AGCO
Your Agriculture Company

AGCO Power Future Technology

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INDUSTRY-LEADING FULL LINE PORTFOLIO

FENDT

Fendt is the leading high-tech brand for customers who demand nothing but the best quality from machines and services.

GRAIN & PROTEIN

Grain & Protein is built on brands committed to helping farmers, managers and integrators nourish a growing population by preserving more of the grain they produce and optimizing conditions for healthy livestock production.

MASSEY FERGUSON

Massey Ferguson offers a straightforward and dependable experience providing the best value for farmers around the world.

Precision Planting

Precision Planting provides practical and effective precision agriculture technologies to help farmers continuously improve their operations.

VALTRA

Valtra stands out in the industry with easy-to-use, highly customizable tractors, offering reliability, durability, versatility and high-tech smart features.

30 YEARS

1990 - 2020

1990
AGCO is founded on June 20

1993-1994


AGCO gains rights to Massey Ferguson

1997


AGCO acquires Fendt

2001-2002


AGCO acquires Challenger and enters application equipment market with the acquisition of TerraGator and RoGator

2004


AGCO acquires Valtra

2011


AGCO acquires GSI

2013


AGCO launches Fuse

2017


AGCO acquires Precision Planting

2018


AGCO launches Digital Customer Experience (DCX) program

2019


AGCO Grain and Protein is formed

2020
30 YEARS 1990 - 2020

Celebrating 30 Years in Business

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AGCO IS THE LARGEST PURE PLAY FARM EQUIPMENT MANUFACTURER IN THE WORLD

1990

Year Founded

~$12.7B

Annual Revenue(1)

$9.9B(2)

Market Cap ($M)

Technology-Rich Products Across the Crop Cycle

~23,000

Global Employees

Multi-brand Focus:

FENDT

GRAIN & PROTEIN

MASSEY FERGUSON

Precision Planting

VALTRA

(1) Projected 2022 Net Sales
(2) As of December 14, 2022

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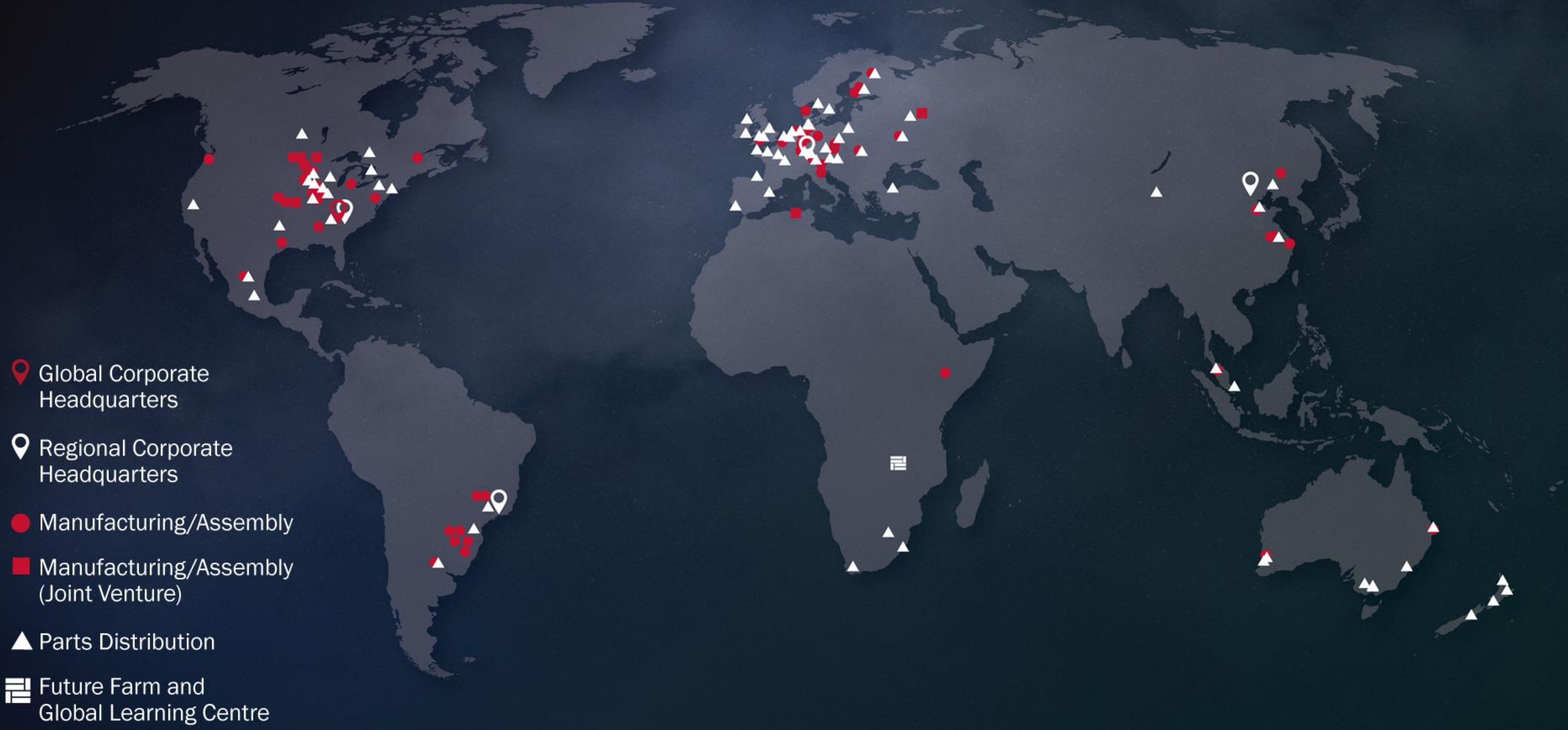
GLOBAL
PRESENCE



