

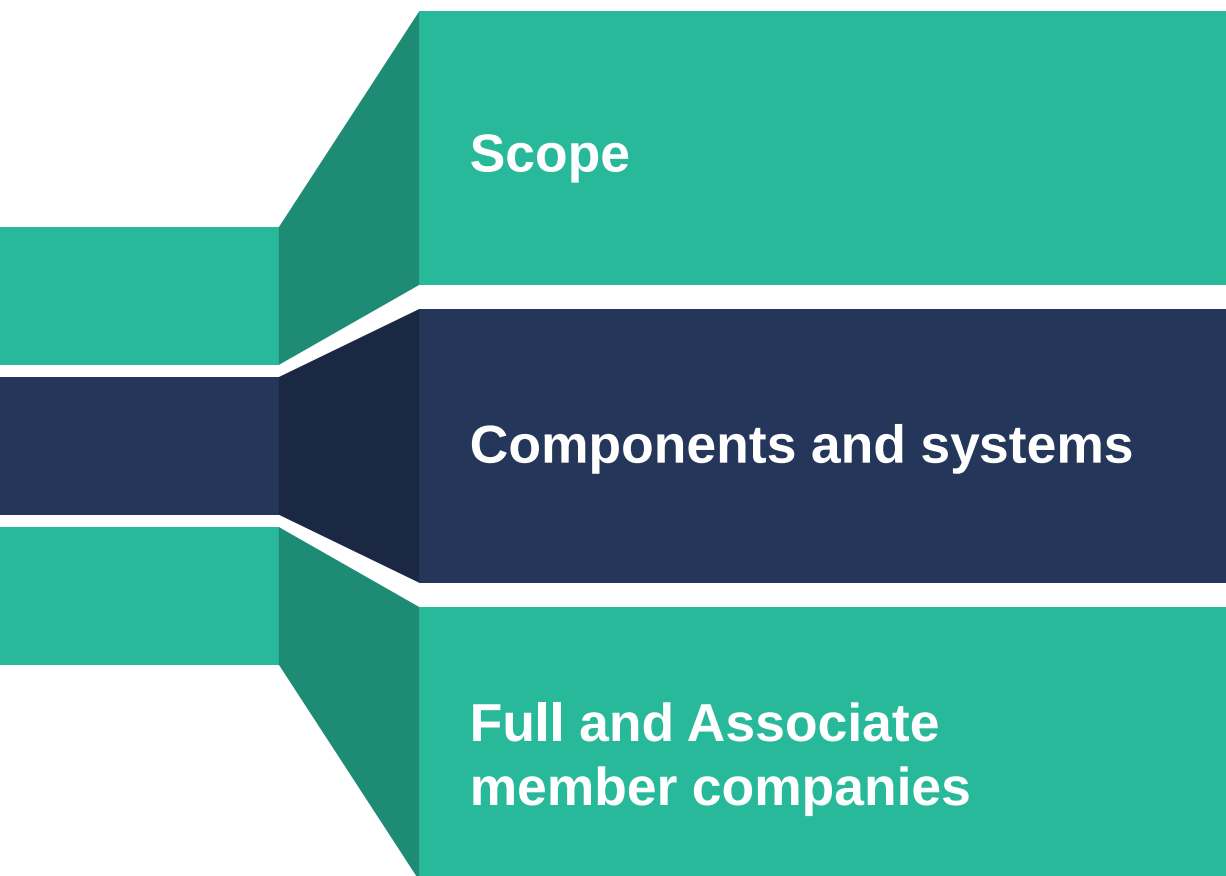


Robust pollutant emissions standards for a competitive industry in India

**Advancing emissions controls across road, non-road
and stationary applications**

ECT 2026 Conference • 22 October 2026 • New Delhi

AECC is the Association for Emissions Control and Climate



- Air quality and Climate requirements
 - Mobile and Stationary emissions sources
 - Sustainable components and systems
-
- Catalysts
 - Filters
 - Adsorbers
 - System integration
 - Fuel cells
 - Electrolysers



EU Transparency Register #78711786419-61, consultative status with the UN Economic and Social Council (ECOSOC)

