National Bus Trader

The Magazine of Bus Equipment for the United States and Canada

Volume XLV, No. 12 November, 2022

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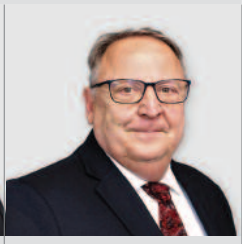

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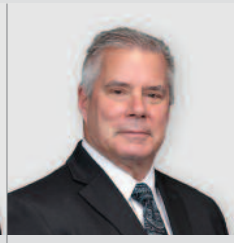

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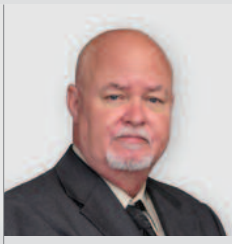

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Features

Cover Photo

While National Bus Trader normally does not have a cover girl, we make an exception this month for Pat Ziska who retires at the end of the year following 46 years of service to the bus industry. The bus industry is better because of her. For the story on her, see the article starting on page 18. MCI.

Departments

Advertiser's Index appears on page 42

Equipment News

MCI Academy Welcomes Back In-Person Classes

Motor Coach Industries (MCI), a subsidiary of NFI Group Inc. (NFI), and North America's motorcoach leader backed by reliable in-field technical expertise, 24/7 roadside assistance and parts support, recently announced the reopening of MCI Academy in-person classes at the National Training Center in Lousville, Kentucky.

As the only motorcoach industry training institution to earn the Automotive Service Excellence (ASE) accreditation and one of NFI's centers for training and workforce development, MCI Academy is proud to continue providing its no-cost training programs for all levels of technicians with in-person classes which started in October 2022.

MCI Academy, a five-time award-winning training program, is committed to providing the highest quality training available in the motorcoach industry for all levels of technicians using online courses, classroom sessions, written tests and practical skills demonstration. MCI Academy's comprehensive educational program will equip motorcoach professionals with the knowledge and skills to maintain, diagnose and repair systems on MCI motorcoaches to maximize on-road time, passenger safety and operator profitability.

2022 In-Person Class Schedule

- October 31-November 4, 2022 – Technician 3
- November 7-11, 2022 – HVAC 201
- November 15-18, 2022 – HVAC 101
- December 5-9, 2022 – Electrical 101
- December 12-16, 2022 – Technician 3

With its ASE recertification completed in September of 2022, ASE accreditation of the MCI Academy training program has been extended to 2027. MCI Academy students can earn all three technician certificates and complete two specialist diploma programs to become MCI Master Technicians. For more details about the programs, visit mciacademy.com.

"Workforce development is a priority for MCI and its customers. Developing skilled coach technicians is critical for our operators and important to recruiting and retaining talent, and MCI Academy is meeting that critical industry need," said Brent Maitland, vice president, private sector sales and marketing. "We are not only proud to welcome students back to the classroom, but also very excited to have our program be accredited by Automotive Service Education for another five years to continue providing the industry's premier training program."

MCI Academy may add additional sessions to meet the growing demand for its educational program. The 2023 class schedule will be available soon on mciacademy.com. To register for an MCI Academy program or to be included on a class waitlist, contact MCI Academy by e-mail or phone (214) 208-6608.

MCI is North America's public and private market motorcoach leader. Products include the luxury J-Series (an industry best-seller for more than a decade), the workhorse D-Series and the brand new zero-emission luxury and commuter coaches: the battery-electric J4500 CHARGE™, D45 CRT CHARGE™ and MCI D45 CRT LE CHARGE™. MCI also provides maintenance, repair, 24-hour roadside assistance, parts and technician training through the industry's only Automotive Service Excellence (ASE) accredited and award-winning MCI Academy.

Leveraging 450 years of combined experience, NFI is leading the electrification of mass mobility around the world. With zero-emission buses and coaches, infrastructure and technology, NFI meets today's urban demands for scalable smart mobilty solutions. Together, NFI is enabling more livable cities through connected, clean and sustainable transportation.

With 7,500 team members in nine countries, NFI is a leading global bus manufacturer of mass mobilty solutions under the brands New Flyer® (heavy-duty transit buses), MCI® (motorcoaches), Alexander Dennis Limited (single- and double-deck buses), Plaxton (motorcoaches), ARBOC® (low-floor cutaway and medium-duty buses) and NFI Parts™. NFI currently offers the widest range of sustainable drive systems available, including zero-emission electric (trolley, battery and fuel cell), natural gas, electric hybrid and clean diesel. In total, NFI supports it installed base of more than 105,000 buses and coaches around the world.

In late September, Motor Coach Industries announced the reopening of MCI Academy in-person classes at the National Training Center in Louisville, Kentucky. Classes started in early October and were scheduled through the end of the year. The MCI Academy has earned the Automotive Service Excellent accreditation.

MAX Transit Launches Birmingham Xpress with Low-Emission NFI Buses

On September 22, the Birmingham Jefferson County Transit Authority (MAX Transit) held a ribbon-cutting ceremony dedicated to opening its Birmingham Xpress, a new regional public transit system that will serve the Birmingham communities. MAX Transit's new Xcelsior® compressed natural gas (CNG) transit buses, proudly built by New Flyer, were launched into service.

New Flyer Regional Sales Manager Chris Dabbs joined Randall Woodfin, mayor of Birmingham; Yvette G. Taylor, Federal Transit Administration regional administrator, Region 4, and Charlotte Shaw, MAX Transit's executive director and CEO, during the event.

MAX Transit's new CNG buses emit 90 percent less nitrogen oxide compared to traditional propulsion and will deliver more efficient and low-emission mobility while contributing to more breathable air in the Alabama region.

A ribbon-cutting ceremony on September 22 marked the start of the Birmingham Xpress, a new regional public transit system that will serve the Birmingham communities. Launched at the same time were the new Xcelsior CNG buses from New Flyer. Powered by compressed natural gas, these new buses emit 90 percent less nitrogen oxide compared to traditional propulsion systems.

D45 CRT – The New Zero-Emission, Battery-Electric, High-Floor Commuter Transit Coach

NFI Group Inc. (NFI), a leading independent bus and coach manufacturer and a leader in electric mass mobility solutions, on September 28 announced that its subsidiary Motor Coach Industries (MCI) has unveiled its new zero-emission, battery-electric, high-floor commuter coach – the D45 CRT CHARGE™.

The D45 CRT CHARGE – a zero-emission version of the best-selling D45 Commuter Rapid Transit (CRT) series public transit coach – integrates proven CHARGE propulsion from New Flyer, including regenerative braking, and features design advancements of MCI's next generation D45 CRT commuter transit coaches, including enhanced reliability, efficiency and high performance.

MCI has introduced another new "D" coach battery-electric model, the D45 CRT CHARGE. This is a high-floor commuter coach model styled similar to the C45 CRT LE but without the lower level and middle entrance door. It is Buy-America compliant, has a range of more than 225 miles and will find application in commuter coach operations.

"The D45 CRT CHARGE marks the eighth unique zero-emission bus (ZEB) NFI has introduced in the past two years. Our market-leading electric vehicle (EV) portfolio continues to expand, demonstrating NFI's undeniable leadership in the electrification of mass mobility," said Chris Stoddart, president, North American Bus and Coach, NFI. "With electric drive components, MCI's smooth-riding suspension and real-time smart analytics on aboard, this fully accessible coach delivers an outstanding combination fo performance and sustainability benefits to transit operators."

The Buy America-compliant D45 CRT CHARGE harnesses three high-performing technologies to deliver a more efficient and sustainable commuter vehicle, including a high-torque electric drive system delivering up to 90 percent energy recovery and designed to efficiently handle long-distance applications at highway speeds; next generation, high-energy, long-range batteries delivering a range of more than 225 miles with 520 kWh of battery capacity and interoperable plug-in battery charging from empty to full in less than four hours.

"MCI continues to support North America's operators in transitioning to 100 percent zero-emission coach fleets, ultimately advancing their climate change action plans for a more sustainable future," said Jennifer McNeill, vice president of public sector sales and marketing, New Flyer and MCI. "The D45 CRT CHARGE will avoid the equivalent of approximately 80 metric tons of greenhouse gas emissions annually, delivering

immediate emission reduction for more sustainable and healthier communities across North America."

The Buy America-compliant D45 CRT CHARGE comes with MCI's legendary quality and reliability, retaining the class-leading features of the D45 CRT series, known as workhorses in the public transit industry. Through common systems and production, a rugged stainless-steel frame for maximum durability, modern styling and optional 360-degree camera system and tire monitoring system, the D45 CRT series contributes to lower operating costs and provides an outstanding passenger experience during the entire life of the coach.

The D45 CRT CHARGE uses the same interoperable charging equipment that supports all heavy-duty electric vehicles and leverages NFI Infrastructure Solutions™, a full suite service providing proven project management for smart mobility projects. The D45 CRT CHARGE is also equipped with NFI Connect™, an exclusive, advanced telematics solution providing real-time oversight of an entire fleet, improving bus uptime and lowering operating costs.

This launch continues MCI's vision to bring its common coach architecture to the market, which includes the new D45 CRT and the other D series models, including the D4520 for private sector operations. The common platform was initially launched with the industry leading J4500, which is now available in zero-emission and clean diesel, and brings best-in-class legroom and common vehicle systems for improved quality and ease of maintenance.

All MCI coaches are backed by MCI support services, including in-field expertise, a technical call center and 24/7 roadside assistance; ongoing technical training from the industry's only Automotive Service Excellence (ASE) accredited MCI Academy technician training center; parts support from NFI Parts™, the industry's largest parts supplier; MCI Service Centers and finally, on-the-go support with the MCI Operators App and MCI Companion App.

To provide workforce development on D45 CRT CHARGE technologies, MCI will host a no-cost virtual training session on December 8, 2022, through NFI's Vehicle Innovation Center (VIC). To register for the VIC session or to learn more about the D45 CRT CHARGE fuel cell-electric bus, visit mcicoach.com/electric.

NFI is a leader in zero-emission mobility, with ZEBs operating or on order) in more than 110 cities in six countries. NFI offers the widest range of zero-emission battery- and fuel cell-electric buses and coaches, and its vehicles have completed more than 70 million EV service miles.

Today, NFI supports growing North American cities with scalable, clean and sustainable mobility solutions through a four-pillar approach that includes buses and coaches, technology, infrastructure and workforce development. NFI also operates the VIC, the first and only innovation lab of its kind dedicated to advancing bus and coach technology and providing workforce development. Since opening in late 2017, the VIC has hosted more than 300 interactive events, welcoming 5,000 industry professionals for EV and infrastructure training.

The Family Motor Coach Association has announced that registrations are going well for their forthcoming International Convention to be held in Georgia in March of 2023. This will be FMCA's 13th event held at the Georgia National Fairgrounds & Agricenter in Perry, Georgia. It has been the most popular location for FMCA events and is highly rated by the members.

FMCA Sees Strong Opening Registration for 2023 Georgia Convention

FMCA's 106th International Convention & RV Expo is set for March 15-18, 2023 at the Georgia National Fairgrounds & Agricenter (GNFA) in Perry, Georgia. If early registration is any indication, this will be the RV association's largest gathering in years.

In the first week, more than 700 RVers signed up for the "Lucky 13" event, aptly named since this is FMCA's 13th convention to be held at GNFA, the most at any single location. According to event organizers, the exceptional registration numbers are a testament to the venue and to FMCA members' excitement surrounding this convention.

"There's no doubt that the Georgia National Fairgrounds is one of premier facilities for hosting an FMCA event," said Doug Uhlenbrock, director of events with FMCA. "It has everything we look for in a convention site: plenty of great parking space; a wide array of building for our seminars, exhibits, entertainment and offices; beautiful, well-kept grounds and a convenient location just off Interstate 75. Plus, such a great staff to work with who really understand FMCA and what we need to present a successful event."

FMCA's 2021 convention at GNFA was its first following the COVID-19 shutdown in 2020 and required numerous restrictions to satisfy Georgia and Houston county protocols at the time. While many attendees deemed the convention a success, the numbers were much lower than previous FMCA events at the grounds. Now, as pandemic uncertainties subside, the 2023 registration figures suggest FMCA RVers are eager to return to their Southern convention "home."

"Our attendees consistently tell us that Perry is one of their favorite places to go, so that's why we're back for our 13th show there," Uhlenbrock said. "After COVID-19 minimized the opportunities for large gatherings in 2020 and 2021, and the spike in fuel prices kept folks from traveling as much in 2022, our members are ready to get back to the fun and excitement that only an FMCA convention provides. We have numerous chapters and groups who cannot wait to converge in middle Georgia for a week of socializing with friends they may not have seen in a few years."

General registration for the convention is $250 per couple for all event activities and on-site parking. Additional parking options are available to those who would like to purchase 30-amp or 50-amp electric. RVers who want to attend the convention as full registrants but do not want to stay on-site can register for a two-person Passport for $185.

To register for FMCA's "Lucky 13" convention, phone FMCA's Events Department at (800) 543-3622 or register online at www.fmca.com/fmca-perry-2023-learn more.

Four Vicinity Buses for Honolulu Airport

Vicinity Motor Corp., a North American supplier of commercial electric vehicles, on October 8 announced that it has received an order from strategic partner Sustainability Partners LLC (SP), an ESG focused Public Benefit Company committed to eliminating deferred maintenance infrastructure by enabling sustainability, for four Vicinity Lightning™ electric buses via Soderholm Sales & Leasing Inc. (Soderholm), Vicinity's Pacific Islands distributor.

The Vicinity Lightning shuttle buses will be used at the Daniel K. Inouye International Airport in Honolulu, the largest airport in the State of Hawaii serving 12 million passengers per year. The State of Hawaii Department of Transportation will utilize SP's Electric Vehicles as a Service™ (EVaaS) program to finance the conversion of traditional government fleets to Vicinity's electric vehicles. Soderholm will facilitate the sale and provide long-term technical and maintenance support fot the project. The order of four new electric buses is scheduled for delivery in 2023.

