NEW Generation ENERGY

FOR SUSTAINABLE TRANSPORTS

Scania’s e-Mobility solutions

IRTENZ Conference 26/11/2025
Hamilton New Zealand

Alfons Reitsma
Senior Product Engineer –E- Mobility

SCANIA

Agenda

1	New Electric Platform (Gen 3)
2	Cab & Chassis
3	Batteries
4	Electric machine
5	PTO
6	Charging
7	Freuhauf EKO & HPMV Logging Trailer

scania’s roadmap

battery electric vehicles

In 2021, we started with our first BEV for urban deliveries.

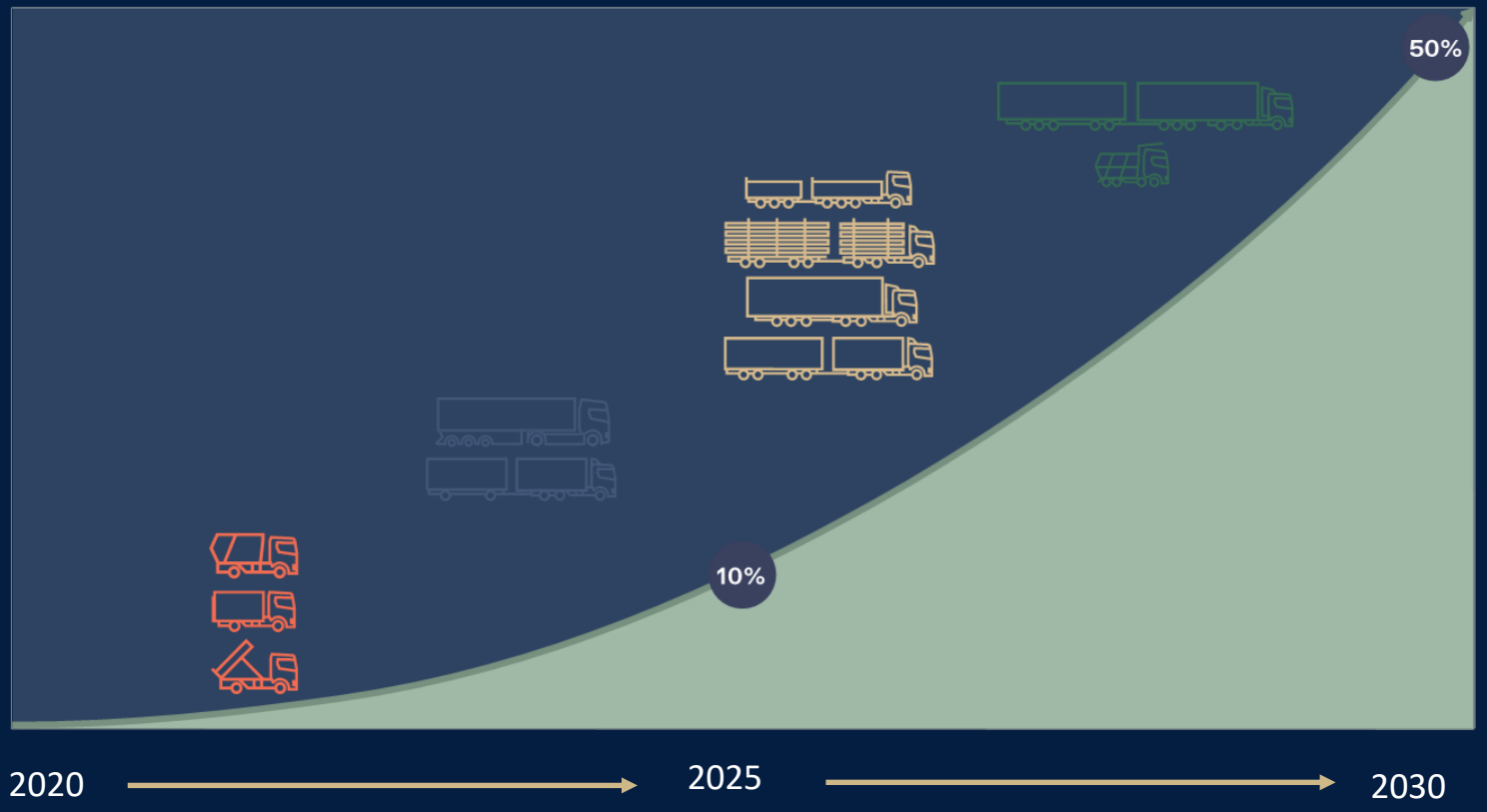
In 2023, we started producing heavier BEV trucks capable of running repetitive routes with a longer range and high payload.

In 2024, we started producing more electric truck solutions, capable of covering most on-road operations with a wider range of specifications.

By 2026, we will be able to electrify most operations.

By 2030, BEVs will make up for 50% of Scania’s total sales.

The key factors in this change are sustainability, customer value and improving technical conditions.



A NEW BATTERY ELECTRIC TRUCK PLATFORM


ELECTRIC
SCANIA
ELECTRIC
Full e
Fully electric - fully efficient.
SMART TrailerConnect INSIDE
S.KOe COOL
TAKE CHARGE
100% ELECTRIC
100%
45R
RHF 15
SCANIA NEW ZEALAND
frueh auf

Fast continuous evolution

Our ongoing progress means we can now offer:

- More variations and configurations
- More cab options
- Multiple e-machine choices
- New batteries
- Updated management systems and software

A new operating experience

Seven smart dash features:

