

Laadinfrastructuur creëren op het depot

13 januari 2022

Luc Blockx



BUSWORLD
foundation
the global bus alliance

SPIE, sharing a vision for the future

- COP 26, Glasgow
- In November 2021 the Flemish Government decided on extra investments to speed up the electrification of De Lijn and its tenants.
- Electrification will have a major impact on BAAV members
- Charging infrastructure is essential to the successful operation of an electric bus fleet



UN CLIMATE
CHANGE
CONFERENCE
UK 2021

IN PARTNERSHIP WITH ITALY



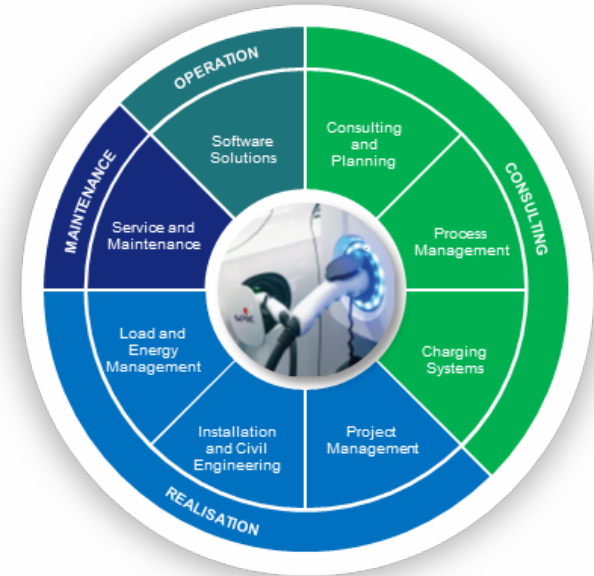
Charging Infrastructure at the bus depot

● End-to-end solution

- Lifecycle
 - Consulting
 - Realisation
 - Maintenance and Operation
- Solution (equipment and services)
 - Civil works
 - Electric infrastructure
 - Chargers

● Expert team and partners

● Country wide organisation, Proximity for service delivery





Creating charging infrastructure on a depot – Preliminaries

The New Drive as an architect-advisor for charging infrastructure

- › We unburden the client in order to find a workable solution that fits bests at the clients needs.
- › We are independent. 100% privately held company. Not bound to suppliers or commissions.
- › Strong collaboration with the colleagues of our Dutch sister company AAPM who are implicated in the Dutch ZEB government agreement and ZEB charging infrastructure Rotterdam.
- › Extensive knowledge of electric transport and charging infrastructure, from strategy to implementation and operation.
- › Our assignment quickly pays off for you as a customer: lower TCO, optimized and future-proof charging strategy.
- › **Use-cases in bus depots:**



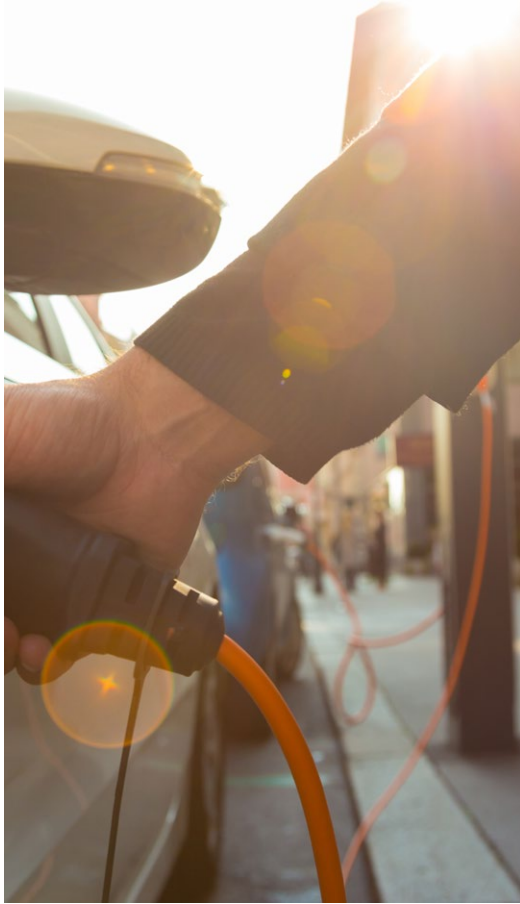
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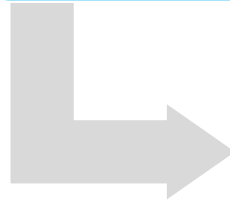
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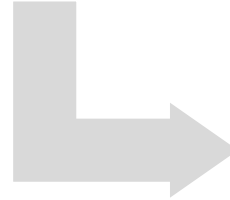


Preliminaries to prepare a depot for charging infrastructure

Tackling strategic-tactical issues



Organizing procurement process of charging infrastructure



Supervising realization and operation phases



Step #1 Tackling strategic-tactical issues

1.1. Operations

- › How are **daily bus operations** characterized? And how does this translate into the **required energy and charging demand**? How can these needs be optimized?
- › How many and which type of **charging stations** will be needed for this in the coming years and according to which phases?