"As the State of Hawaii works to meet its sustainability goals and accelerate fleet electrification, our EVaaS program replaces outdated and costly fleet infrastructure with modern electrified solutions like the Vicinity Lightning," said Thomas Cain, CEO and founder of Sustainability Partners. "SP can pay for 100 percent of the purchase price while concurrently ensuring the vehicles are continually maintained in a state of good repair with embedded long-term support from SSL and Vicinity. We look forward to providing Hawaii and its largest airport an electric solution with a uniquely structured, month-to-month use-based service alternative to the traditional purchase of government fleets."

Gabi Soderholm of SSL added: "We look forward to supporting SP's EVaaS program and the integration of Vicinity's medium-duty, accessible, ADA-compliant, fully electrified low-floor shuttle bus into the Honolulu airport fleet. The transition to zero emission airport fleets will support not only Hawaii's sustainability goals but also serve as a powerful example of the benefits of EVs to the millions of passengers visiting our state each year."

"We continue to see significant interest from regional and international airports for EV passenger shuttle services given their inherent advantages," concluded William Trainer, founder and CEO of Vicinity Motor Corp. "State and airport authorities are increasingly concerned by air quality impacts to local health from traditional gas and diesel buses at airport curbsides, exposing passengers to increased levels of air pollution. Today, more than 40 airports in the U.S. – including Honolulu – are participating in the Federal Aviation Administration's (FAA) Airport Sustainability Plan to integrate sustainability into airport planning. Progressive airports are including a shift to cleaner shuttle bus options to reduce emissions and address community needs in their strategy."

T/CCI Manufacturing Awarded Illinois' First Reimagining Electric Vehicle Tax Incentive Package

T/CCI Manufacturing, a global leader for compressor technology, has received Illinois' first Reimagining Electric Vehicle (REV Illinois) Tax Incentive package established by Governor J.B. Pritzker and the Illinois Department of Commerce and Economic Opportunity (DCEO).

To further the state's goal of developing a world-leading Electric Vehicle Innovation Cluster, T/CCI is being awarded the first REV Illinois tax credit to support significant efforts in component manufacturing, innovation and workforce development. T/CCI will invest more than $20 million to retool its Decatur, Illinois facility to transition to electric compressor manufacturing, which will create more than 50 new jobs, while retaining 103 positions of its current workforce for a minimum total of 150 positions.

As part of the larger incentive package, the State of Illinois has granted $15.3 million to Richland Community College and $6 million to the City of Decatur in capital grants to create an EV Innovation Cluster at T/CCI's global headquarters in Illinois.

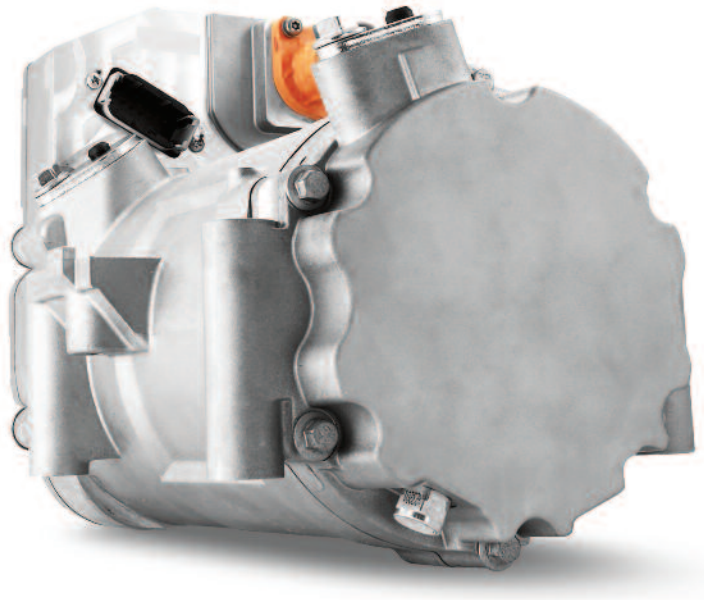
"This is a significant moment for T/CCI, the City of Decatur and the State of Illinois, as we embark on new programs to transition our industry toward widespread electrification," said Richard Demirjian, president of T/CCI Manufacturing. "T/CCI is recognized in the industry as a leader in compressor technology, already having developed the largest range of EV compressors in the market. We're excited to use our expertise in innovation and component manufacturing to advance Illinois" position and create a successful partnership that drives long-lasting economic growth."

The state granted $21.3 million in capital grants to the City of Decatur and Richland Community College to create a first-of-its-kind research and innovation facility and training program in partnership with T/CCI, which includes a full-scale climatic center for testing and simulations.

"Less than 10 months ago, I signed Illinois' groundbreaking Reimagining Electric Vehicles Act into law. Today, I'm proud to announce we're welcoming yet another electric vehicle investment to Illinois – and the first of many that ambitious legislation will produce," said Governor JB Pritzker. "And T/CCI isn't just investing in their own success – they're bringing the Decatur community along for the ride. We're bringing all of Illinois into the 21st century economy, with good jobs and business opportunities, and this investment is yet another way we're making that our reality."

The groundbreaking climatic Center for Innovation & Research will support technology advancements and climatic testing for high voltage systems, battery cooling and both A/C and heat pump capabilities. The Climatic Center will include a DC fast charger for electric vehicles for testing capability for fast charging EVs under both extreme cold and hot conditions.

T/CCI Manufacturing has been awarded Illinois' First Reimagining Electric Vehicle Tax Incentive Package to support major investments in transportation. A global leader for compressor technology, T/CCI will invest more than $20 million in its Decatur, Illinois facility. Involved is a retooling that will allow the company to transition to electric compressor manufacturing.



Next European ZEB Conference at Busworld Europe 2023

The fifth edition of the European Zero Emission Bus (ZEB) Conference will be organized concurrently with the 26th Busworld Europe edition from October 9-12, 2023 in Brussels, Belgium. ERM Group company, Element Energy, organizer of this conference, is partnering with Busworld Foundation. Together they aim to create the best edition of the European ZEB conference yet.

The Zero Emission Bus Conference is an event series created by Element Energy and Center for Transportation and the Environment (CTE) to accelerate the transition to zero emission bus technologies. Since launching in 2016, nine successful ZEB events have bene held to date in Europe and America. Previous European editions of the conference took place in Paris (2021), online via a series of Zebinars (2020), in Cologne (2018) and London (2016).

The fifth edition of the European ZEB Conference will be held in Brussels alongside Busworld Europe. As the home of Busworld Europe and European politics, while being easily accessible from all corners of Europe, Brussels provides the perfect location for ZEB 2023, which is expected to attract 400 attendees from the zero-emission bus sector.

The collaboration brings considerable benefits to both events. Attendees will gain insights from the ZEB conference, which will be delivered through four half-day sessions covering all aspects of zero emission buses and coaches, while having access to the biggest B2B bus and coach trade show in the world. All ZEB attendees will automatically have free entrance to the Busworld Europe exhibition and the program will be built in a way that confernece and exhibition can go hand in hand.

The European ZEB 2023 program is currently being finalized and is designed to give bus and coach operators, public transport authorities and policy makers a complete overview of the considerations for deploying zero emission fleets at scale. The Advisory Board helping to shape the conference consists of a consortium of experts from the bus and coach industry.

New in this edition will be the special attention for zero emission long distance and tourism coaches while still maintaining attention on battery-electric technologies and hydrogen-fueled buses. The coach sector needs to prepare itself for the emerging zero emission zone cities.

National Underground Railroad Freedom Center, Cincinnati, Ohio – Photo by Mark Bealer

Northern Kentucky Skyline with Roebling Suspension Bridge – Photo by Liz Dufour

The Beast Roller Coaster at Kings Island, Mason, Ohio – Photo by Kings Island

Ark Encounter, Williamstown, Kentucky – Photo by Ark Encounter

Newport Aquarium, Newport, Kentucky – Photo by Newport Aquarium

Cincinnati Museum Center at Union Terminal, Cincinnati, Ohio – Photo by Robert Webber

Join the group travel show that works! Heartland Travel Showcase 2023 will be held in the Cincy Region, (Cincinnati and Northern Kentucky) March 10-12. With destinations and sellable group ideas in Illinois, Indiana, Iowa, Kentucky, Michigan, Minnesota, New York, Ohio, Pennsylvania, Tennessee, West Virginia, and Ontario, Heartland Travel Showcase is unmatched. Discover innovative tour experiences, learn new sales tactics, and meet with excited, unique suppliers focused on helping you get business. **#OnlyInTheHeartland**

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Jan Deman, director of Busworld Foundation, explains: "The combined expertise of the network of Busworld Foundation and Element Energy guarantees the perfect symbiosis between technical and economic insights and field experience coming from manufacturers and operators. The fact that it is being organized at Busworld Europe helps to bring together theory and practice. What we talk about in the conference, can be seen and experienced in the exhibition."

Michael Dolman, partner at Element Energy, said: "The Zero Emission Bus conferences provide an excellent opportunity for all with an interest in zero emission public transport to share lessons, gain insights into the latest technology and policy developments and build networks and partnerships. We're delighted to be collaborating with Busworld Foundation to maximize the value and impact of the 2023 edition."

Alexander Dennis' Automated Enviro200 Bus

From September 7-8, NFI's Alexander Dennis Limited (Alexander Dennis) exhibited its automated Enviro200 bus for the CAVForth project, widely viewed as the world's most ambitious and complex automated bus pilot, at the Cenex-CAM industry event in Millbrook, England.

Project CAVForth, which is jointly funded by the UK Government's Centre for Connected and Autonomous Vehicles and project partners Fusion Processing, Stagecoach, Alexander Dennis, Bristol Robotics Laboratory, Edinburgh Napier University and Transport Scotland, includes five Alexander Dennis Enviro200 single-deck buses operating at SAE Autonomous Level 4 on a 14-mile route that includes the iconic Forth Road Bridge near Edinburgh, Scotland.

Irun Chooses Electric Buses from Irizar e-mobility

The CIty of Irun has awarded Irizar e-mobility the contract for manufacturing and supplying four zero-emissions buses along with the charging infrastructure. Three buses wll be fast charging and one will be ovenright-charging.

The buses will be used on Irunbus line 2 (Ventas-Centro) and more than 400,000 travelers a year can be transported with them. It is an innovative and sustainable means of transport that will doubtlessly improve passenger experience.

Delivery is expected for mid-2023.

In the words of Txema Otero, Irizar e-mobility commercial director for Spain and Portugal, "We're extremely proud to be able to provide our turn-key electromobility solutions to the city of Irun and, in that way, contribute to their decarbonization and sustainable mobility goals. Our production plant is barely 30 Km from Irun and it's where we develop and manufacture our vehicles, batteries and charging infrastructure. The buses stand out because of their design, accessibility and high degree of personalization. In addiiton, they're quiet and environmentally friendly, which will contribute to improving the quality of life for Irun residents."

Irizar recently was awarded a contract for four zero-emission buses for the city if Irun, Spain. Included will be the charging infrastructure for three fast charging buses and one for overnight charging. The buses are 39 feet long, have three doors and will carry up to 75 passengers. All of these tram-type buses come equipped with digital rear view mirrors and cameras.

On the other hand, Mobility Delegate for the City of Irun Borja Olazabal, pointed out, "It's another step the city is taking towards more sustainable mobility. We've had the main L-1 line electric since 2019. And very shorty the L-2 will also be electric, making 90 percent of our public transport move using cleaner methods that contribute to fighting the effects climate change produces on our local environment."

Alexander Dennis recently exhibited its automated Enviro200 bus at an industry event in Millbrook, England. The Alexander Dennis autonomous buses were designed and built for the CAVForth project that involves Autonomous Level 4 operations on a 14-mile route near Edinburgh, Scotland that includes crossing the Forth Road Bridge.

Irizar

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The vehicles, which are 12-meter-long Irizar ie-tram models, have 22 seats, one driver's seat, two wheelchair/pram areas and they can carry up to 75 passengers. The vehicles have three doors, two ramps, space reserved for wheelchairs and prams, as well as stop buttons in Braille, to ensure accessibility.

The buses are equipped with the latest generation batteries using Irizar technology (430 kWh for overnight charge vehicles and 90 kWh for opportunity charge vehicles) and 206 KW traction motors. Irizar e-mobility will also provide a fast charging station that will be installed at the end of line 2 (firefighter's area) and an overnight charging system. The chargers are from the Jema Energy brand, which belongs to the Irizar Group company.

The buses have digital rear view mirrors with cameras that provide optimized visibility and improved ergonomics, which is an innovative and efficient solution for urban buses that replaces conventional rear view mirrors with high definition cameras and interior screens.

Twelve Electric Buses by Irizar e-mobility for Palma

Irizar e-mobility will provide the Palma EMT with 12 100 percent electric zero-emissions buses. The delivery of the first units is expected for early 2023. The buses will contribute to the energy transition and accelerate the decarbonization process of the capital of the island of Mallorca.

One new feature is that the vehicles will have solar panels on top that will be used to power the auxiliary systems of the buses.

Recently the Irizar e-mobility facilities in Aduna, Gipuzkoa were visited by the mayor of Palma José Hila, the councilperson for sustainable mobility francesc Dalmau and Director of the Empresa Municipal de Transportes (EMT Palma) Mateu Marcús. In addition to visiting the facilities and production plant where their buses will be manufactured, during their stay they were also able to go over the technical specifications of the buses they will soon have in their fleets alongside representatives from Irizar e-mobility.

During the visit the mayor of Palma noted: "We're working on having a more sustainable city and public transport is fundamental to achieving that. The EMT needs to have buses that use clean energy. And that's what we're doing."

