

Maintenance of Electric Trucks

Richard Lidstone-Scott

Operations Director,
Tevva Motors Ltd



June 2019, FTA Fleet Engineer Event

Tevva is a world leader in the development of long-range, self-charging electric trucks

- Tevva is the world's **leading developer of long-range electric trucks with on-board charging** (EREVs)
- Tevva's long-range, on-board charging technology offers the **operational performance** of conventional diesel trucks with **dramatically lower (or zero) emissions** and at **lower cost** than conventional trucks
- The Tevva eTruck has 4 fully integrated core technologies
- Tevva is far more than a great concept. Our UK based engineering team is delivering against the most rigorous engineering standards such as ISO26262 and UNECE Reg 100 Rev 2 Pt 2
- Tevva is 100% focused on safety, durability and reliability

Tevva. The no compromise eTruck

When it comes to making the switch to clean freight you need the best solution, without compromise.

A Tevva **eTruck** delivers on its operational, commercial, and environmental promise.



Delivering the Duty Cycle

No compromise on duty cycle – we offer the most practical, easy to deploy eTruck that can replace a similar diesel, today.



Delivering Cost Benefits

Our eTruck with on-board charging and geofencing, offers as much as 20% reduction in total cost of ownership compared to an equivalent diesel.



Delivering a Green Solution

Be at the forefront of clean freight. Meet the requirements for carbon emissions regulations with our eTruck, lower your carbon footprint.



Giving You Certainty

Peace of mind in your decision to integrate the next generation of clean freight eTrucks is central to our product development and commercial proposition

Tevva's extended range electric truck already offers immediate benefits for truck operators



BENEFITS: **Commercial:** Lower operating and lifetime costs than diesel
Operational: Unlimited range; minimal depot infrastructure
Environmental: Zero emissions where most needed

Patented, protected technology that drives superior vehicle performance

Cloud-based software

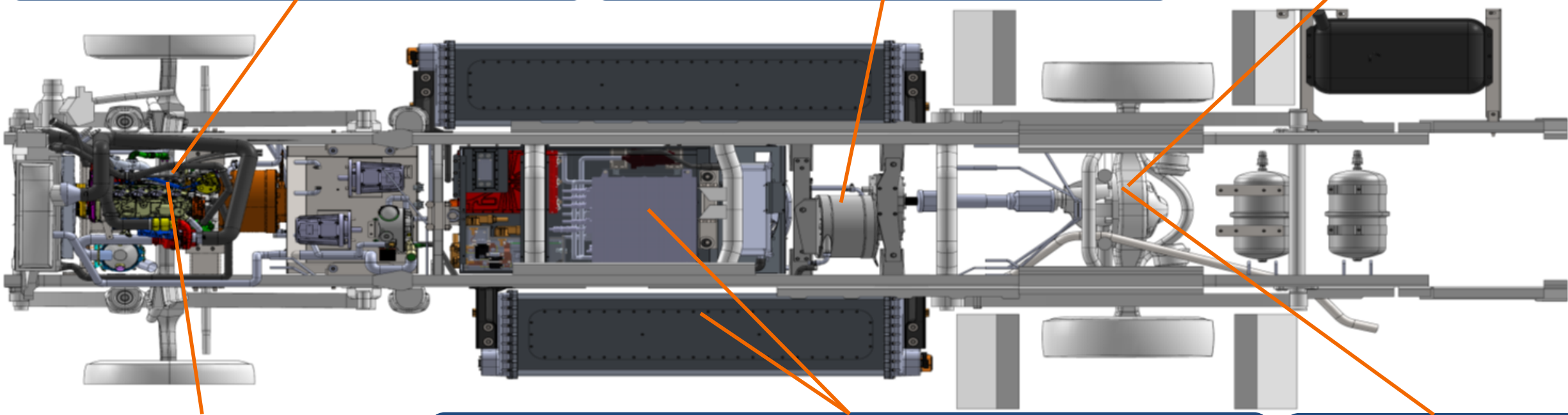
Tevva patented Predictive Range Extender Management System (PREMS)

Motor/Generator

Currently fitted motor rated at 150kW & 2000Nm torque.
Proprietary switched reluctance motors in development

Regenerative Braking

Produces significant battery electric charge used each day



On-Board Charger (OBC)/Range Extender

Tiny ICE driving generator only. PREMS ensures minimum tailpipe emissions and maximum use of the full battery charge.

Battery/ Battery Management System

Battery comprised of multiple Lithium Iron Phosphate (LiFePO₄) cells 74kWh battery gives c.150km all electric, zero emission range (range anxiety is eliminated with range extender)
BMS is Tevva proprietary technology.