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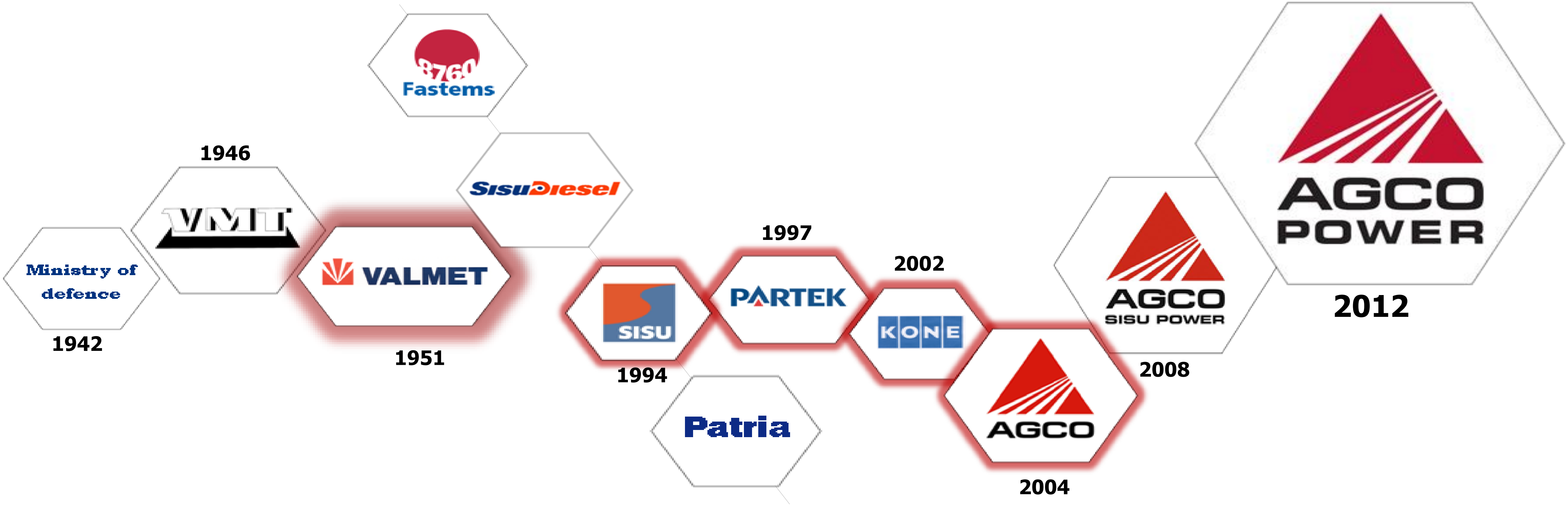
AGCO POWER
80 YEARS HISTORY IN INDUSTRY



AGCO POWER

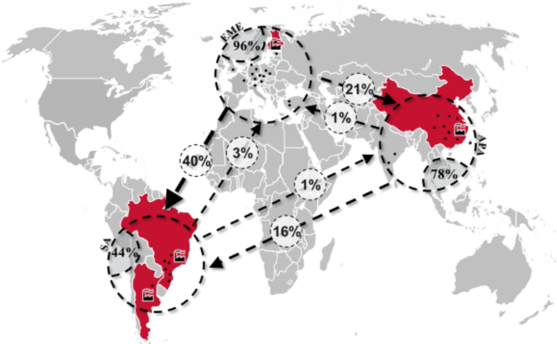
AGCO POWER
FOUR ENGINE FACTORIES

Linnavuori, Finland

Changzhou, China

Mogi das Cruzes, Brazil

General Rodriguez, Argentina



AGCO POWER FINLAND

- Engines, Transmission Components, Generating Sets
- Founded 1942
- ~900 Employees
- Focus on HD Tier 4f / Stage V engines for regulated markets in Europe and the US
- Cylinder Block, Cylinder Head and Housing Machining, Tube manufacturing, Valve mechanism Manufacturing, Gears Manufacturing
- 2022 production volume 27 400 Engines
- Re-Manufacturing of engines (ab 1,500 units/a)
- **Engine engineering in AGCO centralized to Linnavuori**
- **Global Purchasing for engines components**
- **Global product and manufacturing management and sales**

