427&t=3>). Even if we're charging electric vehicles from the grid, we still need to collectively push for not just zero tailpipe emissions but set the course for a sustainable future we must also enable renewable energy production at its source, through solar, wind, hydroelectric options. Sustainable energy production is the toughest to get right and we'll need ideas to be generated across all stakeholders.

ACT News: How will this spotlight on electric trucks affect other clean fuels, such as natural gas and propane?

Mathias Carlbaum: The spotlight on electric trucks certainly impacts other clean fuels. Our TRATON Group research has shown electric powertrains are the greenest, fastest and most affordable long-term solution for our customers. With the transportation industry working through a large transformation at an incredible speed, to achieve success we must concentrate our efforts. Navistar has selected to invest in electric and hydrogen fuel cell technology. Changes to our industry are happening too

quickly for anyone to tackle the development of clean solutions alone – it'd be far too expensive and duplicative to not combine efforts, investments, and resources.

ACT News: Diesel is not going anywhere for some time. Where do you see Navistar's progress in terms of developing cleaner-burning diesel engines?

Mathias Carlbaum: The commercial truck industry is ideally suited to do more for reducing greenhouse gases (GHG) than any other industry because it accounts for 23% of GHG from the transportation sector. Navistar is committed to advancing ICE technology as efficiently and sustainably as possible until there is parity with zero-emission vehicles. Development of both technologies concurrently ensures a smooth transition of technology to best serve customer needs.

ACT News: Navistar has made large investments in low and zero-emission technologies for the truck and bus markets. Why is it important to Navistar to develop these technologies from an alternative fuel and environmental perspective?

Mathias Carlbaum: Navistar, along with the collective TRATON Group, aspires to play a leading role in sustainable transportation globally. Over the next five years, we are focused on battery electric vehicles due to their energy efficiencies. While we see hydrogen fuel cell-powered electric trucks useful in certain applications, battery electric trucks use three quarters of energy output to power vehicles, compared to one quarter for hydrogen fuel cell electric trucks.

Navistar is actively taking steps towards minimizing the environmental impact of your operations, supply chain, and the products you create. Take us through what some of these steps include to achieve solutions not only for Navistar, but to support customers' sustainability goals.

In Navistar operations we are focused on efficiency, including using less energy to produce our products. We recently set a new goal in the Better Plants program, a partnership with the U.S. Department of Energy. We committed to reduce our energy intensity, the energy used per product, by 20% by 2030 over a 2018 baseline. Since the majority of our operational carbon emissions come from our electricity purchases, this will directly contribute to lower carbon emissions.

Navistar is on a journey to establish Science Based Targets, which will ensure we have targets for operations and products in alignment with the Paris Agreement. That process involves measuring our emissions through our value chain and developing targets that will be approved by the Science Based Targets Initiative.

A longer-term project involves moving the business toward a circular business model, which emphasizes reduction of material inputs and waste outputs. An example of a current strength in that area is Navistar's remanufactured parts business. Well over 10% of our parts revenue comes from remanufactured parts, which function like new parts but use less resources to produce.

ACT News: Last year, Navistar announced partnerships with both General Motors and OneH2 to develop a hydrogen fuel-cell commercial truck and supporting fueling network. What is the timeline for bringing a fuel-cell truck to market, and why are collaborations like this important to the future of commercial vehicles?

Mathias Carlbaum: Navistar believes there is a strong use case in niche applications for hydrogen fuel cell electric vehicles. We have partnerships with General Motors and OneH2 and are building two FCEV demonstration vehicles targeting completion later this year. These trucks will be used collaboratively to collect performance data over North American drive cycles and use cases with select customers. With this real-world data, we can validate our engineering efforts to optimize performance and TCO for our customers.

The timing of bringing fuel cell trucks to market is aligned with our long-term strategy and technology development cycles. Using the BEV as a foundational platform, we will build on the platform to add fuel cells; adding the ability to produce on-demand electricity as vehicles complete their routes.

ACT News: How has the merger with Traton, which has made it clear that the future is battery-electric, help to spur further investment and growth for the Navistar portfolio?

Mathias Carlbaum: The merger with the TRATON Group has helped spur further investment and growth for the Navistar solutions portfolio not only through the \$2.8 billion investments in electric powertrains over the next

four years, but also through collaboration amongst the brands from a best practices and resources perspective.

Beyond the brands within the TRATON Group, we also find value in education and communication with the other brands within the larger Volkswagen Group portfolio.

ACT News: With all the advances in clean technologies for vehicles, do you see certain technologies that work better for one application over another, such as light-duty automotive versus commercial on-road vehicles?

Mathias Carlbaum: As I mentioned before, electric is proving a forerunner in the transportation industry. We believe battery electric vehicles will eventually be competitive with diesel across all key metrics and for all major applications. The shift to battery electric vehicles will start with school buses, followed by medium duty trucks, then regional haul and then long haul. Severe service will on average be last, but also see the biggest differences from one use case to the next.

Continuous long-distance applications have the best battery electric business case due to their high, intensive usage, strong real-world benefits (lower operational costs versus diesel), and it will be accelerated by regulations and incentives.

ACT News: How critical are funding and incentive programs to building the infrastructure to support widescale deployment of electric and fuel-cell vehicles? Can public funding help drive private investment?

Mathias Carlbaum: Funding and incentive programs are critical to supporting the development of a charging infrastructure, and ultimately driving the widescale deployment of electric and fuel-cell vehicles. Without parity of total cost of ownership to today's diesel vehicles, it will be challenging to drive adoption.

Full electrification of the U.S. heavy duty truck market would require roughly 20,000 public high-speed charge points. The cost of such an endeavor could be less than \$20 billion.

This will happen, the challenge is time. The entire process of installing charging infrastructure could take anywhere from two to six years to build out once planning starts, so lead time is the most critical factor to get right. Therefore, convincing all stakeholders of a need for a transition before the need itself becomes utterly apparent to everyone is crucial.

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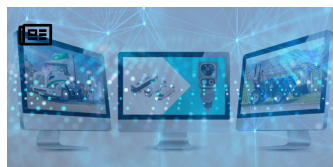


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