

ERS (Electrical Road System) Slide-in project within FFI program

FFI – Fordonsstrategisk forskning och innovation



SCANIA
VOLVO



Energimyndigheten



TRAFIKVERKET

What is slide-in ?

Slide-in, is a name that is used to explain, an electrical road system, where an electrical vehicle can attach, while vehicle is moving, and charge battery system and/or directly drive an powertrain electrical propulsion system.

Why ERS ?

To deliver goods and transport people, Volvo Group is investigating all solutions with electric energy from hybrid to full electric mode.

In the longer term (around 2030) parts of the road infrastructure could be electrified giving the possibility to run trucks and buses on electricity continuously.

FFI Slide-in project description

Joint FFI project evaluation (with Scania) to develop and evaluate 2 different ERS systems, with a system design intended for Swedish highway traffic, capable of delivering power for heavy-duty traffic.



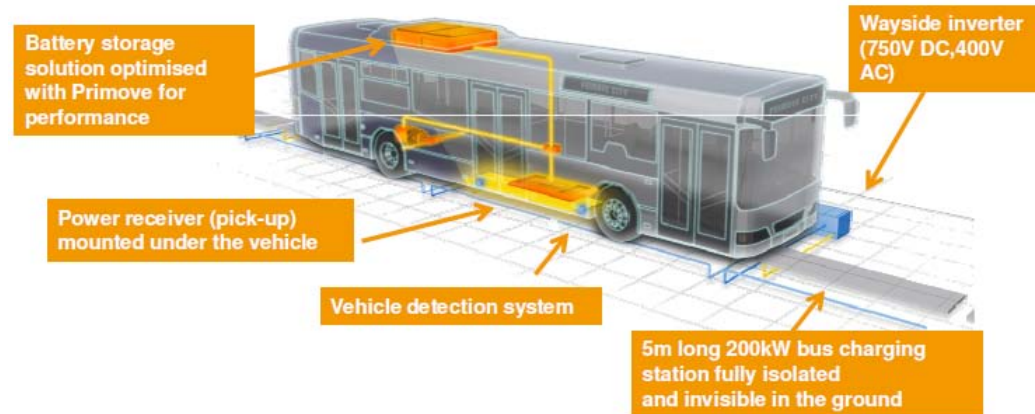
Inductive power transfer
(Scania, Bombardier)



Conductive power transfer
(Volvo, Alstom)

Inductive road systems (Bombardier/Primove)

Conductive road systems (Alstom/APS)



FFI Slide-in project organisation

Inductive Power Transfer



BOMBARDIER



ROYAL INSTITUTE OF TECHNOLOGY



LUND INSTITUTE OF TECHNOLOGY
Lund University

Sponsor



FFI

Infrastructure



Reference



Conductive Power Transfer

VOLVO

ALSTOM



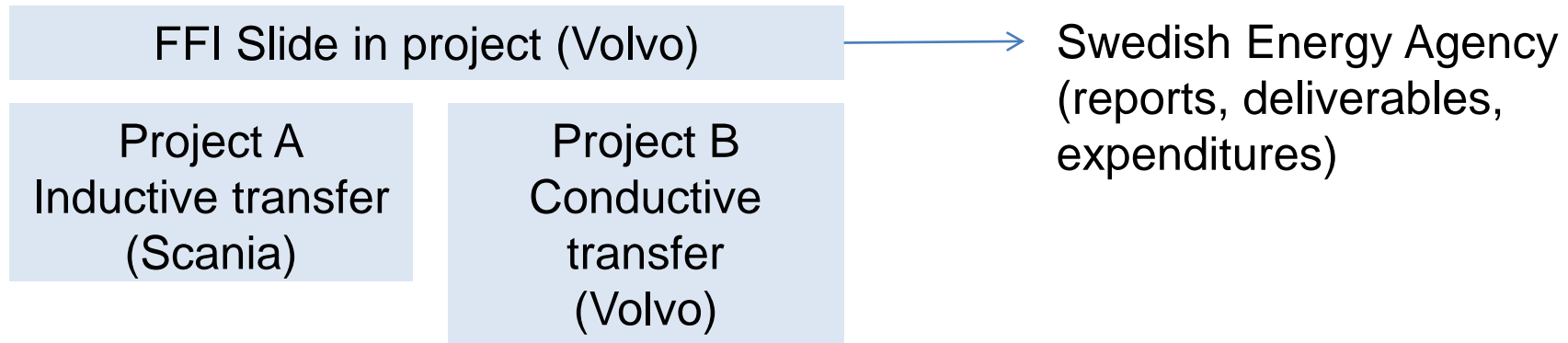
LUND INSTITUTE OF TECHNOLOGY
Lund University