AECC policy focus areas

On-road vehicles



Non-Road Mobile Machinery



Industrial and Stationary



H₂ production and utilisation



Life cycle assessment and circular economy



Agenda

01

Euro 7 reflections for BS7 discussions

02

NRMM Stage V review

03

Data centre back-up power

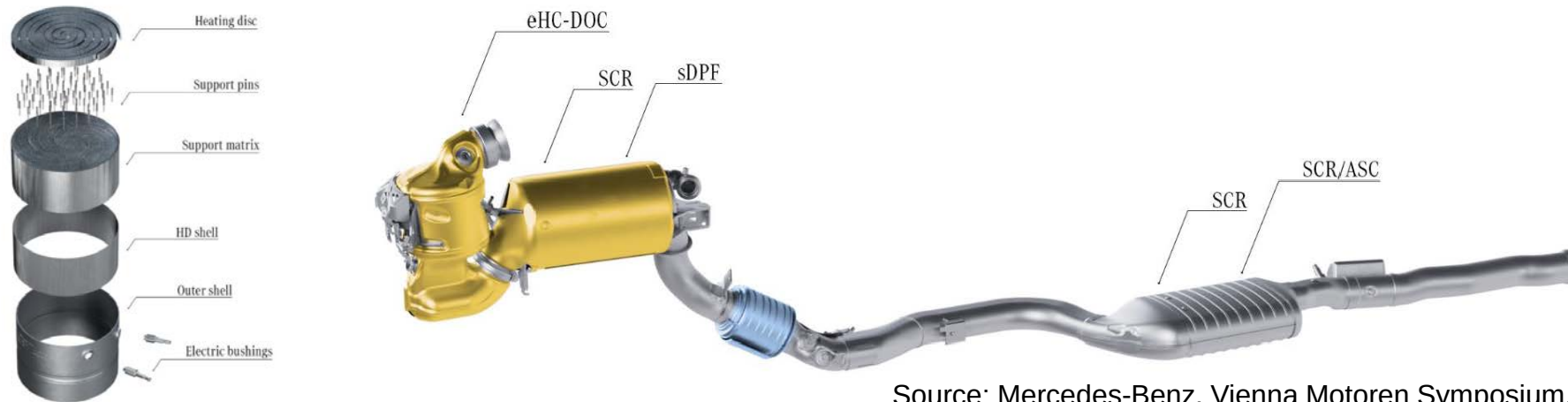
Overview of ongoing Euro 7 process

- Implementing legislation being developed by European Commission
 - LDV package will be fully published ahead of 29 November 2026 New Type approval date
 - First HDV implementing act delayed
- Some items of the adopted legal act are being reconsidered under the Automotive Omnibus
 - LDV type 6 test at -7 °C
 - HDV implementation timing

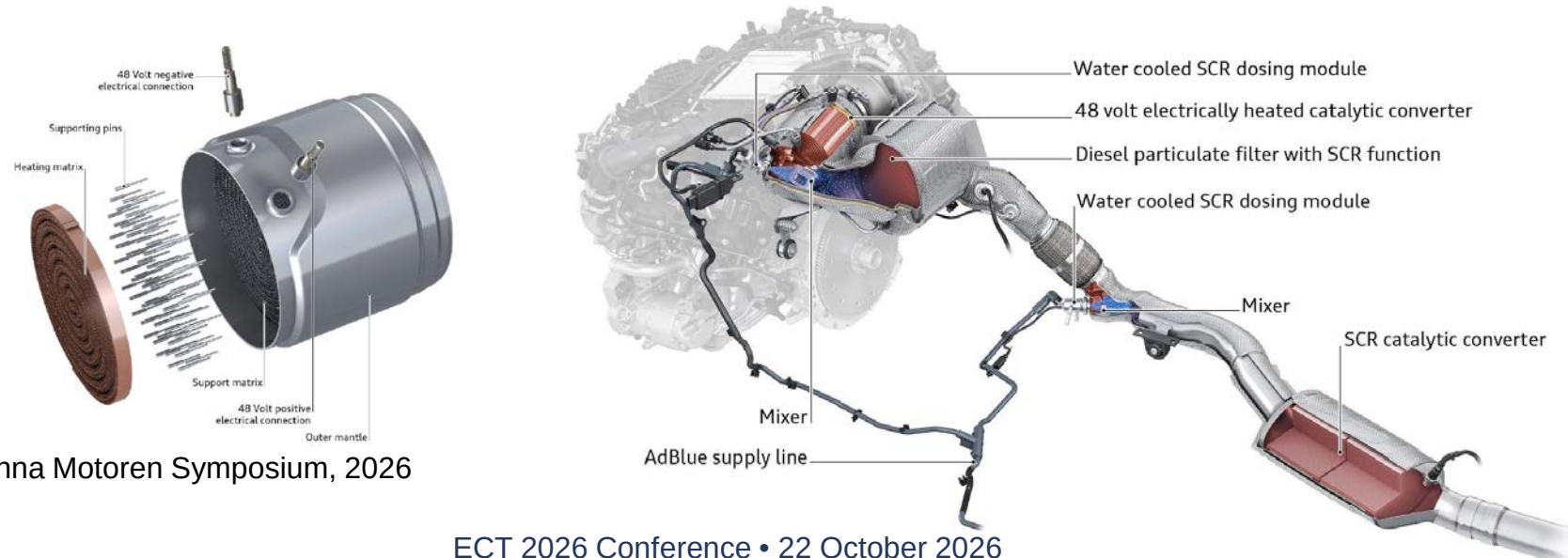
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Light-duty		<div> <div>★</div> <div>+30 months</div> <div> <div>New Types</div> <div>All Types</div> </div> <div> <div>(29 Nov 2026)</div> <div>(29 Nov 2027)</div> </div> </div> <div> <div>Small volume manufacturers</div> <div>(1 July 2030)</div> </div>											
Heavy-duty		<div> <div>★</div> <div>+48 months</div> <div> <div>New Types</div> <div>All Types</div> </div> <div> <div>(29 May 2028)</div> <div>(29 May 2029)</div> </div> </div> <div> <div>Small volume manufacturers</div> <div>(1 July 2031)</div> </div>											
Tyres		<div> <div>New Types C1</div> <div>New Types C2</div> <div>New Types C3</div> </div> <div> <div>(1 July 2028)</div> <div>(1 April 2030)</div> <div>(1 April 2032)</div> </div>											

Light-duty diesel emissions control technology evolution

Further Euro 7 optimisation with active thermal management for some engines, but not all due to lack of Euro 7 ambition



