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Siemens eHighway

The efficient and cost-effective solution for heavy duty road transport

25 October 2012, Gothenburg

Motivation

Explanation ENUBA¹

- Freight traffic in Germany is expected to grow by 116% from 2005 to 2050 (Progtrans study conducted for Bundesministerium für Verkehr, Bau und Stadtentwicklung, BMVBS)
- Goal of the EU-Commission:
Reduce CO₂-Emission to 80% of 1990 level by 2050
- Logistics optimization and capacity investment of rail system cannot significantly reduce heavy duty road transport
- Heavy duty road transport is responsible for a third of overall transportation-related CO₂-emissions – technical solutions are still absent



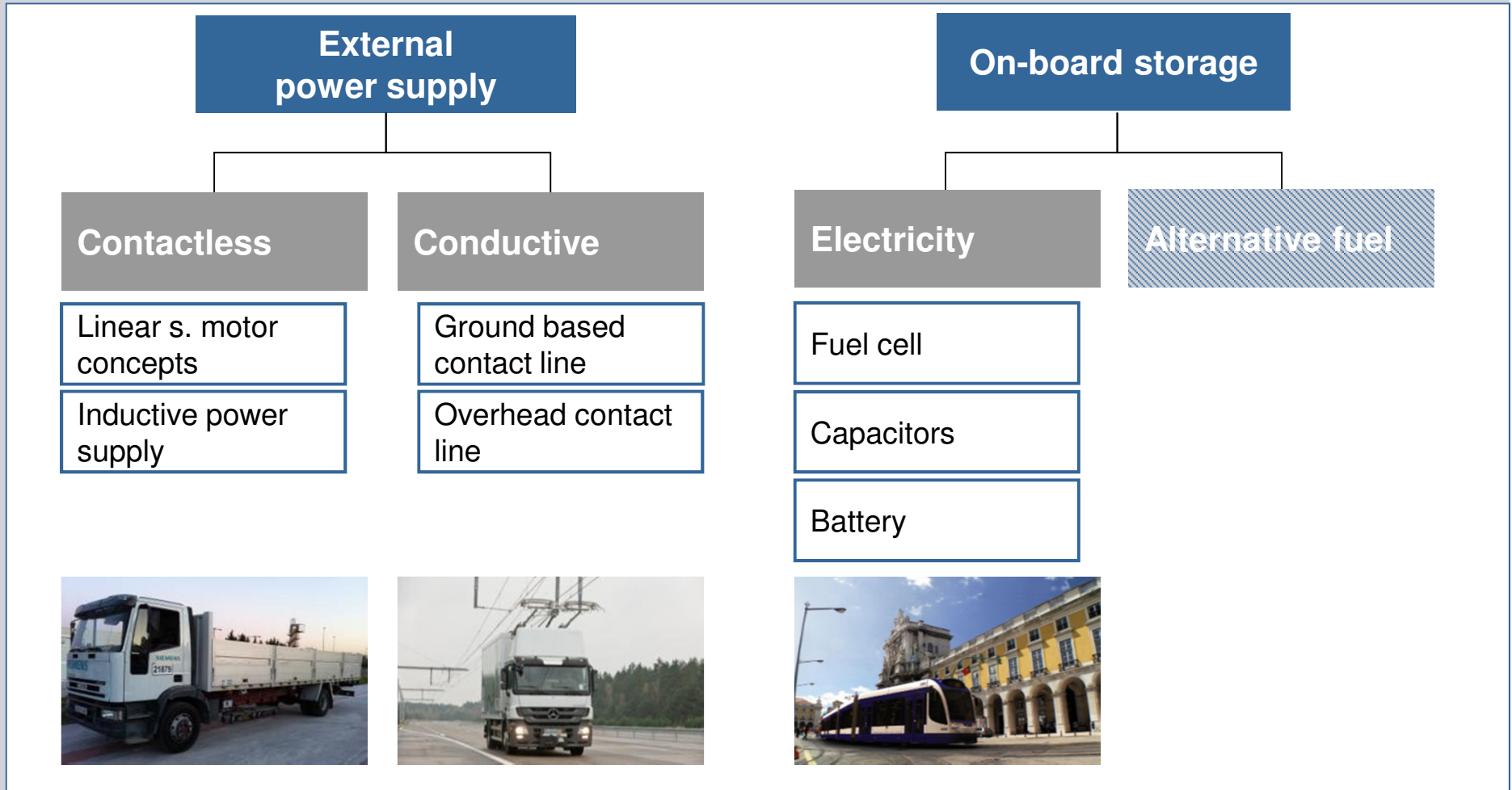
Development of an electromobility solution for heavy duty road transport

