

HULTSTEINS ❄

HYBRID REFRIGERATION
BOOST PROFIT- SLASH CO₂



OVERVIEW

- ▲ Hultsteins - Company
- ▲ Current diesel engine TRUs
- ▲ Hultsteins - Products manufactured
 - *Hydraulic fridge*
 - *Ecogen Cost saver*

HYDRAULIC SINCE 1962

1944 Company started by Filip Hultstein.

1959 Manufacturing of the first TRU.

1962 **Manufacturing of the first hydraulic TRU.**

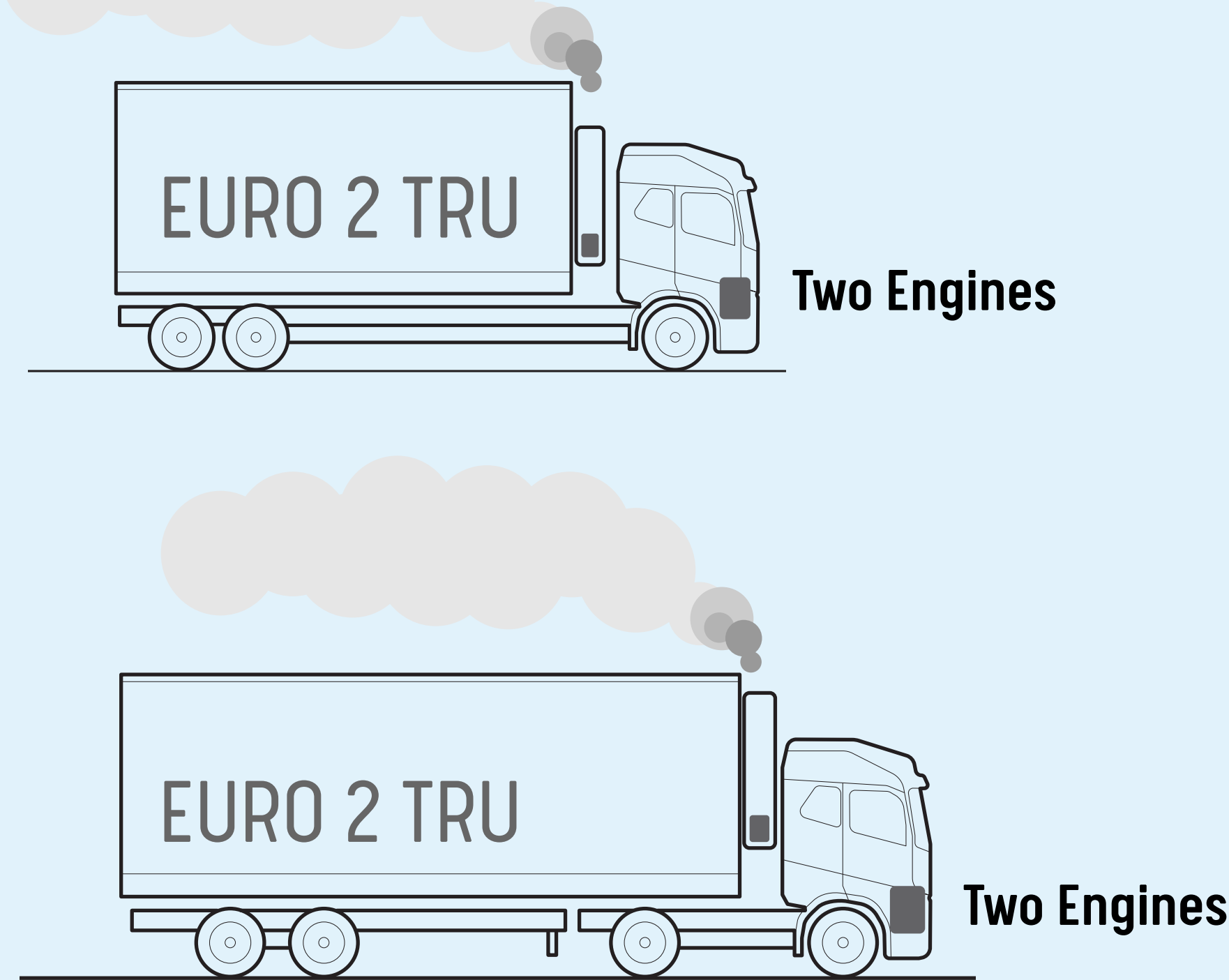
2014 Holtback Group acquires Hultsteins.

