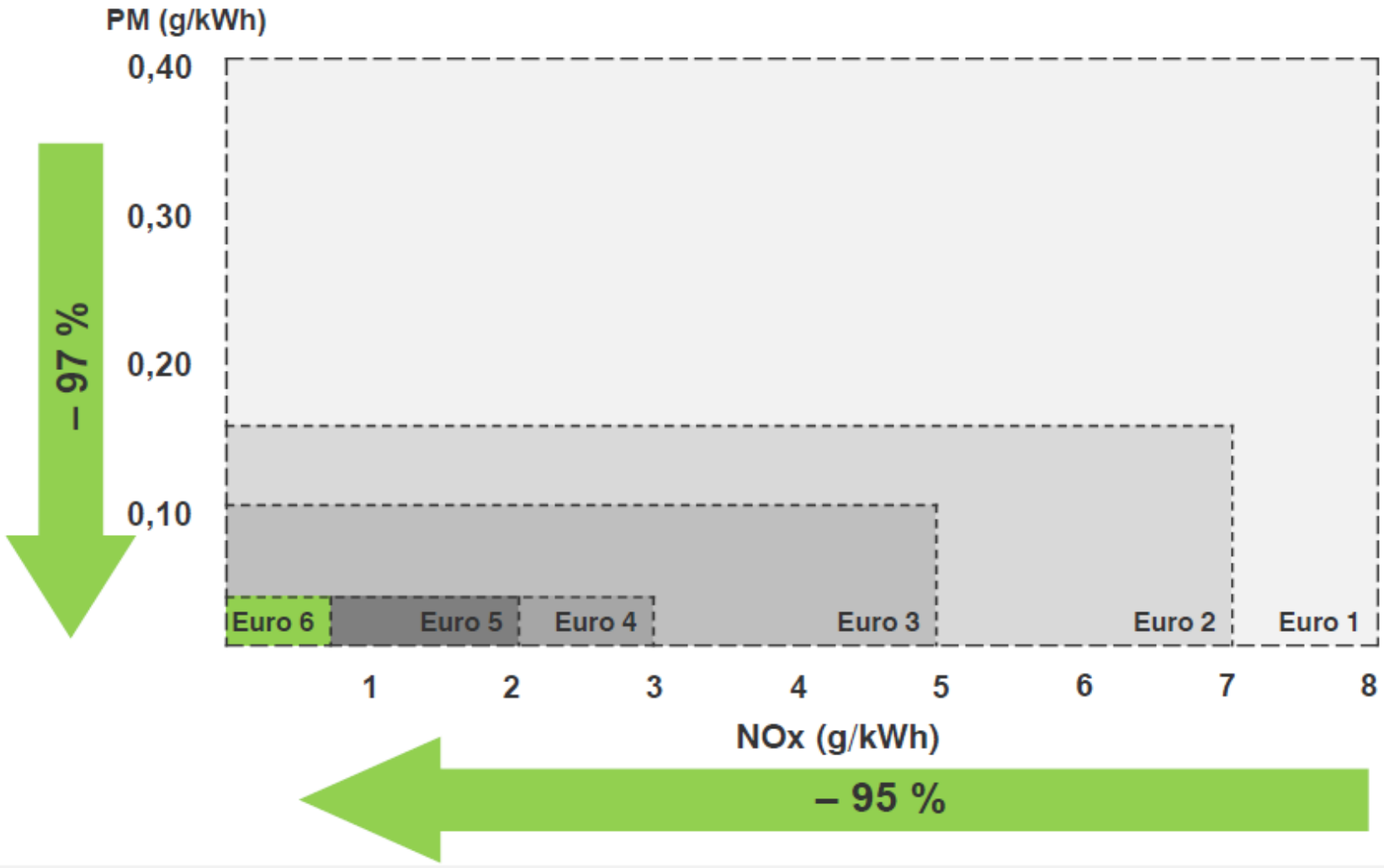

FUTURE
START

# Topics

- Emissions, where we have come from
- What is driving the change in technology
- What we wish for
- The Alternatives are ICE, Electric, BEV and Fuel Cell
- Future emission legislation: forcing the change
- The perfect trucks are factory built