Source: Mercedes-Benz, Vienna Motoren Symposium, 2026



Source: Audi, Vienna Motoren Symposium, 2026

Light-duty Euro 7 reflections for BS7 discussion

- Euro 7 improved PN and non-exhaust emissions but retained Euro 6 exhaust limits
- The EU policy context has changed
 - Original European Commission proposal was weakened assuming a rapid ZEV transition
 - Light-Duty CO₂ review shifted the debate towards technology-neutrality and broader range of powertrain options including
- European Parliament amendments on Light-Duty CO₂ review provide a pathway for reassessment
- AECC supports a Euro 7 reassessment
 - [New AECC LDV factsheet](#)
 - AECC-IPA demonstrator vehicles show emission control technologies perform beyond Euro 7 ambition

Light-Duty Vehicles
debunking myths on VEEFs

Policymakers must underpin climate ambition with technology-neutrality, without compromising on air quality and public health via a robust Euro 7.

*Vehicle category running Exclusively on Eligible Fuels (VEEF)

Myth #1:
Zero emission at tailpipe is technology-neutral
Debunk: Tailpipe emissions only reflect the use phase. Targeting zero tailpipe emissions neglects net-zero technologies, which compensate tailpipe emissions elsewhere in the life cycle. A total Life Cycle Assessment (LCA) provides a more accurate perspective of vehicle emissions.

Myth #2:
Only battery and fuel cell vehicles are zero emission
Debunk: No powertrain technology results in zero emissions over the whole life cycle. LCA data shows all technologies result in similar emission reduction when using renewable electrons/molecules. A Vehicle category running Exclusively on Eligible Fuels (VEEF) is therefore to be added to the CO₂ emissions standard ZEV definitions.

Myth #3:
Renewable fuels are for aviation/maritime only
Debunk: Aviation and maritime cannot finance the transition of the fuel manufacturing industry alone. Refineries are multi-fuel production plants so road transport can be included to unlock required economies of scale, accelerating emissions reduction and reducing overall decarbonisation costs.

Myth #4:
VEEFs have negative impact on air quality
Debunk: VEEFs will comply with Euro 7 pollutant emissions standard. It is therefore crucial Euro 7 is not watered down and reassessed to allow technology-neutrality in the CO₂ emissions standard without compromising air quality and public health. Emission control technologies have already been developed for a more ambitious Euro 7 standard.

AECC CALLS ON POLICYMAKERS TO ESTABLISH A VEEF CATEGORY WHILE ENSURING A ROBUST EURO 7
The final Automotive Package will then drive a competitive, clean and technology-neutral automotive transition, contributing to both climate mitigation and clean air while offering consumers choice.

AECC www.aecc.eu

Heavy-duty Euro 7 reflections for BS7 discussion

- AECC requests no delay of HDV Euro 7 within the Automotive Omnibus
 - Counterproductive - as per [CLEPA](#) data - for
 - Competitiveness
 - Investment certainty
 - Green transition
 - Emission control technologies have been developed and have been announced for US MY2027+
- [New AECC HDV factsheet](#)



Heavy-Duty vehicles a robust Euro 7 for a clean and competitive industry

The Automotive Omnibus risks weakening core elements of Euro 7 that would prove counterproductive for competitiveness, investment certainty, and the green transition.

SIMPLIFICATION SHOULD NOT RESULT IN DEREGULATION
The Automotive Omnibus discussions should centre on how to achieve targeted simplification to reduce red tape and improve legal clarity without undermining environmental objectives and industrial confidence. Pollutant emissions requirements have resulted in technology innovation for decades.

HEAVY-DUTY VEHICLES EURO 7 DELAY UNDERMINES COMPETITIVENESS
There are significant economic costs associated with regulatory uncertainty and potential Euro 7 delays due to underutilised engineering capacity, delayed deployment of new technologies, and existing investment obligations.

TECHNOLOGY IS AVAILABLE
As European Heavy-Duty vehicles manufacturers are global leaders, they already have engineered solutions for their models to be able to meet stricter targets that will apply as of 2027 in USA. Consequently, Euro 7 exhaust emissions controls are ready.

ROBUST EURO 7 STANDARDS ARE NEEDED FOR TECHNOLOGY-NEUTRALITY
Robust pollutant emission standards are key to ensure that all powertrains deliver on decarbonisation without compromising air quality and public health. Robust Heavy-Duty vehicles Euro 7 standards are a must to enable technology-neutrality in the upcoming review of the Heavy-Duty vehicles CO₂ emissions standards.

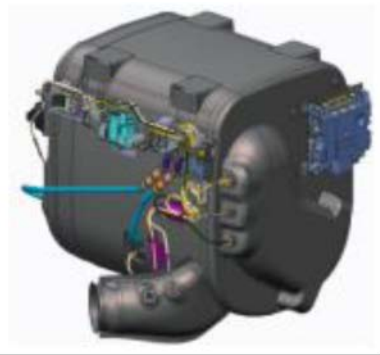
AECC www.aecc.eu

Heavy-duty diesel emissions control technology evolution

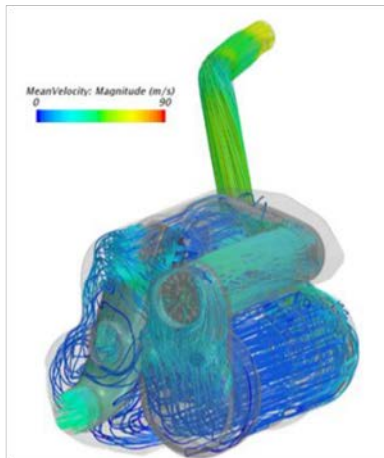
Implementation of single dosing SCR with DOC and DPF in a compact design for Euro VI D/E