Txema Otero, Irizar e-mobility commercial director for Spain and Portugal, noted: "This order is strategic for us because of the visibility Palma has in the tourism market. We're extremely proud to be able to contribute to improving the quality of life of its residents. The vehicles, which will have Irizar battery technology, will be completely quiet and won't create polluting emissions. The Irizar ie tram can be identified by being a bus with a minimalist design without ornamentation where every feature has a specific functional purpose which creates an identity and image easily recognizable by users."

The Irizar ie tram model vehicles will be 12 meters long and they will have three doors, 22 seats (four of which for PRM) and a wheelchair area and they will be able to carry up to 70 passengers. They will have 430 kWh Irizar batteries and can be charged using an inverted pantograph or a Combo 2 charging outlet. The drive unit will be a 206 kW central motor.

Accessibility, safety, circulation flow and passenger comfort inspired the interior architecture of the Irizar ie tram. Its large side windows alongside the interior LED lighting and the open-air style central vault provide luminosity that will give users a spacious, enjoyable and safe space.

The project received financing from the European Union NextGenerationEU, Recovery – Transformation and Resilience Plan funds through the Ministry of Transport, Mobility and Urban Agenda.

The order is framed by the second phase of renewing the EMT fleet, which started in late January and will include upgrading 59 buses with clean energy vehicles that will make it possible to stop emitting 8,000 tons of carbon dioxide.

With this new order, Irizar e-mobility is reaffirming their leadership in providing turnkey electromobility solutions for cities. They also continue investing in alternative energies and expansive projects to contribute to sustainable, safe and connected mobility of the future.

Electric Buses: VDL Bus & Coach: Market Leader in Europe

In the first half of 2022, a total of 1,767 electric buses were registered in Europe. VDL Bus & Coach is the European market leader with 242 registered electric buses. This is according to figures from Chatrou CME Solutions.

Irizar is providing 12 electric buses for operation in Palma on the Spanish Island os Mallorca in the Mediterranean. The 39-foot buses will be able to carry up to 70 passengers and can be charged using either an inverted overhead pantograph or a charging outlet. An interesting feature of these buses is the solar panels on the roof that will be used to charge auxiliary systems on the buses.

With 1,385 registrations in the first half of 2021, registrations in the first half of 2022 increased by 28 percent. The previous year also saw a sharp rise in the number of electric buses: 48 percent more e-buses were registered in Europe in 2021 than 2020. Last year, a total of 3,282 e-buses were registered; in 2020, the number was 2,210. The number of registered electric buses in Europe has passed the 10,000 mark for the first time. Since this census was taken in 2012, the exact number stands at 10,270.

"If you look at the figures, it is of course striking that the market is becoming larger and at the same time more open, meaning that more players are active," says Alex de Jong, business manager public transport of VDL Bus & Coach. "As the frontrunner, we have been holding our own for years, as the registrations for the first half of 2022 once again show. With the developed new generation of VDL Citea, we are also introducing a versatile mobility platform to the market, which will allow us to remain at the forefront of the public transport market in the years to come."

At the end of July, VDL Bus & Coach celebrated the milestone of 200 million electric kilometers. Today, the 1,300 electric VDL Citeas cover around 240,000 kilometers every day in 11 European countries and 77 cities and regions. The 200 million electrically-driven kilometers deliver a savings of almost 28 million kilograms of CO_2 emissions.

The Netherlands has the most electric VDL vehicles and has therefore also covered the most electric kilometers: almost 165 million, which is more than 4,000 times around the world. Approximately 650 electric buses are operational in 35 cities. When it comes to the number of electric kilometers driven, VDL Bus & Coach is making rapid progress in Germany, where more than 12 million kilometers have now been driven by 270 electric Citeas in operation in 15 cities. Scandinavia also remains one of the most important markets for VDL Bus & Coach. In Norway, Sweden, Finland and Denmark, 250 VDL Citeas have covered around 25 million electric kilometers.

Over the past decade, VDL Bus & Coach has become one of the leading players in Europe in the field of e-mobility. Since the introduction of the first Citea SLF-120 Electric in Geneva, during the UITP Mobility & City Transport exhibition in 2013, VDL Bus & Coach has focused strongly on electric mobility.

Based on the VDL vision, a bus concept has been developed that is based entirely on an electric drive train and that is ready for the future, with zero emissions as a matter of course. Batteries in the floor, a one-piece composite side wall, clever energy management, a sophisticated climate control system and an ergonomic driver's environment. With these five important innovations, VDL Bus & Coach is introducing the project range of the new generation VDL Citea, which consists for four improved length variants and five types.

VDL has been a leader in producing electric buses for the European market. Recent figures show that 2021 saw 48 percent more electric buses registered in Europe than in 2020. While the Netherlands is the electric bus leader in Europe, several other countries including Germany, Sweden, Finland and Denmark are rapidly adding electric buses to their fleets.

The new generation of Citeas has already been sold in several countries and will be deployed in a number of cities and areas starting this year: The Netherlands (Eindhoven), Finland (Kotka and Lahti), Belgium (all of Flanders), Germany (Oberhausen and Braunschweig) and France (Bordeaux).

20 New Zero-Emissions Buses from Irizar for Pamplona

Irizar e-mobility has closed a contract to supply 20 100 percent electric zero-emissions buses with transports Ciutat Comtal (TCC) from the Moventis group, the company that currently manages the urban regional transport fleet in Pamplona, Spain. They will be buses where the cutting edge futuristic design plays a major role. The delivery of the first units is expected for mid-2023.

They are 12-meter-long (39 feet) Irizar ie tram model buses. The buses have some aesthetic attributes of a tram, and they are accessible, environmentally-friendly and destined to enrich passenger experience.

Iñigo Azcona, Irizar e-mobility commercial manager for Spain and Portugal, added, "We're extremely happy to be able to contribute to the ambitious sustainable public transport projects being undertaken by the mancommunity of the region of Pamplona. For us, it's strategic that a region like Pamplona has chosen a local product with high technological content. The vehicle model they've chosen, the Irizar ie tram, is our flagship model. The ie tram is a hook product that is revolutionizing electromobility in cities. Its high degree of personalization, high capacity, ease of access and comfort are among its great virtues. We hope the people of the region of Pamplona can enjoy all the advantages of the vehicle soon."

With the latest generation 430 kWh Irizar batteries and equipped with 206 kW traction engines, the vehicles have three doors, 25 seats for passengers (four for PRM), two wheelchair and pram areas, a ramp for disabled people and they can hold up to 80 passengers. The buses will have the option to be charged using an inverted pantograph or by slow charging in the garage.

As an example of the technology, instead of conventional rear view mirrors the vehicle has two digital cameras that project images on screens in the cockpit, which guarantees excellent visibility under all lighting conditions. In addition, special emphasis was put on passive safety, where ADAS (advanced driver-assistance system) help minimize risky situations that can arise while driving.

TCC Pamplona has a fleet of 159 buses, 135 of which are in service during rush hour. The network has 553 stops (328 with shelter) along 24 daytime urban lines and 10 night lines.

Because of the significant urban growth happening in the region of Pamplona, the number of trips on the TUC (Transporte Urbano Comarcal) has increased in recent years.

Transports Ciutat Comtal (TCC) in Pamplona, Spain, will be operating 20 new electric zero-emission Irizar buses in mid-2023. These ie Tram model buses will transport up to 80 passengers and can be recharged with either an overhead inverted pantograph or slow charging in the garage. The company operates 159 buses on 24 daytime routes and 10 night routes.

Transport for Greater Manchester Orders 50 Alexander Dennis Zero-Emission Buses for Franchised Bee Network

Alexander Dennis (ADL), a subsidiary of NFI Group Inc. (NFI), one of the world's leading independent global bus manufacturers, recently announced that Transport for Greater Manchester has ordered 50 zero-emission double-deck buses from Alexander Dennis for the first phase of the franchised Bee Network bus system which will launch in September 2023.

The electric buses will be built in Britain at Alexander Dennis's factory in Scarborough, North Yorkshire and are due to operate in Wigan and Bolton, where bus franchising will be rolled out on September 17, 2023, ahead of other parts of Greater Manchester following in 2024 and 2025.

The Alexander Dennis zero-emission buses will be the first to bear the branding of the new Bee Network – Greater Manchester's bold ambition for a fully integrated, London-style integrated transport system comprising buses, trams, walking and cycling and eventually trains. The distinctive black and yellow design was unveiled by Greater Manchester Mayor Andy Burnham. The 50 new buses will be funded from the government's City Region Sustainable Transport Settlement, with around 300 more electric buses to be delivered from 2024 through to 2027.

Alexander Dennis President and Managing Director Paul Davies said: "We are delighted to have been chosen by Transport for Greater Manchester as supplier for the first tranche of zero-emission buses for the new Bee Network. We look forward to playing our part in transforming bus services in Wigan and Bolton with these iconic buses, which will be built in the North of England at our factory in Scarborough and supported locally from our AD24 aftermarket hub in Skelmersdale.

Transport for Greater Manchester recently ordered 50 double-deck electric buses from Alexander Dennis. The buses will be built at the Alexander Dennis factory in Scarborough, North Yorkshire and are expected to operate in Wigan and Bolton. They will be used on the new Bee Network, Greater Manchester's plan for an integrated transport system similar to London's that involves franchising operations.

"Choosing Alexander Dennis shows Transport for Greater Manchester and the mayor's commitment to building buses locally in the United Kingdom, for which we are grateful. The new livery will inspire pride in Manchester's Bee Network and the improvements it will deliver for the region."

Mayor of Greater Manchester Andy Burnham said: "The countdown to bringing buses back under local control for the first time in 36 years is well and truly on. With the order placed for our first 50 new electric buses and strong interest from operators who want to run the first franchised services a year from now, the Bee Network is gathering real momentum.

"I am also delighted to unveil a sneak peek of what the Bee Network is going to look like. We're building on Manchester's symbolic bee and Metrolink colors – both of which are synonymous with our city-region – to deliver something modern and iconic that reflects the first-class transport network it will become."

Marcopolo Shows Hydrogen Coaches at IAA 2022

Marcopolo, in partnership with Sinosynergy, Feichi Bus and Allenbus, participates in the project to develop a coach powered by hydrogen fuel cells. The project, still in the approval phase, was presented at IAA 2022, one of the largest international commercial vehicle events, which was held in Hanover from September 19-25.

Marcopolo developed the bus body, the Audace 1050 model, produced at its unit in China. Sinosynergy provides the core part of the fuel cell technology, including membranes and fuel cell drive, and Feichi Bus/Allenbus, provides the fuel cell chassis of the bus. The companies have already produced two prototype buses. One will be on display at IAA 2022 and the other is in China where it has been submitted to tests for approval.

The hydrogen-powered Audace has a PBT of 19 thousand kg, capacity to carry 53 passengers and autonomy of up to 600 kilometers. The model presented is 12,000mm in total length, but the model will be offered in total length options from 11,900mm to 12,600mm, width of 2,480mm and wheelbase from 6,100mm to 6650mm. It has a Danfos engine, synchronous permanent magnet, with a rated power of 143 kw (peak of 235 kw) and rated torque/peak of 495/720 Nm, two fuel cell Sinosynergy G80-001 batteries, 160 kw, four 700 bar 4-type hydrogen tanks, and a water cooling system, with four packs of CATL LiFeO (Lithium Iron) storage batteries.

It is also equipped with four-speed Editron Amt transmission, ZF RL82EC independent front axle, ZF AV133 rear axle drive, ZF THP90 hydraulic box, Knorr air suspension system and Knorr brakes (with EBS, ESP, AEB, LDWS).

The Audace developed by the companies' partner will also be produced with a pure electric powertrain option, with power batteries: CATL, LiFeO, (Lithium Iron) fo 423 kwh, with 12 packs and autonomy of up to 400 kilometers in urban conditions. ❑

Marcopolo displayed their new hydrogen fuel cell coach at the recent IAA 2022 show in Hanover, Germany. While hydrogen fuel cell buses are becoming increasingly popular in Europe since 2019, this is one of the first attempts to put hydrogen fuel cell power in a coach. Although still in the approval stage, this new coach model will be produced in lengths of 39 and 41 feet.

Industry Legend Patricia Ziska Retires from MCI

In September of 2022 MCI announced that Patricia Ziska would be retiring at the end of the year. By then she will have amassed more than 46 years of service to the bus industry having started in the office of Hausman Bus Sales and moving up to one of the highest industry positions in marketing and customer service. Pat has not only become a legend in the bus business, but her presence has obviously made the industry a better place. MCI.

by Larry Plachno

Motor Coach Industries recently announced that Patricia Ziska would be retiring at the end of 2022. In addition to being a wife and mother, Pat has spent her life working with bus owners and has become one of the most respected people in the field. On December 6, 2022 she will mark 46 years of involvement in the bus industry. In a business where customer service, customer support and customer loyalty are important, she has become a legend. For many years she has been successful in maintaining a great relationship between MCI and its customers while being appreciated by all. Pat originally started with Hausman Bus Sales which has an interesting background with MCI. For those who do not know, or have forgotten, we can take a minute to explain about MCI and Hausman in earlier years.

Following an anti-trust suit against General Motors buses filed by the U.S. Department of Justice, Greyhound began looking for another source of coaches and turned to MCI in Winnipeg. MCI had been building coaches for Greyhound of Canada and were partially owned by them. In 1958, MCI was acquired by Greyhound Corp. and soon began to develop new models suitable for Greyhound in the United States. MCI opened their new facility in Pembina, Minnesota in 1963 to finish these coaches and soon began delivering their MC-5 model coaches to Greyhound.