ROYAL INSTITUTE OF TECHNOLOGY

CHALMERS

FFI Project roles



Partners

Volvo (project leader overall, project leader for conductive project)

Scania (project leader for inductive project)

Vattenfall (responsible national grid proposal Stockholm-Gbg for both sub-projects)

Trafikverket (responsible for road installation items, and review of acceptance of the systems)

KTH (responsible for business models)

LTH (responsible for power load simulations)

Bombardier (responsible for inductive road design)

Alstom (responsible for conductive track design)

Chalmers (responsible for driver behaviour and positioning accuracy studies)

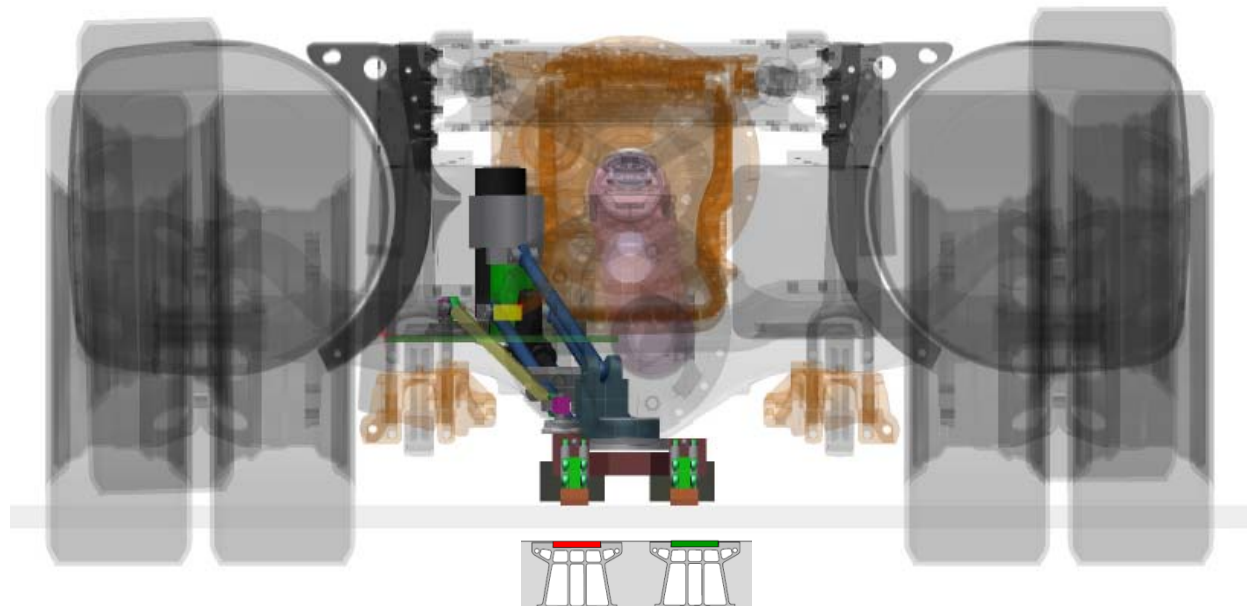
Svenska elvägar (reference partner)