¹ **Elektromobilität bei schweren Nutzfahrzeugen zur Umweltentlastung von Ballungsräumen**

Translation: Electromobility for heavy commercial vehicles to decrease environmental pollution in urban agglomerations

Electrified logistics concepts comprise external power supply and on-board storage systems

Overview of alternative concepts



eHighway – electrification of hybrid trucks via an overhead catenary system



eHighway system description

Siemens eHighway

An approach to electrified heavy duty road transport, which reduces emissions, is economically feasible and efficient



Optimized efficiency due to direct energy transmission

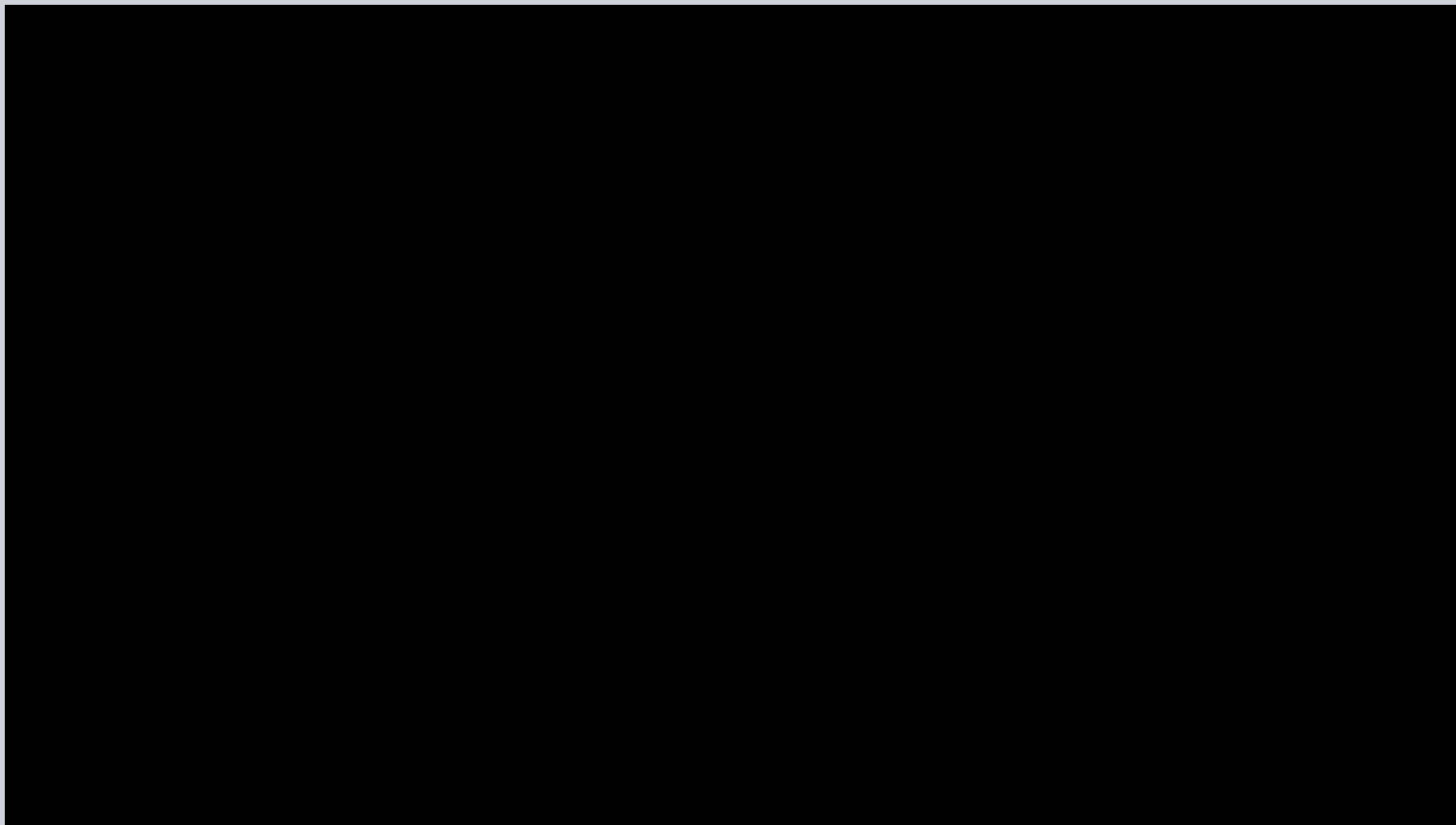
Energy recuperation and exchange between decelerating and accelerating trucks, excess brake energy feed-in into power grid possible

