



ADVANCING
PUBLIC
TRANSPORT

➤ REPORT

DELVE INTO THE ADVANCEMENT OF ELECTRIC BUSES IN INDIA

HIGHLIGHTS FROM

THE UITP INDIA INTERNATIONAL BUS SEMINAR 2024

DECEMBER | 2024



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SUMMARY

The 7th edition of UITP's flagship biennial event on Bus - UITP India International Bus Seminar 2024, was supported by National Institution for Transformation of India (NITI) Aayog, Ministry of Road Transport and Highways (MoRTH) and the Association of State Road Transport Undertakings (ASRTU). In line with the Government of India's commitment to **decarbonise public sector transport by 2070**, the seminar focused on the theme of 'Advancing Electric Buses in India'.

The seminar witnessed a gathering of 100+ domestic and international delegates from 41 organisations representing State Transport Undertakings (STUs), Ministries, multilateral banks, Original Equipment Manufacturers (OEMs), operators, technology service providers, non-government organisations, and key stakeholders of the electric bus ecosystem globally. The

sessions encompassed 23 key speakers of international and national repute representing eminent organisations across the world.

The first day of the seminar entailed a plenary session followed by three technical sessions covering key topics of Sustainable E-Bus Adoption, Sustainable Digitalisation for E-Buses, Enhancing electric bus efficiency through sustainable operations and planning, and Addressing Range Anxiety through Adequate Charging Infrastructure. The second day entailed technical visit to an electric bus depot in New Delhi. The seminar served as a platform for sharing of knowledge, ideas, and best practices that focussed on key topics of electric bus management. The seminar had silver sponsor JBM Group and media partners MotorIndia, SustainableBus and Urban Transport News.

The seminar was organised at the India Habitat Centre, New Delhi on 21-22 November 2024.



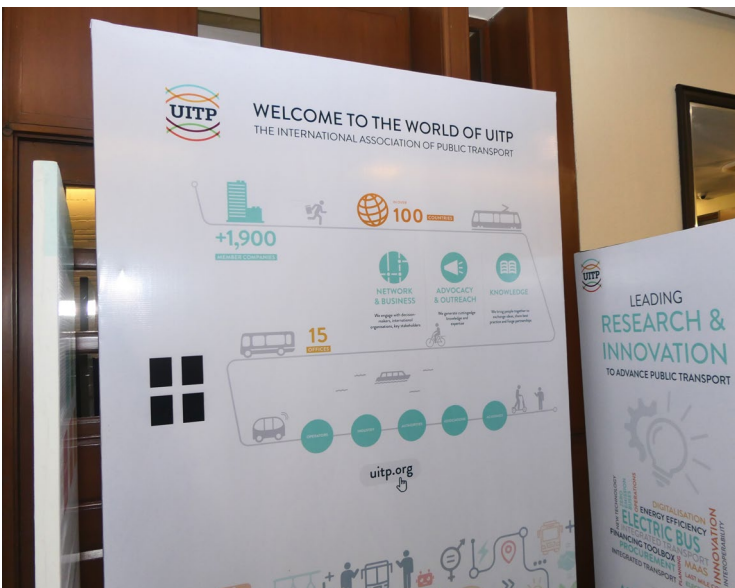
INTRODUCTION

Introduction of electric buses to upgrade and expand India's bus fleet is being seen as a significant step to reduce dependence on fossil fuels and tackle climate change. In the recent years there has been a rise in the government led initiatives for faster adoption of electric buses in the country. This year itself, witnessed the launch of major initiatives such as PM-eBus Sewa-Payment Security Mechanism Scheme, PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE) Scheme, and Bharat Urban Megabus Mission that paved way for a significant push towards accelerated push for adopting electric vehicles, especially electric buses.

With this background, UITP organised the UITP India Bus Seminar 2024 on the 21 - 22 November

2024 with the support of NITI Aayog, Ministry of Road Transport and Highways (MoRTH), and Association of State Road Transport Undertakings (ASRTU) the theme of current edition was 'Advancing Electric Buses in India'.

The seminar witnessed a gathering of 100+ domestic and international delegates from 41 organisations representing State Transport Undertakings (STUs), Ministries, multilateral banks, Original Equipment Manufacturers (OEMs), operators, technology service providers, non-government organisations, and key stakeholders of the electric bus ecosystem globally. The sessions encompassed 23 key national and international speakers from eminent organisations sharing their knowledge and experiences on electric buses.