# Big reductions been achieved

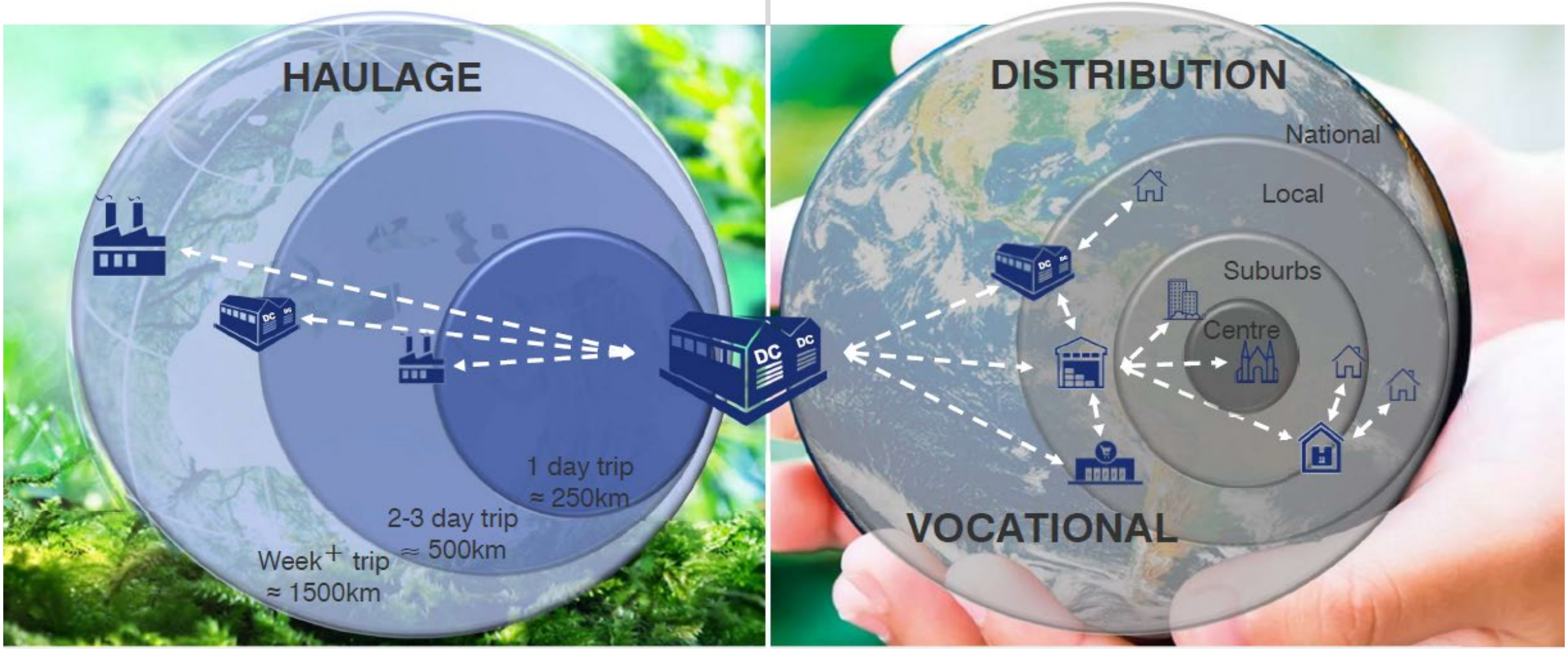


# **GLOBAL** WARMING

CO2 EMISSIONS

# **LOCAL** AIR QUALITY

PM AND NOx EMISSIONS and Truck Noise