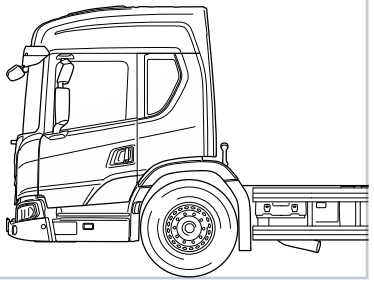
- Scania ecosystem integration
- Real-time traffic analysis
- Active Prediction Cruise Control
- ADAS integration
- Over the Air (OTA) software updates
- Remote services activation
- Wi-Fi & Bluetooth diagnostics

cab & chassis

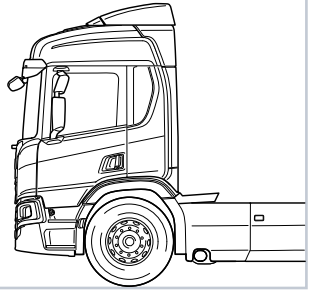
made for New Zealand

Cab options

L



P



G

R

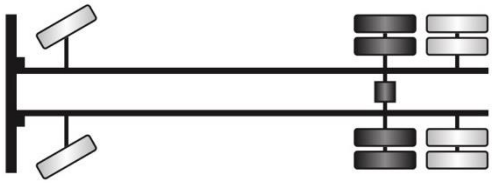
S

BEV Wheel configurations & axle distances

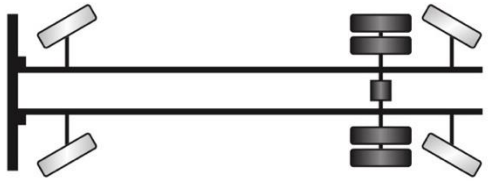
Chassis adaptation and wheel configuration “ Rigid” and “Tractor” adaptation