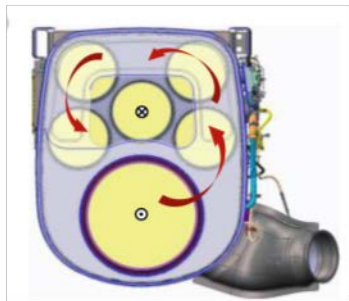
Implementation of dual-SCR and/or close-coupled catalyst/heater ready for US MY2027 and Euro 7



DOC + DPF + SCR



Source: Daimler



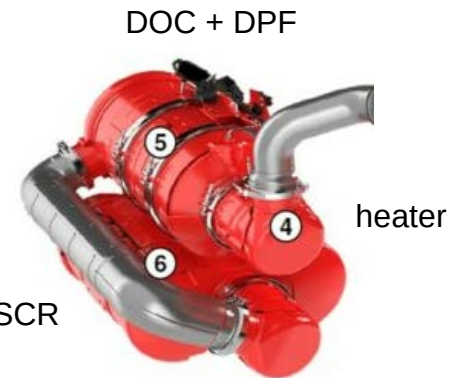
Source: DAF

Source: [Daimler](#)

DOC +
DPF +
SCR 2



SCR 1



Source: [Cummins](#)

Pre-heater

DOC +
DPF +
dual-
SCR



heater

Source: [Volvo](#)