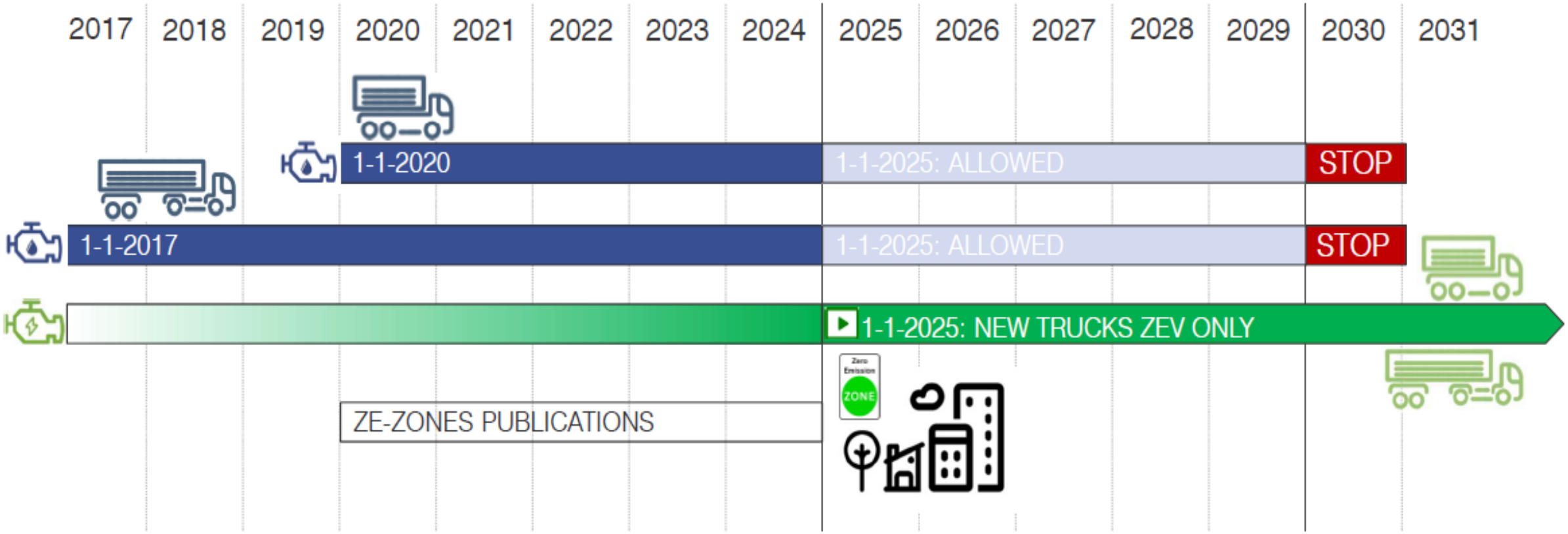


# What we wish for

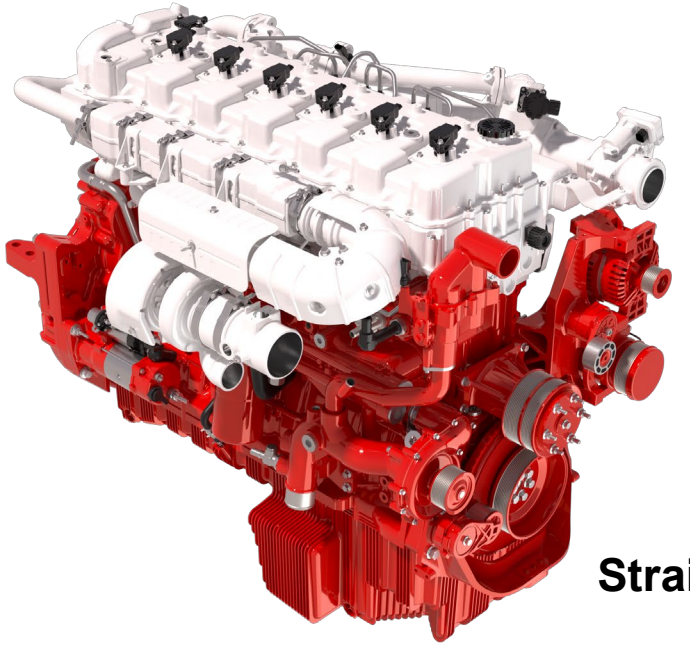
- Affordability, durability and performance