A/B 4x2

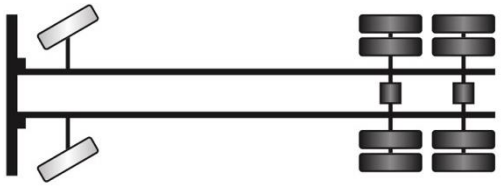
A/B 6x2



B 6x2*4



A/B 6x4

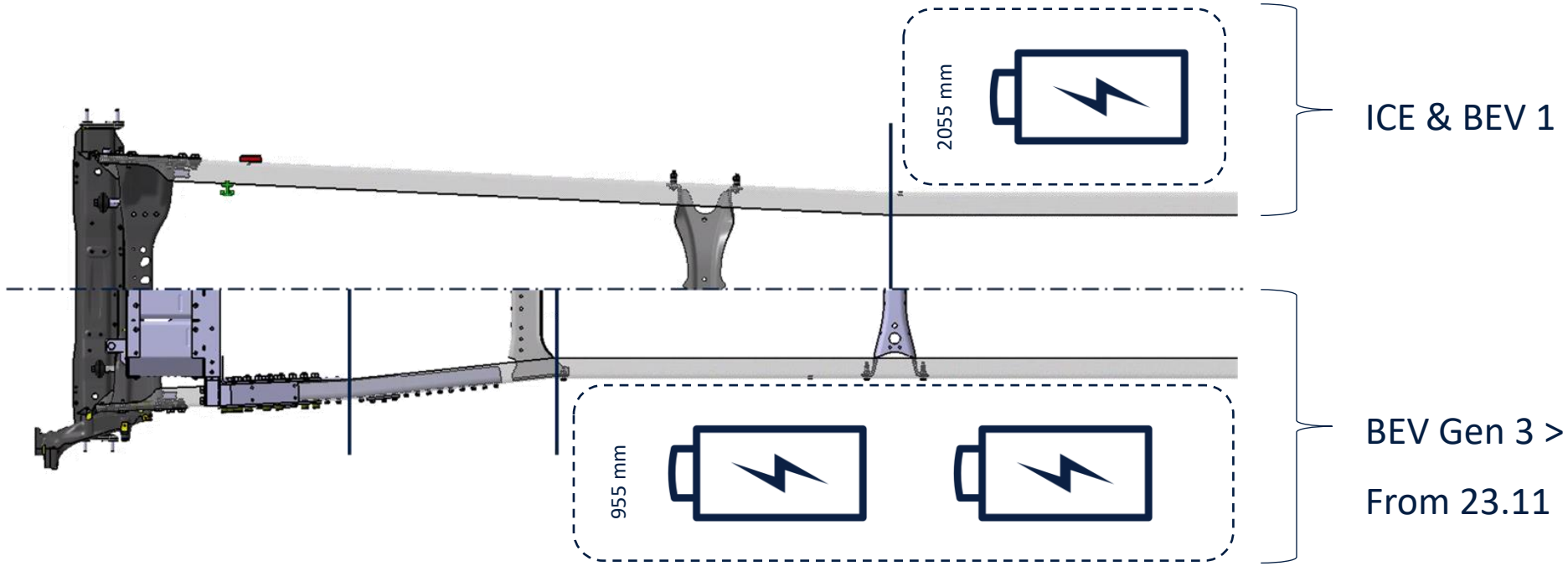


B 8x4*4

Axle distances

3,250 – 6,350 mm

Frame shape



Increased useable space for batteries by move of frame bend

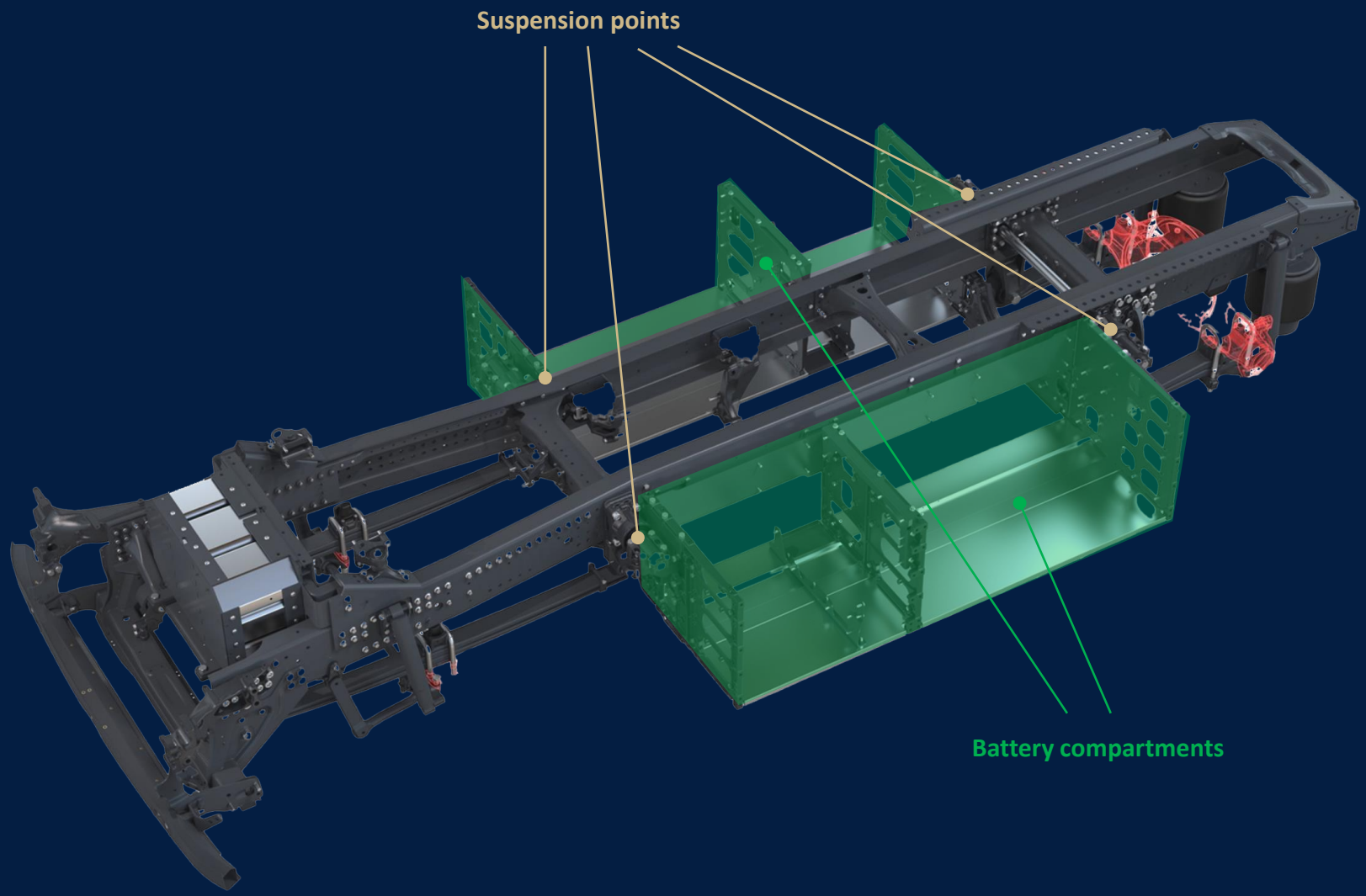
battery structure

introducing the megastructure

The new battery structure uses four rubber suspension points, which leads to a reduction of load level in the installation and in the batteries.

Due to battery size and weight, different installation solutions are required for different vehicles.

With this megastructure system, we will have more possibilities to reach the desired modularisation state in the future.