2019 Hultsteins UK formed.

2022 **Ecogen Costsaver – launched.**

Standard builds

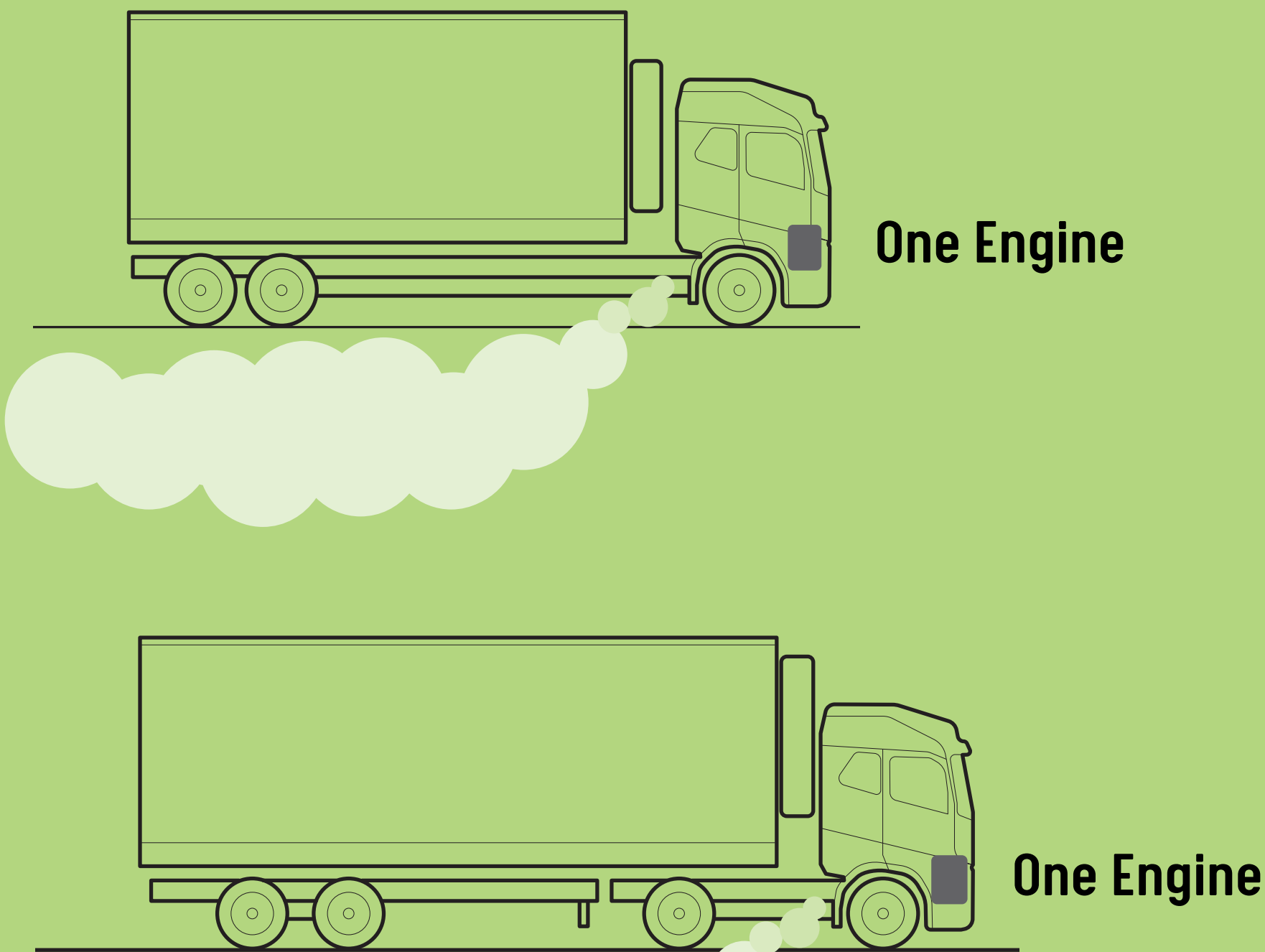
TWO-ENGINE TECHNOLOGY



Unregulated emissions emitted from diesel systems at a high level pollute the surrounding area.