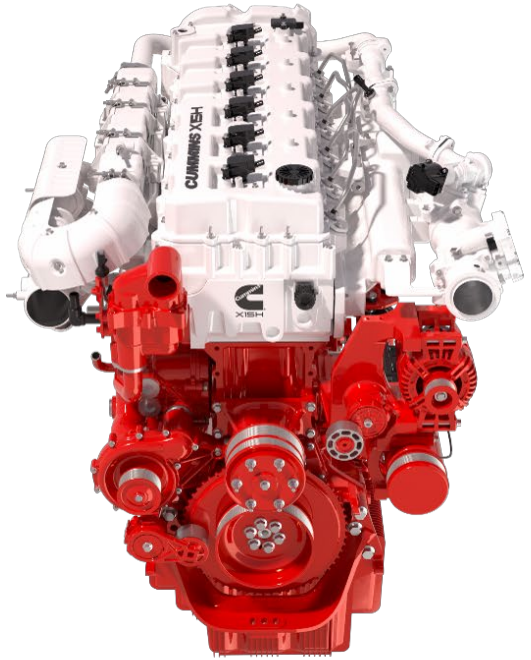
- Legislation cures the issue:
- Forces development
- Forces customer demand
- Amortize the development cost over high volume production

# Euro PROPOSAL ZERO EMISSION ZONE ACCESS



# The Path of Least Resistance for Hydrogen

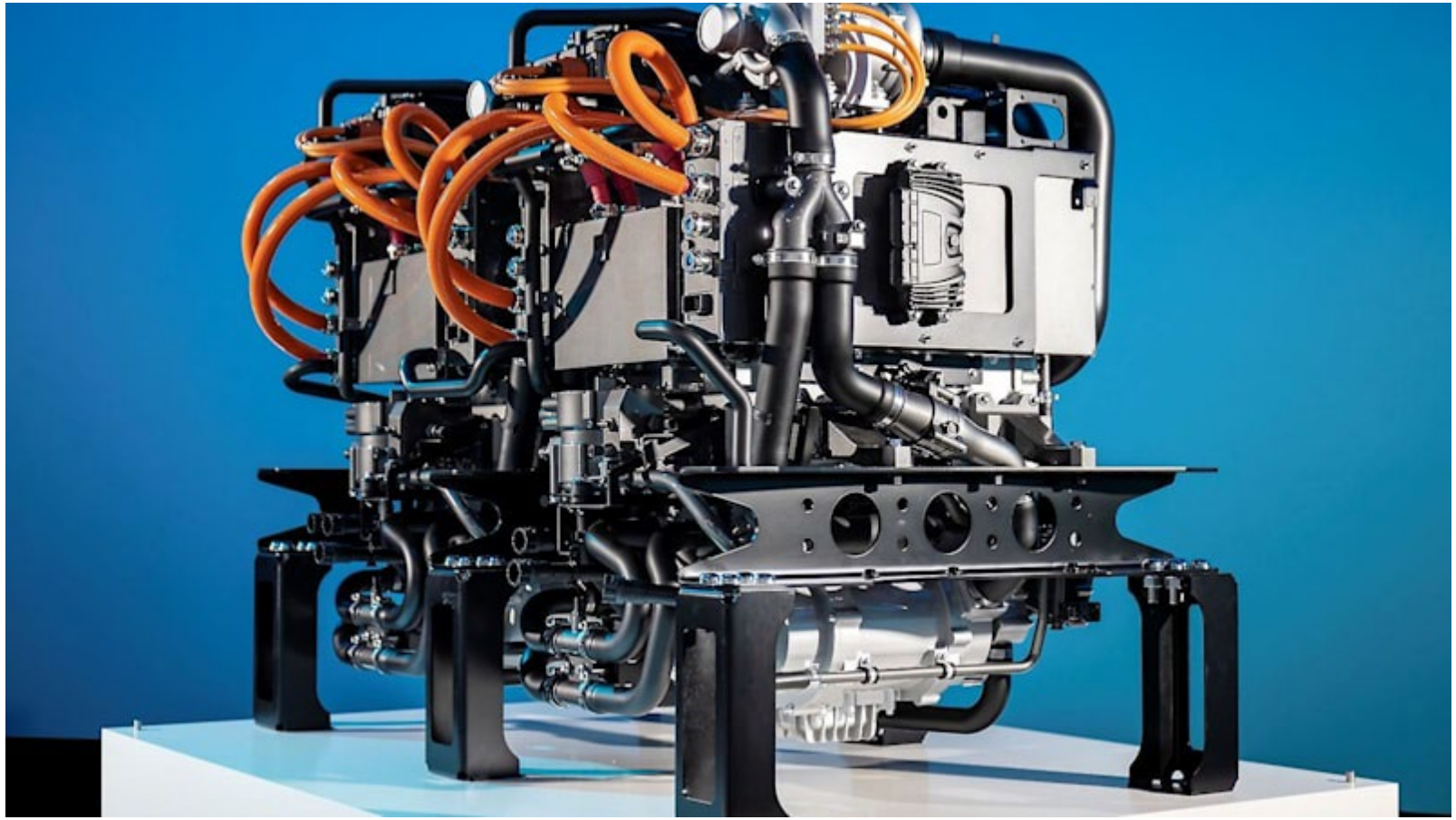





**Straight forward**

- All the bolt on work, power steering, air brakes, PTO’s
- Creates the demand for fuel production