Expectedly, other coach operators saw the new MCI coaches and wanted them too. Unlike Greyhound, a company that handled its own support and used coach sales, other operator customers required some sales and customer support. Many of them also wanted to trade in older coaches. To provide this type of support to MCI customers, Hausman Bus Sales was appointed as MCI's exclusive U.S. distributor on May 1, 1972. Founded in 1946 to handle used parts and equipment from Greyhound, Gerald Hausman had developed the company into a parts and used coach business. Headquartered in Chicago, by 1968 the company had branch offices in New Jersey and California plus other, smaller locations.

With secretarial and shorthanded training, Pat Ziska started working for Hausman Bus Sales on December 6, 1976. At that time Hausman was still located at the old facility on Archer Avenue just southwest of Chicago's downtown. Reports are that she quickly won over Hausman executives. MCI sales grew so rapidly in the following years as MCI moved into the leadership position in the market that Hausman soon outgrew the existing facility. In 1983, the company moved to a larger and better facility in the northwest suburb of Des Plaines at the corner of Golf and Mt. Prospect Roads [see the October, 1983 NATIONAL BUS TRADER for details].

Pat's talents in sales and marketing may have come from her father, Thomas Delaney, who was a building material salesman. One of his favorite sayings was: "Take care of the customer. That's what good salesmanship is about; nothing matters if the customer isn't satisfied." Pat's mother was a teacher who gave her a deep appreciation for knowledge. Pat obtained her Bachelor of Science Degree while working at Hausman Bus Sales. She

MCI ran a pair of coaches coast-to-coast to support the AASHTO convoy marking the 50th anniversary of the U.S. interstate system in 2006. Expectedly, Pat Ziska was on hand to meet the convoy and spread publicity for the bus industry and MCI. After the convoy arrived in Washington, Pat poses with Peter Pantuso from the American Bus Association *(left)* and MCI Bus Driver Dave Kane (right). MCI.

Pat usually represented MCI at the trade shows including this United Motorcoach Association show in Las Vegas in 2005. The people from Louisiana Coaches Trailways saw the new MCI D4005 on the show floor and decided to buy it. Shown are Peter Cotter, MCI executive vice president of sales; Louis Sanders and his father, Don Sanders, of Louisiana Coaches; Pat Ziska, MCI vice president of marketing and major accounts and Rob Lessor, MCI regional sales manager. MCI.

also completed several MBA courses at Northwestern University's Kellogg School of Management. She and her husband, Jim, have three boys and a daughter: Jim, Matthew, Mike and Kaitlyn.

Her tenacity, determination and intelligence were recognized at Hausman Bus Sales where she took on more responsibility and began adding to her list of accomplishments. Already by 1985 Pat was in charge of the service coordinators who supported customer orders through the factory. A major change came in 1989 when MCI acquired Hausman Bus Sales and began merging sales and customer service into the parent company. Expectedly, Pat moved into and up in the MCI sales and service organization.

At MCI, Pat began assuming more responsibility in sales and customer service. In 1996 she became the first female vice president at MCI and took over the Central Regional Sales Team. Four years later, in 2000, she moved up to the position of vice president of marketing and major accounts. In this position she began working with many of MCI's top tour and charter accounts. This was a very responsible position since these accounts were responsible for a substantial portion of MCI's sales.

Under her direction, MCI's customer open house events were expanded and road shows were developed that were well attended. These events encouraged MCI customers to come and see the latest models and hear about what new developments were on the horizon. Noteworthy achievements included working with celebrity spokesperson and bus industry supporter John Madden through all five of his MCI coaches. She also put famous basketball legend Michael Jordan in an MCI "D" series coach when he played for a baseball team in Birmingham, Alabama. In addition, Pat was heavily involved with the launch and introduction of several key MCI models including the Renaissance (E4500), the now industry-leading J4500, the new design D4505 and D4005 as well as the ultimate LX model.

Over the years, Pat Ziska has been an MCI spokesperson with customers and at industry events. She promoted MCI's local Open House events and has usually been on hand for most major industry events. Here, Pat meets with the Beach Boys at an MCI event in October of 1996. MCI.

Pat took on substantial responsibility in sales, marketing and customer service during her career. She was active in advertising, public relations, trade shows and industry events. A few of the special events included the AASHTO 50th Anniversary of the Interstate Highway System and the MCI Go Green campaign. She took charge of press events and directed the MCI marketing staff in charge of advertising materials, sales literature and the MCI Website. She was also responsible for *FYI from MCI*, a customer e-newsletter that started with a few hundred customer readers and later grew into a circulation of thousands.

After celebrating 30 years in the bus industry, Pat moved up to a new role at MCI in 2007. Recognizing her abilities to work with customers, she became the vice president, chief customer service officer for MCI. This was a new position for both MCI and the industry.

Larry Killingsworth, MCI's then vice president of sales and marketing, explained the new position. "Pat has focused on the customer for the past 30 years. Now we have a position that is

Over the years, Pat Ziska was heavily involved with running the MCI Customer and Open House events. This one in 2010 took place in Joliet, Illinois at a racetrack so MCI could show its new driver assistance system. NBT.

This MCI Customer Rally event took place at the MCI facility in Des Plaines, Illinois in 2016. Pat Ziska lines up for a photograph with several others in front of a new MCI J4500 going to Village Charters. NBT.

solely responsible for finding new ways to win for the customer. Pat has put her own stamp on the industry in a way that very few executives have been able to do. This position gives her a chance to get even closer to the customer as we begin to roll out a number of new initiatives." In this position, Ziska will also take on a bigger role with industry associations.

By 2007, Pat was already well known and respected in the field. Her movement into this new and unique position was mentioned in an article in the January, 2007 NATIONAL BUS TRADER that brought forth compliments from industry leaders. "She is the backbone of the industry, and respected by all of her peers," said Victor Parra, president of the United Motor Coach Association. "There is no one else like her."

John Crosswell, president of Crosswell Bus Lines in Williamsburg, Ohio, knew Pat from her earliest days at Hausman. His comments were probably reflected by many in the industry who had the pleasure to work with Pat. "Pat brings class, dignity, professionalism, good humor and grace to our industry. Even then she stood out. As she rose through the management ranks, Pat never overcompensated or changed; she has been able to keep her style. She's unique because she demonstrates unwavering loyalty for the customer, her company, coworkers and to the industry – all at once. We who know her are blessed."

In reply, Pat offered her own thoughts. "I love MCI," she said. "I'm extremely proud of what we've accomplished. When I see an MCI coach going down the road, I feel a great sense of satisfaction that all of us at MCI contribute to the confidence our customers have in our brand. Operators know they can send an MCI model out with groups of people to get from point to point with peace of mind. We're trusted."

In 2007, Patricia Ziska celebrated 30 years in the bus industry and moved up to a new role at MCI. Because of past success in working with customers, she became the vice president, chief customer service officer for MCI. This was a new position for both MCI and the industry. MCI.

After her 2007 promotion, Pat continued working with customers and put additional effort into events and associations. The MCI Rally and open house events gave customers an opportunity to meet with the MCI staff and suppliers, see the latest products and hear about new developments and directions. While many were held at several MCI Service facilities nationwide, some events took place in special locations like race tracks to showcase new systems and development. Pat worked with associations, helped present MCI-sponsored customer awards and became active with the Women in Buses group.

Typical of the esteem Pat received from associations was being given the Alliance Partner of the Year Award by the International Motor Coach Group (IMG) in 2010. The Award honors Alliance members that have demonstrated exceptional service and commitment to the industry and especially to IMG members. She was chosen by IMG members as the year's recipient of the yearly award from among her industry peers.

"IMG recognized Pat for her support of our organization, her leadership role in forming the Motorcoach Council and the commitment she has to the industry as a whole," said Steve Klika, president of IMG. "She and her MCI team are engaged in every aspect of IMG. She is a great friend to us and the industry. We appreciate her commitment and leadership."

"We're very honored to have Pat singled out for the award," said Tom Sorrels, MCI president and CEO. "She goes the extra mile

When not behind her desk, Pat could be found helping customers and delivering new coaches. Southeastern Stages celebrated its 80th anniversary in 2013 with an outing to an Atlanta Braves baseball game. From left: Ed Shipman, Marlene and Bill Hughes and MCI's Pat Ziska and Pat Scully. MCI.

for each and every MCI coach owned and is trusted by all. She greatly deserves the honor, and we extend our congratulations."

In 2011, Pat took another step up the ladder at MCI. In her former role as vice president and chief customer officer Pat was responsible for MCI's private sector sales to major accounts, MCI's sales force in Canada and had responsibility for executing MCI's marketing programs including internet and Web-based communications as well as public relations.

Pat had been behind MCI's "Go Green, Go Coach, Go MCI" campaign that supported the environmental benefits of motorcoach travel. She also has been serving as MCI's representative to a number of industry organizations and marketing groups including the American Bus Association and Trailways.

Patricia Ziska was very active in working with associations and presenting awards. Luke Busskohl, Arrow State Lines COO *(left)*, and his brother Alex, corporate operations and marketing specialist *(right)* accept the MCI-sponsored 2019 UMA Environmental Leadership Award from Pat Ziska, MCI vice president of new coach sales, at the 2019 UMA show. UMA.

December of 2018 found Pat Ziska in Tuscaloosa, Alabama delivering MCI's first 35-foot J3500 coach to Cliff Dorsey and the staff at Tuscaloosa Charter Service. MCI.

Now, in 2011, after 35 years in the industry, Pat was named vice president of sales and marketing for the private sector. In this new role, Pat was responsible for the new coach private sector sales representatives in the United States and Canada as well as the company's marketing group. In making the announcement, Rick Heller, MCI chief executive officer, said: "It is without question that our customers and sales team have the highest regard for Pat. She has the credentials and deserves this

In 2011, after 35 years in the industry, Pat was named MCI's vice president of sales and marketing for the private sector. Pat became responsible for the new coach private sector sales representatives in the United States and Canada as well as the company's marketing group. MCI.

On January 26, 2017, Patricia Ziska was honored with a Women in Buses Award at the ABA Marketplace in Cleveland for her unparalleled industry knowledge, pioneering leadership and personal touch. The Women in Buses award recognizes the role of women in the motorcoach industry who work collaboratively on issues and concerns of women business leaders as well as industry specific trends. Pat, who holds one of the highest positions in the industry, had just recently celebrated 40 years in the bus business the previous December.

role. She is not only dedicated to MCI, but ultimately to our customers' success. I look forward to working more closely with Pat as well as our sales team to further improve our market share and maximize our customer relationships.

Several people commented that it was hard to keep up with Pat. When she was not at her desk in the office, she was active with customer events, making coach deliveries to customers and working with customers and presenting awards at shows. Noteworthy examples include Pat's involvement in founding the Motorcoach Council in 2007 that helped educate and support bus operators in marketing. In 2008 Pat established the American Bus Association's Green Spirit Award as a way to recognize operators promoting the environmental benefits of motorcoach travel. This included MCI's green tool kit for operators to use to promote their efforts to passengers and clients alike.

"She is magnificent to deal with. She knows what's she's doing and puts our business first. She's focused on what's in front of her and on her job. She's picked up a wealth of knowledge and that's a great asset to us and the industry," said John McCommon, owner of Cline Tours in Mississippi.

"She is the most genuine, dependable person we've dealt with in this industry," said Allen Lamers, president of Green Bay-based Lamers Bus Lines. Lamers built a 52-year career in the charter and school bus family business he ran with his brother and children. "[Pat] is a credit to the industry all around. She's no-nonsense. Doesn't miss a beat. She follows through, stays in touch and takes care of things. MCI is fortunate to have her."

Pat had just celebrated 40 years in the industry when she received another award. At the ABA Marketplace in Cleveland on January 16, 2017, she was honored with a Women in Buses Award for her unparalleled industry knowledge, pioneering leadership and personal touch. "MCI salutes Pat on receiving this prestigious and well-deserved award," said Patrick Scully, MCI executive vice president of sales and marketing. "We're proud of her accomplishments at MCI and dedication to helping customers at every turn. Pat has always believed customer needs and passenger desires come first."