FFI Conductive (ERS) power transfer

ERS principle of the adapted APS system for trucks/cars

FFI Conductive (ERS) power transfer

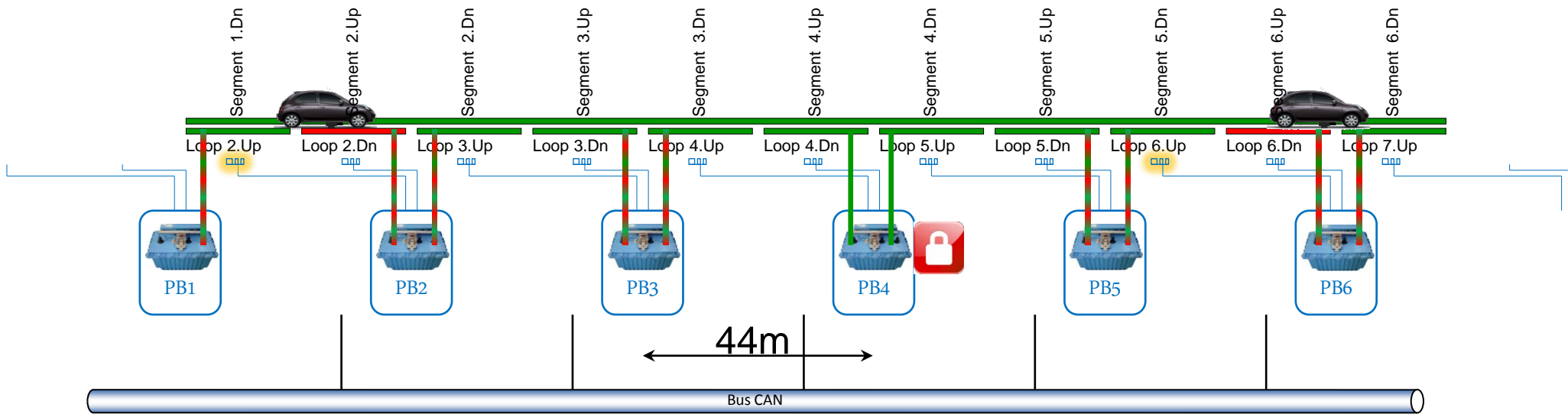
System overview



FFI Conductive (ERS) power transfer

Track function principle :

22m length segments powered when vehicle approaches segment of > 60km/h



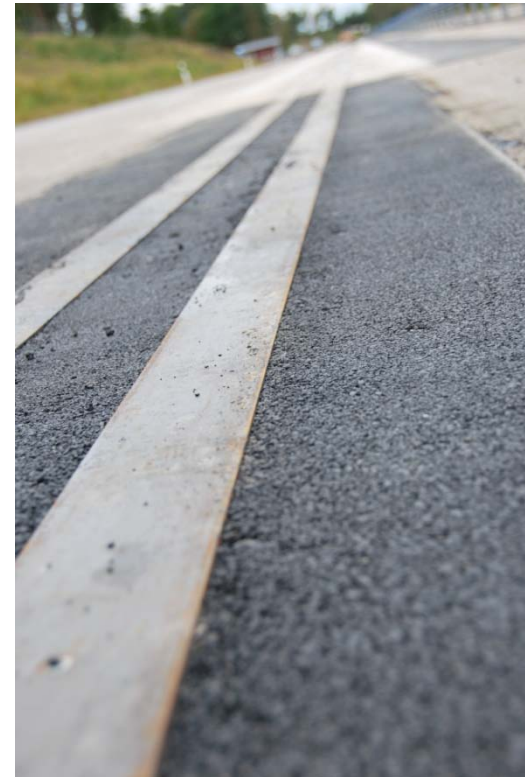
FFI Conductive (ERS) power transfer

Demotrack (build summer 2012)