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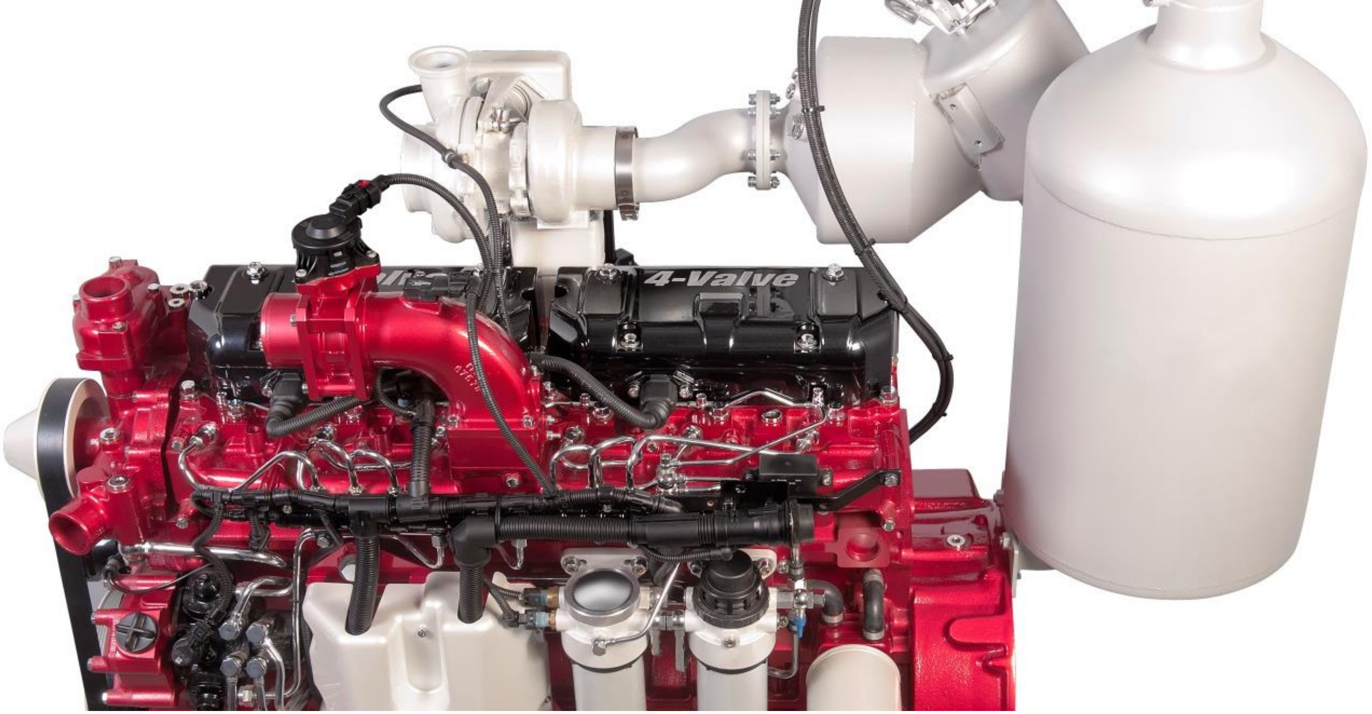
AGCO POWER PRODUCTS

- **HD and MD Engines**
  - Power range 56 – 500 kW
  - All global emission levels
  - Global capacity > 100,000 engines
- **Generating Sets & Pumps**
  - Diesel generators (60-1500 kVA)
    - OEM and std products
  - Service / Renovation
  - Diesel pumps (35 – 275 kW)
- **Transmission Components**
  - Global AGCO Power engine gears
  - AGCO transmission components (Valtra almost 100%)
  - Whole manufacturing process in-house
  - Capacity 1,3 million components