ICE

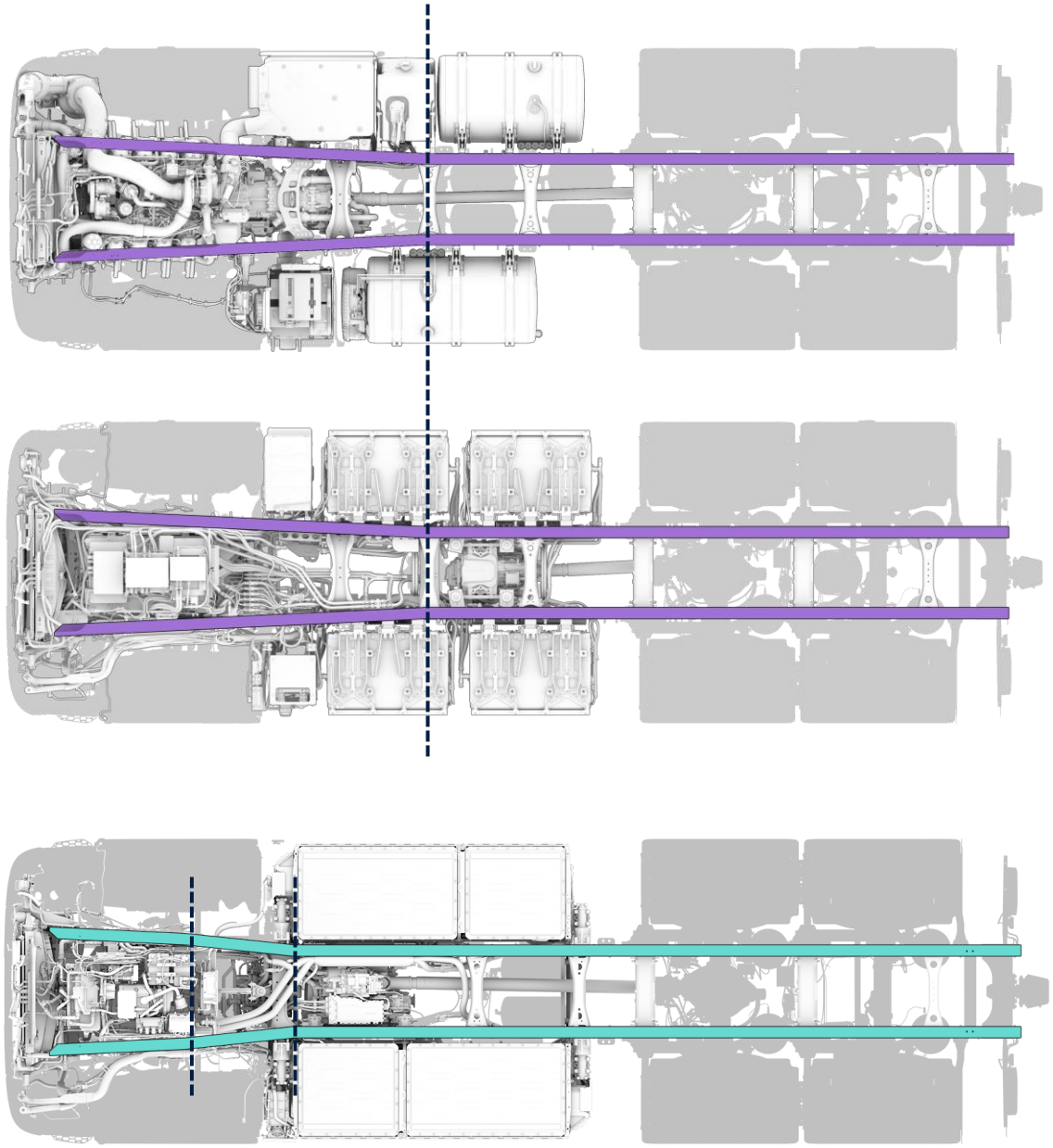
FPC8967:A –
Frame bend quantity: 1

BEV

FPC8967:A –
Frame bend quantity: 1

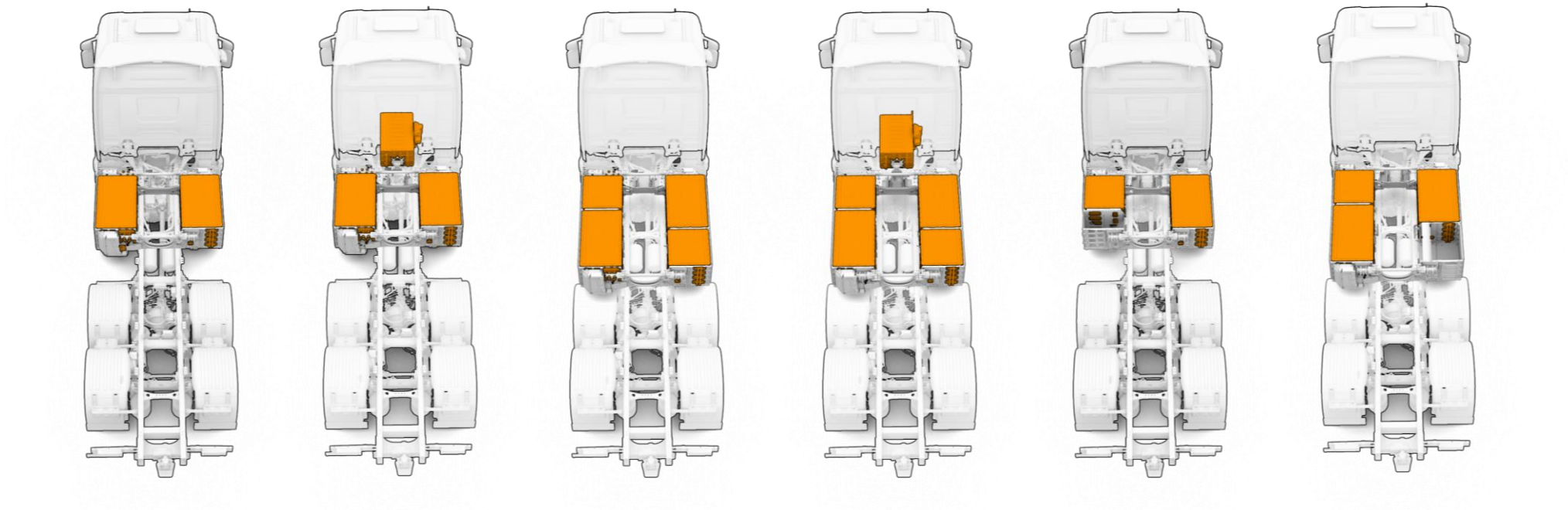
BEV

FPC8967:B –
Frame bend quantity: 2



batteries

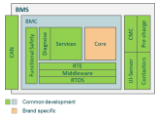
New Battery layout variations- limited to front axle weights !



MP20	x2	x2	x2	x2	x1	x2
MP10			x2	x2	x1	x1
MP12		x1		x1		
Installed	356 kWh	445 kWh	535 kWh	624 kWh	267 kWh	446 kWh
Usable	320 kWh	400 kWh	482 kWh	560 kWh	240 kWh	400 kWh
Type	A-order	A-order	A-order	A-order	S-order	S-order
When	Available	2026 >	Available	2026 >	Available	Available

Battery manufacturing

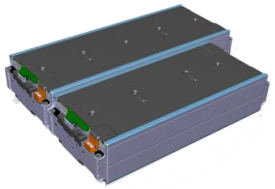
CBMS



- In-house developed Battery Monitoring system

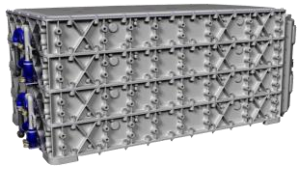
Cell

Supplier A, B



Module

Module Assembly at Scania



Pack

Pack Assembly at Scania

e-mobility

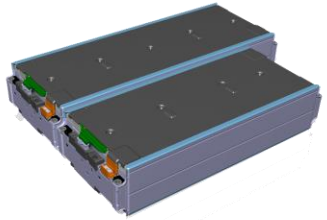
Battery pack modularization

e-mobility

Cells

- **NMC 532 (Supplier)** cells

Modules



- In-house developed modules
- 18 or 15 cells per module

18s

23.11 >

15s

2026 >

Battery packs

MP10

- **89 kWh (Supplier)** installed energy
- 10 x 18s modules (180 cells)
- 4 layers
- ~650 kg

MP20

- **178 kWh (Supplier)** installed energy
- 20 x 18s modules (2x180 cells)
- 4 layers
- ~1,200 kg

MP12

2026 >

- **89 kWh (Supplier)** installed energy
- 12 x 15s modules (180 cells)
- 3 layers
- ~ 650 kg

Battery chemistry comparison

Two different kinds of cell chemistry for heavy trucks

LFP = Lithium Iron Phosphate
NMC = Nickel Manganese Cobalt

NMC batteries have high energy density, making them suitable for heavy vehicles where load is crucial. With equivalent capacity, NMC batteries normally weigh less than iron-based LFP batteries.

	Competitor A	Scania 45R
Cell chemistry	LFP	NMC
Installed capacity	621 kWh with 95% SoC-window	624 kWh with 90% SoC-window
Usable capacity	590 kWh	560 kWh
Battery mass	4,5 tonnes	3,4 tonnes
Installed capacity per mass	138 kWh per tonne	184 kWh per tonne
Usable capacity per mass	131 kWh per tonne	165 kWh per tonne
Range	491 km	468 km
Range per battery mass	109 km per tonne	118 km per tonne

Range figures based on an of EC 1,2 kWh/k European configuration .

