

# **Electrification of the state road network**



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The Swedish  
Transport  
Administration



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**Electrification**

**International collaboration**

**Demonstration projects**

**Swedish Transport Administration's  
electric road pilot**

**There is a great deal  
we don't know about **the future****

# The road forward

## 2021

Possible stationary charging up to 375 kW

### Deliveries

- Electric road investigation
- Phasing-out investigation
- Electrification strategy
- Hydrogen strategy delivers

BEV 800 km on the market

## 2022

Electric road demo plants final delivery

Electrification Commission final delivery

Regional electrification pilots for BEV and FCEV completed

BEV + 1000 km on the market

## 2025+

Standards for MW charging, high flow hydrogen refuelling

Electric road pilot to be put into operation

Ordinances, regulations and details for electric roads

## 2023

Electricity act and road act to enable electric roads (1-3 years from proposal?)

Fuel cell + 1000 km on the market

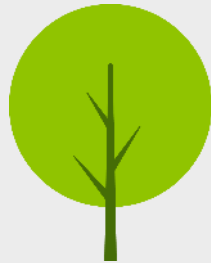
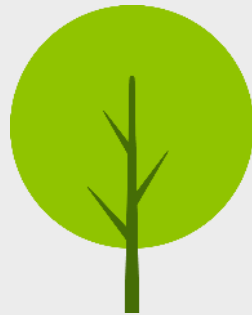
Battery demand could be important globally

**2025****2030**

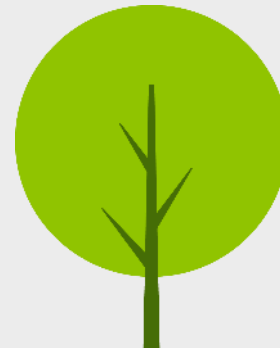
70% reduction in climate emissions from domestic transport compared to 2010

70% recycling of batteries (proposal)

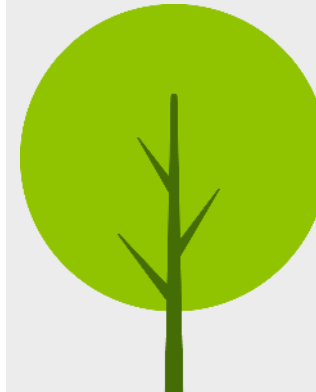
95% recycling of cobalt, nickel and copper (proposal)

**2035****2040**

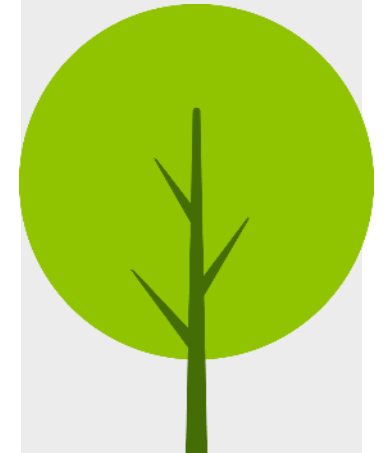
Climate emissions from the non-trading sector should be 75% lower than in 1990

**2045**

No net emissions of greenhouse gases in Sweden

**2050**

ACEA CO<sub>2</sub> neutral freight transport on the road





# Opportunities with electrification

- Reduced dependence on fossil fuels
- Lower carbon dioxide emissions
- Utilises existing infrastructure
- Higher energy efficiency in the transport system
- Reduced transport costs
- Driver for cooperation between government, industry, academia and politics
- Creates new national areas of knowledge and industries





# Electrification of heavy road traffic

- Battery-powered vehicles and static charging infrastructure
- Electric Roads, Electric Road System – ERS
- Hydrogen/fuel cells?
- Electro-fuels?

**All the tricks will be needed!**





# The road network

- Parts of the busiest roads
- Connections to ports and terminals
- High standard roads
  - > 90% with central barriers
  - > 60% motorways

**Red roads** 2,000 kilometres

Average AADT heavy = 3,800

**Blue roads** 1,000 kilometres

Average AADT (red+blue) = 3,100





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# COLIERS – Partnership for innovation between Sweden, Germany and France