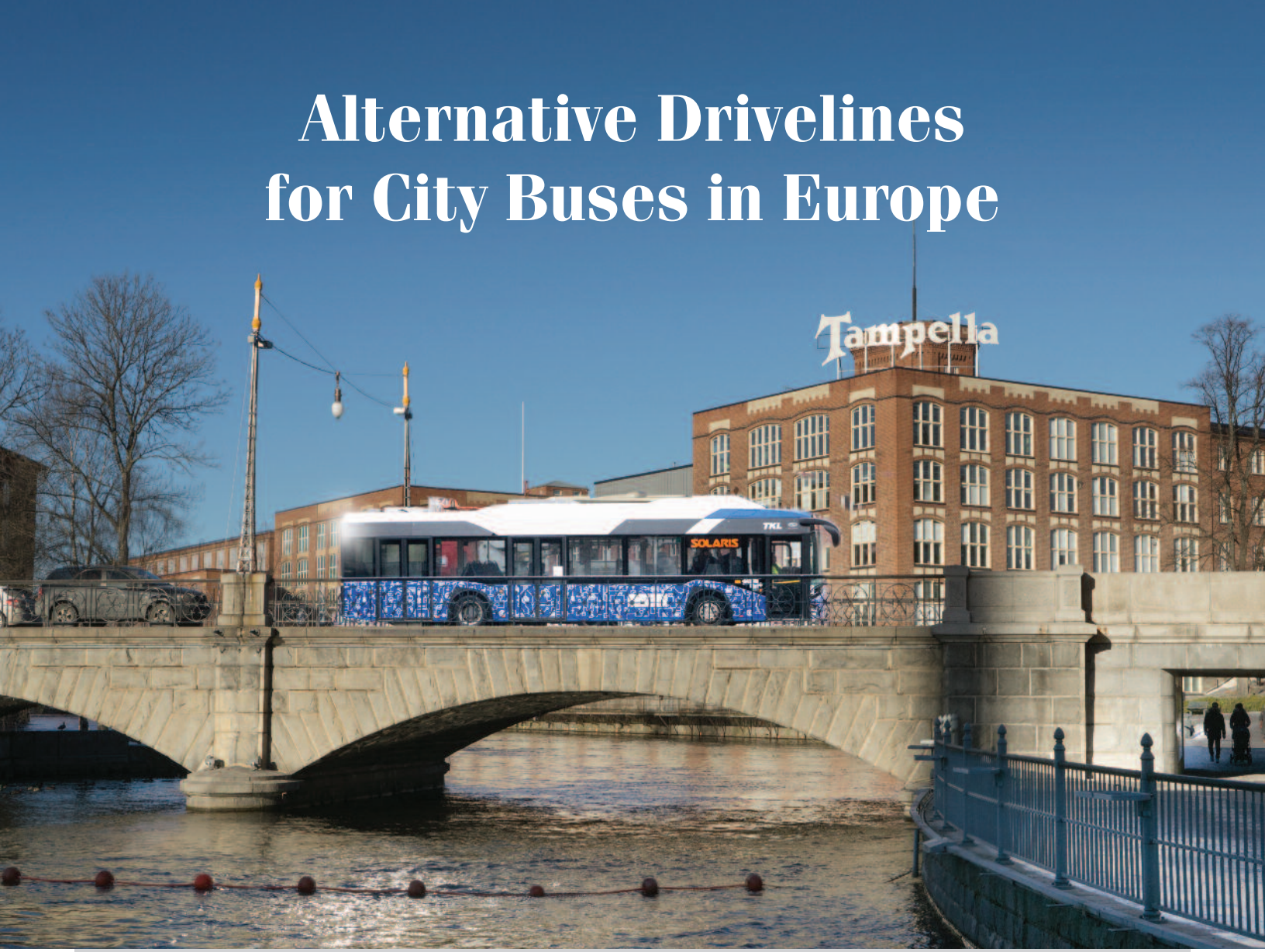
In 2015, MCI was acquired by New Flyer. Initial changes were minimal and Pat continued on doing what she did so well. After the pandemic hit in 2020, a new company-wide transition was put in place called "NFI Forward" to rationalize business units and facilities in the light of the new normal. As a result, NFI and MCI were combined into one business unit. The combined company continued offering all models of transit buses and MCI coaches. Work was already underway to offer battery-electric power. Pat continued to lead the private new coach sales team.

It was on September 6, 2022 when MCI announced that Pat would be retiring at the end of the year, soon after completing 46 years in the industry. To help with the transition, Tom Wagner had rejoined MCI and would be working alongside Pat. Tom originally joined MCI's public sector sales team in 2005 and was involved with the D-series coach including coaches to New Jersey Transit as well as the launch of compressed natural gas and hybrid electric power trains. He rose to a vice president position before leaving in 2020.

"MCI has provided me with an astounding career, and I value the friendships I've made along the way," Pat said. "Our leadership team will be strengthened by Tom's contributions, and I look forward to many more MCI milestones ahead of us."

It would be difficult for me not to add my personal comments after having known Pat through most of her bus industry career. I had visited Hausman Bus Sales looking for buses for a municipal operation I was working with when Pat first started there. National Bus Trader was founded a year after Pat joined Hausman. While there have been bus industry people who developed a reputation for customer service and were respected by bus operators, Pat took this to a substantially new and higher level. I know of no one who served in this area for as long and brought customer support and service up to this professional and comprehensive level. She is unique in the industry and many of us respect her for that. Thank you, Pat, for a job well done. Our wishes go with you for a great retirement. Our bus industry is a better place because of what you have done and what you accomplished. ❑

Alternative Drivelines for City Buses in Europe



Shown here is a Solaris Urbino 12 electric bus crossing a bridge in Tampere, Finland. Solaris is the largest electric bus builder for the European market, barely edging out VDL. Their 12-meter (39-foot) electric Urbino is one of their most popular models. Solaris is based in Poland and also offers articulated and tram buses. SOLARIS.

We continually get questions from readers on sales, zero-emission and alternative fuel buses. Just recently we were handed some information and statistics from Wim Chatrou of CME Solutions covering 10 years of alternative driveline city bus registrations in Europe. Since many people feel that the Europeans are a few years ahead of us in this area, it might be interesting to take a look at what has been happening in Europe with alternative drivelines since some of it might relate to what is or will happen in North America. If any reader is interested in more detailed information, please let us know and we will put you in touch with Chatrou who can help you by providing more information.

Moving Away From Diesel Engines

One observation I feel is appropriate is that this movement away from diesel power has changed the number and type of bus manufacturers to a substantial extent in recent years. When buses were built around diesel engines, it was the engine manufacturers that controlled the market to a greater or lesser extent. In 1956 the U.S. Department of Justice filed an antitrust suit against GM Buses and three other companies. The complaint charged that GM had a monopoly because they built 84 percent of all the large buses in the United States in 1955 and Flxible had built another seven percent.

Having both driven and trained drivers on those old GM coachs and buses, I might look at things differently. Those GM buses were durable, reliable and easy to keep running. In addition, GM offered financing for those who needed it. Coach and bus operators who could afford to, bought GM products, but a key item in the suit was GM's Detroit Diesel engines. Originally developed in the late 1930s, GM's Detroit Diesel engines were taking over the market from gasoline engines much like the move from diesel to battery-electric today.

An alarming number of American bus builders were going out of business in the 1950s, many never having graduated to diesel engines. Part of the consent decree that resolved the antitrust suit required GM to make their Detroit Diesel engine available to other bus builders in 1958. While things never got to this point in Europe, it can be said that the major engine builders like Mercedes Benz, M.A.N., Volvo and Iveco were major players in the bus market. For many years these four engine builders dominated the market with 75-80 percent of bus sales and the remainder European sales split among the smaller bus builders.

The push towards battery-electric buses has changed the list of bus builders on both sides of the Atlantic. Until a decade ago, the list of bus builders on both sides of the Atlantic also included several bus builders who did not make engines. On the European side, the more popular names would include Van Hool, VDL, Temsa, Solaris, Alexander

Dennis, Irizar, Wrightbus and several others. On the American side of the Atlantic this category would include New Flyer, Novabus, Gillig and both MCI and Prevost as coachbuilders.

More recently, we are now seeing new names enter the market that have never built diesel buses in the past. Noteworthy on the European market would be BYD from China and Ebusco. On the American side, both Proterra and BYD could be included. It appears that other new entrants into the electric bus field are joining this group.

Before looking at the numbers, there are a couple of items worth mentioning. An obvious one is that in spite of a smaller area than the United States, Europe traditionally has more buses. Part of this may be because of their high population, but good transportation helps and they are not faced with the American's love of their automobiles. While American suburban railroad stations have huge parking lots for automobiles, outlying European railroad stations have huge bike racks. I might also note that at least three European bus builders (Van Hool, Solaris and Irizar) offer tram buses that have yet to make an appearance in the United States.

The numbers shown in the following charts and listings were carefully researched by Chatrou and come from official authorities in each country. Finally, I should also mention that the Europeans tend to use periods and commas with numbers just the opposite of the American way. Do not ask me why. Hence, 24,5 percent would be the equivalent of 24.5 percent in America and 1.768 in Europe would be the equivalent to 1,768 in America. Following are explanations for the charts and numbers shown.

1 Development of Alternative Drivelines

This full-width graph shows new Alternative Driveline buses by year for a 10-year period from 2012 to 2021. While the last two time periods on the right appear to show a decline in numbers, they actually represent the first two quarters of 2021 and the first two quarters of 2022 – only half the period of time in the full years from 2012 to 2021; the 10 time periods on the left. Four types of Alternative Drivelines are included: hybrid buses, CNG buses, battery-electric buses and hydrogen fuel cell buses. Trolley buses are not included in these numbers because they are presumably not "alternative drivelines."

Virtually all of the numbers reflect city buses although a few others, presumably shuttle and interurban, are included. The black "Total" line at the top represents the total of the Alternative Driveline buses and not total buses including diesel and other traditional fuels. If you add the four lower numbers, they should equal the number on the "Total" line. Here are some observations on the lines on the bottom representing the four alternative drivelines being followed.

Not unexpectedly, hybrid buses took an early lead over the other alternatives and maintained this lead for several years. This would be anticipated since hybrid technology was mature and proven while at least two of the other alternatives were not. As the other alternative drivelines become more mature, we see hybrid technology declining. An interesting side note on this is that here in the United States, an older group of hybrid buses were replaced by a new group with clean diesel engines because the new clean diesel buses were actually cleaner than the older hybrids.

Next, we can note that CNG power was the second most popular alternative driveline for many years and still continues to have some following. Reports are that CNG power is increasingly popular in interurban applications and hence may continue in popularity. Battery-electric buses got off to a slow start but have increased in popularity as you might expect.

That red line at the bottom indicates sales of fuel cell buses by year or time period. As you can see, the numbers were low until 2019 when they started to increase. More recent numbers in 2021 and 2022 suggest that numbers are starting to increase from year to year. There are people in the industry suggesting that fuel cell buses may be more popular in the future if their cost becomes more reasonable although their current sale numbers are substantially lower than the other three alternative drivelines shown.

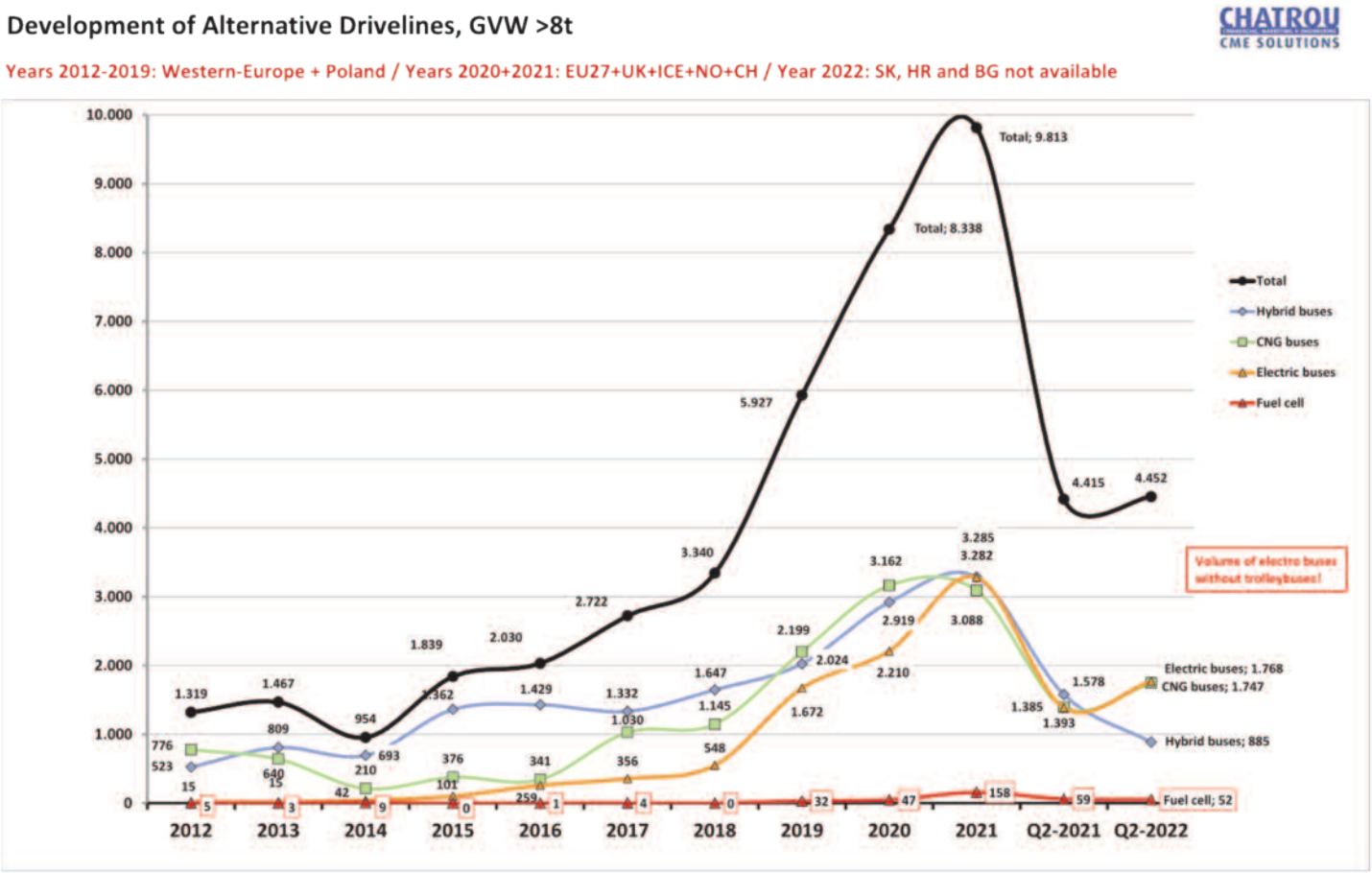
2 Total Number of City Buses With Alternative Drivelines Registered in Q1+Q2 2022

These are the most recent numbers for registrations and cover the first two quarters or first half of 2022. The numbers on the far right represent the totals for each category for this six-month period. Hence, there were 4,452 buses with hybrid, electric, CNG and fuel cell power. Next we see 568 buses in other segments which would include increased use of CNG in interurban service. The third line, City Bus Segment, is essentially the yellow line minus the white line. Next, the total city bus market for these six months, including diesel and any other power, is 6,019 which excludes

Total number of city buses with alternative driveline, registered in Q1+Q2-2022: 2

	Hybrid	Electric	CNG - NGT	Fuel Cell		total:
Total Q1+Q2-2022:	885	1.768	1.747	52		4.452
In other segments:		24	544			568
In city bus segment:	885	1.744	1.203	52		3.884
City bus market (excl. 32 trolleys)						6.019
Share:	14,7%	29,0%	20,0%	0,9%		64,5%