electric machine

Operation optimised electric machines

EM C1-2

Payload and efficiency optimised

EM C1-4

Energy efficiency optimised

EM C3-6

Performance optimised

A new driving experience – Electric machine

A more nuanced drive

Faster and more direct response

Smoother feel

Better acceleration

One-pedal driving

Lower sound levels

Electric or electromechanical PTO

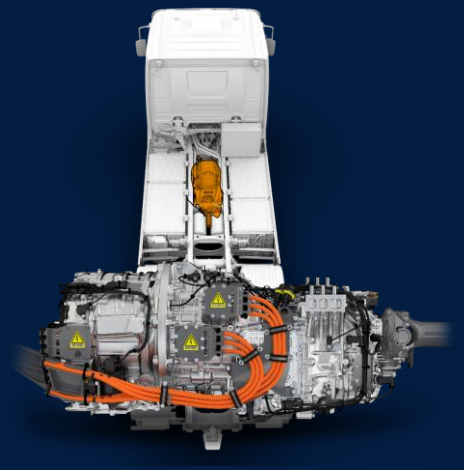
Mechanical PTO

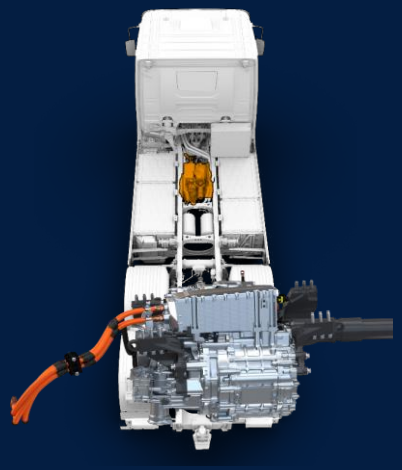
Electric machine options

BEV Electric Machine – Commercial denomination

Example: *EM 400 C3-6*

- EM — Electric Machine
- 400 — 400 kW
- C — Central position
  A — Axle position (TBD)
- 3 — 3 electric motors
- 6 — 6 gears





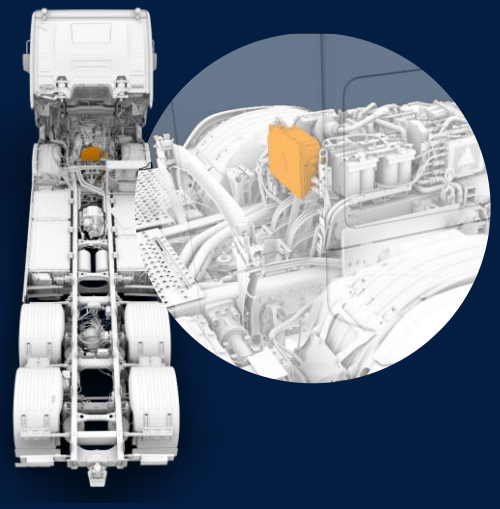
Family name	EM C1-2	EM C3-6	EM C1-4	EM C1-2
Denomination	EM 230 C1-2	EM 400 C3-6 EM 450 C3-6	EM 270 C1-4 EM 300 C1-4 EM 330 C1-4 EM 360 C1-4 EM 400 C1-4	EM 210 C1-2 EM 240 C1-2
Development name	P160/P160u	P160+	CCD	CCD
Weight	~240 kg	~630 kg	~390 kg	~290 kg
GTW (technical max.)	29 t	64 t	74 t	29 t
USP	For light vehicles and urban operations	Performance optimized with PTO capability	Energy efficiency optimized with compact design	Energy efficiency optimized for urban operation

pto

PTO solutions for BEV

e-mobility

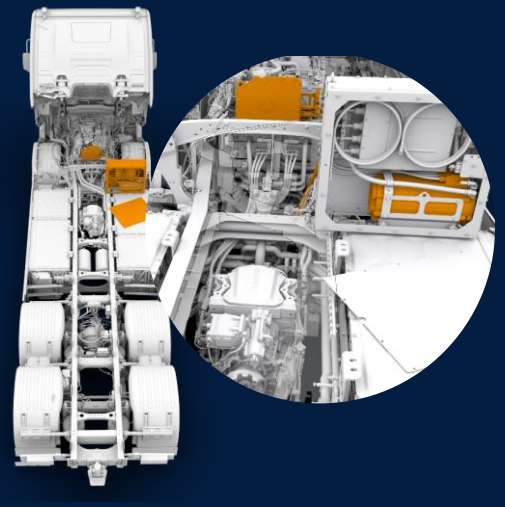
EL
Electrical



650 V DC, 100 A, 60 kW (80 kW
650 V DC, 160 A, 100 kW

EM C1-2 (P160u)
EM C3-6
EM C1-4
EM C1-2 (CCD)

EM
Electromechanical



60 kW, 530 Nm

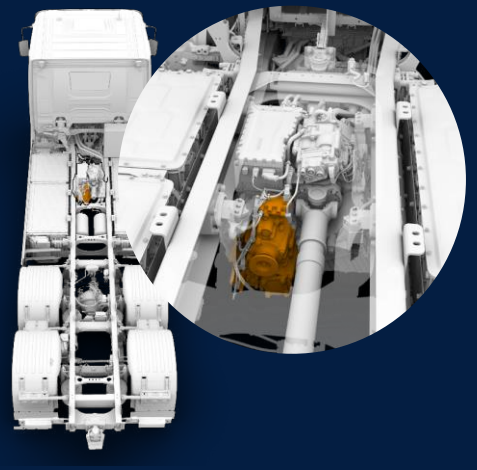
EM C1-2 (P160u) *
EM C3-6 *
EM C1-4 **
EM C1-2 (CCD) **

EG
Gearbox driven

Standstill: 260 kW, 1500 Nm
Below 45 kph: 260 kW, 1500 Nm
Above 45 kph: 30 kW, 240 Nm

EM C1-2 (P160u)
EM C3-6
EM C1-4
EM C1-2 (CCD)

EC
Mechanical, on central drive unit



Standstill: 160 kW/1000 Nm or 235 kW/1500 Nm
Maneuvering possible only on first gear

EM C1-2 (P160u)
EM C3-6
EM C1-4
EM C1-2 (CCD)

Use at standstill, parking and charging
Use while manoeuvring
Use while driving

See BodyBuilder Homepage for more info:
https://bodybuilder.scania.com/

charging

FULL ECOSYSTEM REQUIRED ALTHOUGH DEPOT CHARGING COVERS 50-85%

Charging split across applications (% energy charged)

	2035 Depot	Destination	En-route
Long-haul	50–55%	10–15%	30–35%
Regional	~60%	~20%	~20%
Urban	~75–85%	~10%	~10%
Required installed charging capacity in Europe 2035*	90 GW	15 GW	10 GW