INAUGURAL SESSION



K. Phanindra Reddy, IAS
Additional Chief Secretary-
Transport Department,
Government of Tamil Nadu



Rakesh Jain
Chief Executive Officer
Delhi Integrated
Multi-modal Transit
System Limited



Ismael Uruen Pueyo
Economic and Financial
Director,
Transports Metropolitans
de Barcelona (TMB),
Spain



Jaspal Singh
Senior Director –
Membership &
Global Operations,
UITP



Rupa Nandy
Head of UITP India,
UITP

The event kickstarted with an overview of India's contribution towards sustainable public transport globally. The work done by UITP across 100+ countries to advance public transport through advocacy, research, networking, publications, events, and training and capacity building was highlighted. The session stressed on the importance of electric buses (e-buses) in India's future public transport system and the need for continuous financial support from both central and state governments for the effective operation of e-buses. The session delved into the transformation of the bus industry in India, focusing on how the entire value chain is being restructured through the various initiatives taken by the Indian government.

Globalisation, role of public transport stakeholders, and technological advancements were identified as three main drivers of city transport changes in the session.

The session set out optimistic message about India's potential to become a global leader in the e-bus sector, especially with the world's second-largest e-bus fleet, it is positioned to become a global knowledge hub for e-bus technologies and practices in the near future. The inaugural session concluded with the vote of thanks by Ms Rupa Nandy, Head of UITP India, who welcomed all the participants and thanked all the partners of the event.



PLENARY SESSION



Swati Khanna
Senior Sector Specialist-
Urban Development
& Mobility
KfW



K. Phanindra Reddy, IAS
Additional Chief
Secretary-
Transport Depart-
ment,
Government of
Tamil Nadu



Ismael Uruen Pueyo
Economic and
Financial Director,
Transports Metro-
politans
de Barcelona (TMB)
Spain



Gaurav Kishor Joshi
Deputy Secretary,
Ministry of Heavy
Industries,
Government of India



Rajneesh Rana
Head (Convergence),
Convergence Energy
Services Limited



Nishant Arya
Vice Chairman &
Managing Director,
JBM Group

The session highlighted various perspectives on the adoption of e-buses focusing on the transition towards zero-emission transport and the efforts being made to scale up e-bus deployments. Insights into Barcelona's experience with the introduction of hybrid e-buses in 2009 were shared and how over time, the fleet expanded to today reaching 16% of Barcelona's buses to be pure electric, 4% hydrogen-powered, and 35% hybrids. Discussions were held on the challenges encountered in the initial phase of e-bus deployment, including the need for new civil infrastructure, charging stations, and specialised labour to support power electronics and battery technologies.

India's efforts to promote e-buses were outlined, emphasising the government's commitment to continue supporting e-bus adoption until demand increases and private sector involvement grows. The FAME-I and FAME-II schemes facilitated the rollout of 465 and 7,262 e-buses, respectively, and new initiatives like the PM-eBus Sewa-Payment Security Mechanism Scheme, PM E-DRIVE Scheme, and Bharat Urban Megabus Mission aim to deploy thousands of more e-buses across India. There was focus on India's support for various green technologies, from CNG to hydrogen, and its initiatives to attract global manufacturers by improving infrastructure, reducing logistics costs, and providing incentive through progressive regulatory frameworks.

The session mentioned about the end-user perspective, particularly from Chennai, where e-bus adoption has faced operational challenges. The importance of continued government support for public transport agencies to ensure affordable fare and high ridership was emphasised upon along with proposal for using Intelligent Transport Management Systems (ITMS) to prioritise Bus Rapid Transit System (BRTS), improving the efficiency of e-buses. From the implementation side, there was optimism expressed about the future of e-buses in India where the success of the demand aggregation model for

procurement of e-buses was cited. It was highlighted that with large-scale adoption, India would soon become a major exporter of e-buses.

“Only prioritising buses over other traffic on roads can help in reaping the true benefits of e-buses.” -
K. Phanindra Reddy, IAS, Additional Chief Secretary, Transport Department, Government of Tamil Nadu

The perspective of original equipment manufacturers (OEMs) was also touched upon with the growing demand for e-buses and India's potential to become the e-bus capital of the world. Emphasised was laid on the importance of research and development in producing high-quality e-buses, noting that the transition to e-buses not only helps mitigate emissions but also promotes energy security.

