

On the test track 2014



On the Highway 2024



<https://www.autobahn.de/planen-bauen/projekt/e-highway>

ALICE seminar on dynamic charging

Impulse: Catenary ERS ready for Roll-Out

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(1) Milestone of Technology Development since 2010

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- 2010/11 just 15 month until first prototypes were ready
(TRL 5 – demonstration pilot)
- 2012-16 continuous testing and road integration
(TRL 6 – industrial pilot)
- 2015-17 public field trials of 3 truck types in L.A.
- 2016-19 public field trials in Sweden
(TRL 7 – First implementation)



(1) Milestones since 2010

**Starting 2019 three large scale field trials on German Highways.
(TRL 8 – Few Records of implementation, system qualified)**

Facts and figures:

- **> 30 hybrid trucks** (e. g. Scania, Daimler, DAF, Mack)
- **> 40 km bipolar overhead catenary lines**
- **> 3.000.000 km travelled** (thereof > 200.000 km on catenary)
- **> 95 % availability of system**
- **positive feedback by drivers and operators**
- **no accidents caused by system or component failures**

(2) Technical challenges towards TRL 9

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Take-aways from field trials and highway operation

Topic / challenge

Overall system performance, especially with many trucks and dynamic charging

Construction and driving
(during normal highway operation)

Adjustments to emergency concepts

Integration of driver assistance systems

(2) Challenges towards TRL 9

Take-aways from field trials and highway operation

Topic / challenge	Solution
Overall system performance, especially with many trucks and dynamic charging	Increasing system voltage acc. European Specification TS 50712 to DC 1500 V (as in railways)
Construction and driving (during normal highway operation)	35 km catenary (and 10 substation) built along highways without full blockings demonstrated
Adjustments to emergency concepts	<ul style="list-style-type: none">• rescue staff involved and trained Rettungskräfte• Revised (generic) model for rescue concepts (incl. Helicopters) developed by DLR and IKEM institute
Integration of driver assistance systems	<ul style="list-style-type: none">• Already integrated into pantograph system• Further automation including charge-while-drive (dynamic charging) tested

Thank you for your attention

Decarbonising road freight with ERS – Moving forward!



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