

PRESS RELEASE

Paris, 21 September, 2022

Keolis, Iveco Bus and Forsee Power join forces to optimise the performance of batteries for electric buses

- On 21 September 2022, Keolis¹, Iveco Bus² and Forsee Power³ signed a partnership agreement to improve knowledge of how electric bus batteries function by pooling their own specific expertise. The goal is to gain tighter control over the ageing of batteries and to optimise the use of these assets, which constitute a central technical and economic challenge in electric bus systems.
- The first trials will take place in the public transport network in Aix-en-Provence, in south-eastern France (*Aixenbus*), which has a fleet of 41 electric buses.
- This partnership reaffirms the commitment of the three stakeholders to the energy transition.

Pierre Gosset, Industrial Director of Keolis group: *“This partnership marks an important step for Keolis Group in improving our knowledge of batteries. The fleet and the network in Aix-en-Provence offer us the opportunity to conduct a life-sized experiment that will enable us to monitor the equipment over time, in different seasons and conditions in the field. I would like to thank our public transport authority partner, the Métropole Aix Marseille Provence, who is supporting us in this project.*”

The goal is to better our understanding of batteries, then to control the battery ageing process, in order to improve their reliability, reduce risks and, if possible, extend their lifespan. By sharing their knowledge, the partners will be able to assess the actual performance of the batteries in service, and the factors that affect their lifespan, more precisely. This information will be fundamental for predictive maintenance and the reduction of energy consumption. These results will obviously be shared with the public transport authority.”

Solène Grange, Managing Director of Iveco France:

“This agreement represents a significant development for our electric mobility offer. The data exchanges with our E-WAY by HEULIEZ buses provide additional input for the analyses we already conduct as part of our IVECO ON connected services, which are designed to meet the main requirements of public transport and operators for proactive maintenance and the optimisation of fleet management.”

Nicolas Cailloux, Vice-President Europe of Forsee Power: *“We are pleased to be part of this partnership with Keolis and Iveco Bus, which will enable a real-life case study of a sizeable fleet of 41 electric buses on the Aixenbus network. As the leader in battery systems for buses*

1 a major public transport operator

2 one of Europe’s leading designers and manufacturers of buses

3 the European leader in smart battery systems

in Europe, with 1,500 equipped buses, Forsee Power has teams of experienced experts to analyse the data with its new smart charging service.

The data sent from the E-WAY by HEULIEZ electric buses will enable our engineers to propose good battery management practices that will optimise their use with the charging infrastructure, thereby optimising their service life. The purpose of this initiative is to further reduce costs and the environmental footprint of electric buses, which are already very competitive in comparison with internal combustion engines.”

Implementation on the Aix-en-Provence public transport network

Sustainable mobility, and electric mobility in particular, which are essential levers of action against global warming, raise numerous challenges, including those related to a better understanding of the factors that influence the operation and ageing of batteries.

This is the reason why Keolis, Iveco Bus and Forsee Power decided to team up in a partnership to examine the monitoring of the lifespan and the use of the batteries installed in the electric vehicles operated by Keolis' Pays d'Aix subsidiary. Both the charging phase in the depot and commercial operation will come under close scrutiny. These long-term studies will cover several lines of the transport network in order to take the different influential factors into consideration (topography, revenue speed, driving style, seasonality, etc.).

This partnership will enable public transport authorities to optimise the management of their assets (vehicle fleets, facilities, etc.) and to extend the lifespan of the batteries.

Reaffirmed commitment of the three partners to the energy transition

The first phase of this partnership, which is already in progress, consists mainly of sharing knowledge in order to assign the members to their respective fields of expertise.

Then, the second phase, which will last until the end of 2022, will involve a diagnostic of the current situation and the identification of opportunities for optimisation.

A new phase will start in 2023. In this phase, the strategies intended to optimise the use and operation of the electric vehicles will be implemented, in order to slow down the battery ageing process and to make energy savings in particular.

Depending on the results achieved, this collaboration may be extended to other urban transport networks operated by Keolis.

About Keolis

Keolis is a pioneer in developing public transport systems and works alongside public authorities who want to enhance shared mobility systems to grow the appeal and vitality of their regions. A world leader in operating automated metro and tramway systems, Keolis and its partners and subsidiaries Cykleo, EFFIA, Hove, Keolis Santé, Kisio and support the core business with innovations offering new and bespoke shared mobility solutions for modes including trains, buses and coaches, trolleybuses, on-demand transport, transport for people with reduced mobility, driver and sea shuttle services, bikes share services and long-term rental, car sharing and fully electric driverless shuttles. In France, Keolis is the second largest provider of parking management solutions through its subsidiary EFFIA, and the country's leader in medical transport since the creation of Keolis Santé in July 2017. The Group is 70%-owned by SNCF and 30%-owned by the Caisse de Dépôt et Placement du Québec (Quebec Deposit and Investment Fund) and employs 68,000 people in 14 countries. In 2021, it posted revenue of €6.3 billion. In 2019, 3.4 billion passengers used one of Keolis' shared mobility services. www.keolis.com

* Australia, Belgium, Canada, China, Denmark, France, India, the Netherlands, Norway, Qatar, Sweden, the United Arab Emirates, the United Kingdom, and the United States

IVECO BUS

IVECO BUS is a brand of Iveco Group N.V., a global leader in commercial and specialty vehicles, powertrain, and financial services, listed on the Borsa Italiana in Milan.

A major player in the field of public transport, and among the leading bus and coach manufacturers in Europe, IVECO BUS designs, manufactures and markets a broad range of vehicles that meets all the needs of public and private operators:

- school, intercity and tourism coaches;
- standard and articulated city buses, including BRT dedicated versions; city midibuses
- minibuses for all passenger transport missions.

IVECO BUS benefits from a strong expertise in alternative energies vehicles and is now capable of offering a complete range running on compressed natural gas – fully compatible with biomethane – and in the electromobility field, to suit every kind of transport need. Thus, IVECO BUS positions itself as a reference partner to face the numerous challenges of sustainable mobility.

IVECO BUS employs over 6,000 people across four production units, in Annonay, France, Vysoké Myto, Czech Republic, Brescia, Italy and in Rorthais, France with its electromobility center of excellence.

The extensive IVECO BUS and IVECO service network guarantees assistance around the world wherever an Iveco Bus vehicle is at work.

For further information about IVECO BUS: www.ivecobus.com

For further information about Iveco Group: www.ivecogroup.com

About Forsee Power

Forsee Power is a French industrial group specializing in smart battery systems for sustainable electric transport (light vehicles, off-highway vehicles, buses, trains, and ships). A major player in Europe, Asia and North America, the Group designs, assembles, and supplies energy management systems based on cells that are among the most robust in the market and provides installation, commissioning, and maintenance on site and remotely. More than 1,200 buses and 100,000 LEV have been equipped with Forsee Power's batteries. The Group also offers financing solutions (battery leasing) and second-life solutions for transport batteries. Forsee Power recorded revenue from sales of EUR 72.4 million in 2021 and has more than 600 employees. For more information: www.forseepower.com | @ForseePower

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