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Oy M.Rauanheimo Ab
Oy Adolf Lahti Yxpila Ab

Experiences with electric-converted trucks

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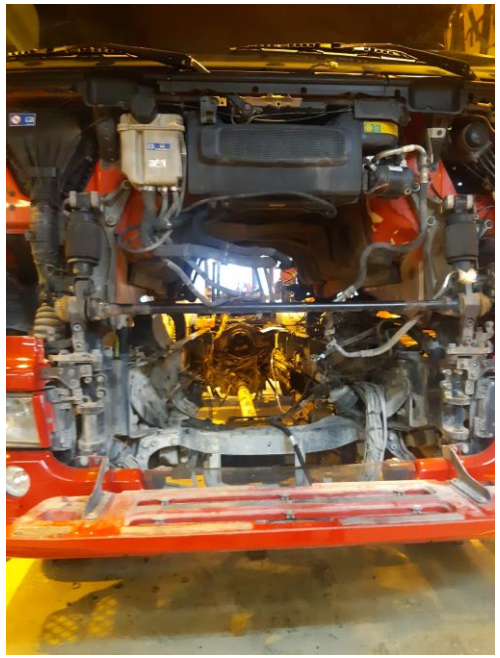
First converted Scania, has been transporting pulp at Äänekoski bioproduct mill, since August 2022



55t electric tractor

- 365 kW electric motor
- 6 speed gearbox developed to be used with electric motors
- 4WD
- About 190 kWh of battery capacity
- Operating in Äänekoski

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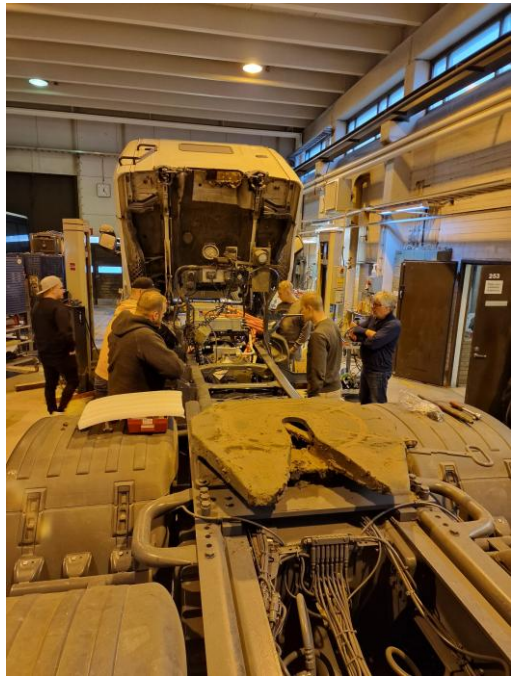
Second converted Scania, has been transporting wood ships at UPM Pietarsaari mill, since June 2, 2025



76t electric tractor

- Two electric motors with about 700 kW
- 4 speed gearbox developed to be used with electric motors
- About 200 kWh of battery capacity
- First 76t retrofitted electric tractor officially registered in Finland
- Operating in Pietarsaari port moving almost 200t total weight
  - Total length 38m/width 3,3m

Heavy duty retrofitted electric vehicles - experiences

23.9.2025

Pasi Salmela KWH Logistics
Jukka Pellinen FuturEV Oy

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FuturEV

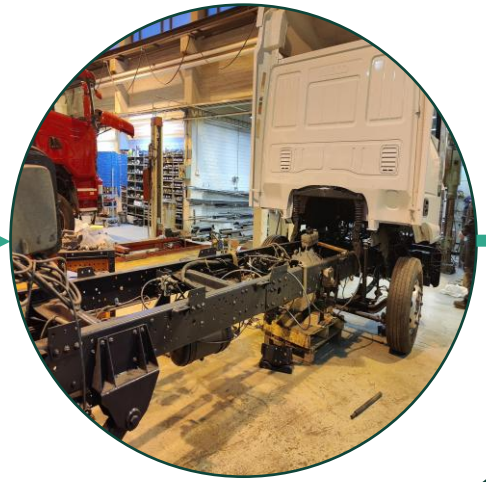
eTrucks.fi

Retrofit? Why?