*Industry report 2021

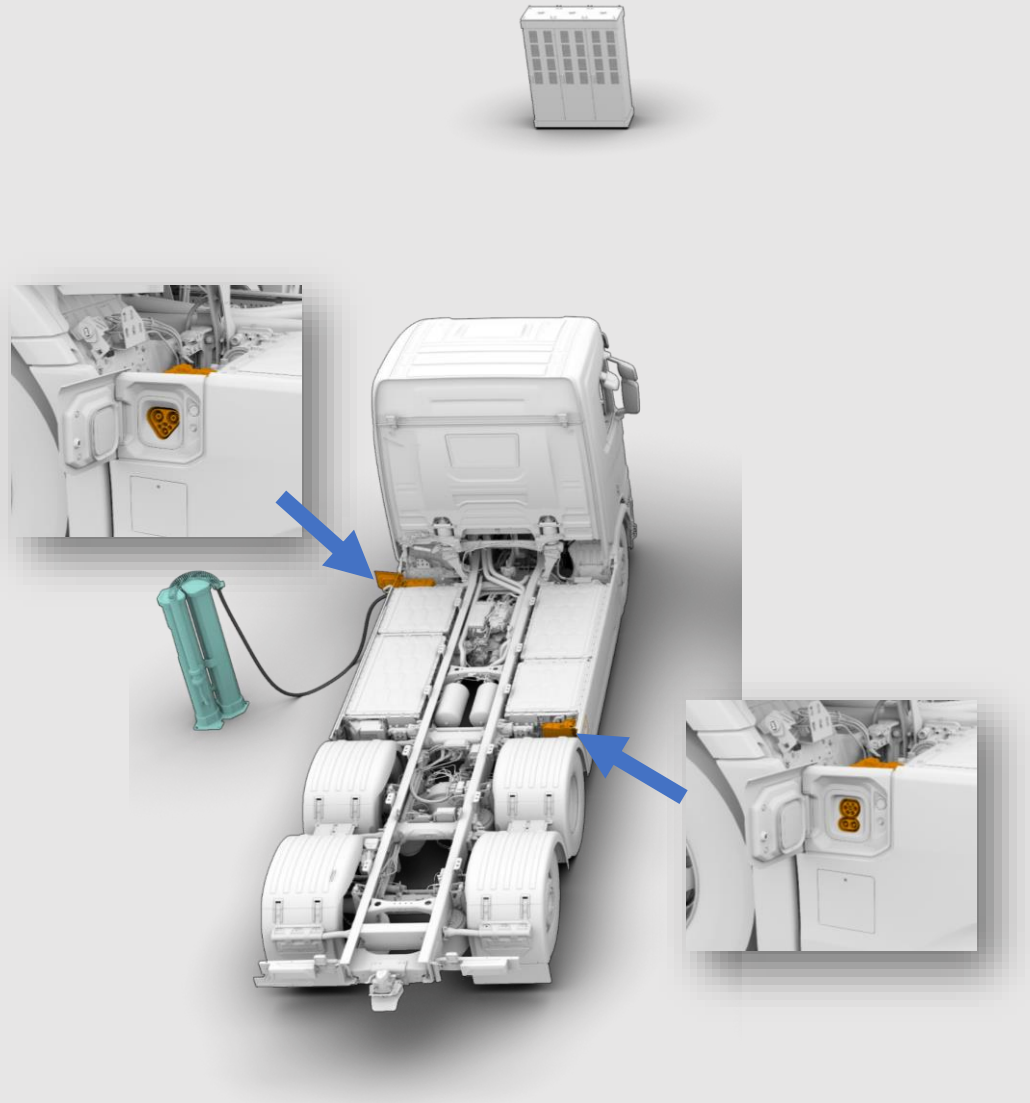
Charging Interface

MCS

- Always LHS
- MCS up to 750 kW (**1000 A 2026 >**)

CCS

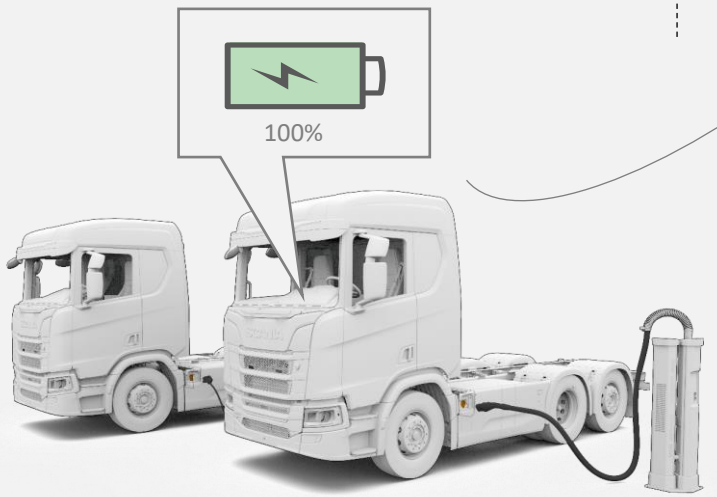
- LHS & RHS (2:nd pos. **2026 >**)
- CCS up to 375 kW (**500 A*)**
- **CCS2**

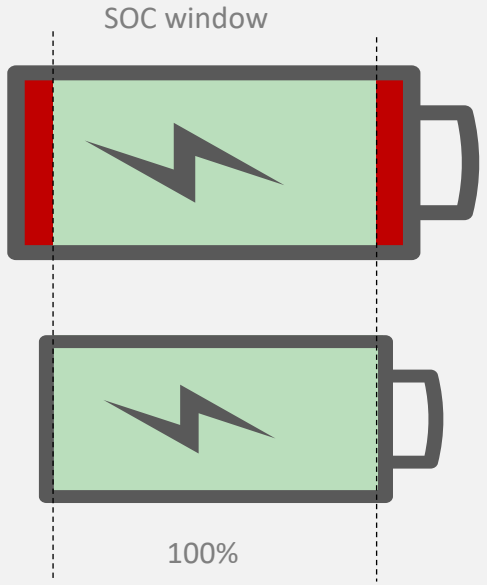


e-mobility

SoC-window

is what the driver sees





SOC window = useable SOC. SOC window is set to optimize battery lifespan and performance over time.