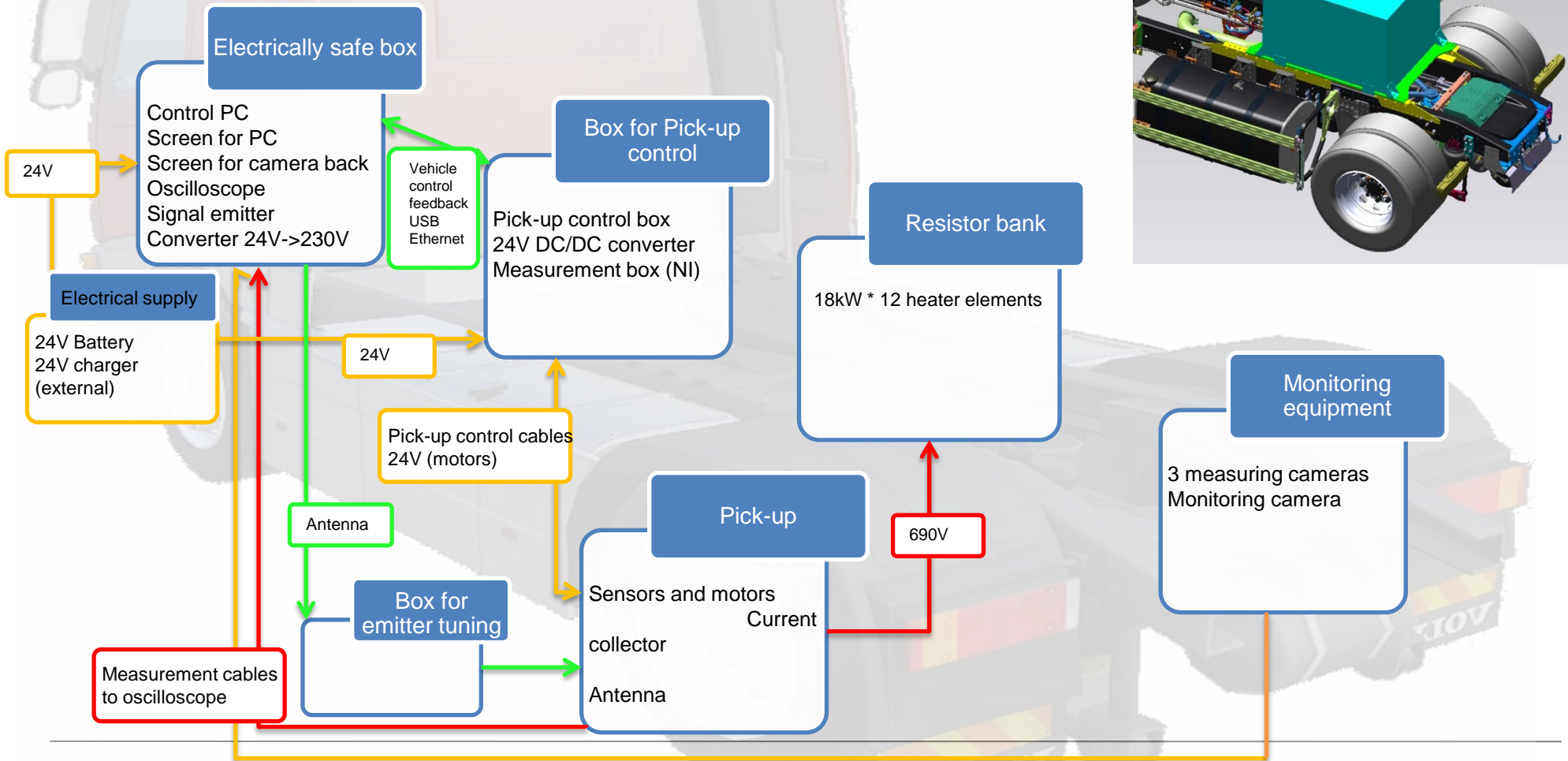
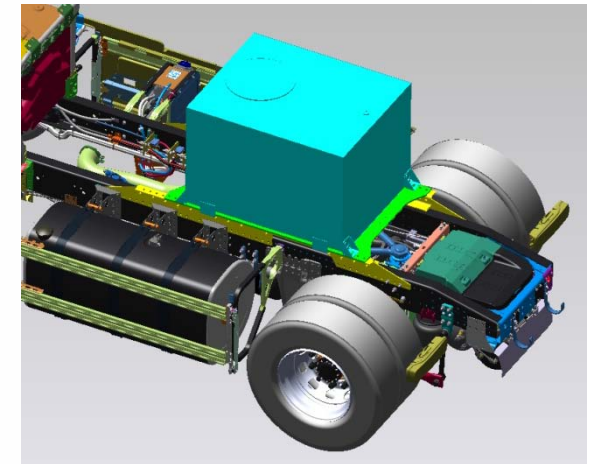
FFI Conductive (ERS) power transfer