1.2. Grid and power capacity

- › What is the **available grid capacity**? How much **power** is available to supply the charging stations?
- › How do we organize the **sustainable energy supply**? Is a link with a future **Photo Voltaic** installation useful?
- › What are the **use cases for smart charging**, and eventually **bidirectional** charging?

1.3. Roles and responsibilities

- › What **roles and responsibilities** does the operator want to take on? Which parts of the charging system will be outsourced (maintenance, back-office, etc.)?
- › What is the **preferred choice type of supplier**? A full service package or (some) dedicated suppliers for charging infrastructure, management systems, etc.

1.4. Financial modeling

- › Complete **service model** (outsourcing) vs. **investing in assets** yourself
- › Which elements of the project can be **subsidized** and what are the critical success factors?



Step #2 Organizing procurement process of charging infrastructure

2.1. Define technical and quality requirements

2.2. Translate into Request for Proposal (RFP)

2.3. Approaching potential suppliers and send out RFP

2.4. Delay for submitting offer proposals

2.5. Assessment and comparison of the offer proposals

2.6. Contract negotiation

› **Aprox 3-5 months in total**



Step #3 Supervising realization and operation phases

3.1. Technical coordination

- › Technical-organisational coordination between different actors during realization and operations

3.2. Testing and Acceptance

- › Drawing up **Factory Acceptance Test** (FAT)
- › Requirements and supervision of FAT
- › **Site Acceptance Test** (SAT) of charging infrastructure

3.3. Proces optimatisation

- › Analysing and/or challenging business rules for **smart charging**
- › **Charging schedules** for the purpose of optimising the business case