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AGCO Power engines

Power range 56-360 kW

3-CYLINDER


33MD


33HD

4-CYLINDER


44MD


44HD

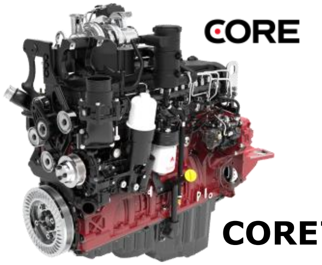

49HD

New CORE model production starts in 2023

6-CYLINDER


66HD


74HD



CORE75


84HD

Power for OEM brands

Our growing market

Power for OEM brands

Our growing market

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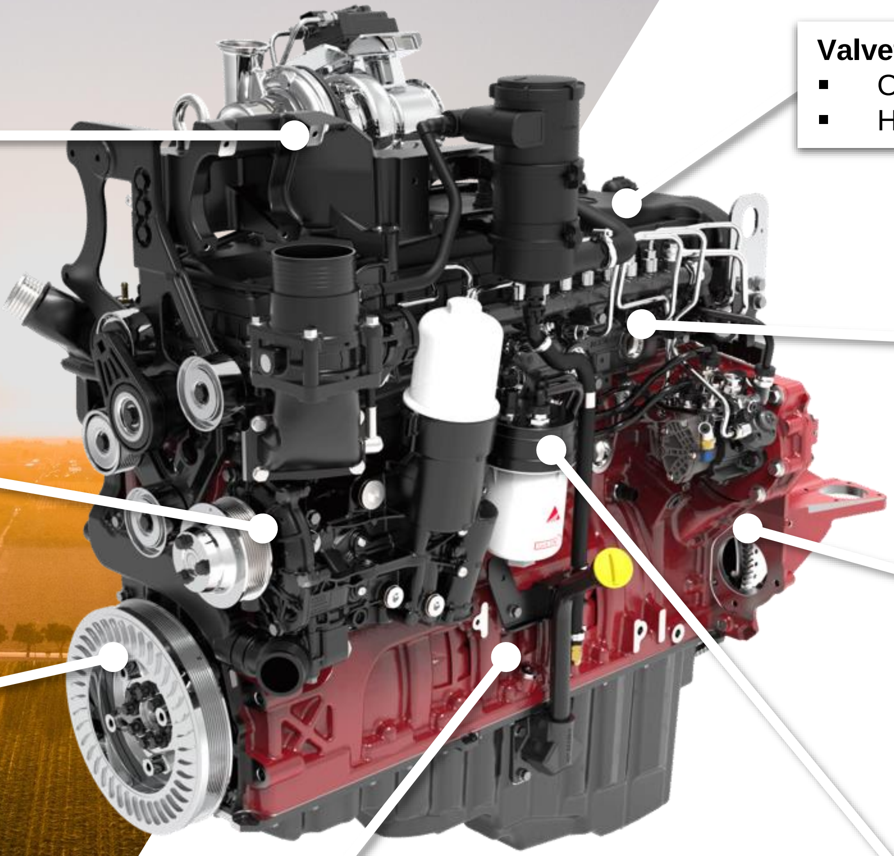
AGCO Power CORE

Modern diesel engine

- High performance
- Low speed concept
- Excellent fuel economy
- Great engine response
- Less complexity
- High reliability
- Up to 10% CO_2 reduction

Platform for future technologies
e.g. alternative fuels, electrification

AP75 DESIGN OVERVIEW



Air system:
- eWG turbocharger
- Intake throttle valve
- Electric grid heater
- CCV

Cooling & Lubrication
- Integrated water-/oil module
  - ✓ Water pump
  - ✓ Oil cooling/filtration
  - ✓ By-pass -/ regulating valves
- Sleeve type thermostat

Cranktrain
- Robust cranktrain for high torque
- Aluminum pistons
- Front PTO (100%)

Crankcase
- Parent bore (bore diam.110mm)
- Rigid cyl.block design
- Enables also structural tractor installation

Valvetrain
- Overhead camshaft
- Hydraulic lash adjustment

Cylinder head
- Robust and rigid design
- 4 valves / cylinder
- Integrated intake manifold

Geartrain
- Rear positioned geartrain
- Integrated gearcover/FW housing
- PTO (optional)

FIE
- 2000 bar common rail system
- Main filter engine mounted
- Bowl & cartridge fuel filter (service interval 1000h)

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Battery Electric Tractors

- Battery Electric is a good solution for low power rating tractors

- In 80-119 HP tractor category Battery sufficient to **cover 55%** of all

- Todays Battery technology does not provide sufficient autonomy for mid and high power range tractors

- Tractors >300 HP would need a battery which would weight >10tons and cost >300k€ i.e. not feasible

Fendt e100 Agritractor

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Drivers of Development

- ❑ US Tier 5 (2028, CO2 -5% to -8%)
- ❑ EU Stage VI (2030+, CO2 -15%)
- ❑ AGCO CO2 reduction target (SBTi / Internal targets)
- ❑ Electrification
- ❑ Farmers First
  - ➢ **TCO**
  - ➢ **Performance**
  - ➢ **Efficiency**
  - ➢ **Fit for Purpose**