2018 Battery spec already 250kg lighter than prototype despite increase from 60kWh to 74kWh – further enhancements in R&D plan

E Transaxle

Integrated e-transaxle in development to reduce weight, increase efficiency and enable integration into multiple platforms

Designed for Service – Service Exchange

- Adoption of new technology is a concern for fleets
- What will the Vehicle on Road uptime be ?
- Tevva's design for Service Exchange methodology addresses these concerns.
- High level sub assemblies that can be replaced in minutes
- What's the cost of this post warranty



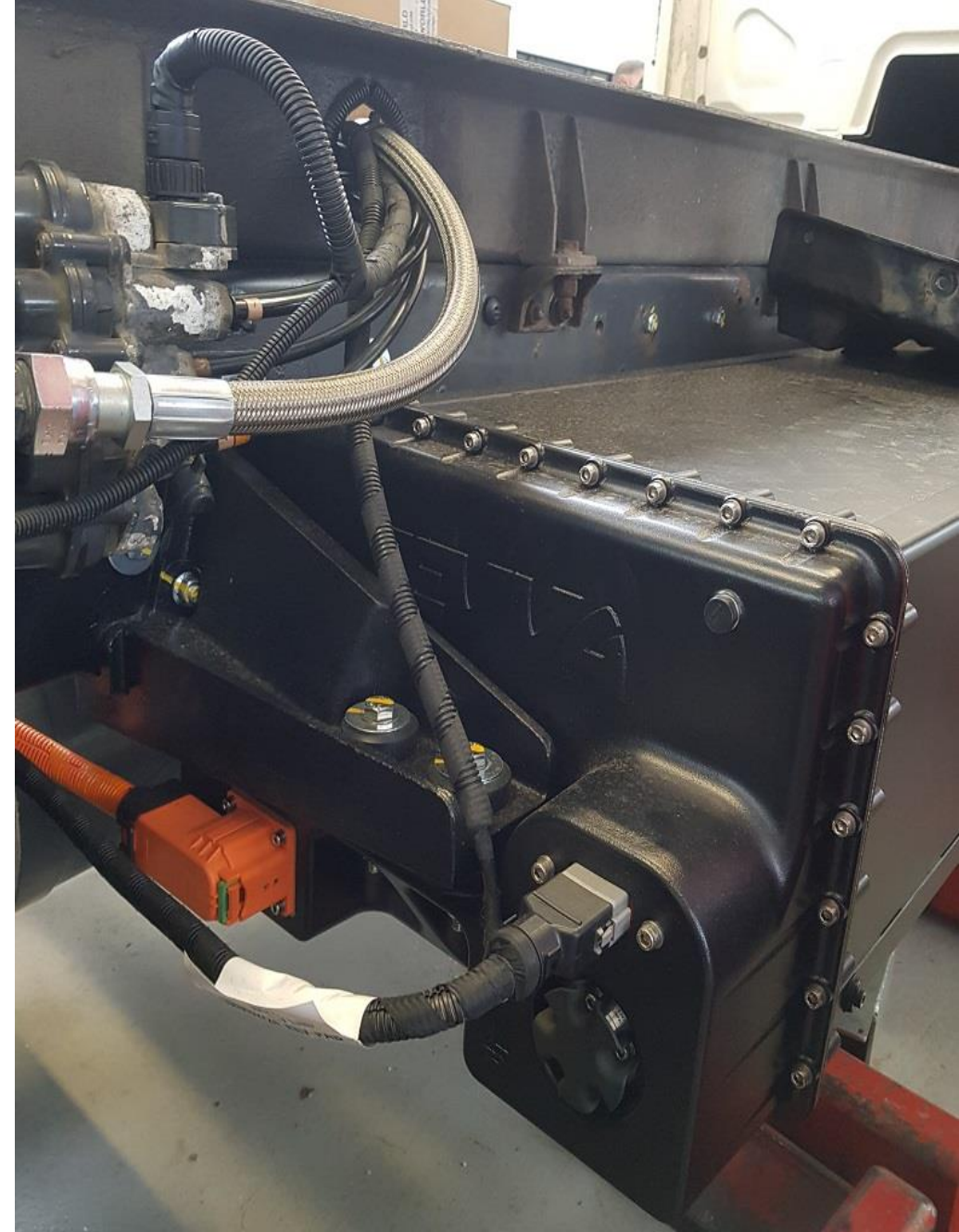
Powertrain Impacts of moving to EV

- EV drive is a godsend
- Reliable by design. Self Protecting. No Clutch Drop
- Regenerative braking
- Ease of operation on the road
- Ease of operation in the depot



Workshop impacts & regular maintenance

- High voltage training, Level 3 and level 4 & 5
- Normal service operations
- HV component service
- Specialist components and new requirements



Remote Diagnostics

- Why do we as the manufacturer care?
- Why do you want to support this?
-



On-Road Breakdowns

- What do I do if it all goes wrong out on the road
- Don't Panic
- Lift and shift? Towing
- Impact of E-Motor technology
- Emergency responders information



Keeping in touch



Contact: Richard.lidstone-scott@tevva.com

Visit: www.tevva.com

Follow: @tevva_ev

Linked In: /tevva