**ifeu** INSTITUT FÜR ENERGIE- UND UMWELTFORSCHUNG HEIDELBERG \*

**Öko-Institut e.V.** Institut für angewandte Ökologie Institute for Applied Ecology \*

**FHN** HOCHSCHULE HEILBRONN

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\*National project manager



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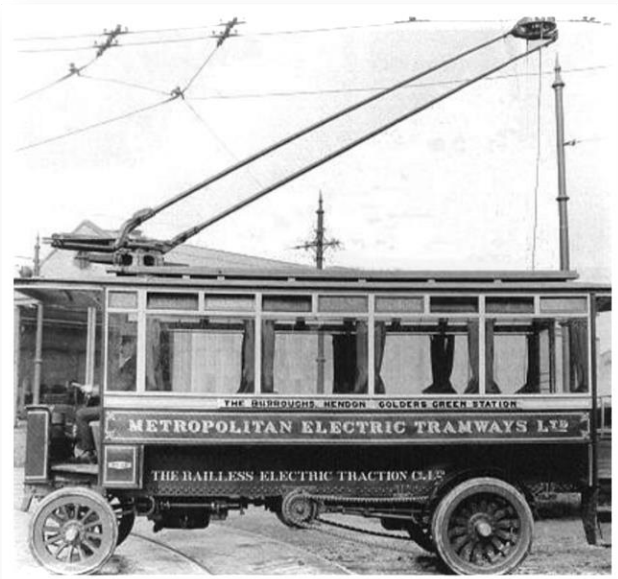
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# Components for a functioning electric road

## Electricity grid

Conventional electricity grid (Red)

## Electricity grid along the road

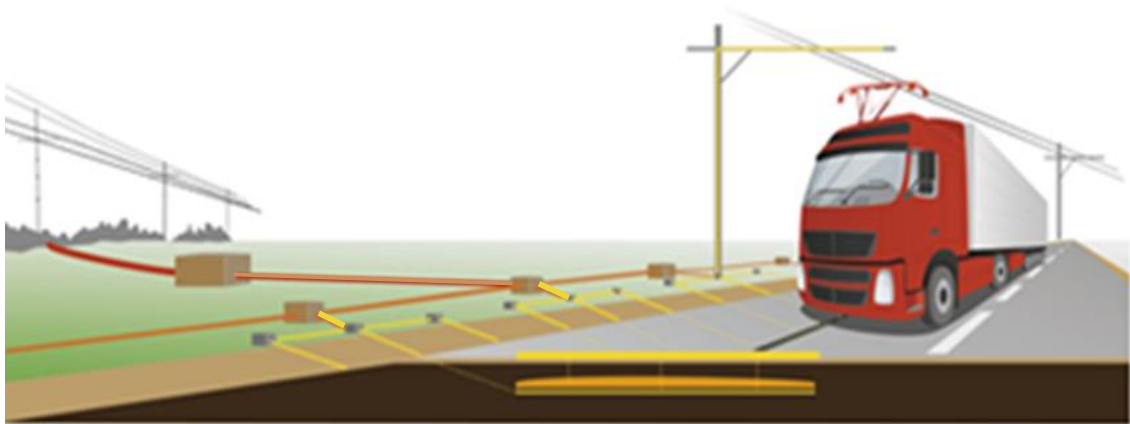
Supply of electricity to the electric road system including transformers (Orange)

## Electric road

Technology for transfer to vehicles including rectifiers and control units (Yellow)