The panel discussion revealed the multifaceted approach to e-bus adoption, including policy support, infrastructure development, industry collaboration, and the role of OEMs, along with highlighting the paradigm shift that is taking place with the adoption of “Bus as a Service” model.



TECHNICAL SESSION I: SUSTAINABLE DIGITALISATION FOR ELECTRIC BUSES: ITMS, NCMC, DATA DRIVEN APPROACHES AND MORE



Anupama Saha
Assistant General Manager,
Delhi Integrated Multi-Modal
Transit System Limited



Dr. Manjit K. Sooch
Director of Innovation &
Technology, AC Transit,
Oakland, USA



A Shrinivas Rao
Assistant General Manager (TE),
Brihanmumbai Electric Supply &
Transport Undertaking



Dr. Till Ackermann
Head of the Department,
Association of German Transport
Companies (VDV)
Germany



Anindita Ghosh
Senior Researcher,
UITP

The first technical session discussed insightful presentations and case studies on sustainable digitalisation for e-buses. There was presentation on the experience of bus operations in AC Transit, a bus-only transit agency in Alameda and Contra Costa in California USA, using DIME. AC Transit has served East Bay since 1960, covering 364 sq. miles with a daily ridership of 170,000. A leader in ZEBs, it aims for 100% ZEBs by 2040, currently operating 58. The DIME system collects data on energy, operations, and external factors like temperature, humidity, and wind speed, that impact the operations, to further improve planning. Upgrading to DIME 2.0 will enable the integration of new data sources, fleet expansion, and enhanced use of GIS and AI securely.

The success story of Mumbai's adoption of e-buses and supporting digital infrastructure for its operations was highlighted with focus on how Brihanmumbai Electric Supply and Transport Undertaking (BEST) has always planned its operations based on historical data, and recently upgraded its operations with real-time data through the ITMS, optimising public transport, reducing congestion, and improving passenger experience via vehicle tracking and route optimisation. The adoption of National Common Mobility Card (NCMC) by BEST for seamless, cashless travel across various transport modes, along with its Command-and-Control Architecture that integrates various systems for efficient operations and disaster control were showcased. To address increased electricity demand from e-buses, BEST also plans solar panel installations at depots, starting with a pilot project at four of its depots.

The case of Germany's integrated tariff system that requires an interoperable, secure ticketing system with different fare levels and no access gates was discussed along with how VDV-Core Application supports cashless payment, electronic tickets, and Automatic Fare Collection (AFC). It was mentioned that this standardisation allows manufacturers to reduce costs, operators to choose suppliers freely, and ensures long-term system consistency. Future developments

include chip cards and smartphone standards for secure ticketing. The system aims to enhance public transport convenience, improve its image, and expand globally with multi-language support.

The session also included a presentation on the learnings from UITP's ongoing research under the project 'Advancing Electric Buses in India', where UITP is providing technical assistance to three Indian cities – Chandigarh, Bengaluru, and Thiruvananthapuram in deployment of e-buses. For Chandigarh Transport Undertaking (CTU), the research states even though the capital cost is high, e-buses are feasible for operations in the long run, considering the total cost of ownership, with a positive rate of return over 3-5 years. Additionally, PSM will play an important role in sustainable operations along with the possibility of carbon credit as a source of additional income that should also be explored. In case of Bengaluru Metropolitan Transport Corporation (BMTCL), UITP is developing a long-term e-bus deployment plan along with the feasibility of financial support. Considering four different scenarios, a financial model is being developed to prove financial viability along with the possibility of using carbon credits for cost offsetting and using private expertise for operations and maintenance through the GCC model to minimise the upfront capital investment. For Kerala State Road Transport Corporation (KSRTC), UITP has conducted the AS IS study of the e-bus situation in the city and is helping KSRTC strategise its charging and scheduling operations.