Agenda

01

Euro 7 reflections for BS7 discussions

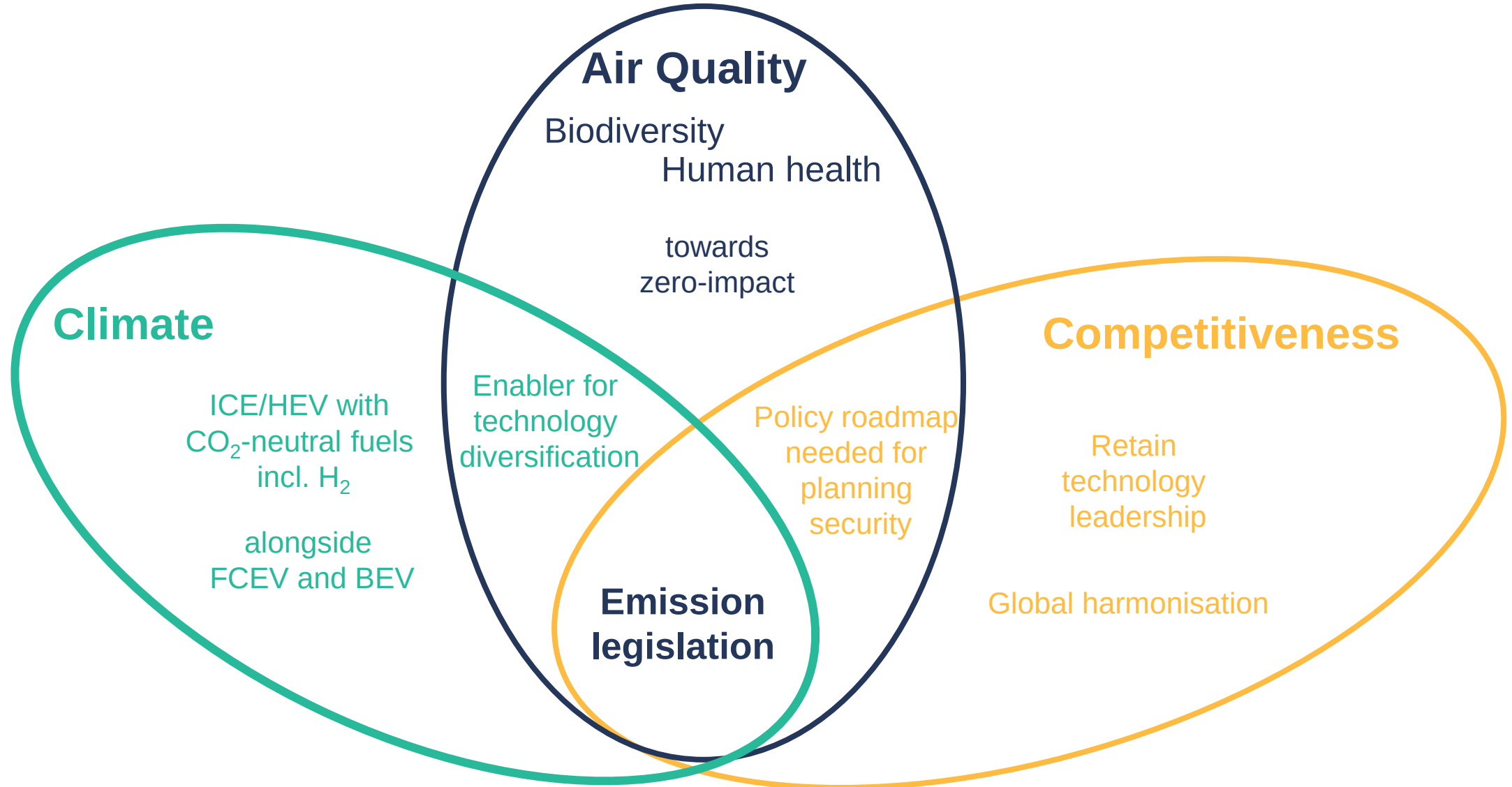
02

NRMM Stage V review

03

Data centre back-up power

Key pillars for NRMM compatibility with 2050 EU targets

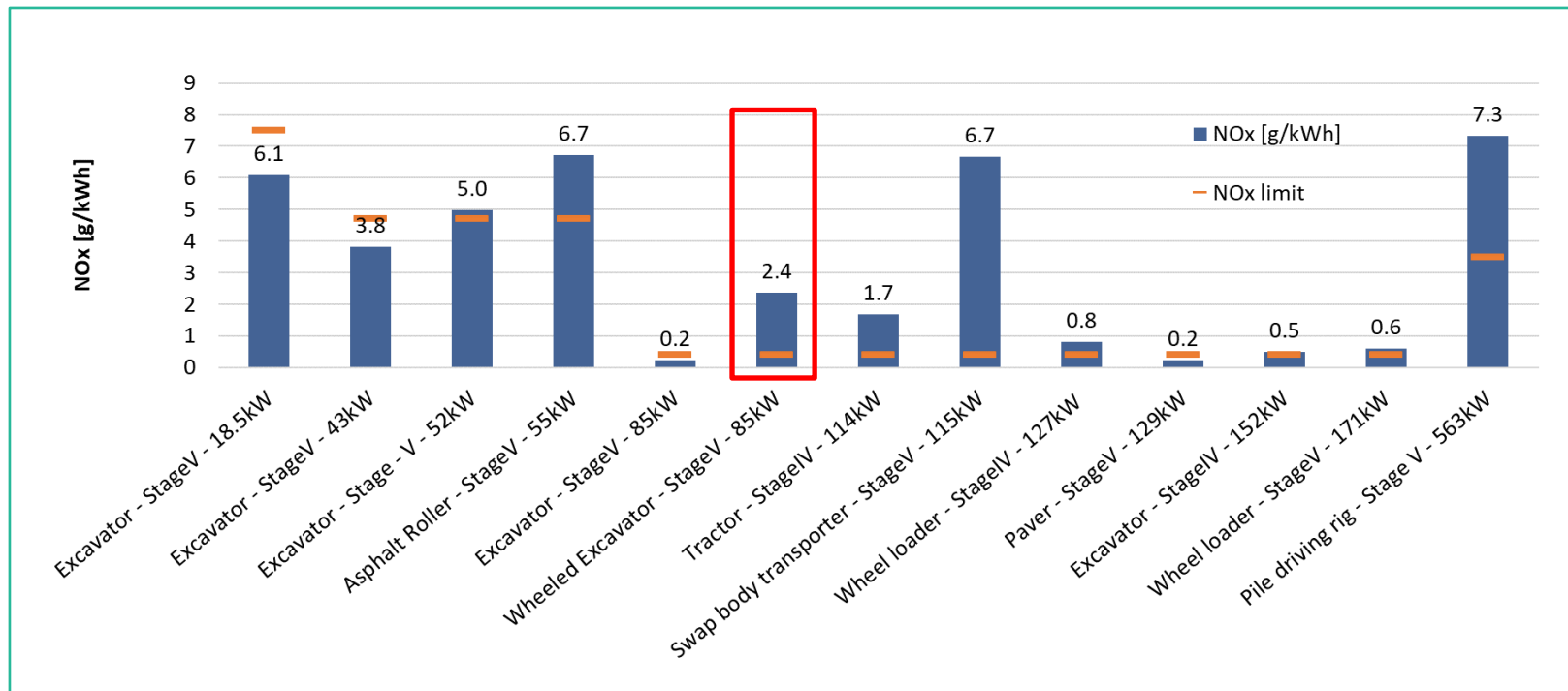
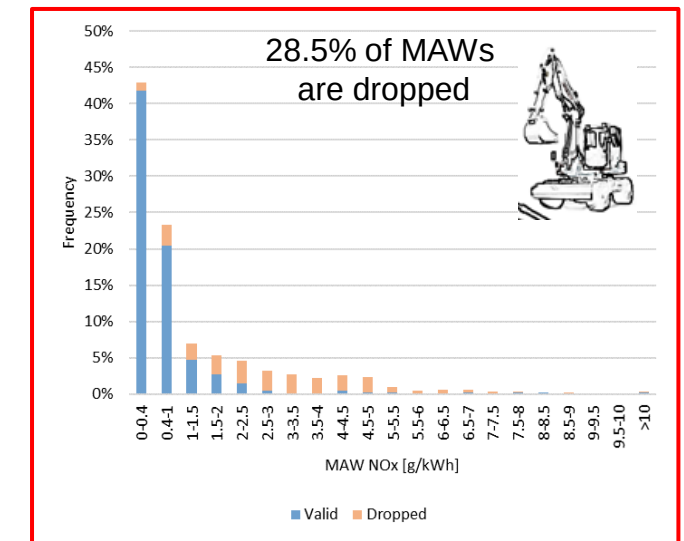


