VIVAVIS

DECODING THE FUTURE

e-Mobility – intelligent charging in smart cities

Grids and e-Mobility in unison

The charging infrastructure required for e-Mobility affects distribution grids, which in turn poses challenges to system operation. Not only system operators and utilities but also closed distribution system operators must be able to deal with the effects of e-Mobility. However different starting point and resulting tasks might be, objectives are clear and identical for all parties involved. System stability, security and (cost-)efficiency are the most important factors even for the e-Mobility sector and required to be successful in the market.

These factors can only be realized with intelligent systems providing automation to facilitate grid operation despite the complex scope of tasks. VIVAVIS offers an extensive portfolio of solutions designed for e-Mobility.

Your challenges are:

- surveillance and control of the grid – avoid bottlenecks and respond quickly and purposefully in case of overloads;
- effective control of charging processes;
- compliance with legal rights and obligations;
- interfaces to external market players;
- maintenance and incident management of charging stations.

Direct control of charging stations

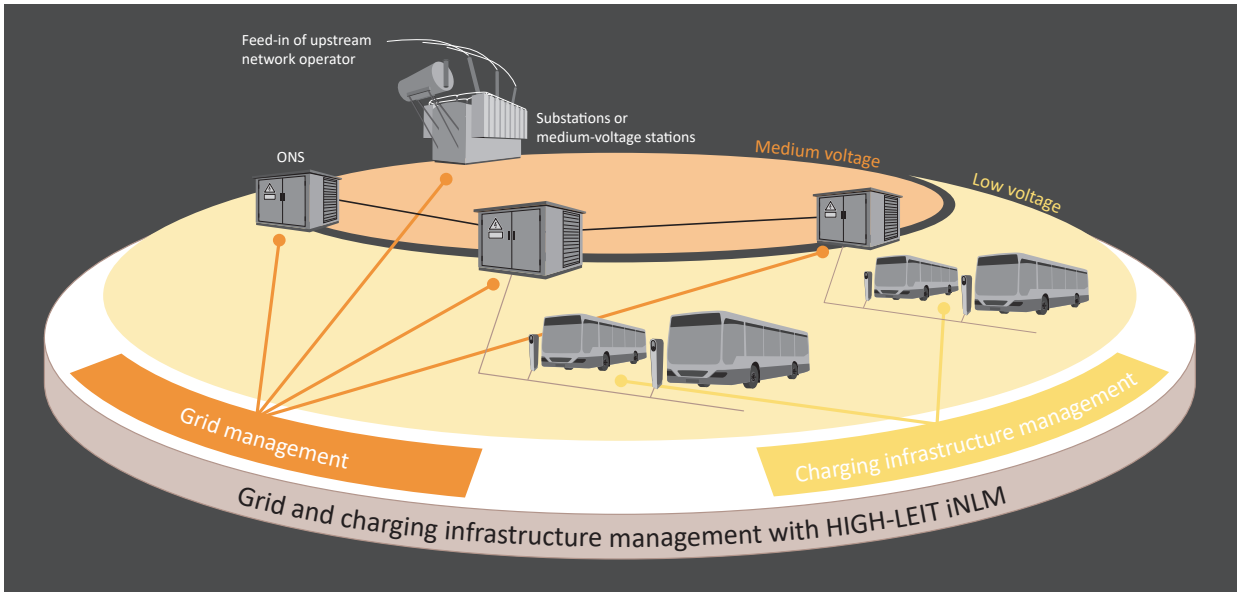
Charging stations >11kW are subsidized by the German government in case they are appropriately equipped. With **ACOS 730** and **HIGH-LEIT EEM**, you are able to prepare existing grids and networks for the creation of charging infrastructures. The control system detects impending network congestions and is able to interfere purposefully to prevent them.

Effective control of charging processes

The FNN standard VDE-AR-N 4100 stipulates that charging stations for electric vehicles with a rating of >12kVA must provide control or regulation options. Some charging stations already comply with the standard and provide corresponding options to system operators via EEBUS protocol. VIVAVIS therewith enables interoperable and general control of charging stations within the e-Mobility sector via smart meter gateways used as communication platforms. The solution is technically based on the extended FNN control box **ACOS 730**. The box enables the control centre to detect critical conditions within the grid and stop charging processes if required.

Intelligent grid and charging infrastructure management
HIGH-LEIT iNLM is a management system designed for public transport companies that operate a fleet of electronic buses and therefore equip depots with charging infrastructure. Our management system offers a comprehensive approach to optimize the operation of both grid and charging infrastructure and support processes. You can use the system to detect and resolve faults as well as grid overloads, monitor charging points, identify the conditions of assets and observe the total charging capacity.

Be it an independent and closed integrated system of one operator (eg depot) at a single location or separate systems at different locations (HIGH-LEIT in the system operator/back-end system at the charging infrastructure operator) – you can set up **HIGH-LEIT** and back-end system wherever they are required. The back-end system exchanges information with the grid control system **HIGH-LEIT**. This combination ensures grid-compatible management of charging points.



Information exchange between back-end system and grid control system HIGH-LEIT ensures grid-compatible management of charging points

Individual charging station programming by manufacturer
Manufacturers of charging stations also benefit from VIVAVIS. If required, we can provide our powerful hardware **ACOS 730** with Linux and thus you are able to implement your own control software with any label (ACOS 730 OEM).

Maintenance and fault clearance of charging stations
System operators and dedicated charging infrastructure operators face the considerable challenge of integrating charging stations and whole charging infrastructures. Stations and infrastructures must be connected to the grid in the most appropriate way, but at the same time, they have to be established and operated as economically as possible. The following requirements must be fulfilled: effective project management, structured and transparent information as well as knowledge management and specific interfaces by means of which you can connect back-end systems used by charging station operators to grid control and asset management systems.

VIVAVIS **360° Asset Management** (AM) offers everything you require. Our system is your powerful tool to digitally manage and document processes and tasks. With **360° AM**, you realize projects and solve tasks even more efficiently. Statuses of activities and documentation are always transparent and comprehensible.

Integrated invoicing of charging stations
In accordance with § 48 Metering Point Operation Act (German MsbG), system operators were supposed to equip charging stations with smart metering systems by the end of 2020. The smart metering system provides a communication unit that transmits grid data to system operators and consumption data to responsible meter operators, system operators or energy suppliers.

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