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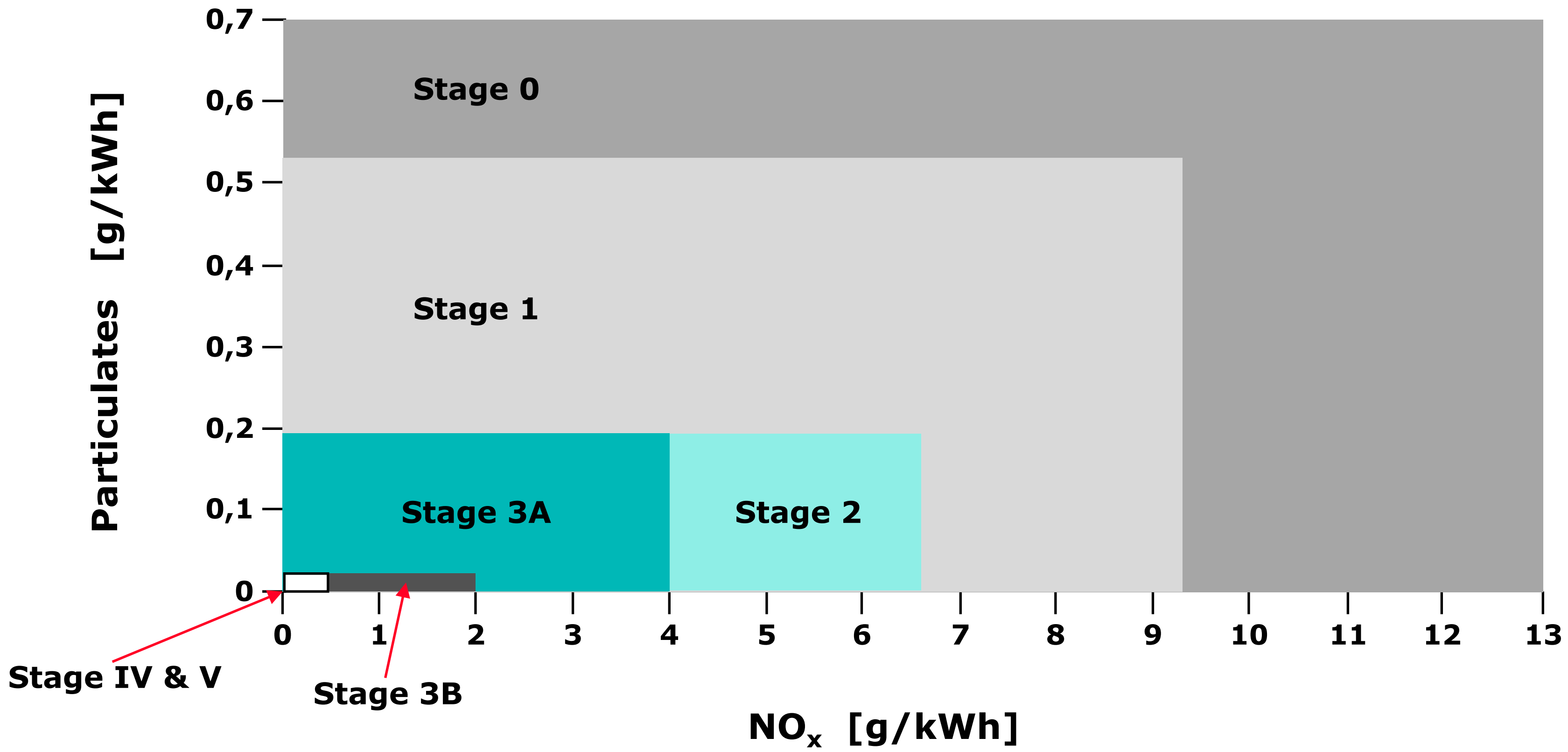
Powering the cleaner future

Due to the development of exhaust aftertreatment technology, engine emissions have dropped to just a fraction of what they were in 2009.