TECHNICAL SESSION II: ENHANCING ELECTRIC BUS EFFICIENCY THROUGH SUSTAINABLE OPERATIONS AND PLANNING



Jaspal Singh
Senior Director – Membership & Global Operations, UITP



Ajay Srivastava
Associate Vice President RT, & Head Delhi Cluster Buses, Delhi Integrated Multi-Modal Transit System Limited



Mahak Dawra
Transport Infrastructure Advisor, - Electric Mobility GIZ India



P. Bhanuprasad
Special Officer, Telangana State Road Transport Corporation

The second Technical Session began with the global outlook on the challenges faced by large scale fleet electrification. The transition to e-buses requires considering factors like charging modes, passenger and battery capacity, power consumption, and infrastructure. Challenges grow as fleet size increases, demanding a systems approach to select the right technology. Transit agencies must plan charging schedules, optimise energy needs, and evaluate worst-case conditions.

The session witnessed presentation on the learnings from Delhi's experience of operating e-buses. The Delhi government has procured over 1,800 e-buses and aims for a fleet of 8,000+ by 2025-26, increasing electrification from 27% to 81%. To optimise operations, e-bus schedules were adjusted, reducing idle run by 33%. It was mentioned shared charging infrastructure, irrespective of OEM, and exploring crew change at terminals could improve reliability and efficiency of the services for the citizens.

The case of Surat city's mobility vision discussed in the session that focused upon five factors: Safe, Accessible, Reliable, Advanced, Low-carbon (SARAL). To support this, a web-based e-bus planning tool has been developed for the Surat Municipal Corporation that optimises e-bus operations, reduces dead kilometres (34% reduction in Delhi), plans charging infrastructure, designs electric supply systems, and estimates investments for e-bus infrastructure.

Another case was presented on Pushpak e-buses of Hyderabad. The presentation focussed upon Telangana State Road Transport Corporation's plans to replace all conventional buses in Hyderabad with e-buses by 2027 and across Telangana by 2030. It was highlighted that Pushpak's 40 e-buses, connecting Hyderabad Airport, having a 369 kWh battery and a range of 360 km have been able to reduce 2,500 MT of emissions annually, offering a profit of INR 25.7/km. This operational success shows e-buses can be cost-effective and profitable.



TECHNICAL SESSION III: ADDRESSING RANGE ANXIETY THROUGH ADEQUATE CHARGING INFRASTRUCTURE



Hilia Boris Iglesia
Head of Service & Excellence Unit,
Knowledge & Innovation,
UITP



Ferdinand Burgersdijk
Chief Executive Officer,
FRCB B.V.
Netherlands



Krishna Desai
Technical Advisor,
GIZ
India



Nikhil Mittal
Staff Consultant-Transport
and Logistics, Asian
Development Bank



Khushboo Shrivastava
Co-Founder & CEO,
Coulomb.ai
Oakland, USA

The third and final technical session focused on the discussions related to addressing range anxiety and explained how the introduction of battery e-buses change business processes in planning, operations and its impact on IT systems. A checklist for the implementation of IT systems for e-buses published by UITP in May 2024 was presented that highlighted how introducing and operating an e-bus fleet involves phases like network redesign, charge strategy, procurement, daily operations, maintenance, depot management, energy procurement, and IT system updates. The checklist also helps Project and IT Managers manage tasks throughout the system lifecycle, from planning to maintenance.

Surat's experience with solar rooftop charging and the use of second-life batteries to charge e-buses was presented. India relies heavily on lithium-ion imports for e-bus batteries, with second-life batteries offering potential for sustainable charging infrastructure. These batteries, still healthy after replacement, can be repurposed to store energy in charging systems, promoting a circular economy. GIZ's pilot project in Surat installed 100 kWh solar panels to store energy in second-life batteries, charging an e-bus daily. A monitoring system tracks battery health and performance, ensuring effective use and maintenance.

The topical issue on findings on challenges that different market segments of e-buses face with charging infrastructure was also touched upon in this session. India aims to have 800,000 e-buses by 2030, offering both opportunities and challenges. The main issue is the high cost of e-bus batteries, which are 1.7 to 1.8 times more expensive than global prices. To address this, it was suggested India should explore advanced battery technologies and consider smaller, customised e-buses for specific sectors. Additionally, including e-buses in infrastructure lists, removing Dividend Distribution Tax, and encouraging multilateral banks for financing can enhance adoption.