Safety of catenary system operation has been proven in various road traffic applications (e.g. trolley buses, tramways)

Experiences from rail and tramway underline extensive life-cycles and low operation and maintenance costs

Swift integration into existing traffic infrastructure and no concessions on operation of alternative vehicles

Siemens eHighway Technology



eHighway improves truck performance and is readily implementable on a large scale

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Ease of integration



Adaptable to all situations

- Overhead line solutions for bridges, interchanges, tunnels and low clearances
- Operable on two-lane electrified highways
- No system change in established point-to-point connections

No concessions on truck availability and performance

- No decrease on axle weight rating and load capacity
- Full electric operation up to maximum highway speed

Operability in all traffic situations

- Passing
- Cutting in / out of lanes
- Full electric idling

Main eHighway applications include shuttle as well as mine transport and long-haul traffic

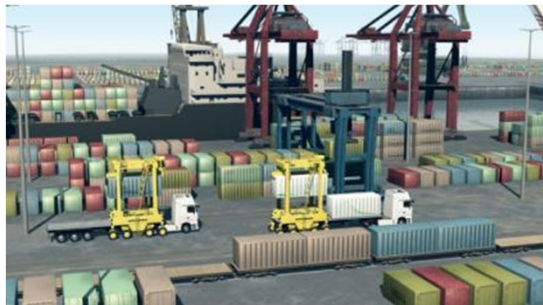


Potential eHighway applications

eHighway application fields

Shuttle transport

- Solution for high frequency shuttle transport over short and medium distances (<50km)
- Lower fuel consumption and longer lifetime
- Reduction of air and noise pollution



Electrified mine transport

- Connection of pits and mines to storage or transit locations
- Minimization of harmful emissions
- Sustainable, clean and economical mine operation