## Roadside devices

E.g. railings, service roads

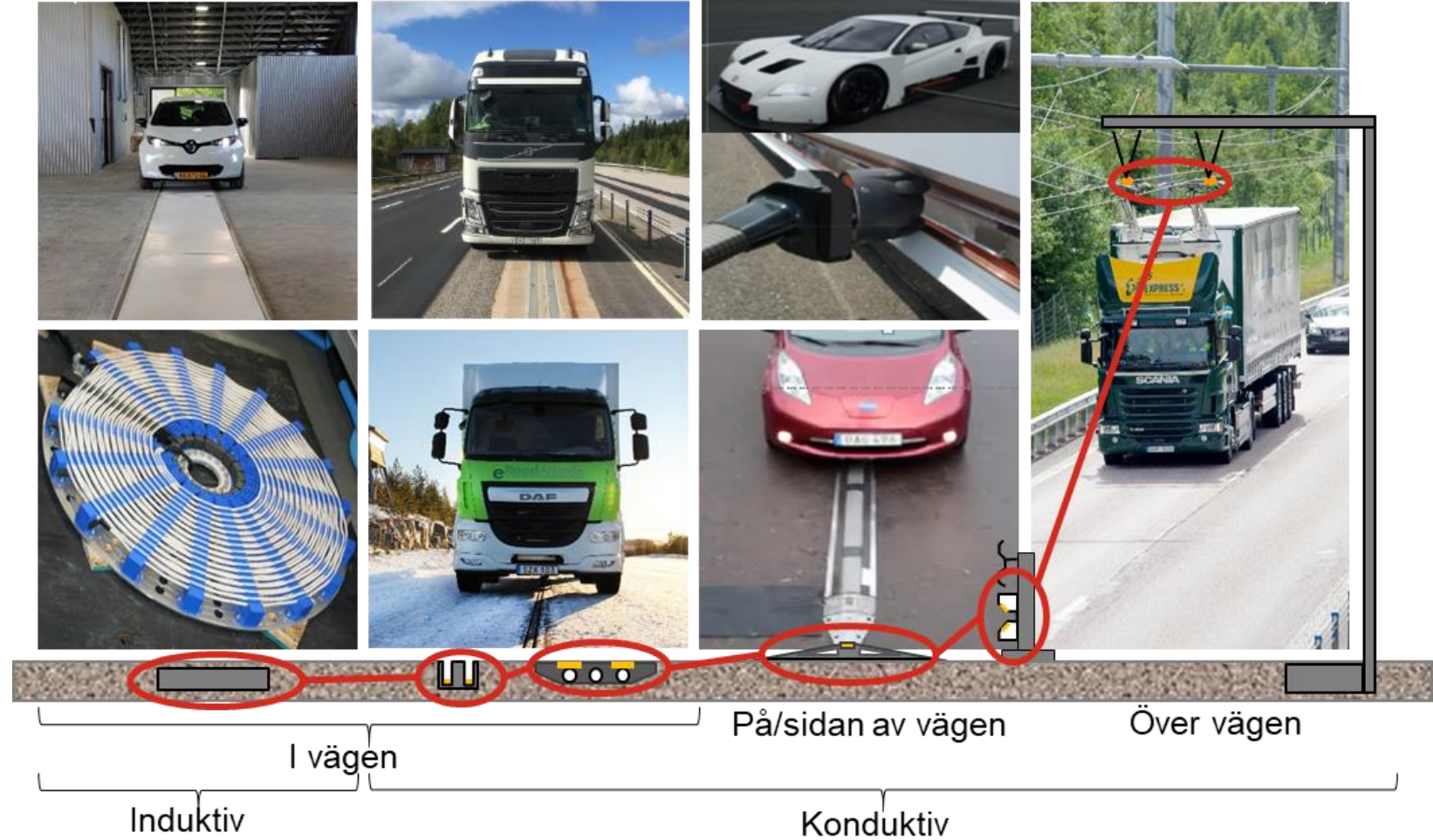






# Electric road technologies

Different perspectives and needs for technology





# Demonstrators for electric roads

Create knowledge about the construction and maintenance of ERS!

Sandviken  
2016–2020



Arlanda  
2018–2021



Lund  
2020–2022



Visby  
2020–2022



# Sandviken





# Arlanda





# Lund





# Gotland



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# Swedish Transport Administration's electric road pilot

Sweden's first permanent electric  
road

# Selected route for decided electric road pilot



**E20 Hallsberg – Örebro**

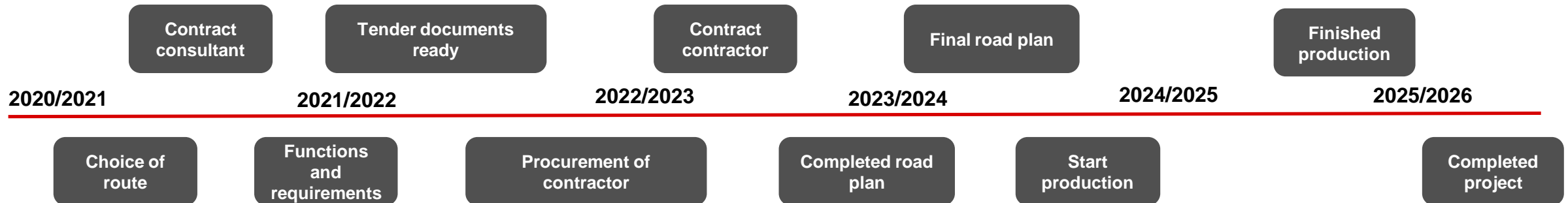


## Establishment of road plan

**What:** Two road plans for the construction of one (1) electric road

## Technology choices and production

**What:** Procurement of consultants for tender documents and construction site follow up and procurement of contractor for the supply of technology and production.





**Thank you  
for listening!**