Stage V particulate number (PN) limit *) forces to use Diesel Particulate Filter

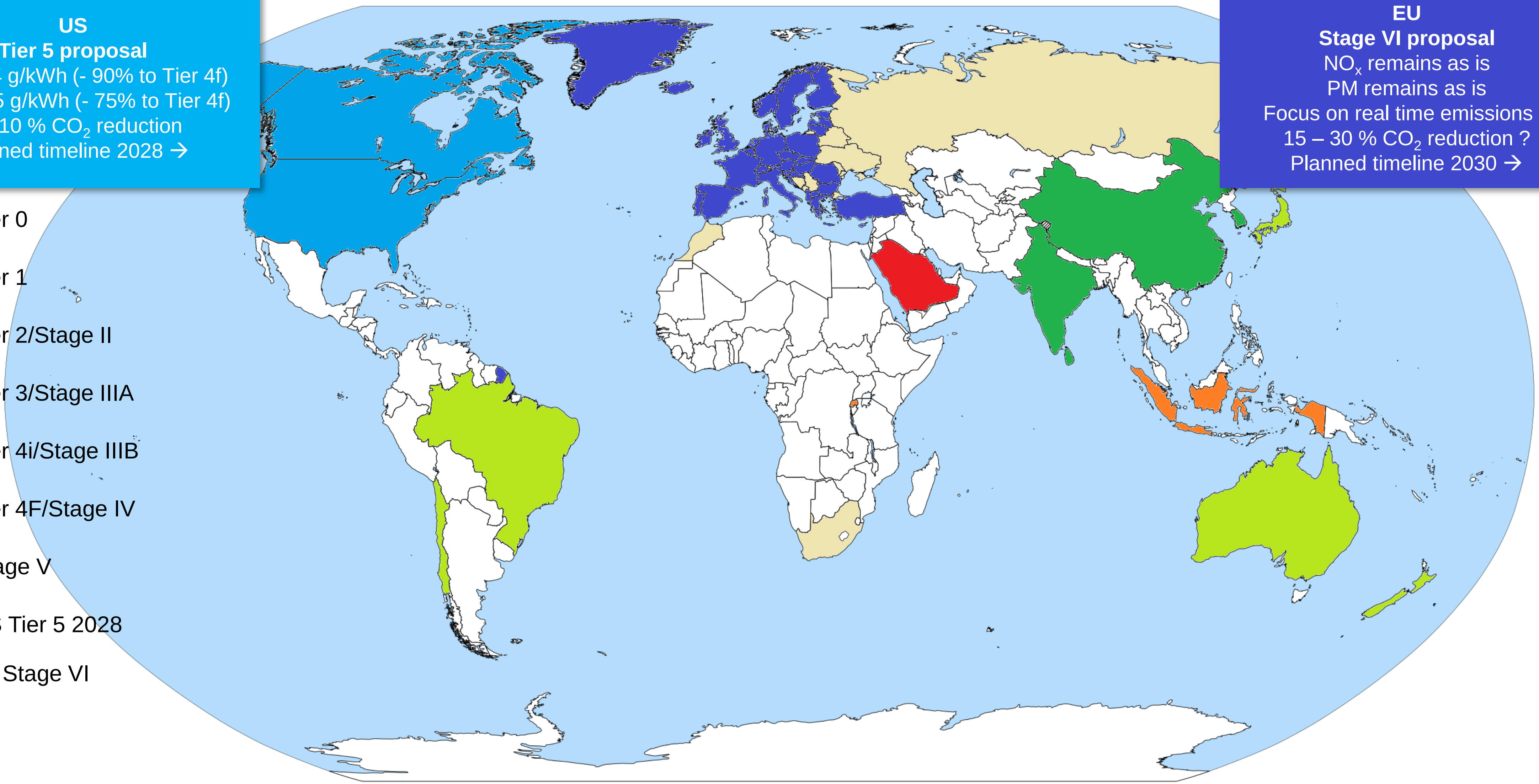
*) = $1*10^{12}$ PN/kWh, for particles > 23 nm



FORECAST GLOBAL EMISSION REGULATION ~ 2028 to 2030

US
Tier 5 proposal
NO_x 0,04 g/kWh (- 90% to Tier 4f)
PM 0,005 g/kWh (- 75% to Tier 4f)
5 – 10 % CO_2 reduction
Planned timeline 2028 →

EU
Stage VI proposal
NO_x remains as is
PM remains as is
Focus on real time emissions ?
15 – 30 % CO_2 reduction ?
Planned timeline 2030 →



- Tier 0
- Tier 1
- Tier 2/Stage II
- Tier 3/Stage IIIA
- Tier 4i/Stage IIIB
- Tier 4F/Stage IV
- Stage V
- US Tier 5 2028
- EU Stage VI