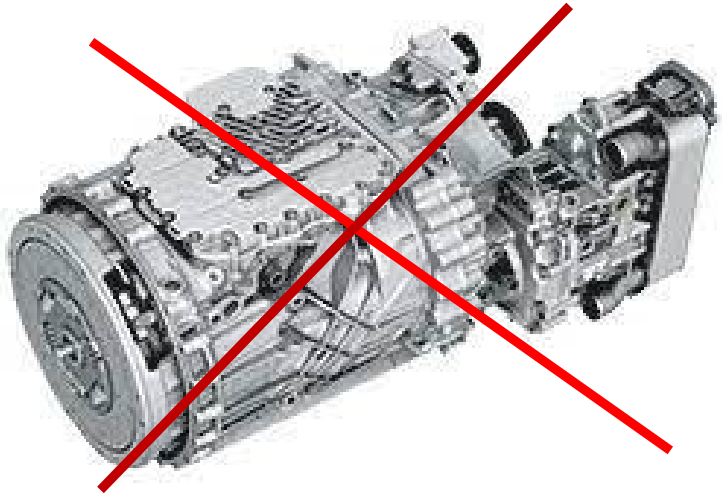
# Hydrogen Fuel Cell

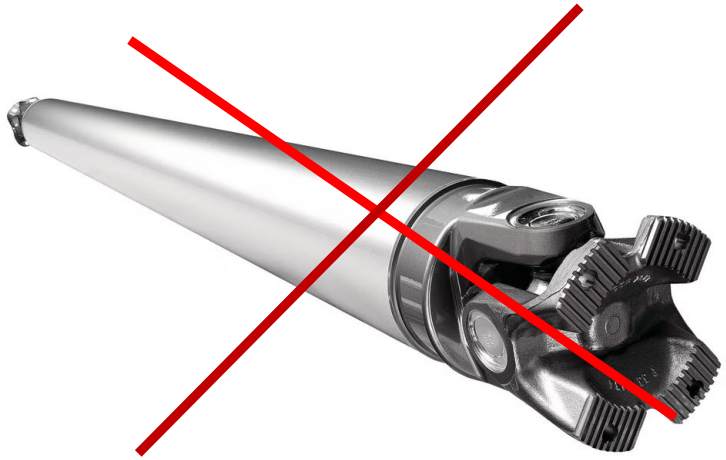


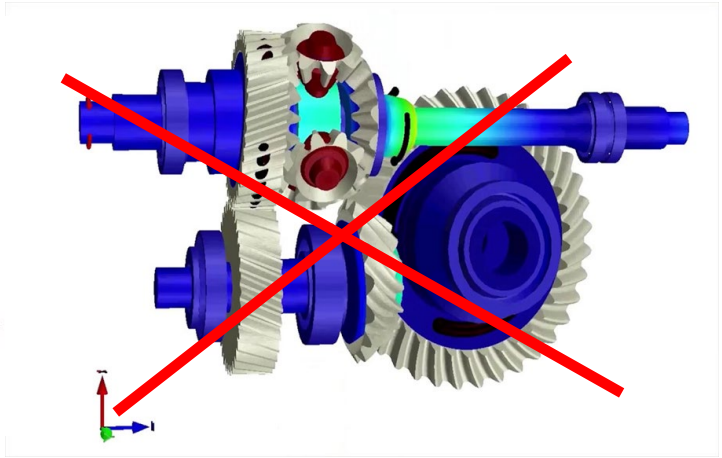
**Generate an enormous amount of power**

- Good weight to performance ratio
- In time will become affordable and it is low maintenance