Key features of CoulombAI which is an artificial intelligence-based tool that helps in battery management using AI as a digital twin model combined with field data

and physical battery models to assess the real-time condition of batteries and predict their future state was presented. It was showcased how it collects data from three layers: cell, battery, and charging infrastructure and how that data, along with vehicle and fleet information like location, speed, and driver behaviour, helps optimise battery conditions and enhance the efficiency of operations in EVs.



The Day 1 of the seminar wrapped up with the closing remarks by Ms Rupa Nandy. The seminar witnessed participants engaging in holistic discussions and active interactions, creating the perfect forum for knowledge sharing.



DAY 2: TECHNICAL VISIT

On Day 2 of the seminar, all the participants travelled to Rajghat-2 Depot of the Delhi Transport Corporation (DTC) for the technical visit. The group was hosted by Mr Mukesh Sharma, East Region Manager, DTC, Mr Sonam Chaudhary, Depot Manager, DTC along with other officials of the depot from DTC and JBM Group. The Rajghat-2 Depot houses 71 e-buses, all operated and maintained by the JBM Group under the GCC model. DTC provides depot space, planning and checking staff, conductors; and collects the revenue from the sale of tickets. JBM Group is responsible for operations, providing drivers, maintenance of buses, plying the buses on the routes as per DTC's schedule, provision of charging infrastructure, payment of electricity charges, etc.

In the case of battery range, the buses ply up to 150 kilometre on a single charge. Considering safety, the buses need to return to the depot when the state of charge (SoC) is around 15-20%. The depot management staff explained that the e-buses ply for around 125-130 kilometre on a single charge and then return to the depot for charging. The buses are scheduled in such a way that they return to the depot at the end of the shift for opportunity charging in a staggered form. The first set of e-buses are out for operations at 4:30 AM, that come back to the depot around noon for the change of shift of the staff. Currently the e-buses are taken to the charging station for opportunity charging where buses are charged with DC charger of 240 kW with dual charging



guns with the charging time is 45-50 minutes. This charging provides a range of 140 kilometre in the next shift. There are 15 chargers i.e. 30 charging guns in the depot for 71 e-buses. At night, the buses are charged with single charging gun which ensures optimum utilisation of charging infrastructure. The range of the buses varies by around 10 kilometre per full charge based on the weather conditions in the city.

The Rajghat-2 Depot caters to 7 routes and JBM group has to ensure bus utilisation rate is 95% with 51,750 kilometres operated daily. Based on the contract, each e-bus is to complete 83,000 kilometre per year. On average, 68 e-buses are scheduled in the morning and 67 e-buses are scheduled in the evening shift. The depot has a ratio of 2.4 drivers per bus with 5 women drivers. They have additional 14 shunting drivers present. To ensure road safety, speed limit is pre-set to 40 kilometre per hour from backend. Driver will not be able to exceed

this speed limit. JBM Group as provides induction and refresher training to the drivers.

Along with charging, inspection, cleaning, and maintenance of these e-buses take place in the depot at night. For most of the critical e-bus components, the GCC contractor (JBM Group) has signed a comprehensive Operations and Maintenance contract with the manufacturers, like. JK Tyres has leased their tyres to JBM group for operations on a per kilometre charge basis. JK Tyres is responsible for the provision and maintenance of all the tyres. This ensures quality control of the service provided as the manufacturer sincerely abides by the Service Level Agreements (SLAs) to ensure safety of the public. The technical visit enabled the participants to get hands-on experience of e-bus depot layout and design, features of e-bus and its charging infrastructure, safety measures taken, and operations and maintenance of e-buses.





KEY TAKEAWAYS

The UITP India International Bus Seminar 2024 successfully provided a platform for the stakeholders of the e-bus ecosystem to share knowledge, ideate the developments made so far and ponder upon the road ahead. With more than 100+ participants from across the world and expert international and domestic speakers, the seminar served as a platform to discuss some of the topical issues of the contemporary times pertaining to managing e-buses.