Evolution of NRMM Stage V legislation is expected

- NRMM legislation is several steps behind on-road HDV legislation
 - PEMS monitoring instead of In-Service Conformity (ISC) and Real-Driving Emissions (RDE)
 - More data exclusions
 - Higher limits than Euro 7
- Global initiatives ongoing, but with some delay compared to original timelines
 - European Commission is preparing Stage V review
 - Report of Stage V PEMS monitoring data was originally expected end of 2025
 - EC DG-JRC needed more time due to data collection and quality issues
 - Internal review of report is ongoing, presentation expected at GEME expert working group on 5 November 2026
 - US CARB [Tier 5 proposal](#) includes 2-year delay, now for MY2031+
 - China is internally reviewing NRMM Stage V proposal, publication was expected mid-2026

A large variation is observed in real-world NOx emissions

- Depending on the use case and applicable limit as tested by TNO
- NRMM regulation does not consider a substantial share of the real working conditions



MAW: Moving Average Window

R. Vermeulen, et al.; *"Real-World NOx emissions of Stage V NRMM"*, Transport and Air Pollution Conference, 2023

NRMM project demonstrated future-proof ICE concepts

- NRMM engine

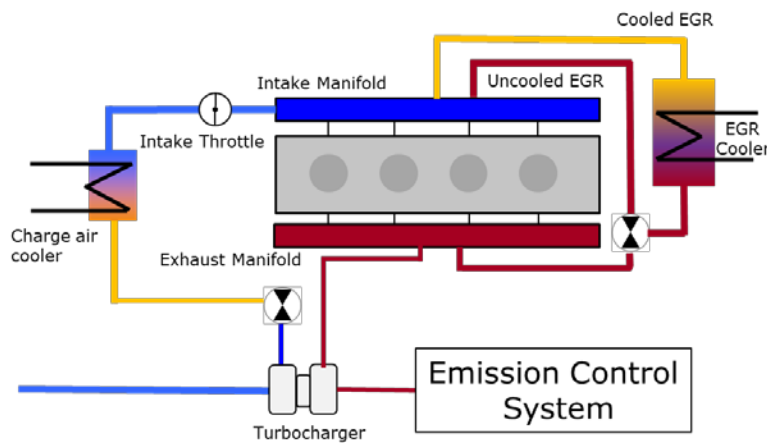
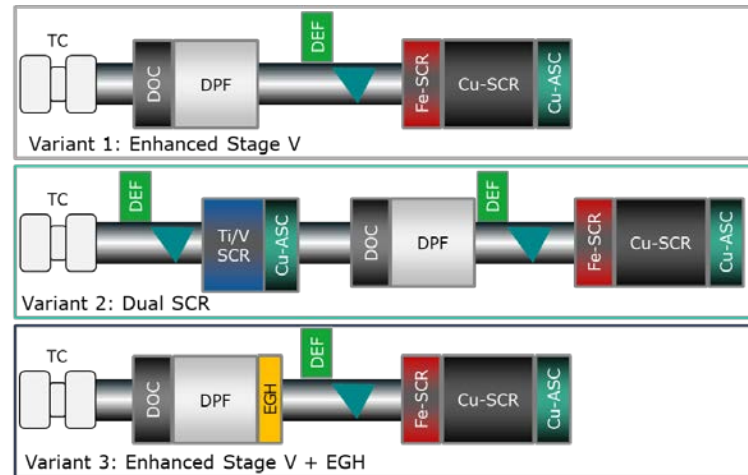
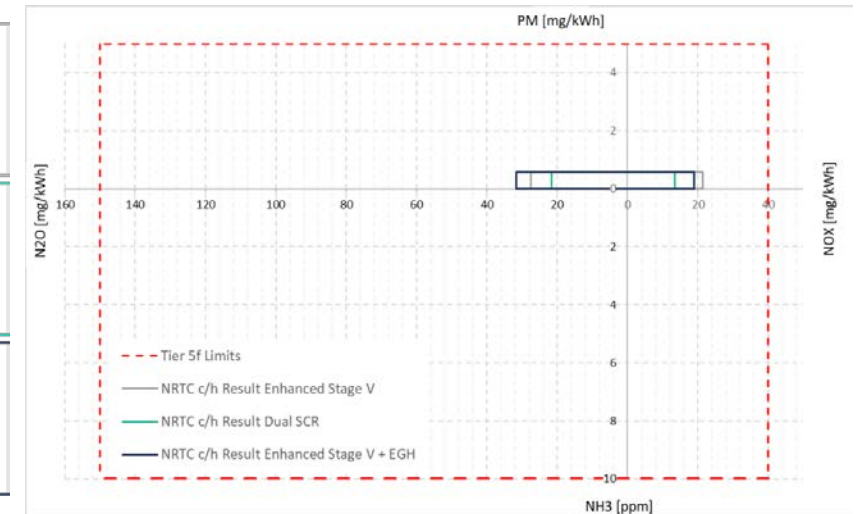
- 4l class
- ~ 100 kW rated power
- Cooled HP-EGR
 - ~ 4 g/kWh engine-out NO_x
- Uncooled EGR in low load

- Emission control systems

- Oven aged substrates (Hydrothermal)
- Modular approach to test 3 different variants

- Results

- Tier 5/Euro 7 emission level demonstrated on legislative cycles (NRTC c/h, RMC, LLC)
- Euro 7 emission level demonstrated on variety of in-use profiles



J. Demuyne, et al.; "Potential for Reduction in NRMM Real-World Emissions", 13th International engine congress, Baden-Baden, February 2026

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Euro 7 reflections for BS7 discussions

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NRMM Stage V review

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Data centre back-up power

Rising concerns about data centre expansion

Focusing on energy & grid, noise, water, ...