Hultsteins vision

ONE-ENGINE HULTSTEINS TECHNOLOGY



Euro 6, CNG, LNG, Electric - regulated emissions are less harmful and dispersed at ground level.

CURRENT TRU DIESEL ENGINES

- ▶ TRU diesel engines are somewhere between 20 - 30% efficient.
- ▶ **Modern Euro 6** truck engines are somewhere between 45 - 50% efficient.
- ▶ **TRU Diesel engines are noisy** and although some effort has been put into noise reduction. The majority of TRU diesel engines will not comply with PIEK low noise levels (60db measured at 7.5m).
- ▶ **Maintenance**- diesel engines will require more servicing and spare parts as the unit ages.

PARTICULATES AND EMISSION

- ▶ All diesel TRU's in operation today have no facility for capturing DPM & NOX. These are emitted directly into the atmosphere.

- *A diesel TRU emits approximately 200 times more fine particles of DPM per km driven in comparison to a Euro 6 engine.**
- *A Euro 6 truck with a diesel TRU running will emit approximately 4 x more NO_x per km driven than one without.**

**ZEMO - Development of emission. Testing for TRUs, June 2019.*

HULTSTEINS – PRODUCTS

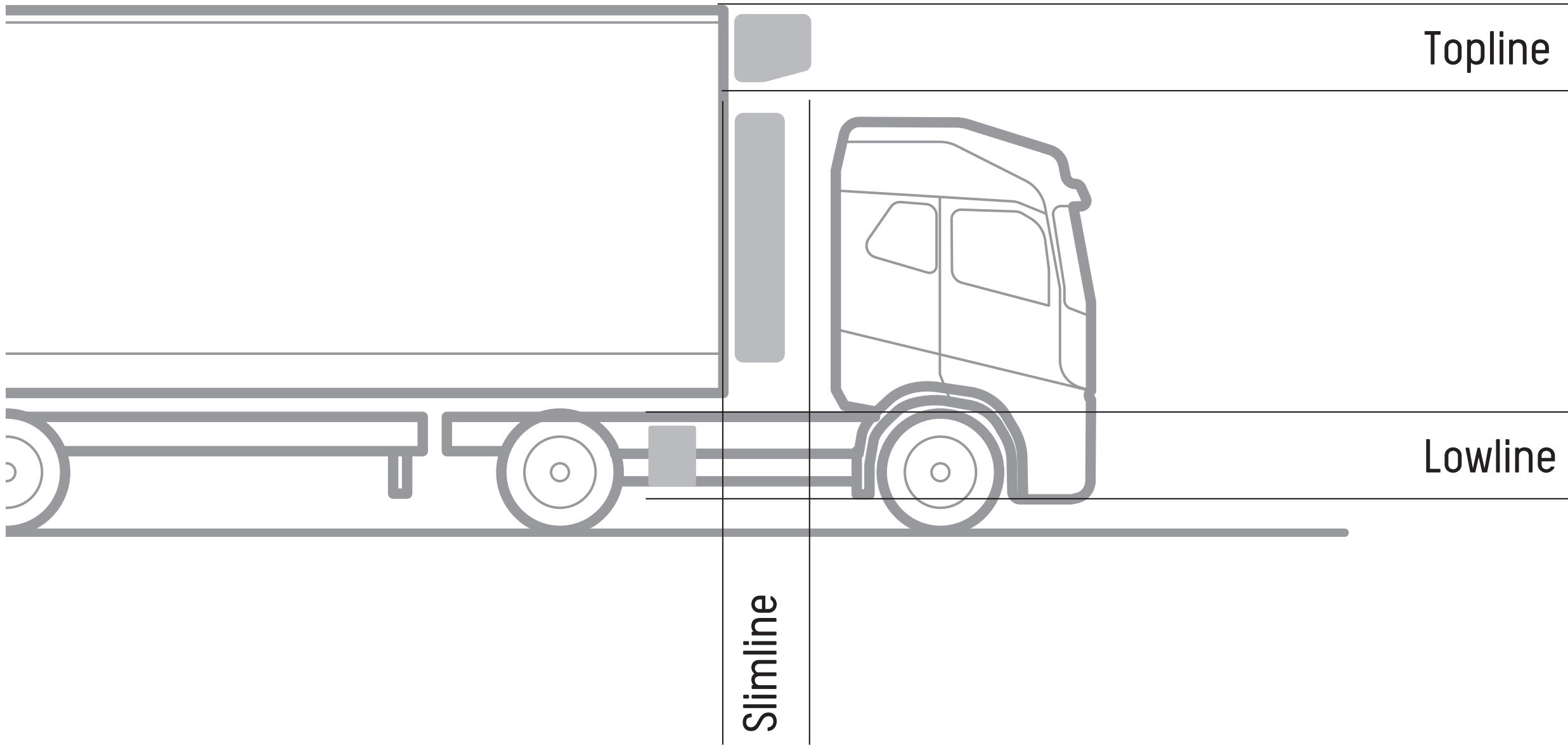
Hydraulic driven Fridges



Ecogen



FRIDGE RANGE



Topline



Slimline



Lowline



ECOGEN COST SAVER - TRANSITIONING TO AN ELECTRIC FUTURE



Lowline



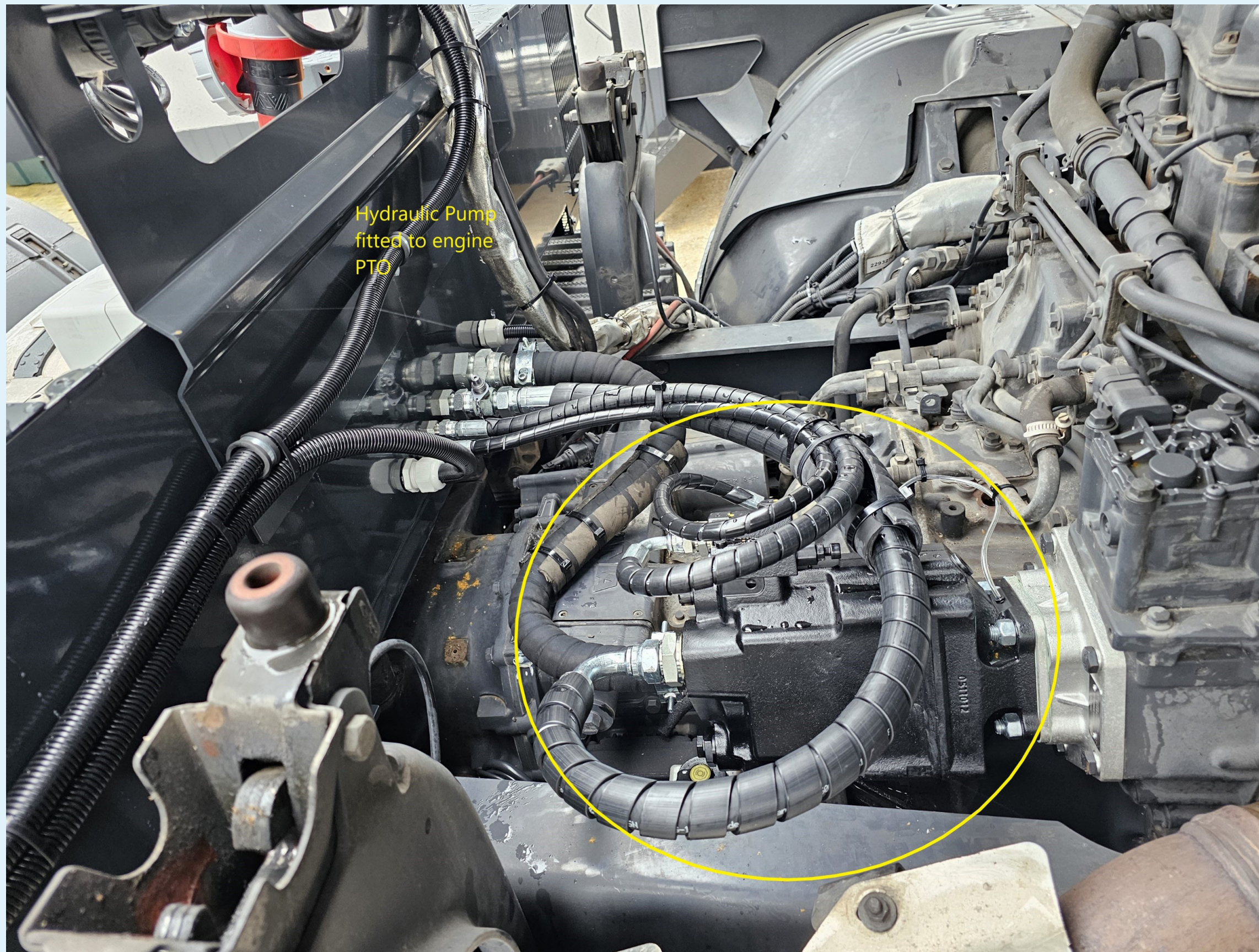
Slimline

PTO – PARASITIC POWER

LIVE DRIVE PTO

Timing gear in all