Demotrack (build summer 2012)



FFI Conductive (ERS) power transfer

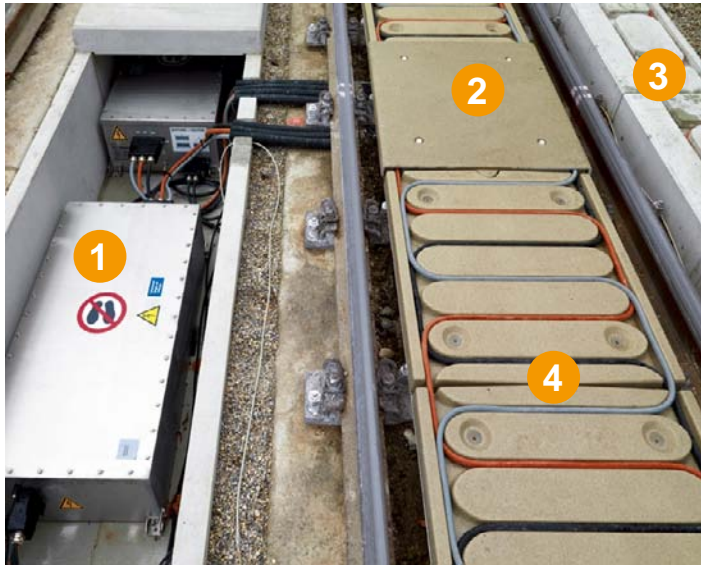
Test truck (FH, conventional with resistorbank)



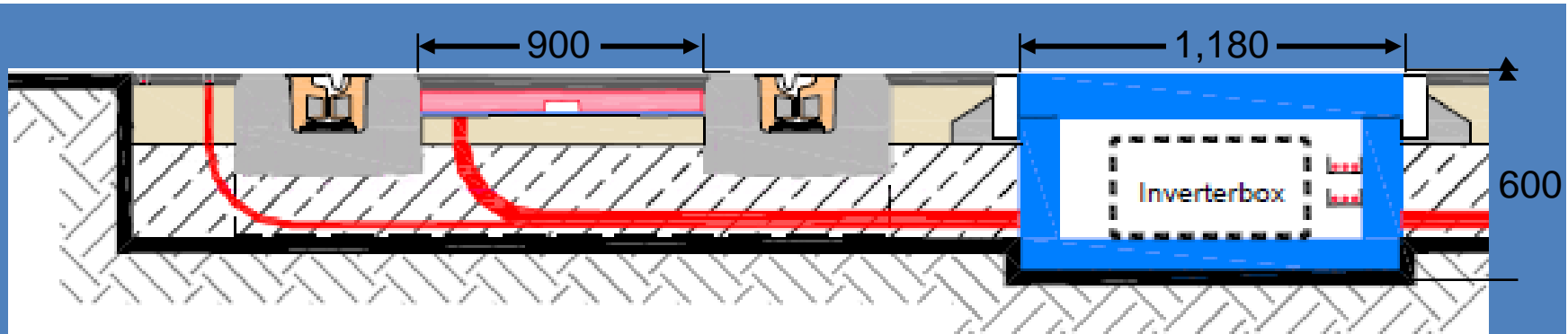
FFI Inductive (ERS) power transfer

ERS principle of the adapted Primove system for trucks/cars

Inductive, Primove test track components (example Rail)