3.4. Business development

- › Developing new business concepts in the **e-bus ecosystem**

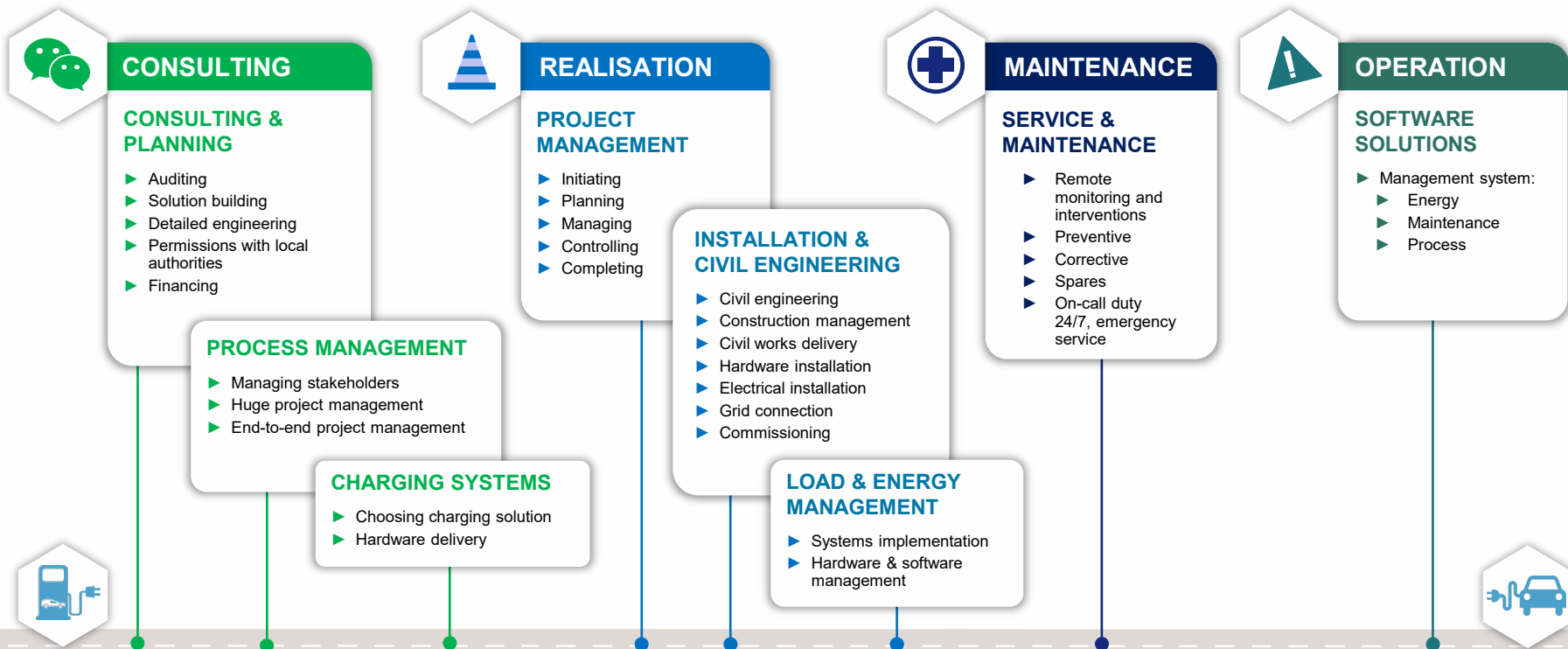
Project, Maintenance and Operation

January 13th 2022

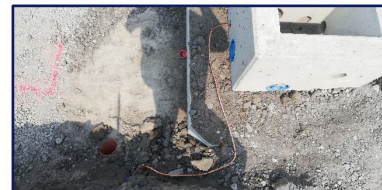
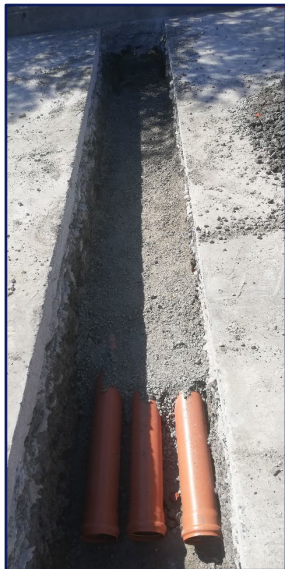
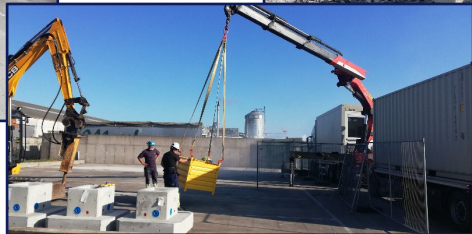
SPIE, sharing a vision for the future

Charging infrastructure, total life cycle support

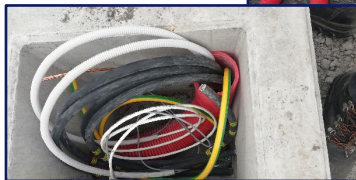
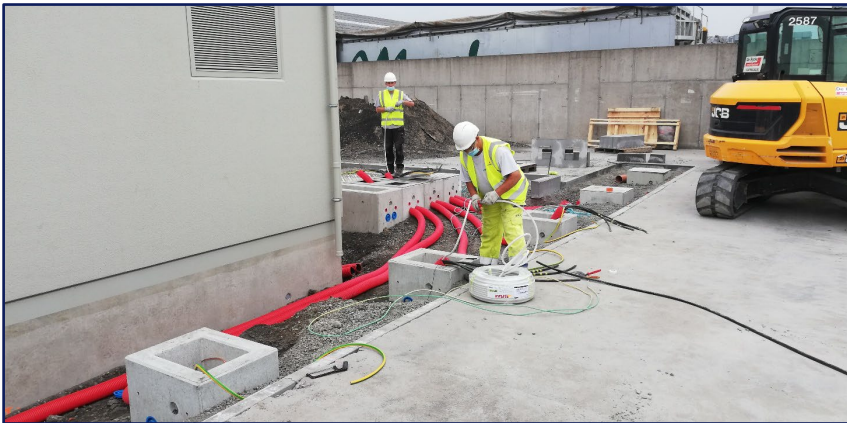
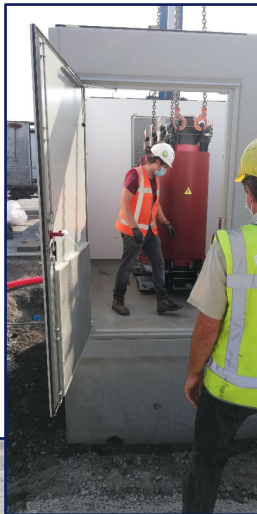
Scope of services