Scania/Volvo/Renault tractor engines.

- ▶ Easy Retrofit.
- ▶ Standard option on all marques.
- ▶ Engine load – 3 stages.
 - Off 5 liters per minute.
 - On not generationg power.
 - On generationg power.



ECOGEN SLIMLINE/LOWLINE

- fits to any 6x2 truck unit diesel/LNG/CNG

1 Ecogen Slimline/Lowline

2 Euro 6 engine/LNG/CNG

3 Full Fridge Capacity
even at Idle - supplies
400 V @ 50Hz.

- ▶ All internal parts are the same.
- ▶ Easily swap parts into new frames.
- ▶ Ensures the Ecogen is usable for 10-12 years no matter what chassis is purchased.

OPERATION - LCD DISPLAY - TELEMATIC



Touch screen LCD Display.

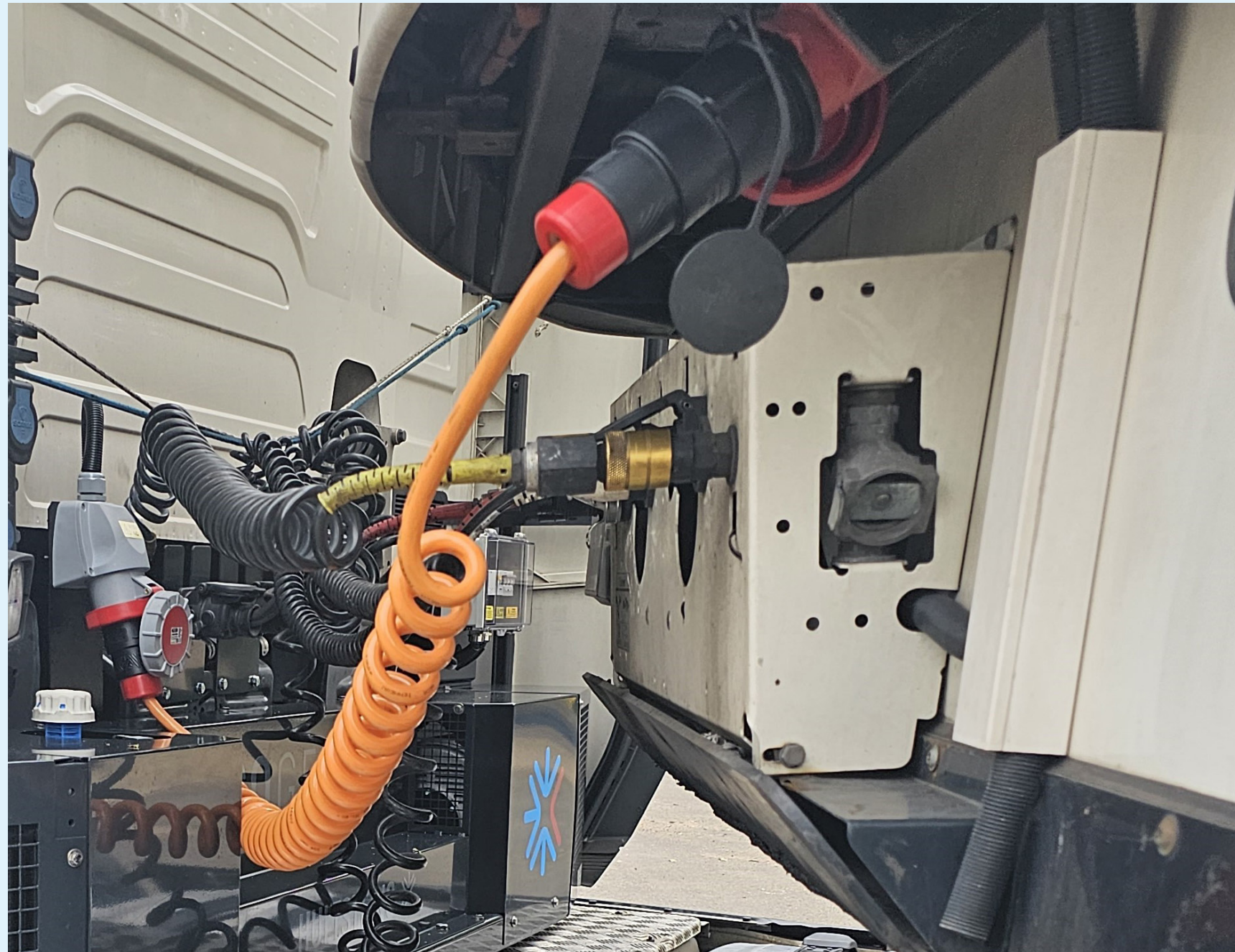
- ▶ Run time
- ▶ Alerts
 - High oil temp
 - Low oil