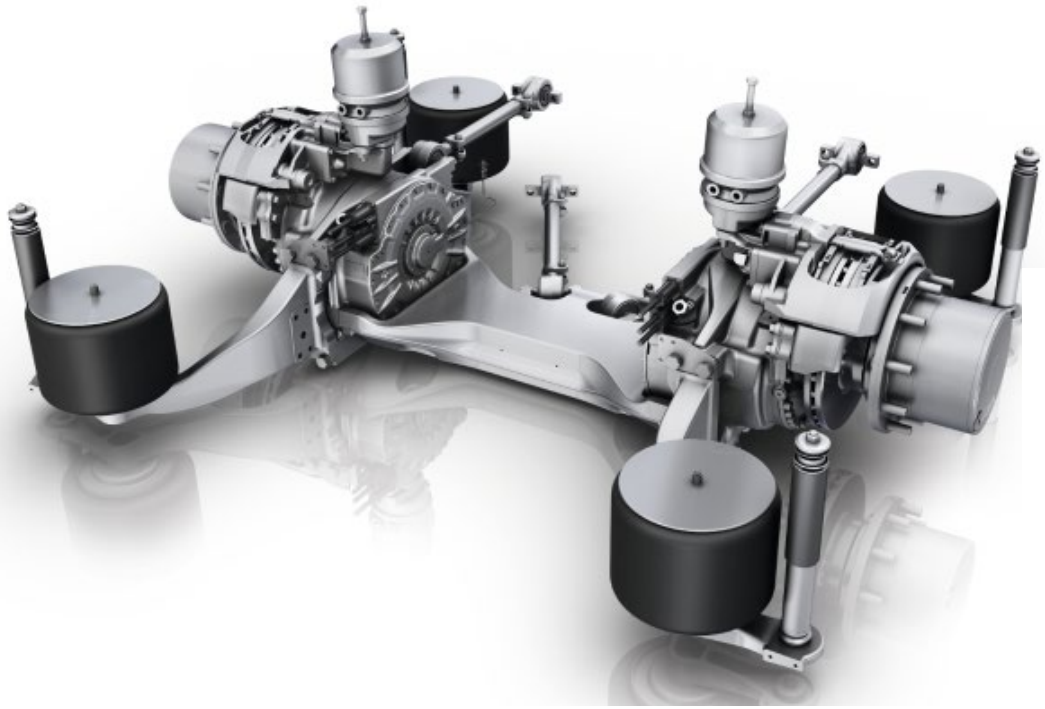
# Traditional Driveline - goes





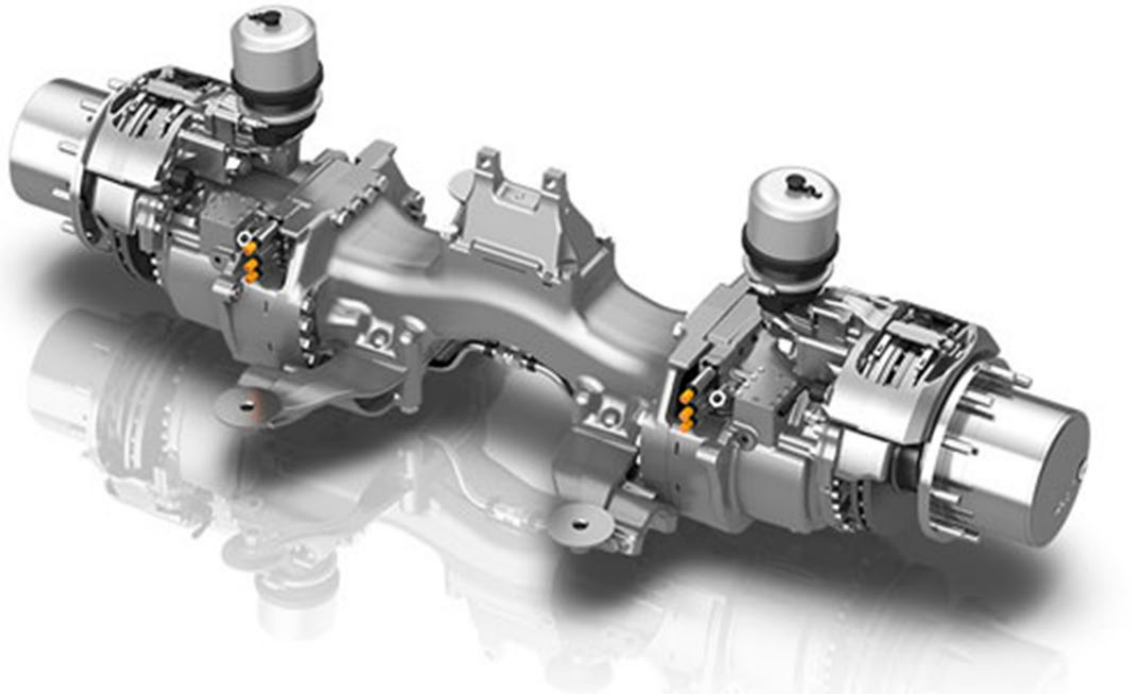


# Electric Truck & Trailer Axles

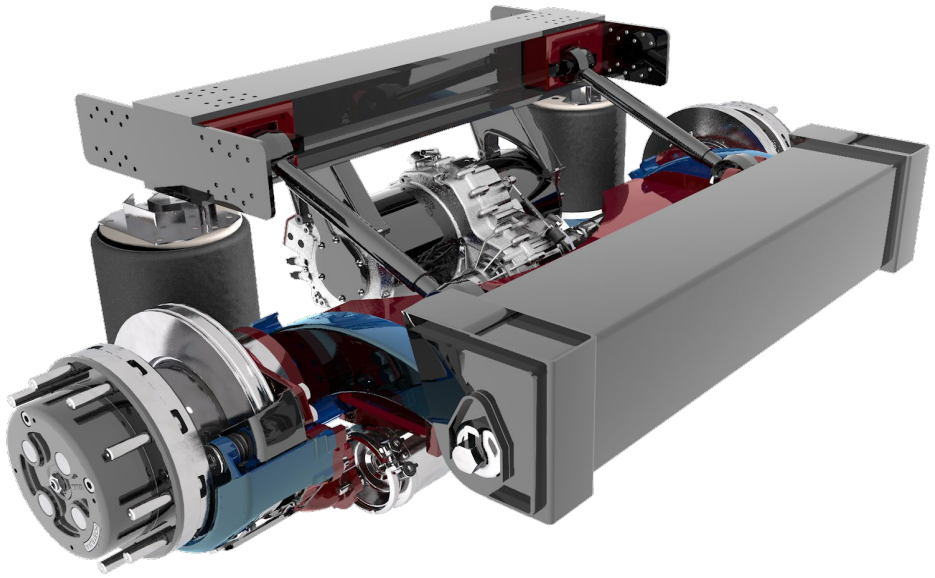