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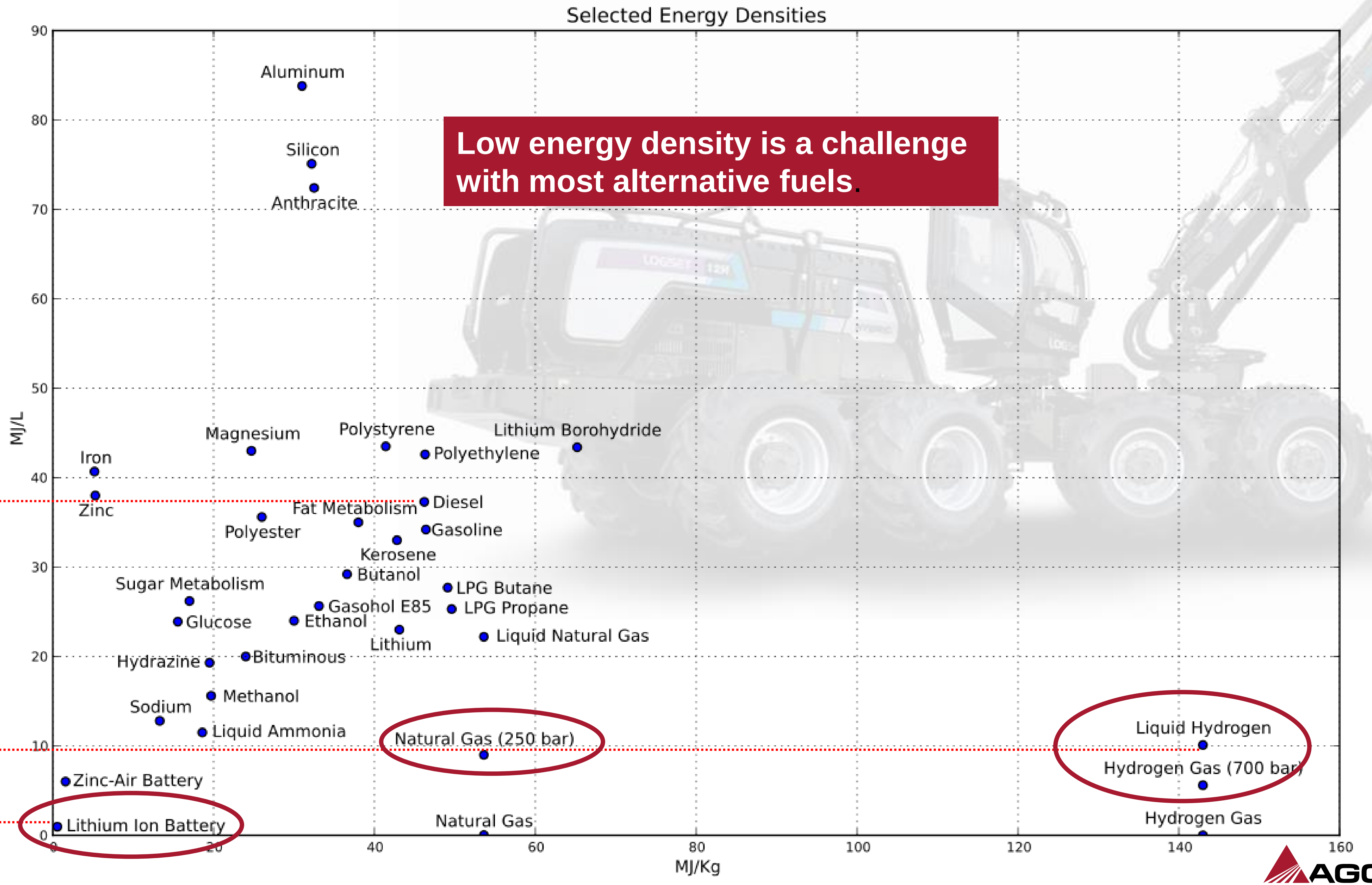
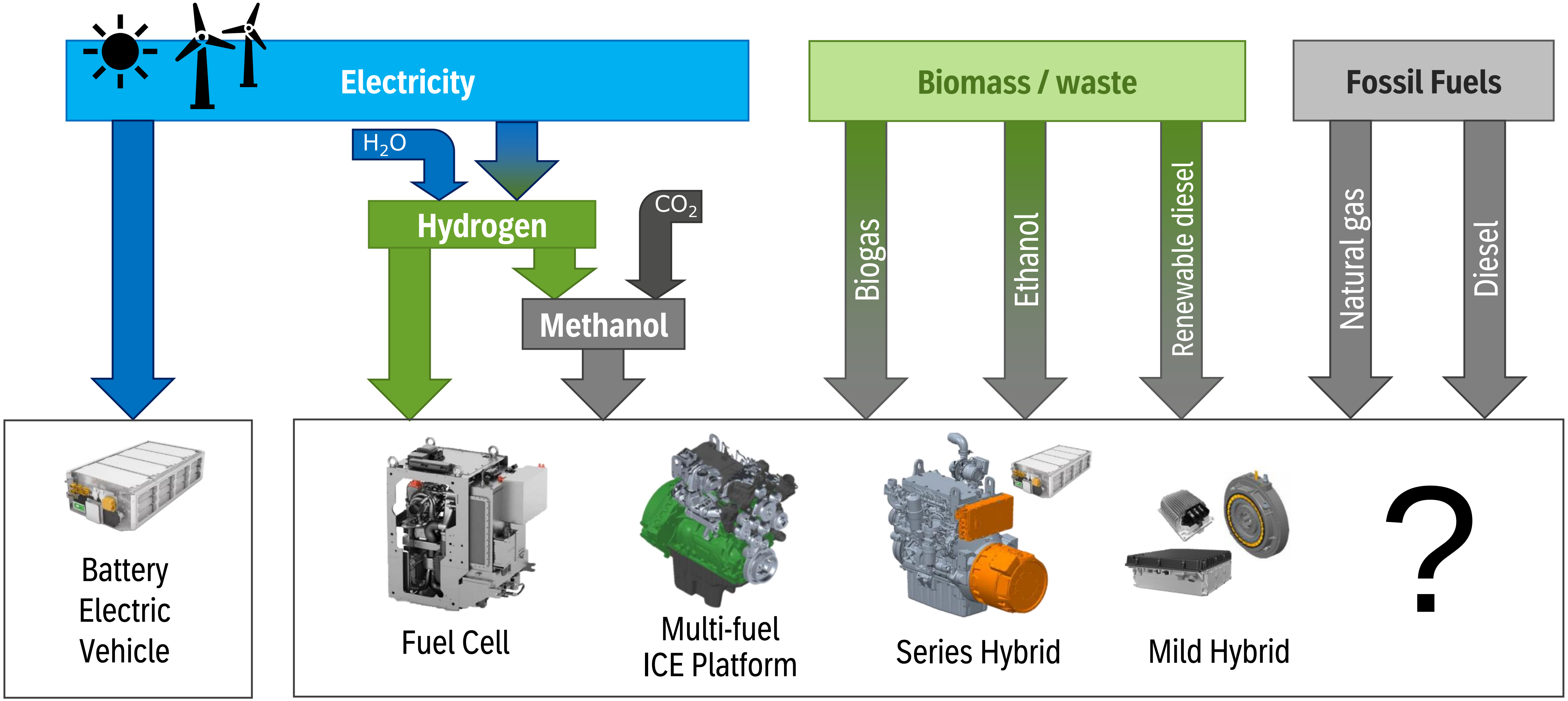
Low energy density is a challenge with most alternative fuels.