Optional telematics.

- ▶ On time
- ▶ Run time
- ▶ Carbon saved p/h
- ▶ Tracking
- ▶ Alerts
 - High oil temp
 - Low oil

CONNECTING TO FRIDGE



- ▶ **3 phase coiled 32 Amp cable.**
 - uses universal 5 pin plug.



- ▶ **Option**
 - Sliding coupling boxes.
 - Change over switch for plugging at rear of trailer.

BENEFITS OF ECOGEN COST SAVER

- ▲ 70-85% saving on diesel.*
- ▲ 70-85% carbon reduction.*
- ▲ 98% saving on DPM.
- ▲ Massive reduction in NO_x.
- ▲ Reduced noise.
- ▲ Low R&M costs.
- ▲ Reduces diesel engine maintenance costs.
- ▲ Extends fridge diesel engine life.
- ▲ Designed for long working life.
- ▲ Easily swaps onto different vehicles.
- ▲ Fits to all truck engines fitted with PTO.
- ▲ Runs all Thermoking, Carrier, Frigoblock Schmitz, Mitsubishi & Daikin Fridge units.
- ▲ Charges Lithium battery packs in transit.

** Based on running a diesel TRU.*

GENERAL 6X2 TRACTOR – FRIDGE OPERATION

100,000 MPA operating at 10 MPG average

0.2 MPG loss for running PTO Ecogen.

204 gallons = 928 litres
£1.30 P/L = £1,206 per annum

GROSS SAVINGS PER ANNUM PER TRACTOR
£8,540

Tractor on 24 cycle coupled to fridge and fridge running 7 hours per day, 51 weeks per year.

7 x 7 = 49 hours per week
49 x 3.0 litres P/H = 147 litres diesel burnt per week
147 x 51 = 7,497 litres diesel burnt per annum
7,497 x £1.30 P/L = £9,746 P/A
Extra tractor diesel (£1,206)
Nett saving on fuel = £8,540 P/A

CARBON SAVINGS PER ANNUM PER TRACTOR
17.4 TONNES

5 YEARS – CARBON SAVED 87 TONNES

Tractor

FIT 1 ECOGEN TO TRACTOR

- Transform all fridges to electric fridge when coupled.

Budget cost £ 16,000

30 TRACTORS with Ecogen

– cost £ 480K

New fridge options for Diesel TRU's

- ▶ Electric Fridge powered with solar panels & batteries
- ▶ Thermoking/Carrier Electric Fridge powered with batteries and charged via axle electric alternators.
- ▶ **Additional cost over and above diesel variant approx £40,000 extra.**

Retrofit options for existing Diesel TRU's

- ## ▲ Batteries - charge via solar & grid

Budget cost each £ 30,000

50 trailers @ 30k – cost £ 1.5 Million

50 trailers @ 40k – cost £ 2.0 Million

Note - Above prices are extra cost over and above diesel fridge.



Cool Move Logistics
Scania 6 x 2





HULTSTEINS ✱



Thank you!
What questions
do you have for me?