India is accelerating towards its ambition of attaining Net Zero by 2070 for which there has been several strong regulatory mechanisms laid out to promote deployment of electric buses in the country. The plenary session gave an overview of the latest policies formulated to pave way for sustainable adoption of e-buses in India, and its implications on the e-bus market for foreign and domestic investments. The Technical Session I focussed on the importance of digitalisation in public transport to meet the growing demands and needs of passengers to safely and seamlessly plan, pay, and make journeys. The presentations in the session delved into how digitisation can be leveraged upon to enhance overall travel experience. In Technical Session II, there were discussions on the role of route planning and scheduling in ensuring sustainable operations of

e-buses. The session focussed on the strategies applied in different cities in planning deployment of e-buses to optimally enhance the efficiency of its service and maintenance. The last Technical Session dealt with the progress made in advancing e-buses in India and how range anxiety has been a matter of concern. The session highlighted on the significance of sustainable planning of charging infrastructure, role of multilateral banks in investing in the e-bus sector and leveraging upon AI for efficiently managing e-buses.

The seminar highlighted some of the best practices and latest trends in the e-bus sector globally through case studies. The two-day seminar concluded with sharing of knowledge and the potential that the e-bus sector has in transforming the mobility landscape in the future. The buzzing networking sessions proved to be fruitful in connecting colleagues across the world, paving way for participants to leave with thought provoking ideas learnt from their national and international counterparts. As an advocate of public transport, UITP India through organisation of the 7th edition of Bus Seminar continues to play an important role in the clean and green transition journey of the public transport system in India.



PROGRAMME OF THE SEMINAR

DAY 1- 21 NOVEMBER 2024

09:30-10:00 IST > REGISTRATION

10:00-10:45 IST > INAUGURAL SESSION:

- Lighting the lamp
- Welcome Address: Jaspal Singh, Senior Director, Membership and Global Operations, UITP
- Introductory Remarks: K. Phanindra Reddy, Additional Chief Secretary, Transport Department, Government of Tamil Nadu, India
- Inaugural Remarks:
 - » Rakesh Jain, Chief Executive Officer, Delhi Integrated Multi-Modal Transit System, India
 - » Ismael Uruen-Pueyo, Economic and Financial Director, Transportes Metropolitanos de Barcelona (TMB), Spain
- Vote of Thanks: Rupa Nandy, Head of UITP India

10:45-11:45 IST > PLENARY SESSION:

Sustainable E-Bus Adoption: FAME, PM-eBus Sewa Scheme, PM E-DRIVE Scheme, Bharat Urban Megabus Mission and beyond

- Moderator: Swati Khanna, Senior Sector Specialist, Urban Development and Mobility, KfW
- K. Phanindra Reddy, IAS, Additional Chief Secretary, Transport Department, Government of Tamil Nadu, India
- Ismael Uruen-Pueyo, Economic and Financial Director, Transportes Metropolitanos de Barcelona (TMB), Spain
- Rajneesh Rana, Head (Convergence), Convergence Energy Services Limited, India
- Gaurav Kishor Joshi, Deputy Secretary, Ministry of Heavy Industries, Government of India
- Nishant Arya, Vice Chairman and Managing Director, JBM Group

11:45-12:00 IST > TEA BREAK AND NETWORKING

12:00-13:30 IST > TECHNICAL SESSION I:

Sustainable Digitalisation for Electric Buses: ITMS, NCMC, Data driven approaches and more

Moderator: Anupama Saha, Assistant General Manager, Delhi Integrated Multi-modal Transit System Limited, India

- AC Transit's Zero Emission Bus (ZEB): Data Integration and Management Environment (DIME) - **Dr. Manjit K. Sooch**, Director of Innovation and Technology, AC Transit, United States of America
- Mumbai's adoption of technology for Electric Buses - **A. Shrinivas Rao**, Assistant General Manager (TE), Brihan-mumbai Electric Supply and Transport Undertaking, India
- Nationwide interoperable ticketing in Germany – **Dr. Till Ackermann**, Head of the Department, Association of German Transport Companies (VDV), Germany
- Data driven decision making for planning and operations of Electric Buses - **Anindita Ghosh**, Senior Researcher, UITP

13:30-14:30 IST > LUNCH BREAK AND NETWORKING

14:30-15:45 IST > TECHNICAL SESSION II:

Enhancing electric bus efficiency through sustainable operations and planning

Moderator + Speaker: Global case studies on challenges of large-scale bus electrification –