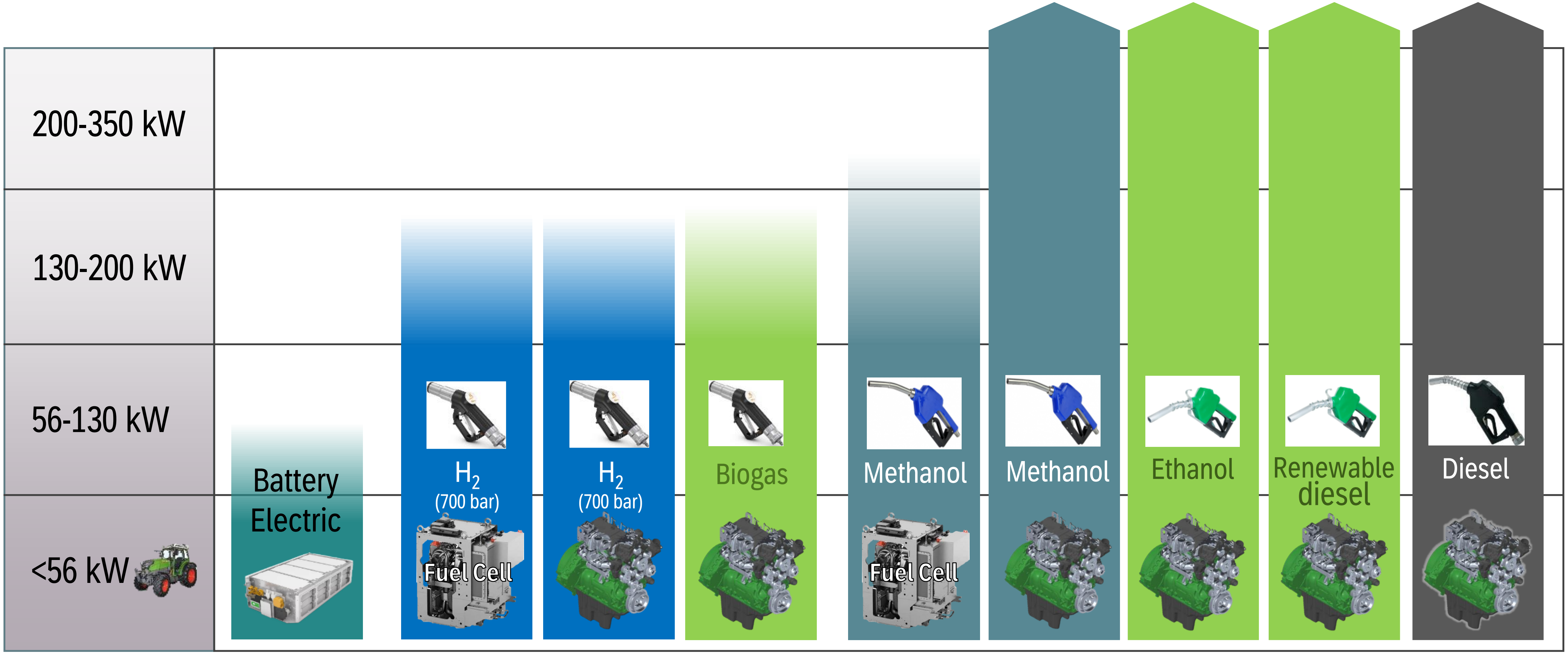


H_2 / CH_4

Potential Power Sources for Agriculture



Future Technology Options for Agriculture



- Technology suitabilities to agriculture and different power ranges to be clarified

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Drivers in decision making

- **Regulation**
- **Fuel / Energy availability**
- **Fuel / Energy infrastructure in target market area**
- Fuel / Energy adaptability to machine, fit for purpose, Autonomy
- Machine performance and efficiency
- Total cost of ownership
- Other customer requirements

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Conclusions

- Agri & Forest machine challenges on future fuels differ from onroad
- H_2 - and BEV needs are mainly driven by potential future regulation
- BEV would offer benefits – battery energy density far too low still
- Infrastructure and vehicle gas tanks are the biggest obstacles in H_2-transition
- ICE with renewable fuels is very competitive option for CO2 reduction
- Powertrain diversity will increase as there is no solution which fits for all

Thank You

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