**Integrating the electric motor into axle**

- Removes the clutch, transmission, drive-shafts and geared axles.

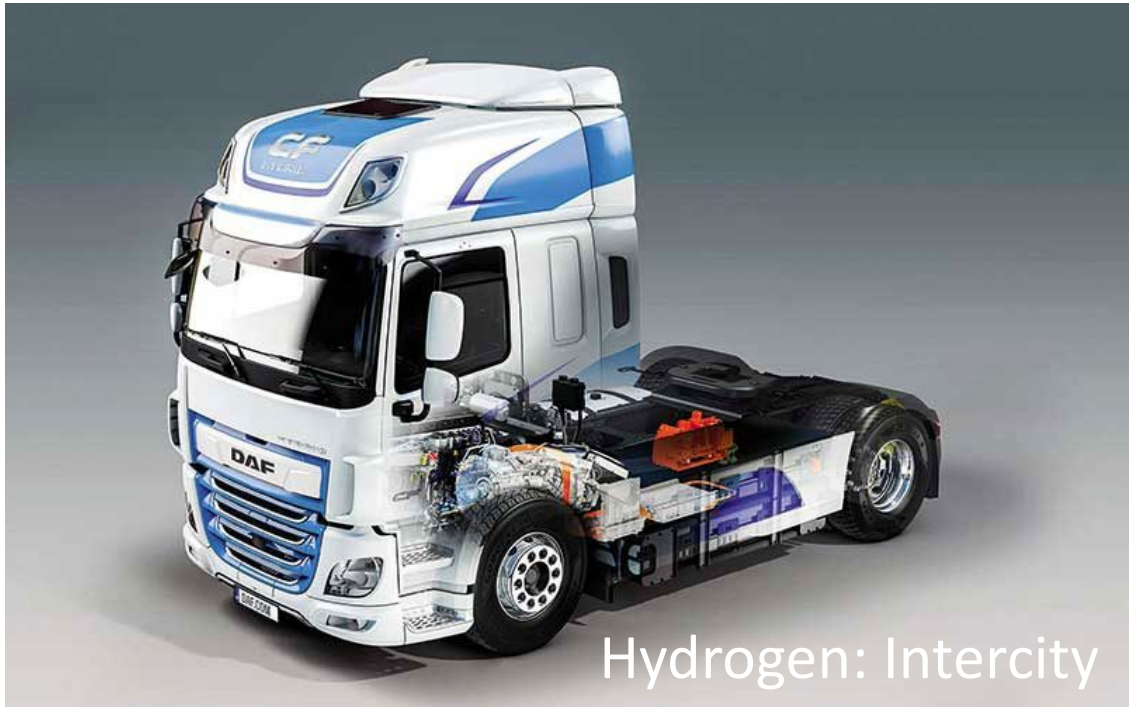


# Putting The HP On The Tarmac



- With hydrogen electric, trailer axles can be powered.
- Energy is re-generated on braking, charging the trucks battery

# The affordable solutions will be factory built





**ICE**
**BEV**
**Fuel Cell**

- Factory built
- Electric drive & trailer axles
- With a fuel cell


DAF