Jaspal Singh, Senior Director – Membership and Global Operations, UITP

- Enhancing Electric Bus efficiency: The case of Delhi - **Ajay Srivastava**, Associate Vice President - Road Transport and Head Delhi Cluster Buses, Delhi Integrated Multi-modal Transit System Limited, India
- Toolkit for enhancing efficiency of Electric Buses - **Mahak Dawra**, Transport Infrastructure Advisor - Electric Mobility, GIZ, India
- Planning and scheduling of induction of e-buse operations - A case study of TSRTC – **P. Bhanuprasad**, Special Officer - Projects, Telangana State Road Transport Corporation, India

15:45-16:00 IST > TEA BREAK AND NETWORKING

16:00-17:30 IST > TECHNICAL SESSION III:

Addressing range anxiety through adequate charging Infrastructure

Moderator: **Hilia Boris Iglesia**, Head of Service and Excellence Unit, Knowledge and Innovation, UITP

- Checklist for implementing IT Systems for E-bus fleets - **Ferdinand Burgersdijk**, CEO, FRCV, B.V., Netherlands
- Solar roof top and second life batteries powered e-buses chargers - **Krishna Desai**, Technical Advisor, GIZ, India
- Challenges in charging infrastructure in the different market segments of e-buses – **Nikhil Mittal**, Staff Consultant-Transport and Logistics, Asian Development Bank, India
- Using AI for Battery Management - **Khushboo Shrivastava**, Co-founder and Chief Executive Officer, Coulomb.ai, United States of America

17:30-17:45 IST > KEY TAKEAWAYS AND WRAP UP

- **Rupa Nandy**, Head of UITP India

DAY 2- 22 NOVEMBER 2024

09:30-16:00 IST > TECHNICAL VISIT TO ELECTRIC BUS DEPOT OF DELHI TRANSPORT CORPORATION (DTC)

- 09:30 – 09:45 – Boarding bus from India Habitat Centre (Gate No. 3)
- 09:45 – 10:15 – Commuting by bus to Rajghat-2 Electric Bus Depot of DTC
- 10:15 – 13:00 – Technical site visit at Rajghat-2 Electric Bus Depot of DTC
- 13:00 – 13:30 – Commuting by bus to the venue for lunch
- 13:30 – 15:00 – Lunch
- 16:00 – Drop off at India Habitat Centre



ABOUT UITP

UITP (Union Internationale des Transports Publics) - International Association of Public Transport is the only worldwide network to bring together all modes of public transportation. We have 1900 members from 100+ countries across the world. Established in 1885 in Brussels, Belgium, we inspire excellence and innovation by generating cutting-edge knowledge and expertise. We engage with decision makers and key international organisations to promote sustainable mobility solutions by bringing people together to exchange ideas, find solutions and forge partnerships.

UITP INDIA

UITP opened its office in India in 2007 with the aim to better address the specific needs of the regional members as well as work with the stakeholders of the Indian public transport sector for its development. UITP India supports development of Indian public transport system through its research projects, seminars, webinars, training and capacity building programmes by working in close association with State Transport Undertakings (STUs), urban rail organisations, government bodies and think tanks, and organisations who are key stakeholders of the public transport sector in India.

For more information on activities of UITP India, please contact **Ms Rupa Nandy**, Head of UITP India, rupa.nandy@uitp.org

UITP BUS DIVISION

Bringing together 400+ organisations and operators from around the world, the Bus Division is the largest modal community in UITP. Collectively, the Division provides a global platform for the exchange of knowledge and business opportunities. This work is led by the Committees, which are responsible for a range of initiatives and supported by the Regional Platforms for a localised exchange of information. The UITP Bus Division works on autonomous vehicles, customer service, decarbonisation, design, digitalisation, e-buses, electrification, network planning, etc. From Knowledge and Innovation projects to the development of business intelligence, guidelines and benchmarking tools, the Bus Division engages with all facets of the industry.

