

Connected Infrastructure for Electric Buses

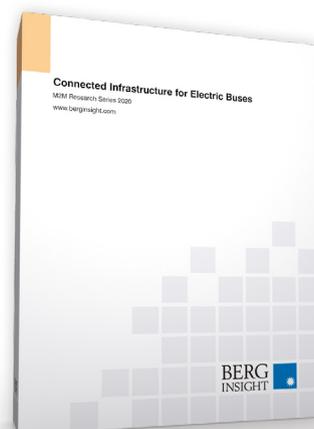


Connected Infrastructure for Electric Buses is a new strategy report from Berg Insight analysing the latest developments on the intelligent transportation system and charging station market for public transport in Europe and North America.

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Highlights from this report:

- **Insights** from 30 new executive interviews with market leading companies.
- **New data** on electric bus fleets in Europe and North America.
- **Comprehensive description** of the electric bus ITS value chain and key applications.
- **Profiles** of 21 aftermarket ITS solution and 12 EV charging hardware vendors.
- **Summary** of 20 OEM propositions from electric bus brands.
- **Case studies** of 9 electric bus initiatives.
- **In-depth analysis** of market trends and key developments.
- **Market forecasts** lasting until 2024.



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The market for ITS solutions and charging stations for electric buses in Europe and North America to reach € 466 million by 2024

The number of battery-electric buses has grown significantly in the last years. Berg Insight estimates that the number of electric buses in Europe and North America increased from about 1,000 in 2016 to around 5,000 in 2019. The growing fleets of electric buses have created new challenges for public transport operators and agencies. Limited driving range and the need to integrate charging stations have expanded the demand for intelligent transport systems (ITS) that bring together all the necessary infrastructure, including electric buses, charging stations and depots. The term ITS refers to information and communications technology applied to transport infrastructure and vehicles. Berg Insight's definition of ITS for public transport for the purpose of this report includes systems for communication between dispatchers and vehicle operators, automatic vehicle locator systems and automated dispatching systems. Other associated backoffice IT systems are also part of the definition, including depot management, driver monitoring, scheduling and planning tools for vehicles and personnel, vehicle maintenance and charging station management software.

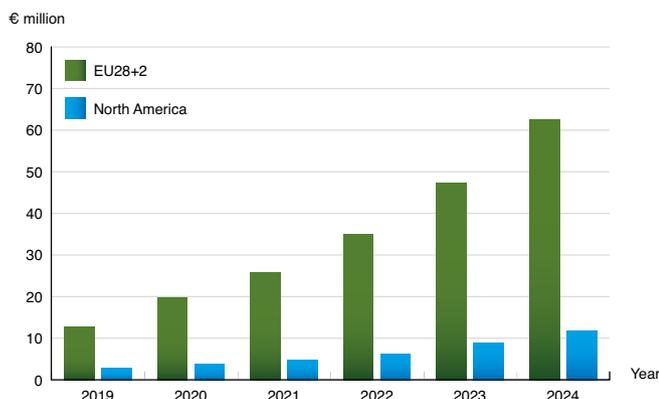
Berg Insight is of the opinion that the market for ITS solutions for electric buses is in a growth phase which will last for several years to come. Mega-challenges such as urbanisation, climate change and traffic congestion continue to encourage investments in electric buses and ITS, contributing to a positive outlook for the market. The COVID-19 crisis is expected to generate some temporary short-term slowdown, but Berg Insight remains positive that the long-term growth should not be affected. The total market value of public transport ITS for electric buses in Europe is forecasted to grow at a compound annual growth rate (CAGR) of 37.5 percent from € 12.7 million in 2019 to reach € 62.4 million by 2024. Vehicle and driver monitoring software as well as vehicle gateways are together estimated to account for € 4.8 million of the market value in 2019, while the corresponding number for charging station management software is € 1.8 million. In North America, the total market value of ITS solutions for electric buses is forecasted to grow at a CAGR of 34.2 percent from € 2.7 million in 2019 to reach € 11.8 million in 2024. Vehicle and driver monitoring software and vehicle gateways are estimated to account for € 1.0

► million of the market value in 2019, while the corresponding number for charging station management software is € 0.4 million.

Some ITS players offer complete turnkey solutions including functionality for most of the ITS applications for electric buses utilised by public transport operators, but many vendors on the market are also specialised ITS players focusing on a few subsystems. Major international ITS players such as INIT, IVU, Trapeze and Clever Devices can provide complete turnkey solutions. INIT and IVU have customers mainly in Europe, while Clever Devices and Trapeze are in an early phase. The latter is expected to have the first deployment in early 2021. ENGIE Solutions has installed the CAD/AVL system Navineo on electric buses in France and can provide charging solutions for buses as part of the Charge&Go solution. One of the leading telematics providers for electric buses is ViriCiti, offering hardware and software for the management of buses and charging stations. Other important providers serving public transport companies with different types of solutions for electric buses include the Scandinavian companies Consat Telematics, FARA and Sagasystem. The Canadian company GIRO is an important player in the scheduling and planning segment, while PSI Transcom is a prominent provider of depot and charging management software in Europe.

Most of the bus OEMs on the market offer conventional telematics solutions, but the strategies in the area of electric bus specific solutions vary between the players. The European market for electric buses is served by a variety of manufacturers. The Dutch company VDL Bus and Coach reached the highest number of shipments in 2019, followed by BYD, Solaris Bus and Coach, Daimler, Irizar e-mobility, Volvo Buses, Ebusco, CNH Industrial and Yutong. Scania and MAN Truck & Bus are expected to enter the market in the near future. In North America, Proterra holds a leading position, followed by BYD and New Flyer.

Charging stations play a significant role in the electrification of bus fleets. Berg Insight estimates that the charging station market value for buses in Europe and North America was € 190 million in 2019. Growing at a CAGR of 15.6 percent, the total market value is expected to reach € 392 million in 2024. A group of vendors have emerged as leaders on the market for bus charging stations. Examples of major charging station providers active in both Europe and North America include ABB, Efacec, IES Synergy, Heliox and Siemens. In Europe, Polish Ekoenergetyka is also an important provider.



Market value of public transport ITS for electric buses (EU28+2 and North America 2019–2024)

This report answers the following questions:

- What is the current state and size of the electric bus market?
- Which are the leading providers of public transport ITS solutions for electric buses?
- What offerings are available from vehicle OEMs?
- What equipment and service offerings are available from EV charging station vendors?
- What are the key drivers behind the adoption of electric buses?
- How are the regulatory developments in Europe and North America affecting the electric bus industry?
- How will the electric bus and public transport ITS industry evolve in the future?



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