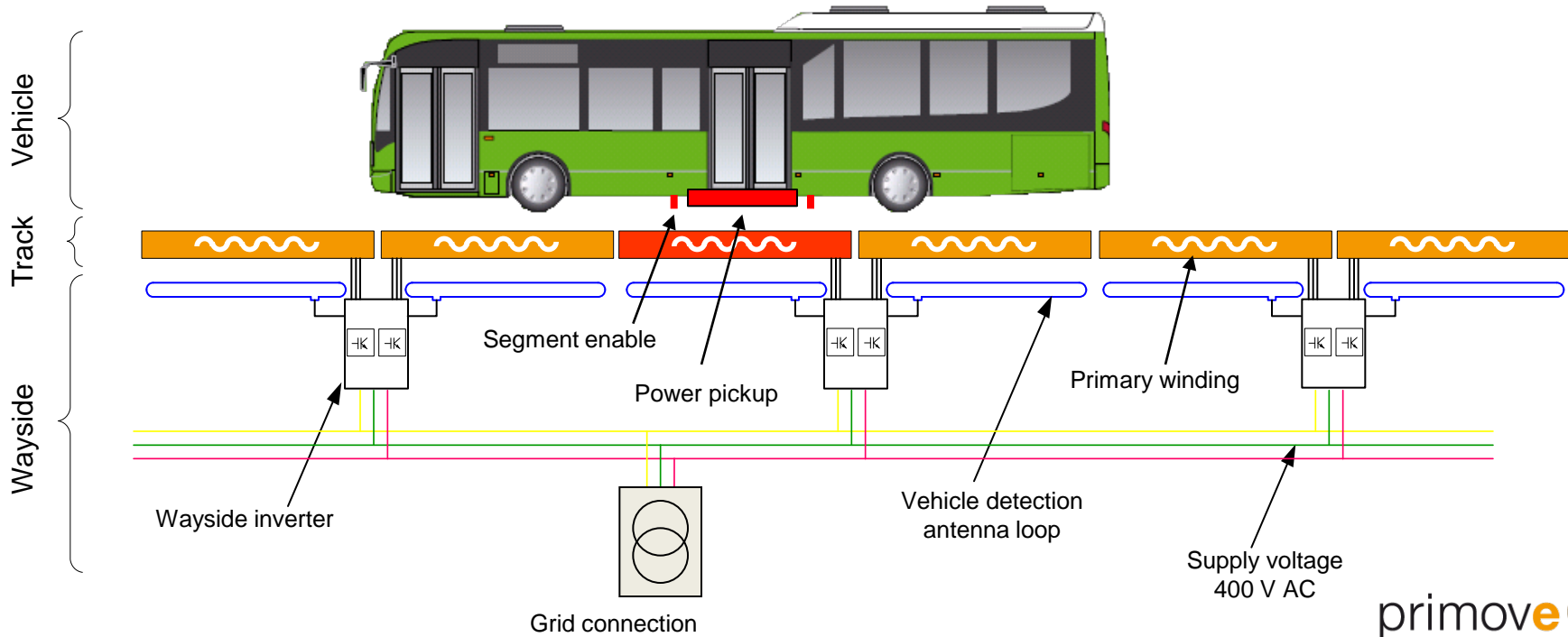
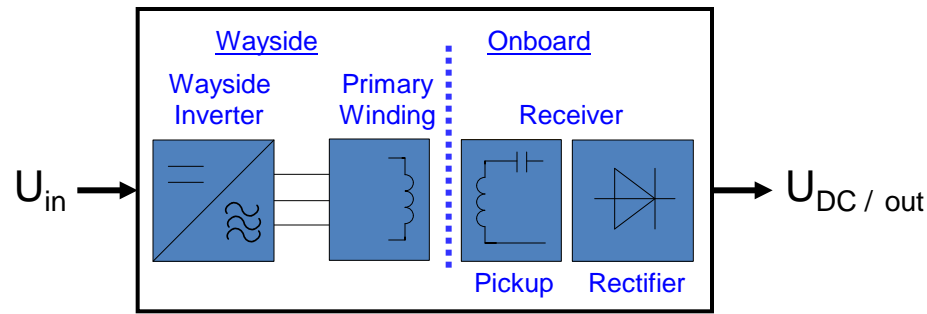