1

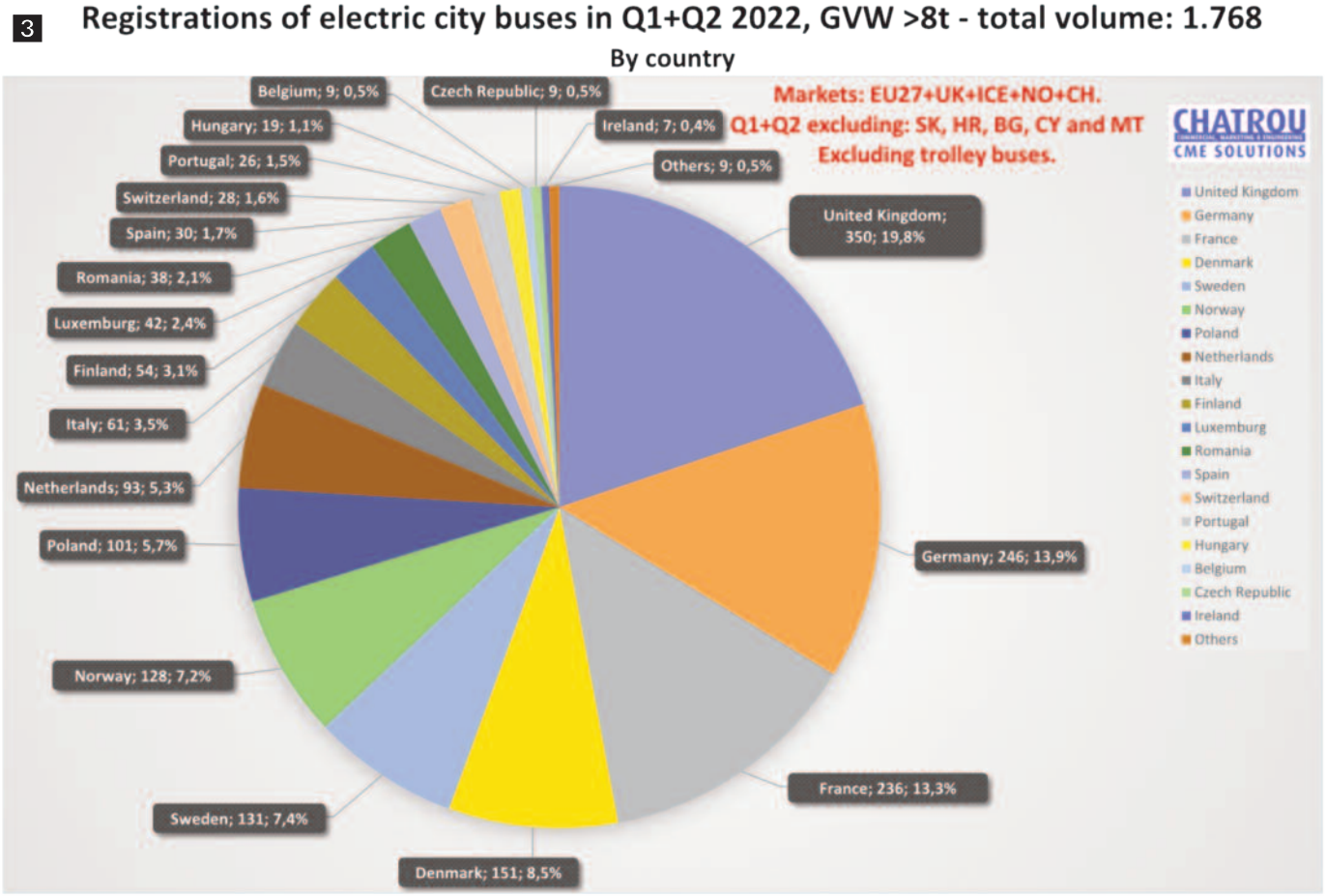


Some of the European bus builders offer what is known as a Tram Bus that offers special features including higher capacity. This example of the Van Hool ExquiCity 24 is a double articulated with a length of about 79 feet. Van Hool is a leader in offering multiple power and driveline options from a straight trolley bus to diesel, hybrid, battery-electric and other options. VAN HOOL.

32 trolley buses. This gives us some idea of the size of the European city bus market since this 6,019 only represents half of a year.

The line across the bottom gives you some idea of the percentage of the total market for the city bus segment of each fuel alternative. Hence, these percentages would be the blue line numbers divided by 6,019. For this six-month period the four alternative driveline fuel alternatives represent 64.5 percent of all new registrations. If you wanted to add in the 32 trolley buses, the percentage would be 65.1.

Other things you can note from these figures include the fact that the electric buses have become the most popular of the four alternative drivelines and now account for three out of even 10 new registrations. Equally interesting is that CNG has remained popular and is now being used for interurban buses. The number of hybrid buses appears to be declining while fuel cell buses represent less than one percent, but sales seem to be increasing from year to year.



3 Registrations of Electric City Buses in Q1+Q2 2022

This pie chart tracks registrations of battery-electric buses by country in the first two quarters of 2022 for the designated countries of Europe. The total number of buses is 1,768 and includes city service, interurban buses as well as others. It is interesting that more than half of these registrations are in four countries.

Nearly 20 percent of the new battery-electric bus registrations are in the United Kingdom. Germany follows as the second highest with 13.9 percent. In third position is France with 13.3 percent. Following are Denmark, Sweden and Norway with between 8.5 and 7.2 percent. Other countries are less than six percent. For the most part it appears that the countries that are ordering the most battery-electric buses are those that have been concerned about going green for the longest time. There does not seem to be any link between the countries and the local availability of battery electric buses. As the next pie chart will show, the company building the most is Solaris in Poland. Although I suspect

This VDL battery-electric bus operates for Helsingborg Expressen in Southern Sweden. VDL was an early leader in electric buses in Europe and came in a close second for the number of electric buses registered in Europe. The Citea has been a popular transit bus in Europe and is available with different power options. VDL.

that the BYD partnership with Alexander Dennis was motivated at least in part by demand for battery-electric buses in the UK.

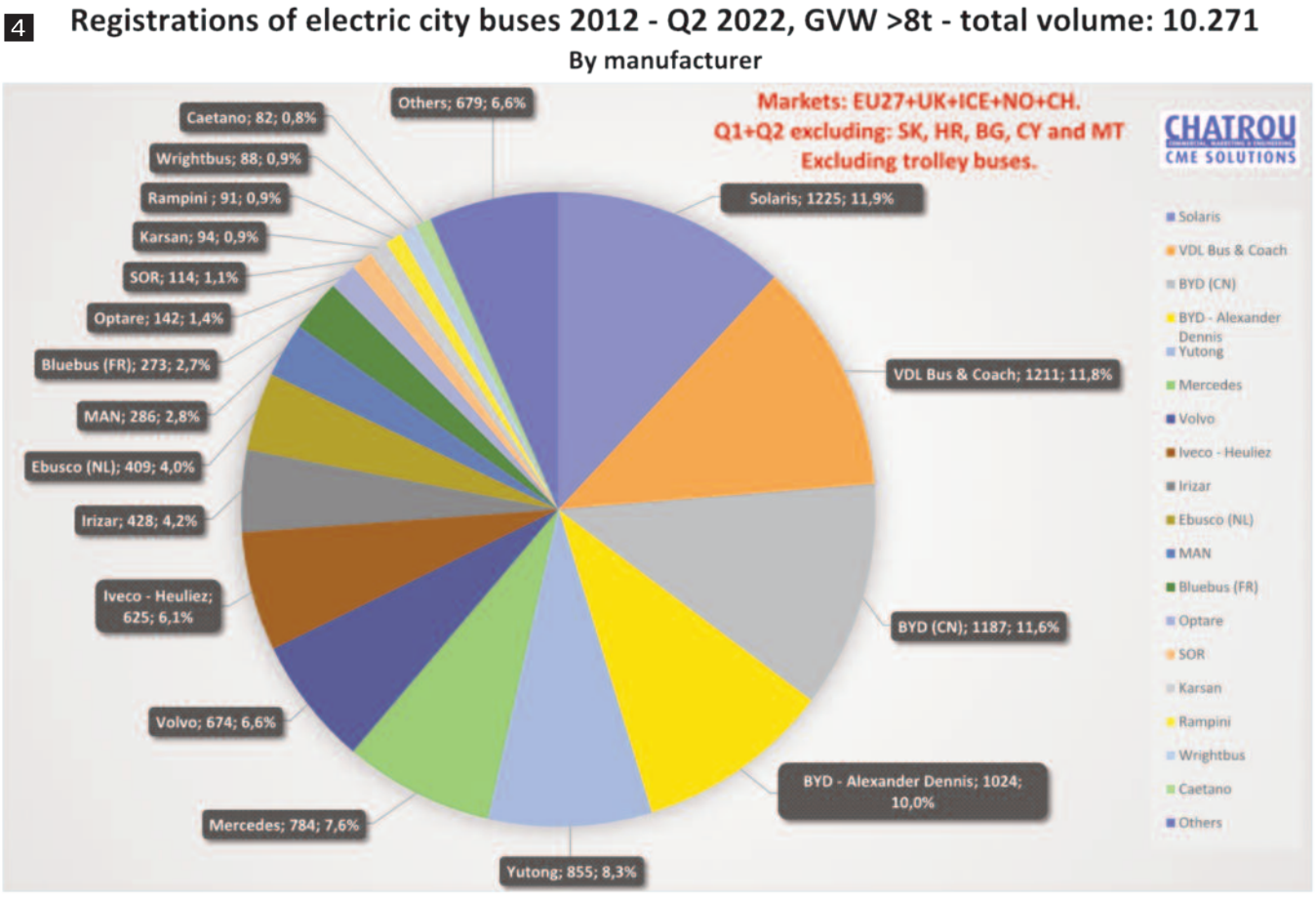
Some of the battery-electric buses charge up overnight at the garage while others can top off their charge with brief stops at the end of their routes. Here is a Solaris Urbino 12 parked beneath a modern charging station at the end of a route. A pantograph-like device extends upward from the roof of the bus to reach the electrical connection above. SOLARIS.

4 Registrations of Electric City Buses by Manufacturer 2012 - Q2 2022

This pie chart covers all battery-electric city buses registered from 2012 to the second quarter of 2022 for these designated countries of Europe. The total number of buses is 10,271, and they are broken down by manufacturer. As you can see, there are now numerous manufacturers in this market. This gives you some idea of which manufacturers are the leaders in electric buses on the European market.

Solaris comes in first with 11.9 percent of the total. Based in Poland, Solaris has offered a range of diesel-powered city buses including articulated and tram buses. They were one of the first to offer battery-electric buses and obviously have done well with sales. Second, and only slightly behind, is VDL Bus & Coach with 11.8 percent. VDL is based in the Netherlands and is a merger of smaller companies, some of which go back decades. They offer both city buses as well as coaches and began providing an electric version of their popular Citea model at an early date.

BYD is a Chinese company with a background in batteries. They never built diesel buses but have been offering electric coaches and buses in many countries. Alexander Dennis is a part of the NFI Group, is the largest bus builder in the UK and the largest double-deck bus builder in the world. Predecessor companies go back more than 100 years and have



offered bodies and chassis as well as diesel-powered buses. The partnership with BYD allows them to offer a line of battery-electric buses than have become popular. Yutong is a Chinese company considered to be the largest bus builder in the world. They have been very active with electric buses in recent years.

Mercedes Benz (Germany), Volvo (Sweden), Iveco (Italy) and MAN (Germany) are all engine builders that also build buses. Irizar from Spain offers their i6 diesel coach on the American market and has been very active with electric buses in Europe in recent years. They even have a factory dedicated to electric buses in Northern Spain. I do not know much about most of the other builders listed, but it is obvious from this pie chart that there are numerous companies already building electric buses.

5 Registrations of Hydrogen City Buses in 2012 up to and Including Q2 - 2022.

While hydrogen fuel cell buses have had the lowest sale and registration number of the four types of Alternative Drivelines covered, they continue to gather substantial interest. I have heard it said that as the hydrogen fuel cell buses become less expensive to build, more will be sold. The figures shown here seem to confirm this because the numbers are getting higher in recent years.

On the left side is a list of manufacturers who have built hydrogen fuel cell buses for Europe over the past decade. Columns show totals for each year at the bottom in yellow with the total for each manufacturer in blue on the right. While no new hydrogen fuel cell buses were recorded in 2018, the numbers have started to climb since 2019 as more manufacturers offer fuel cell buses.

I note that Van Hool is in the lead with a total 106 buses over the years. They first got into hydrogen fuel cell buses in 2003 when three Van Hool transit buses were set up for hydrogen fuel cell operation at AC Transit in the East Bay area. Van Hool offers a wide range of power options on their buses so their leadership in this area would not be unexpected.

It is interesting that number two in quantity is Wrightbus from the UK. They have built diesel buses in the past including double-deckers for London but are a relatively recent entrant into building hydrogen fuel cell buses. Number three is Solaris from Poland. In addition to being a leader in building battery-electric buses, they have also moved ahead with hydrogen fuel cell buses. There are two noteworthy items on this page. One is that up until 2017 there were only three bus builders offering hydrogen fuel cell buses on the European market. Since 2019, eight new builders have have entered this market. The second noteworthy item is the substantial increase in new hydrogen buses starting in 2019. If my figures are correct, something like 93 percent of new hydrogen fuel cell bus registrations have come in the three and a half years since 2019.