- Diesel powertrain taken out, including engine, gearbox, fuel and exhaust systems
- Electric powertrain installed, including electric traction motor, power electronics, control system and battery system
- Chassis, cabin and brakes refurbished
- Flexible customization and update
- Recycling point of view
  - New life for the vehicle
  - Removed parts recycled or reused as spare parts
- Cost savings
  - Investment
  - Operational cost
- **An important and cost efficient way to pilot new applications and solutions!**
  - **Learning by doing**
  - **Authentic experiences**
  - **Authentic data**

Selection of the conversion object

Dismantling of the old diesel powertrain



Refurbishment of the frame and chassis

Installation of the electric powertrain and **digital control system**

Testing and inspection/registration

Retrofitted electric truck

The first electric conversion truck in Finnish Post's fleet

" I used to be diesel - now my deliveries are clean with electricity"

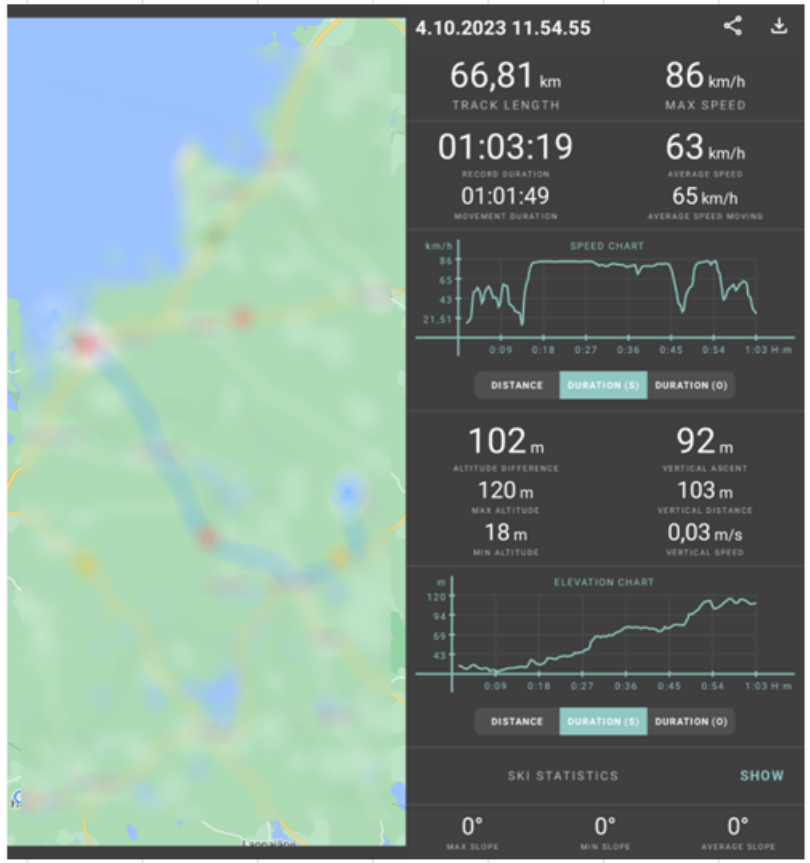
Experiences

- The two retrofitted heavy duty trucks have been operating in Äänekoski and Pietarsaari for almost two years
- Trucks have been equipped with IoT devices and data acqusition facilities (SixHove project/VTT/Joel Anttila)
- Positive experiences and feedback
  - Low energy consumption – no idling
  - Truck’s operating system has developed features
  - Smooth operation – plenty of torque
  - Constant updates possible