- 1 Inverter
- 2 Cover
- 3 Detection loop
- 4 Cable support



Cross-section of the *PRIMOVE* system for a single-track-line

Inductive (ERS) power transfer

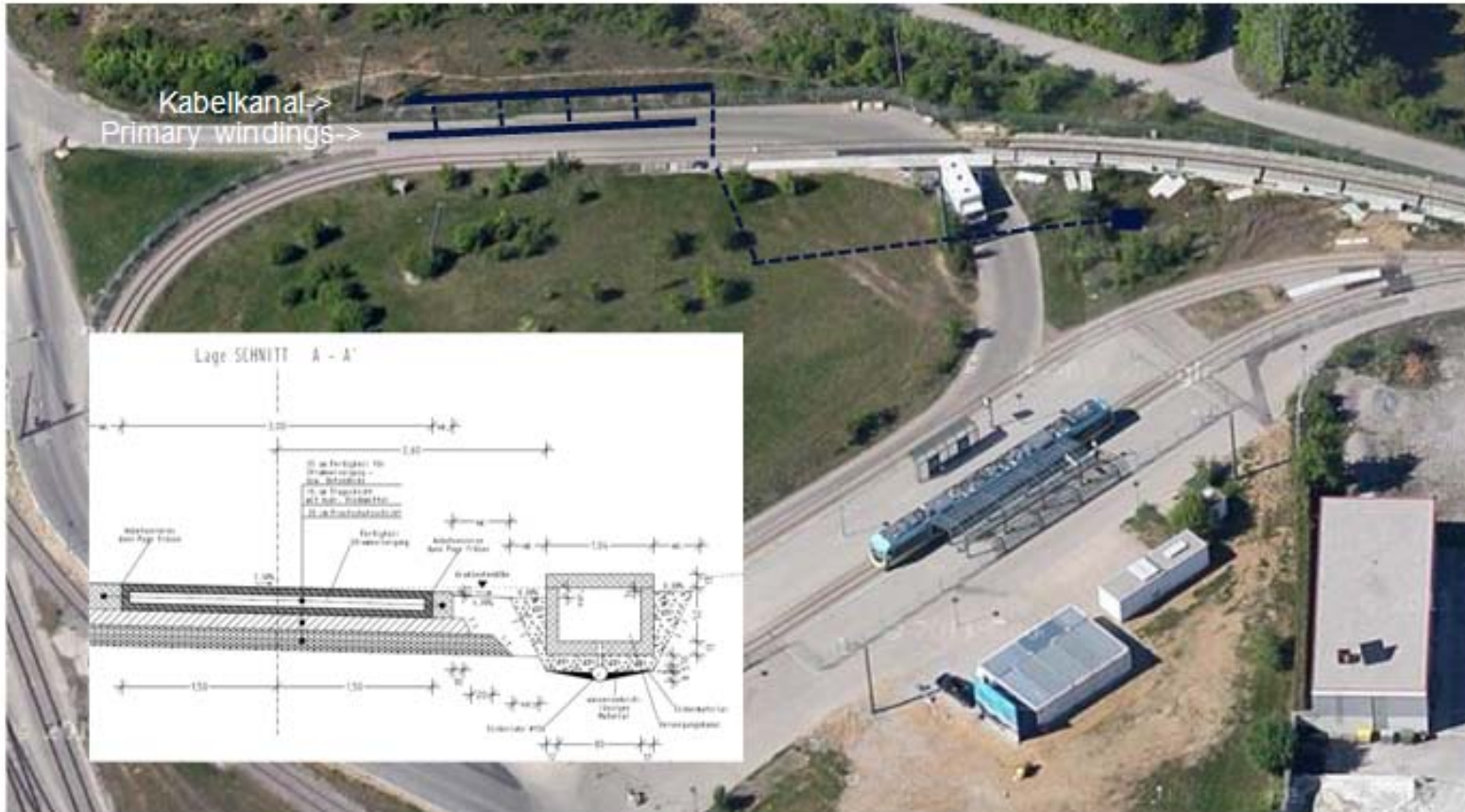


FFI Inductive test truck (conventional with resistorbank)



FFI Inductive (ERS) power transfer

Demotrack (Augsburg, build spring 2013)



Thanks !

Question?