Our thanks to Chatrou from CME Solutions for providing this information that we can share with you. If you are interested in looking into this in more detail, or other European trends, please let us know and we can connect you with Chatrou and CME Solutions to answer your questions. ❑

5

Registrations of hydrogen city buses in 2012 upto and including Q2-2022

GVW >8t, total per year

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	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Q1+Q2-2022	Total
Autosan (PL)											1	1
Caetano (P)									4	20	13	37
Hyundai (KOR)										2		2
Mercedes (DE)		3	1									4
Neso Bus (PL)											1	1
Safra (FR)								6	6	7	4	23
Solaris (PL)								13		37	12	62
Solbus (PL)					1							1
Van Hool (BE)	5		8			4		21	37	21	10	106
VDL Bus & Coach (NL)								4				4
Wrightbus (UK)										71	11	82
Others												
	5	3	9		1	4		44	47	158	52	323

2019: 12x e-bus IT were Fuel Cell

Years 2012-2019: Western-Europe + Poland / Years 2020+2021: EU27+UK+ICE+NO+CH

Q1+Q2 2022 excluding: SK, HR, BG, CY and MT

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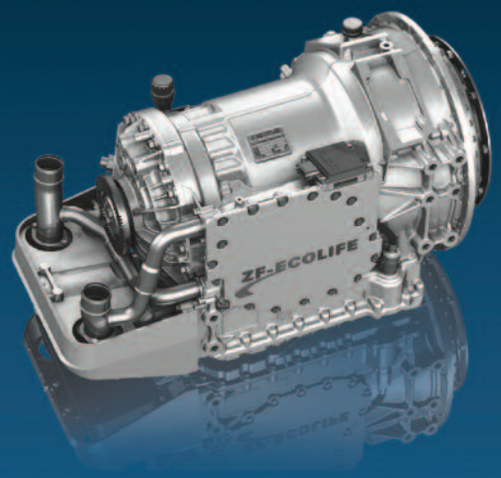

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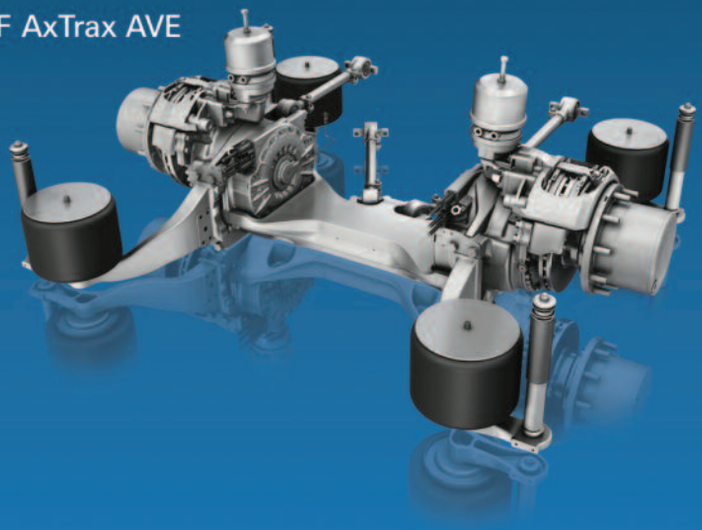

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Trailways Teamwork Aces Golf Tournament Shuttle Service

by Pat Plodzeen
Photos courtesy of Trailways

Dean Transportation partnered with Fullington Trailways to provide transportation for fans going to the PGA Golf Tournament. The Rocket Mortgage Classic was held at the Detroit Golf Club on July 28-31, 2022. Professional golfer Tony Finau dominated the field to win the classic.

Trailways' Dean Transportation and Fullington Tours have flawlessly transported fans to the prestigious Detroit PGA golf tournament. While professional golfer Tony Finau dominated the field to win the Rocket Mortgage Classic at the Detroit Golf Club on July 28-31, 2022, two members of Trailways, Dean Transportation and Fullington Tours, conquered the logistics of shuttling more than 70,000 fans, volunteers, caddies and players' families to the PGA Tour event.

Dean Transportation, the largest bus operator in Michigan and a member of the Trailways team, has been the preferred transportation provider for the tournament since 2019 and will continue in that role for another four years.

Trailways is a nationwide network of independently-owned charter bus companies that prioritize service, comfort, professionalism and reliability. When Dean needed more vehicles and staff for the Rocket Mortgage Classic in 2021 and 2022, the company

turned to Fullington Trailways, a fellow member operator based in Clearfield, Pennsylvania.

"It's reassuring to know that when you're managing a large event and all the logistics that go into it, you can count on a fellow Trailways partner to execute at a high level," said Sarah Ring, Dean's general manager. "We've worked with Excursions and Kobussen Trailways for this same event in the past, and with Fullington for the last two years. Their staff really knows what they're doing and their drivers are the utmost professionals at what they do. We know we can count on our Trailways partners to provide the outstanding service associated with our brand."

This year's tournament required 50 vehicles along with a mechanic and two ground-staff employees. The ground staff helped direct guests to the proper shuttle areas, assisted with loading and unloading of passengers, managed the bus flow and helped with other duties to support the effort, Ring said.

"We enjoy doing this event because Rocket Mortgage always wants to provide a great customer experience for their guests and that's what we do best," she said. To assure a flawless flow of pick-up and drop-off for passengers, Dean starts planning for the Rocket Mortgage Classic six months ahead with meetings, site visits and dry runs to determine routes, loop times and how to avoid any construction or traffic congestion problems during the event.

Moving fans to the Rocket Mortgage Classic at the Detroit Golf Club in July of 2022 was not an easy task. Dean Transportation and Fullington Tours flawlessly moved 70,000 fans, volunteers, caddies and players during the four-day event. This partnership between two Trailways companies is credited for a smooth-running event.

To learn how a Trailways operator can help you ace a tournament or move a large crowd, check out its free online directory. To become a Trailways member, contact Sabina Dhami, Trailways director of accounting and office management, at sabina@trailways.com. ❑

Partnering with Dean Transportation for the golf classic was Fullington Trailways of Clearfield, Pennsylvania. A total of 50 vehicles plus a mechanic and two ground staff were required to provide transportation to move the fans. Planning for the event started six months in advance to provide a flawless flow of pick-ups and drop-offs for passengers.

The Driver is the Captain of the Bus

by Dave Millhouser

The PD4107 model was the successor to the popular General Motors PD4106. Many people called this design "Buffalo Buses" while in the Northeast they were known as "Decks." GM later offered a 40-foot, two-axle version with the same design. This example was one of the earliest built in 1966 and operated for Wilson Bus Lines in East Templeton, Massachusetts. ROBERT REDDEN, REDDEN ARCHIVES.

Deadheading a Scenicruiser through Detroit on Interstate 75, I spotted a GBB (Great Big Busline) 4107 on the shoulder. Long on ego (and short on wisdom) I pulled up behind him and offered help.

A parking brake chamber on the drive axle had locked tight, and the bus would not budge. Rolling under the bus with a wrench, I loosened the bolts holding the pot to the bracket. It slid forward and released the brake on that wheel.

Striking a manly pose, I told the driver he would make it to the Detroit terminal if he drove carefully, because three-quarters of his braking system still worked.

Silly goose – off he went.

A few miles up the road I passed a lonely brake chamber, and a bit farther on was the 4107 stuck in the travel lane. He had hit a bump, the body lifted, the chamber shifted farther along the shaft and the descending body chopped it off. It dragged until the air hose holding it parted, setting the remaining parking brake and bringing him to a screeching halt.

Figuring this out as I roared by, there seemed no reason to stop, because I had done enough damage for one day.

I waved.

Best guess is that the GBB driver's boss, responding to his excuse, explained to him that he was nuts trusting a passing moron. He ultimately was responsible for the mechanical condition of his coach.

A driver tragically died several years ago (along with 17 passengers) in an accident. There were multiple causes, mostly mechanical and regulatory failures, but his relative said he was "scared to drive" that vehicle. Then why did he? Without getting into the details of this crash, it is important to understand that just like an airline pilot, or a ship's captain, a professional driver is ultimately accountable for the machine they are operating. If it is not safe, do not take it out.

We are not talking about rejecting a coach because a reading light is punk, but it is important for drivers to understand that once you wheel a bus out of the shop, that baby is yours. If a known defect causes (or exacerbates) an accident, blaming the mechanic or management will **not** get you off the hook.

If you are hurtling down the highway and a parking brake arbitrarily locks up, it is not your fault until you let a moron (in a manly pose) decide what is safe for your vehicle.

When your bus poops out mid-trip, headquarters can remotely troubleshoot and

The PD4501 Scenicruiser has become an icon and legend in the bus industry. Many of them amassed more than three million miles running for Greyhound and were then sold to other bus companies for continued service. This one was preserved by Tom McNally in Peoria and was photographed while on its way to Scenicruise 2010. NBT.

advise, but you are the one who is responsible for deciding if it is safe to continue. Have an accident and they may be held partially accountable, but you will be the focus, because the driver is always where the buck (rightfully) stops. If it is not safe, do not risk passengers lives.

It was 9:55 on a stormy night in Custer, Montana. In five minutes the diner would close, and along with it access to the only telephone for a zillion miles. The electrical system on the old Scenic refused to charge, and my buddy on the phone at the garage in Colorado said, "Jam a matchbook in the '810 relay. The alternator will 'full tilt boogie'. Don't forget to take it out when you stop."

All this with no idea of what had caused the crises. Later we found that the problem was a dead short in a big, unprotected wire. Talk about a fire hazard, jamming the relay bypassed the safety systems. My pal was willing to risk – me.

Striking a manly pose, I did what I was told, jammed the '810 and motored on through the night.

Do not do as I do, do as I say. ❑

The point being made here is that just like the captain of a ship or the captain of an airplane, the bus driver is the captain of the bus. He or she has the responsibility to make decisions to keep passengers safe and prevent harm to the bus and its equipment. If you ask for help, be careful that what you are getting is help. MAN.

Survival and Prosperity

by Ned Einstein

Making Public Transportation Work
Part 1: Alternative Work Schedules

To be blunt, public transportation has become our nation's worst industry. Worse than Big Pharma. Worse than Big Energy. Worse even than the U.S. Healthcare industry – although these bastions of corruption, incompetence, waste and reckless disregard share many characteristics in common with public transportation. The tragedy is that it was not always this way.

Public transportation has become our nation's worst industry.

Even in "The Car Country," public transportation had plenty of great moments and great thoughts. Regrettably, most of these occurred in the 1960s and 1970s. More tragically, many of these ideas are even more feasible – and far more needed – now.

On the positive side, internal combustion engines are exponentially cleaner (and we are slowly transitioning away from them altogether). Worsening traffic, increasing poverty and inflation are increasing the urgency to explore alternatives, while we fail to. The corruption of certain transportation sectors – most notably AMTRAK, commercial airlines and transportation network companies (TNCs) – have opened floodgates for new opportunities in more traditional modes. Unfortunately, precious little water is flowing through those gates.

On the negative side, TNCs have disrupted the logical (at least in theory) hierarchy of modes – decimating the taxi industry, and already penetrating and distorting the transit, schoolbus and motorcoach sectors – stealing ridership from them by thinning their densities. Among the worst examples, ridership on fixed route transit had dropped by roughly 10 percent per year during the two years before COVID struck. At the same time, and partly responsible for this decline, the transportation industry has basically lost interest in the promises of a half-century ago.

This installment addresses the most promising of these forgotten or ignored approaches – alternative work schedules. Among these approaches, alternative work schedules present, by far, the greatest opportunity to thin traffic and increase public transportation ridership. Obviously, faster movement on the roadways would benefit public transportation just as much as it would benefit personal occupancy vehicles (POVs).

Peaks and Troughs

Traffic is unmistakably a significant bane to both productivity and the enjoyment of modern urban life. This problem is greatly exaggerated because most traffic tends to squeeze into two broad sets of days and times: The five-day workweek (focusing on the same five days every week) and, during those five days, between roughly 6-9 a.m. and 3:30-6:30 p.m. (These "peak" or rush hours tend to begin and end a bit earlier in more rural parts of the country.)

In the past, the reasons for this concentration were understandable. Most workers had to be on the job in the same places at the same times. Even the most infantile efforts to change this (e.g., paying workers more for traveling outside these peak days and hours) have been so ignored that most readers probably never thought of them. Yet as technology has evolved from private telephone service (not "party lines"), answering machines, telex and fax machines, personal computers, the internet, cell-phones, social media and Zoom (and its brethren), remote access to computers, etc., the need for employees to work mostly the same hours at the same places has become increasingly less and less necessary

A considerable segment of the population needs not travel to work at all.

As COVID so clearly demonstrated, a considerable segment of the population needs not travel to work at all. Further, the systematic replacement of most stores with on-line purchasing and delivery services further decentralized the workforce. Yet these extraordinary changes did nothing to reduce traffic. In contrast, ever-increasing greed and corruption increased it. The decrease in transit ridership is only a small consequence.

The trough is the enormous increase in workspace density, as more and more huge buildings are increasingly erected closer and closer together, and taller and taller. This trend was compounded by other disruption – the openly stated goal of Silicon Valley and other start-ups. As an example, as TNC's flooded the urban market, the percentage of ride time compared to deadhead time for mostly exclusive-ride demand-responsive modes (TNCs, taxis and limousines) as well as all forms of paratransit service shrunk. More and more vehicles are increasingly needed to ferry the same number of passengers (and even more to ferry their increasing numbers) – adding to traffic, and slowing the movement of vehicles of all types.

Enormous Potential
and Extraordinary Disinterest

It should not be hard to understand why alternative work schedules have so much more potential now than they did 50 years ago. A small sample of the factors include:

- The flexibility of workers not needing to work at the same time at the same place has grown exponentially, as noted. Frankly, with Zoom, Facetime and similar technologies, workers in many industries may rarely if ever need to work physically face-to-face.
- Even in factory environments – including industrial farming – the extraordinary increases in automation have thinned out the need for workers altogether.
- Computers have also exponentially reduced the need for hard-copy storage space. For example, an otherwise traditional office could easily be occupied by two (or even three or four) shifts of workers, since none of them would require much storage space. File cabinets, in particular, have become relics.
- The cost of parking, and decreasing space for it, also compound the need to use this same space simultaneously. With alternative work schedules, a parking garage could accommodate two shifts. Charging each motorist half as much would yield the same profits (even while this is not how American businesses operate).
- With the thinning of traffic, public transportation travel speeds would increase, and their multiple stops would become less of a nuisance or consideration – lessening

Many workers actually prefer more unconventional hours.

the incentives to travel by modes that make few or no intermediate stops.