FOSTERING INNOVATION



The UITP Bus Division is involved in many knowledge & Innovation initiatives at the forefront of the sector, mostly funded by European Institutions:



Interoperable high power charging solutions for heavy duty vehicles*



Facilitating the market uptake of electric buses*



European Bus Rapid Transit of 2030



Standardised and interoperable IT architecture



Advancing commercialisation of hydrogen buses

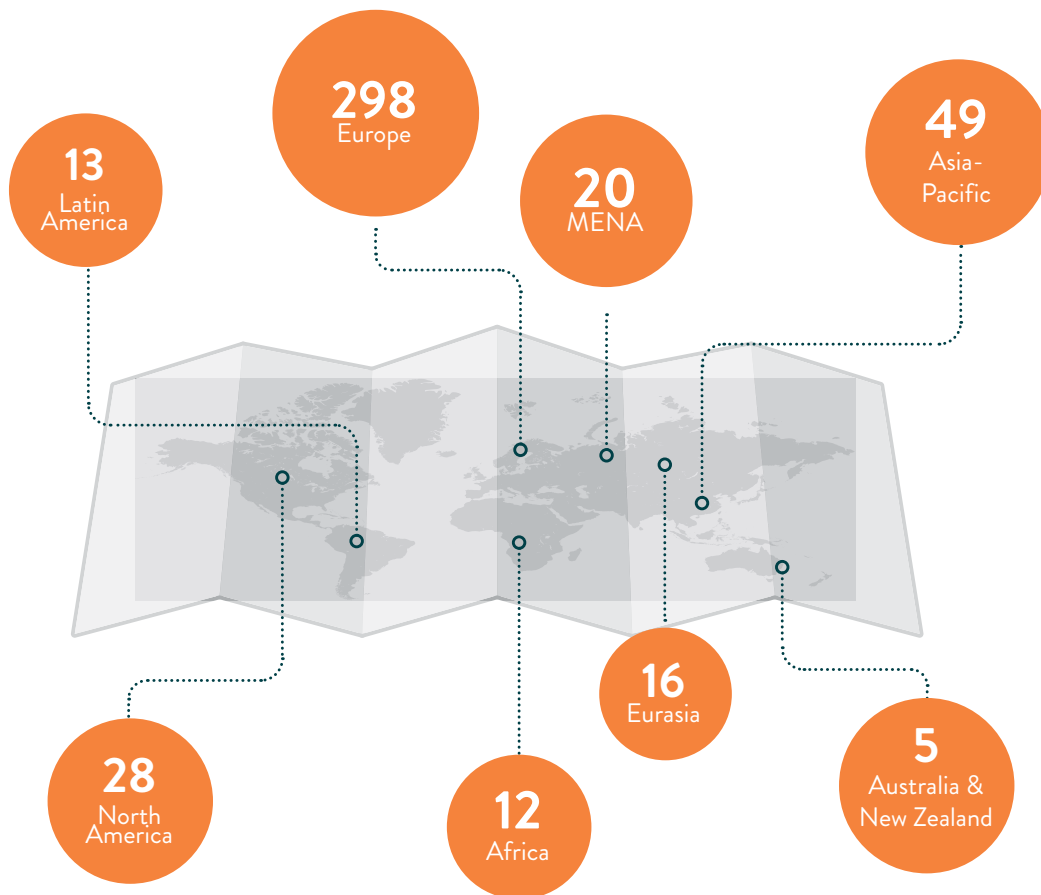


Sustainable Mobility for a better future

... and more!

UITP BUS DIVISION MEMBERS

We bring a truly global perspective to the table:



MEMBERS INCLUDE...



For more information on UITP Bus Division activities, please contact **Arno Kerkhof**, Head of UITP Bus Transport Unit, arno.kerkhof@uitp.org or **Yussup Khassiev**, UITP Trolley Bus Committee Manager yussup.khassiev@uitp.org

LATEST UITP PUBLICATIONS FOCUSING ON ELECTRIC BUSES

- Planning for Electrification of Rural and Intercity Buses
<https://www.uitp.org/publications/planning-for-electrification-of-rural-and-intercity-buses/>
- Financial Planning for the Electric Bus Transition
<https://www.uitp.org/publications/financial-planning-for-the-electric-bus-transition/>
- Performance evaluation of electric bus from six Indian cities
<https://www.uitp.org/publications/performance-evaluation-of-electric-bus-from-six-indian-cities/>
- Large Scale Bus Electrification: IT Systems Checklist
<https://mylibrary.uitp.org/Record.htm?idlist=16&record=19362899124911800719>
- Bus Tender Structure
<https://mylibrary.uitp.org/Record.htm?idlist=2&record=19357385124911755679>
- Depot Adaptations for Clean Bus Technologies
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- Thermal Comfort and Energy Efficiency for Electric Buses
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