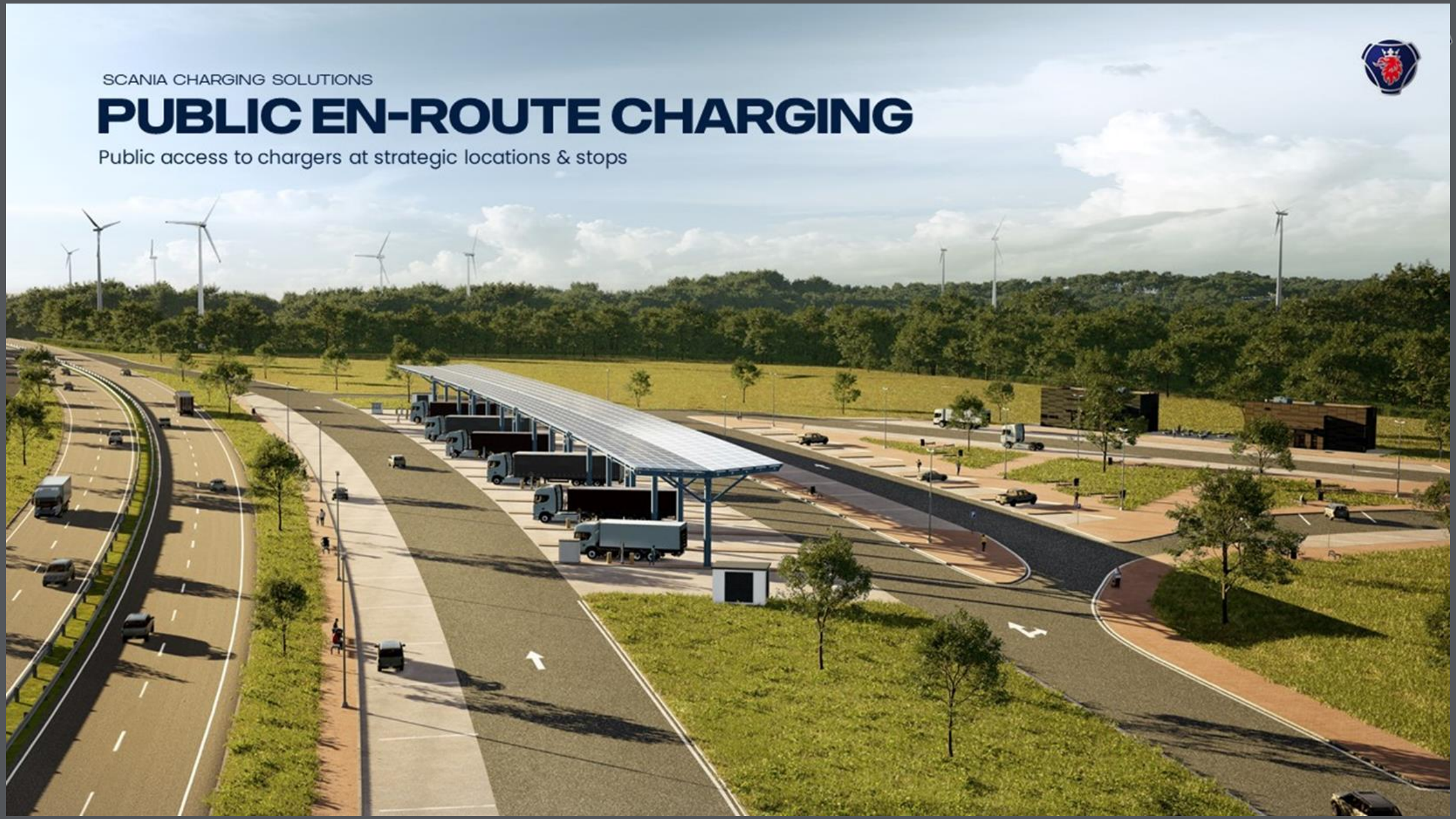
Charging compatibility

Scania vehicles needs to be *fully compliant* with following standards:

- ✓ ISO-15118 and/or DIN-70121 (communication standards);
- ✓ Chargers needs to comply with ISO-17186 identifier “L”;
- ✓ Interoperability test still needed even if charges fully-comply with standards.

Table B.2 — Identifiers for DC charging

Supply type	Standard	Configuration	Type of accessory	Voltage range	Identifier
DC	EN 62196-3	FF	Vehicle connector and vehicle inlet	50 V to 500 V	K
				200 V to 920 V	L


SCANIA CHARGING SOLUTIONS
PUBLIC EN-ROUTE CHARGING
Public access to chargers at strategic locations & stops

New Zealand - limited truck & trailer ready ness

Dedicated truck & trailer pre scheduled Charging

Depot & Destination Charging capacity must match vehicle uptime

e-mobility

The E-Trailer

Critical Part of the complete ZEV solution

The S.KOe COOL refrigerated trailer is characterised by its high practicality and transport efficiency.

System components of the e-trailer:

- **Electric cooling unit S.CUe**
  100% performance – 0 emissons with identical performance values as the proven diesel variants
- **Battery Power Pack**
  - 5-18 h self-sufficient
  - 2 h charging time
- **e-axle** charges the cooling unit battery generatively and recuperatively while driving

Electric transport cooling unit S.CU ep85

Battery in the landing gear

e-generator axle

What matters in the electrification of road freight transport

Maintaining the payload

Scarce resources (truck-trailer ratio, charging infrastructure)