• Culturally and physiologically, many workers actually prefer more unconventional hours. This is especially true for families with children where both spouses work (another dynamic far more rare half a century ago).

Yet this caldron of urgency fails to alleviate a spoonful of traffic.

Evolution and Effortlessness

The notion that most people need a good eight hours' sleep, or that one can easily adjust his or her sleep hours, is not accurate. Benjamin Franklin's rubric "Early to bed, early to rise, makes a man healthy and wealthy and wise" is complete nonsense. Franklin knew less about sleep than the average tree, and far less about it than the average bear. As a physiological reality, most people's sleep cycles tend to fall into two patterns:

• Those with longer-than-24-hour sleep/wakefulness cycles – who tend to be late sleepers (known to sleep researchers as "owls")

• Those with shorter-than-24-hour sleep/wakefulness cycles – who tend to awaken early (these "early-risers" are known as "larks").

Interestingly, what "sets" one's biological clock (or sleep/wakefulness cycle) is the time one awakens – not the time he or she retires. Exhaustive studies of individuals' sleep/wakefulness cycles have found that those of larks tend to occur about four hours earlier than those of owls. In primitive times – before clocks and electric lights – those at the extremes did not do well:

• A late sleeper would likely be eaten by a "day-active" animal.

• In contrast, someone arising in the dark could fall into a pit or off a cliff.

This example is, of course, already oversimplified since those not living at or near the equator experience considerable variation in the light-darkness patterns, throughout the year, to which their sleep/wakefulness cycles could not possibly adjust. (Areas barely above the Arctic Circle, and below the Antarctic Circle, have six weeks a year of total darkness, and six weeks a year of total light.) Even so, one's ability to make moderate adjustments to these conditions – such as a small village or even a family letting a late sleeper retire late, and an early riser awaken early – could soften these risks somewhat by letting the extremists indulge their bodies' tendencies and "stand guard" over the others. The shortcomings of even these approaches help to explain why the average lifespan, until perhaps the last century or so, was about 20 years in most parts of the world. Thomas Edison changed a lot more things than most people acknowledge:.Where electricity is scarce or non-existent, life spans are still much shorter than in highly industrial parts of the world.

These patterns also changed a bit in the last millennium – largely because of stimulants (most commonly the past few hundred years because of coffee, as it reached Europe in the 17th Century) that allow the larks to extend their cycles to match the 24-hour rotation of the Earth on its axis. In contrast, sleeping pills (without dangerous side effects) are largely a modern phenomenon. (For those unaware, alcohol is a poor sleep-inducer, as it undermines the quality of sleep.) This dichotomy meant that the larks – whose natural sleep/wakefulness cycles might be 20 or slightly more hours long – could easily stretch out their cycles with a short nap and a few slugs of coffee. In contrast, those with longer cycles suffered immeasurably (and many still do): Their "solution" was, and is, mostly waking up prematurely, and being tired much of the day as a consequence (which helped some, but not all of them, at least fall asleep the following night). Worse still, because their natural sleep/wakefulness cycles are already longer than normal, most owls cannot nap.

Regardless, as the preferences of most of these individuals' sleep needs are forced to conform to the survival needs of a 24-hour rotation of the Earth on its access, most individuals' cycles tend to sort them into two groups, whose hours are roughly four hours apart. Until recently, the need for most workers to coalesce at the same places at the same time only meant that the "owls" suffered more. The vivid distinctions between the sleep needs of owls versus larks was rarely if ever employed to lessen traffic – or accomplish anything else.

All this is unfortunate. As the dumbest of the dumb can see immediately – even in a world where many workers must still overlap at the same place for much of the same time – having two "shifts" of workers traveling sloppily four hours apart would virtually eliminate the pattern of peak period travel (or "rush hours"). For example, the early birds (or larks) could travel to work from 5-9 a.m., with the second wave (late sleepers, or owls) traveling to work from 9 a.m.-1 p.m.. Then, from 1-5 p.m., the larks could head home. At 5 p.m., with half of the workers (the larks) already off the road, the second wave (the owls) could return from 5-9 p.m.. As a consequence, two heavily concentrated peak periods from roughly 5-8 p.m. and 3:30-6:30 p.m. – a six-hour span – would be spread out into a 16-hour span of time. Traffic levels would essentially be cut into a third (in theory). Not working perfectly, with some obvious need for overlaps, traffic levels would more likely be cut in half.

Traffic levels would more likely be cut in half.

Bipartisan and Biblical

To be fair, the busload of modern factors contributing to the extraordinary flexibility we enjoy today was unachievable, if not unthinkable, a mere 50 years ago. Our failure to slash traffic levels in half with a single, simple tool (to which are bodies are naturally attuned) is not a transportation failure. It is, frankly, a symptom of a failed state. It would be challenging to even conceive of any serious downsides to alternative work schedules, while the upsides would seem as effortless as they are obvious.

To a transportation professional coming upon this notion for the first time, the almost complete failure to implement this solution must be deeply disappointing. Particularly as alternative work schedules were a hot topic 50 years ago in U.S. public transportation circles, its complete absence as a solution today illustrates that we are simply incapable of making society-wide changes. It represents the failure of business as much as it represents the failure of politics. Frankly, a more bipartisan failure one could not find. Quite simply, it reflects a failure of leadership. Otherwise, the failure to employ this solution is hardly unique to America. It is sparsely if ever employed in any industrial nation (other than incidentally) – including those nations that are genuinely "industrial."

Unlike the rapidly growing cause of so many other problems – mostly from corruption and a distribution of wealth that was inconceivable only a few decades ago – the root cause of our failure to endorse and employ solutions as simple and obvious as alternative work schedules is effectively the failure to bother. If we cannot solve a major problem with such a simple, effortless solution devoid of a single downside, it is no wonder we are failing to solve more complex challenges.

Most educated Judao-Christian Americans know that only two of the original Ten Commandments (murder and stealing) are

Survival and Prosperity

actually illegal (a third – "bearing false witness," or perjury – is technically illegal, but almost never punished – just as an interest in penalizing petty theft is waning.) Regardless, I do not recall anything related to sloth being among the Commandments. That was largely because it was unneeded. Until recently, if you did not work, you died.

If we could "amend" these Commandments, "Thou shalt not fail to bother" might top the list. Otherwise, among them, the only Commandment still illegal and zealously prohibited is murder. We should be troubled that sloth is slowly choking us to death.

The opinions expressed in this article are that of the author and do not necessarily represent the opinions of NATIONAL BUS TRADER, *Inc. or its staff and management.* ❑

Ned Einstein is the president of Transportation Alternatives (www.transalt.com [1]), a public transportation witness firm. Einstein (einstein@transit.com) specializes in catastrophic motorcoach accidents.

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At right: Cyr Bus Lines in Old Town, Maine celebrates 110 years in business in 2022. The company operates school service, charters, tours and a scheduled line run. This photo was taken in 2012 of their 100th anniversary bus, a Setra. We hope to provide an article on Cyr Bus Line Soon.

Below: Coach Atlantic Maritime Bus recently took delivery of 10 Prevost H3-45 coaches. These are the first of 50 ordered over the next five years. The company operates 275 pieces of equipment in Eastern Canada. This photo was taken at the Prevost factory in Ste-Claire, Quebec.

The Curious Coachowner

Number 287 of a Series

"The Curious Coachowner" is a question and answer column that provides simple answers to simple questions that are too short to warrant a full article or inclusion in one of our regular columns. We will accept reasonably simple technical or historical questions on commercial coaches or converted coach shells by letter, fax, e-mail or phone. If our staff is unable to answer them, we will call upon our panel of experts. Names and addresses should be submitted with your questions, but we will withhold names from publication on request. We reserve the right to modify questions to make them more useful to our readers.

Q. What are "Buzz Stops?" I read that they are becoming increasingly popular in Europe.

— Reader in Canada

A. Buzz Stops are simply standard bus stop shelters with roofs covered with plants and flowers that attract bees and other insects while bringing some green back to metropolitan city centers.

We need to start out by understanding that Europe is more crowded than virtually all of the United States and Canada. Grass, green areas and wildflowers have long since disappeared from many city centers. This has made it increasingly difficult for bees, butterflies and hoverflies to survive.

The concept of Buzz Stops originated in Utrecht in the Netherlands several years ago. Dutch cities were increasingly worried that urban bee populations were becoming destabilized because of the lack of green areas, wildflowers and similar havens for bees and butterflies.

As a result, some of the Dutch cities started a "No Roof Unused" policy to help improve this situation. The result is that every roof will be greened with plants and mosses or have solar panels. This seemed to help a great deal with the city bee and butterfly populations.

In fact, it was so successful that someone got the brilliant idea of using this same concept on the roof of regular, rectangular bus stop shelters. This was immediately declared to be successful since the plants and wildflowers on the roof attracted the bees, butterflies and hoverflies and helped maintain their population. Utrecht now has more than 300 Buzz Stops throughout the city.

It did not take long for this same idea to start spreading throughout Europe. Numerous other cities were faced with decreasing green areas for the insects, and the colorful roofs of the bus stop shelters proved to be increasingly popular.

From Utrecht, the Buzz Stop concept spread to other Dutch cities and then to Denmark and Sweden. More recently, the concept is becoming popular in France, Belgium and the United Kingdom.

Leicaster in the East Midlands of England appears to have taken the lead in the UK. They have already installed more than 30 Buzz Stops since 2021. Derby in England now has 18 and they are appearing in Southampton, Newcastle, Sunderland, Oxford, Cardiff and even Glasgow in Scotland.

What is interesting is that the Buzz Stops have started to become so popular in Europe that a company called Clear Channel UK has stepped in to install and manage them. They currently manage 30,000 commercial shelters on behalf of councils but are finding a strong movement away from conventional bus stops and to the new Buzz Stops that cater to insect wildlife.

The people from Clear Channel say that there are pros and cons on the movement from conventional bus stop shelters to the increasingly popular Buzz Stops. One problem they are faced with is that conventional bus stop shelters have a "shelf life" of about 20 years. Hence, some places are reluctant to replace existing bus stops if they are still in good shape and are limiting the transition to shelters that are old enough to require replacement.

A second problem is that the Buzz Stop shelters are more expensive because they need to be more substantial to support the soil and plant life on the roof. This, again, is a reason why the changeover is going slowly in many areas.

On the other hand, Clear Channel says that once built and installed, maintenance is relatively easy on the Buzz Stop shelters. If built correctly, the roofs capture rainwater that keeps the plant life going. In many cases the Buzz Stop roofs only require maintenance twice a year. The roof gets a weed and trim when the rest of the shelter is checked for any problems.

Clear Channel has been working with Wildlife Trusts to make sure that the roofs benefit wildlife. Native flowers are used that include kidney vetch, thyme, selfheal and wild marjoram. They attract a large range of pollinators including hoverflies, peacock and tortoiseshell butterflies as well as common carder and buff-tailed bumblebees.

The company says that the Buzz Stops are becoming increasingly popular as time goes on. They are already receiving inquiries from as far away as Canada and Australia. Presumably, the Buzz Stops will eventually show up on this side of the Atlantic.

Q. Have there been any developments in regard to the power grid, electric buses and hydrogen fuel cell buses?

— Several Readers

A. The recent August issue of National Bus Trader contained an article on Carrington Events that disrupt electrical systems and components. Since then we have received several comments and questions from readers on various aspects of this. We will try to answer some of them briefly.

There still seems to be a disconnect between the power grid people and the politicians pushing for electric buses. Readers recently told us that California is concerned about electrical outages or brown outs. However, at the same time they are pushing for more electric cars and buses.

This same kind of thing is happening in other places. Some people have expressed concern that our national power grid needs to be improved and strengthened because it is vulnerable to problems.

As far as alternative fuels are concerned, the latest figures from Europe show an increase in interest in hydrogen fuel cell buses. Since 2019, eight new builders have entered this market. Production of hydrogen fuel cell buses has increased substantially recently. Something like 93 percent of new registrations have come in the three and a half years since 1919. We will try to include this in a future article.

Answers not credited to other individuals are provided by Larry Plachno. ❑

BACK ISSUES

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NATIONAL BUS TRADER continues to receive requests on the availability of back issues so that readers can either locate desired information or obtain missing issues.

While they last, the following back issues are available. Issues beginning with June, 1979 thru current are $3 – US, $4.50 – Canada and $5 – International (US) each postpaid.

Several issues are already "out of print," hence we suggest that you indicate second choices. We reserve the right to refund money if issues requested are no longer available.

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Advertiser's Index

Down The Road

Coming events of interest to readers of NATIONAL BUS TRADER. Submissions for the department should be directed to the editor. Unless otherwise indicated, events are not open to the general public.

January 12-16, 2023. **UMA Motorcoach Expo 2023.** Orlando, Florida. For more information view motorcoachexpo.com.

February 2-8, 2023. **American Bus Association Marketplace 2023.** Detroit, Michigan.

March 15-18, 2023. F**MCA's 106th International Convention and RV Expo.** Georgia National Fairgrounds and Agricenter, Perry, Georgia.

March 28, 2023. **Pennsylvania Bus Association Marketplace.** Holiday Inn, Morgantown, Pennsylvania.

June 9-10, 2023. **Museum of Bus Transportation/AACA Museum Spring Fling 2023.** For more information view www.aacamuseum/org/event/msuem-of-bus-transportation-spring-fling./

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