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UN: AI data centres pose growing threat to electricity systems

DPA
Wed, September 9, 2026 at 4:18 PM GMT+2
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Europe must choose between AI and climate goals, data center lobby says

Tech sector says only carbon-emitting gas plants are reliable enough today to power the EU's AI goals.

NEWS > ENERGY AND CLIMATE POLITICO

Ribera says EU data centers should build their own clean energy supply

Rising power demand for AI risks creating fierce competition for energy and driving up bills, the Commission's green transition chief said.

We track the growing opposition to data centre development across Europe

Moratoriums, rejections, water disputes, and green-belt battles — monitored country by country.

Tracked opposition cases per country — bubble size scales with case count. Last updated 2026-07-29

Get the Q2 2026 report Latest briefings

PRO AGRIFOOD

Europe's thirst for AI runs into local water worries

The EU hopes to triple its data centre capacity by 2032 and that's going to need a lot of water

Claudie Moreau Euractiv

EURACTIV

Rising concerns about data centre expansion

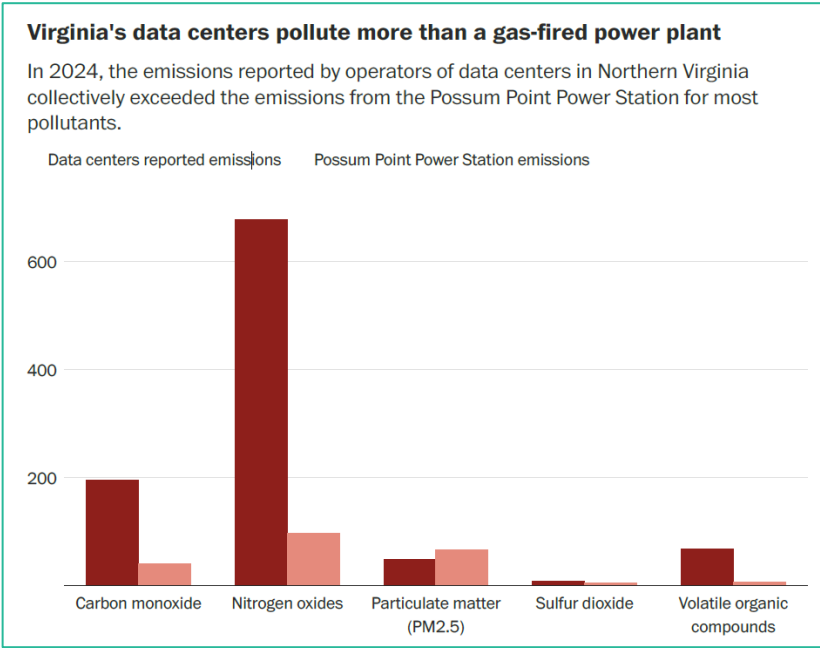
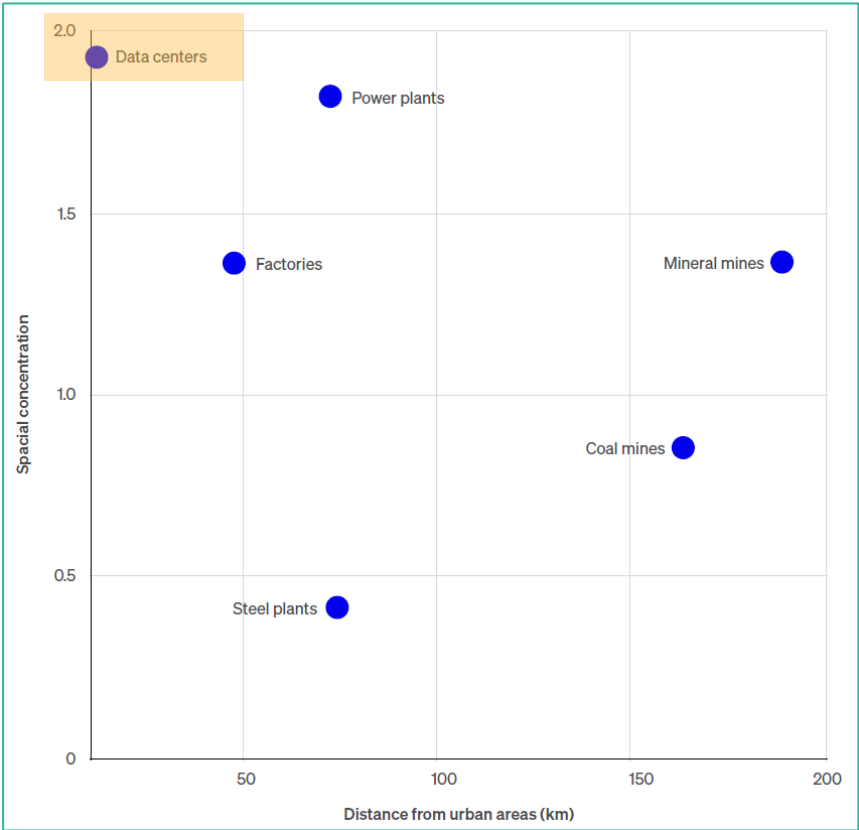
Pollutant emissions start to be noted ... affecting urban air quality

See where diesel-powered data center generators are polluting Virginia

Pollution from generators at data centers could cause respiratory symptoms and deaths in the region, an analysis for The Washington Post found.