Diesel vs electric

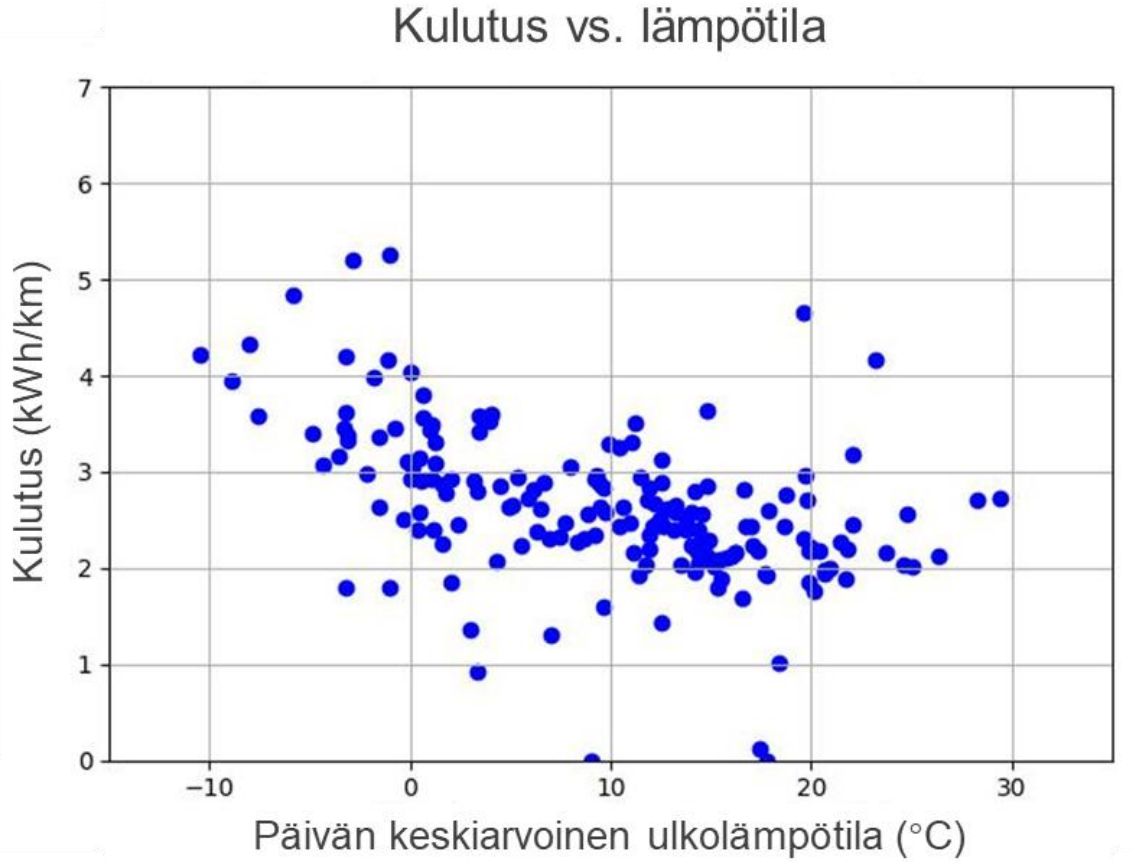
Distance/direction	66,81		Battery	420 kWh
Trips/day	5		Charging power	150 kW
Km/day	668,1		Charging time	3 h/day
1 ltr diesel= 11,8 kWh			Charged energy	450 kWh

	DIESEL		ELECTRIC	
Consumption	48,2	l/100 km	1,50	kWh/km
Consumption	569	kWh/100 km	150	kWh/100 km
Consumption	322	l/day	1 002	kWh/day
CO_2 emissions	837	kg/day	0	kg/day
Working days	312	Days/a	312	Days/a
Consumption	100 472	l/a		
Consumption	1 185 564	kWh/a	312 671	kWh/a
CO_2 emissions	**261 226**	**kg/a**	**0**	**kg/a**
Price	1,30	€/l	0,10	€/kWh
Energy cost/a	**130 613**	**€**	**31 267**	**€**



Äänekosken rekan tiedonkeruu ja analyysi

- Datankeruu ajanjaksolta: 29.4.2024 – 17.9.2025
- Tärkeimmät mitatut suureet:
  - Ajonopeus ja ajomatka
  - Akkuteho ja -varaus (SOC %)
  - Ulkolämpötila
  - + paljon muuta
- Datan yhteenveto:
  - Ajopäiviä: 179
  - Kokonaismatka: 1 706 km
    - K.a. 9,5 km/päivä
- Data-analyysillä kattavat tiedot
  - Erityisesti voimalinjan suorituskyky sekä käyttökohteen vaatimukset
  - Esim. energiankulutus eri ulkolämpötiloissa (kuva oikealla)



Next steps

- Serial production aiming to 100 trucks per year
- Heavy duty work machine retrofits
- Increase of domestic components
  - Battery packs
  - Power electronics
  - Motors
  - Control units
  - Telematics
  - Displays
  - Charging
  - Etc…

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Thank you!

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