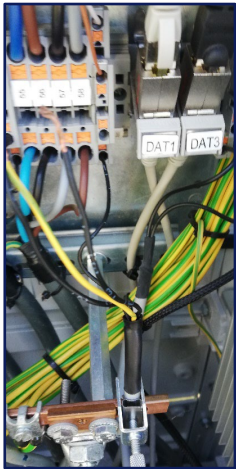
Realisation Charging Infrastructure



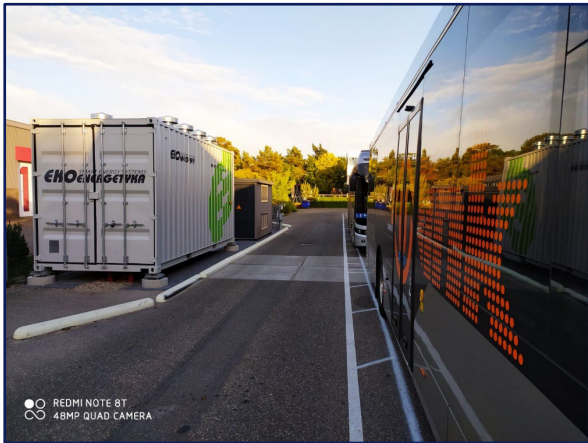
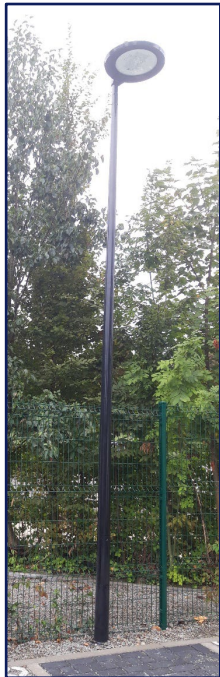
Realisation Charging Infrastructure



Realisation Charging Infrastructure



Bus charging infrastructure



Bus Chargers

What we need – to choose best solution

- Required power per charging point and type of charging interface;
- Battery voltage range in the bus;
- Available power from the grid and other grid limitation;
- Strategy of BAAV member;
- Place of installation (preferably plans, projections, detailed drawings, photos, etc.);
- Location of the CCS socket / pantograph in the bus.

Types of charging stations



- Smaller realisations Ekoenergetyka
 - Zeist, the Netherlands;
 - Utrecht, the Netherlands;
 - Aachen, Germany;
 - Barcelona, Spain.

Zeist, the Netherlands

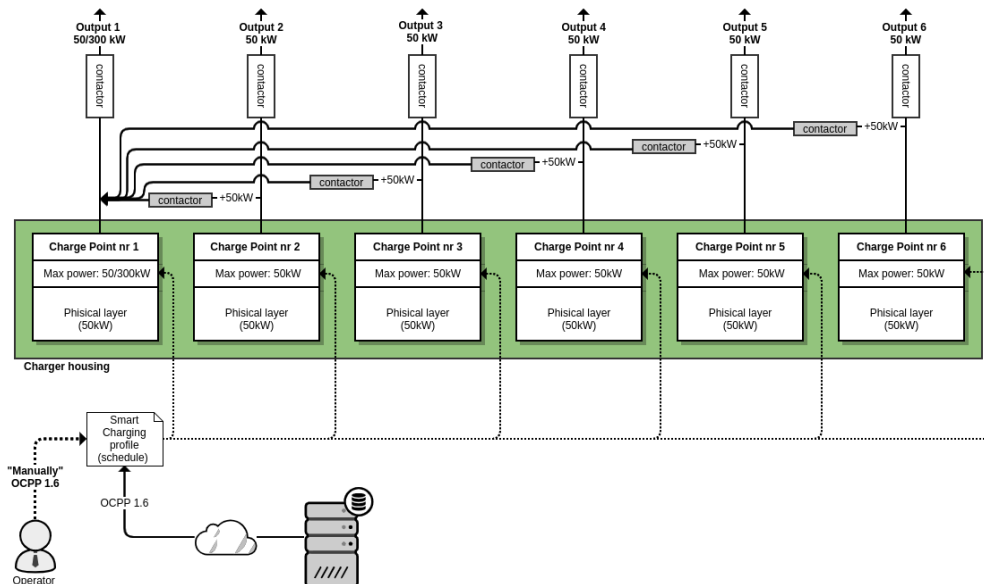
- Container, multi-output solution (20-out);
- LVC + 10x120 kW (2x60 kW);
- Combining the power;
- Charging via CCS Combo 2;
- Satellites – „wallbox”



Cases

Utrecht, the Netherlands

- Multi-output solution (6-output);
- Charging via contact domes;
- Combining the power.



Cases

○ Aachen, Germany

- Single – output chargers;
- Charging via CCS Combo 2;
- Satellites – „wallbox”;



Cases

○ Barcelona, Spain

- Single – output chargers;
- Charging via contact domes;
- Satellites – „wallbox”;



Q&A

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