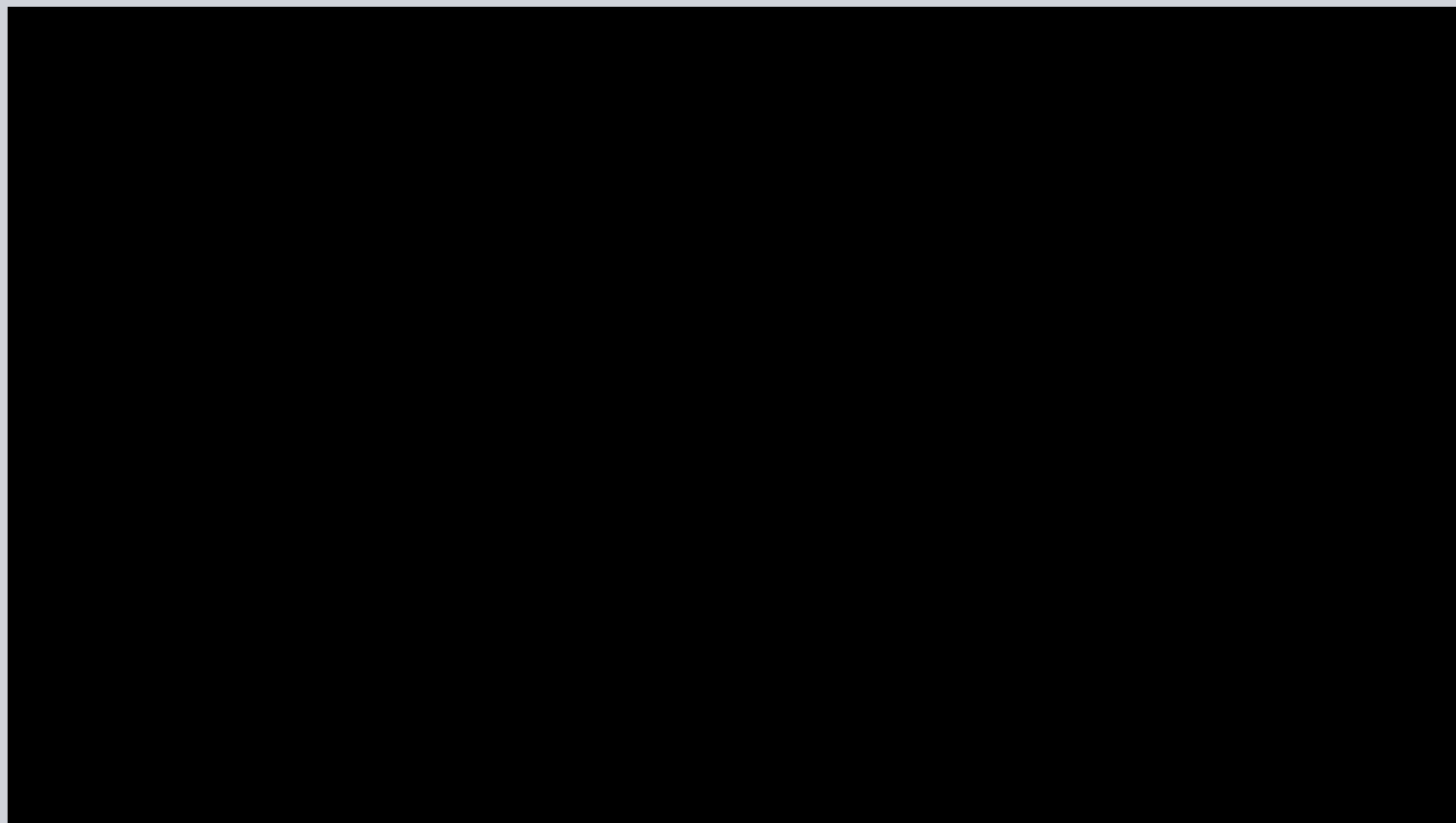


Electrified long-haul traffic

- Economical and sustainable alternative for road freight transport
- Significant reduction of CO₂ emissions
- Substantial cost savings for freight carriers



Siemens eHighway test track



The eHighway system is internationally recognized and receives positive feedback



External support and praise

International recognition and initiatives

German Federal Government

endorses eHighway as a lighthouse project and integral part of its national electromobility strategy



Southern California Air Quality Management District

emphasizes significant advantages of overhead line hybrids and recommends eHighway for one of the major truck corridors in Los Angeles (I-710)



Trafikverket (Swedish Transport Administration)

developed a concept for an eHighway application in Northern Sweden which is supported by the Swedish Minister of Infrastructure



Further current initiatives

in France, Norway, Italy, the Netherlands, Denmark and Austria underline the attractiveness and potential of the eHighway system



Feel free to contact us for further information and discussions



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