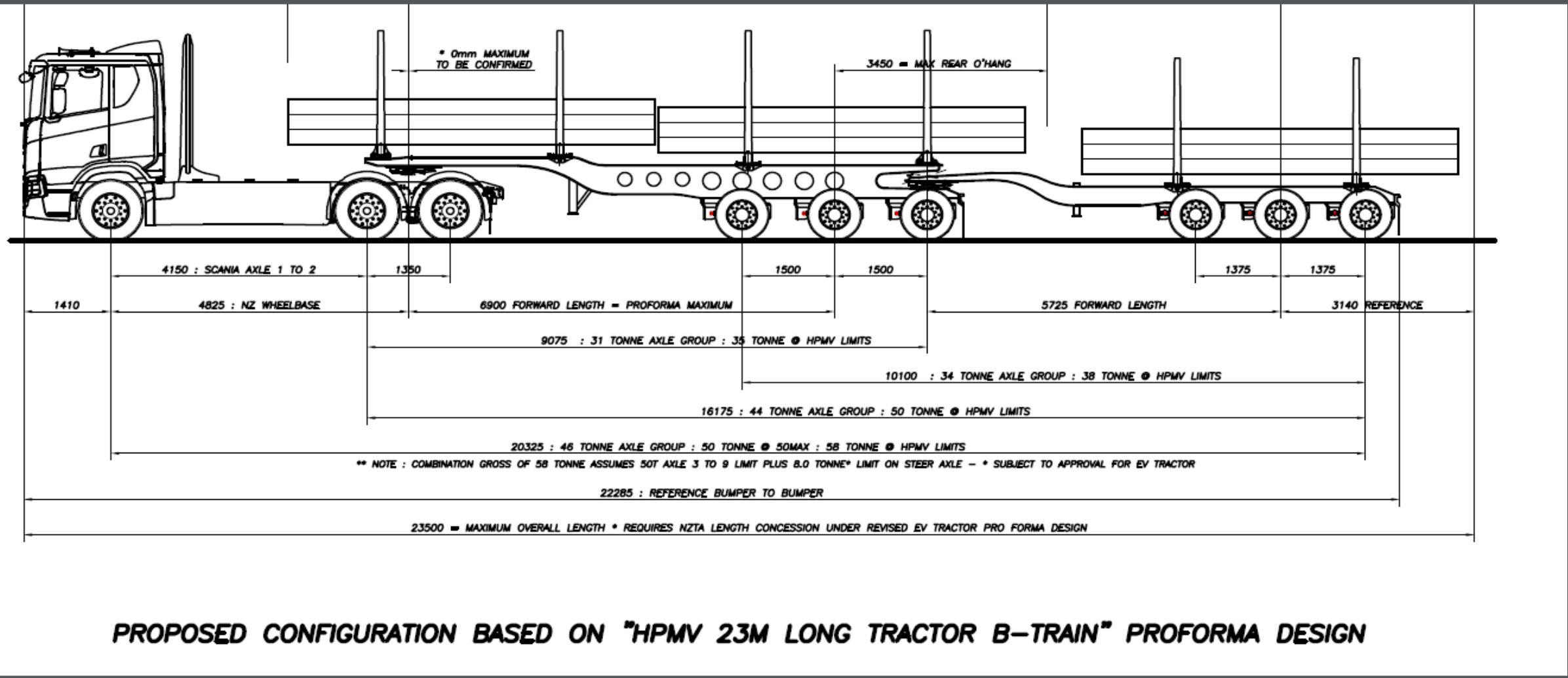
Practicality of e-trailer: trailer is independent from the truck & interchangeable

Type-approvability

Trailer is emission-free by definition


RFH 4573
SCANIA
RFH
Nº 573
45R
RKN913

Electric B-Double (High Productivity) (HPMV)



PROPOSED CONFIGURATION BASED ON "HPMV 23M LONG TRACTOR B–TRAIN" PROFORMA DESIGN

Courtesy – Patchell Industries

PBS Assessment – TERNZ J de Pont

Table 1. Performance assessment of the 23.5m EV Tractor B-train.

Performance Measure	Acceptability Level	23.5m EV Tractor B-train
Low Speed Swept Width (m)	Less than 6.95	6.84
Tail Swing (m)	Less than 0.3	0.07
Frontal Swing (m)	Less than 0.75	0.59
Steer-Tyre Friction Demand	Less than 0.50	0.40
Steady State Low Speed Swept Width (m)	Less than 5.20	4.95
High Speed Offtracking at 0.2g (m)	Less than 0.46	0.36
High Speed Offtracking at 0.25g (m)	Less than 0.68	0.51
Static Rollover Threshold (g)	Greater than 0.35	0.35
Dynamic Load Transfer Ratio	Less than 0.6 (0.7)[1]	0.40
Rearward Amplification	Less than 2	1.91
High Speed Transient Offtracking (m)	Less than 0.6	0.34
Yaw Damping Ratio (%)	Greater than 15	27

All the high speed performance measures are well within the permitted levels, and the vehicle should perform well in this regard. The vehicle was modelled with a worst-case SRT value. In practice, the SRT is likely to be higher, and the vehicle's high performance will be better still.

Based on the information provided, the analysis shows that this vehicle combination does achieve all the PBS requirements and there is no technical reason why it should not be permitted to operate as an HPMV. However, the tractor does require an exemption from the HPMV axle weight limits and the combination requires permission for the load rear overhang to exceed the 23m overall length limit.

A Fraction to Much Friction

- BEV energy Consumption much higher than average European Markets
- Increased axles use of Super Singles and Dual tires on Trailers have significant impact energy consumption

- Aerodynamic Friction – in the truck Trailer spacing due to wheelbase increase to accommodate current proforma’s and off set front axle loadings.
- Larger cabs and comfort levels difficult to achieve due current Front axle legislation
- Availability of Energy tires and new Sizes to market limits range.
- Chip Seal – Coefficient of Friction versus smooth asphalt impacts range
- VDAM is insufficiently flexible on Lift and rear steer axles to reduce friction

Barriers to uptake in NZ

- Range anxiety versus Diesel , Vehicle productivity & income due to Battery Payload loss.
- total cost of ownership concerns
- Front Axle Legislation – Forward Distance requires to be increased for realistic on-board battery / range capacity
- Overdue Vehicle Dimension and Mass review to suit ZEV including development of E-Proforma's in consultation with industry i.e TTMF
- Permitting regime i.e Route Controlling Authorities RCA's
- Fragmented consultation approach to Government by various lobby groups
- Frequent change of Transport & Energy Ministers and policies.
- Road User charger Settings
- Unclear policy for Zero Emission heavy Vehicles long term
- Fast Route Charging for heavy Trucks still realistically in infancy stages
- Electricity Constraints to fast Depot Charging 400 KW > MCS
- Electricity Price and Related Line tariff charges

SCANIA

digital services

Digital Scania BEV Control

BEV CONTROL PACKAGE

WHAT IS INCLUDED?

- Monitoring Report
- Service Planning
- Fleet Position
- Vehicle Performance
- Driver Evaluation
- Scania Zone
- Data Access
- Check before drive
- Charging Services