May 28, 2026

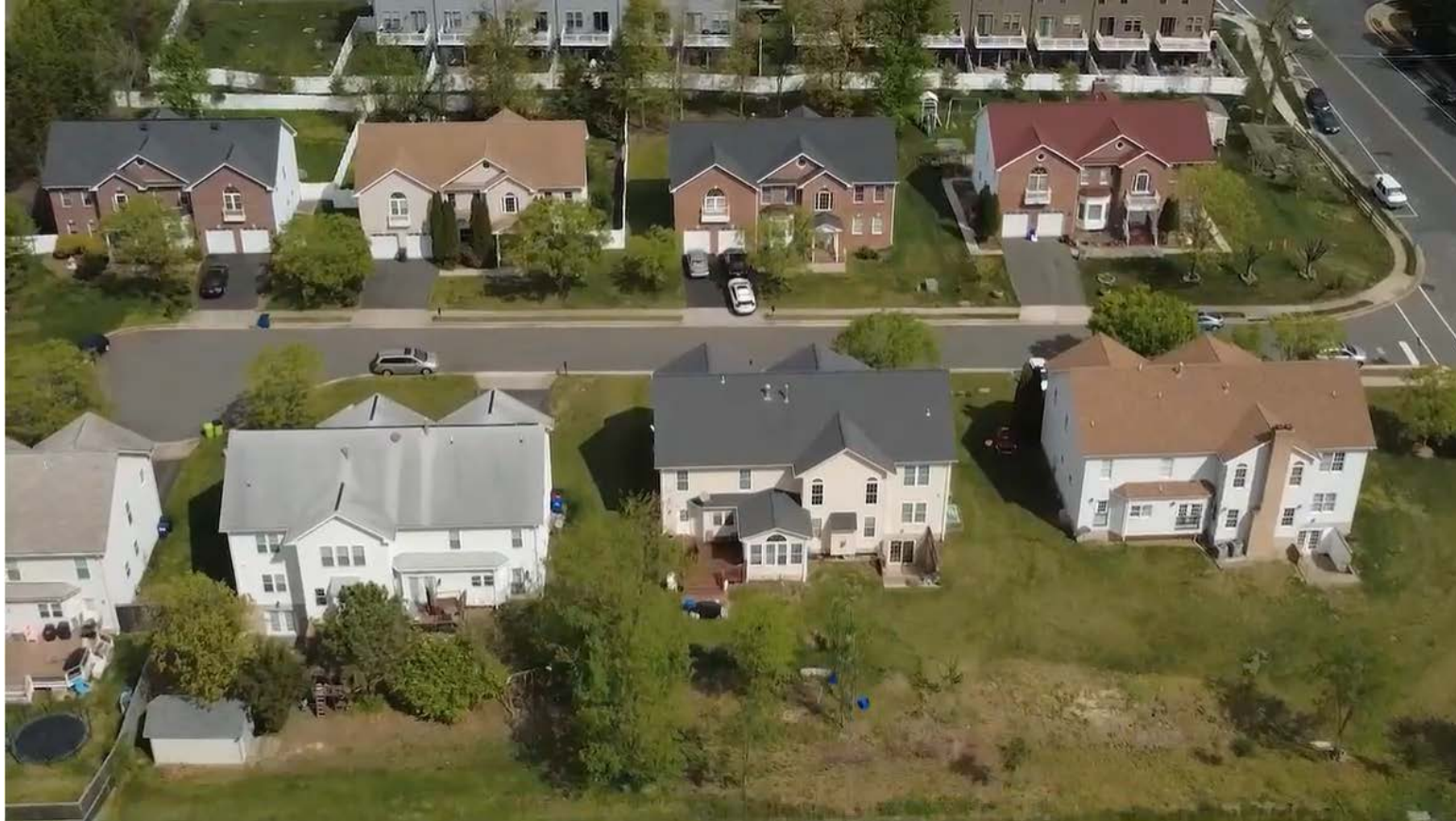
The Washington Post



Source: IEA, 2025 as reported by Politico

Rising concerns about data centre expansion

Pollutant emissions start to be noted ... affecting urban air quality



Source: Washington Post, May 2026

Rising concerns about data centre expansion

Pollutant emissions start to be noted ... affecting urban air quality



Source: "[Internet, un géant très vulnérable](#)" (26:10-26:43), arte, 2025

EU data centre permit examples

Illustrating market fragmentation for available emission control technologies

• Location	Berlin	Frankfurt	Frankfurt
• Permit issued	<u>2021</u>	<u>2024</u>	<u>2024</u>
• Limits			
• NOx	1700 mg/Nm ³	1000 mg/Nm ³	200 mg/Nm ³
• CO	265 mg/Nm ³	650 mg/Nm ³	100 mg/Nm ³
• Dust	-	50 mg/Nm ³	50 mg/Nm ³
• Back-up gensets			
• Total Power	180 MW	170 MW	140 MW
• Engine Power	32x 6.5 MW	23x 7.2 MW	19x 7.7 MW
• Emission controls	DPF	SCR	DOC + SCR

Initial EU legislative initiatives

- Medium Combustion Plant Directive
 - Combustion plants of 1 MW to < 50 MW
 - Emission Limit Values for SO₂, NO_x & Dust depending on fuel type, technology, size, new/existing
 - Back-up power derogation: no limits < 500 h / year
 - Member State or local authorities might add requirements
 - General review by 2027

Table 2

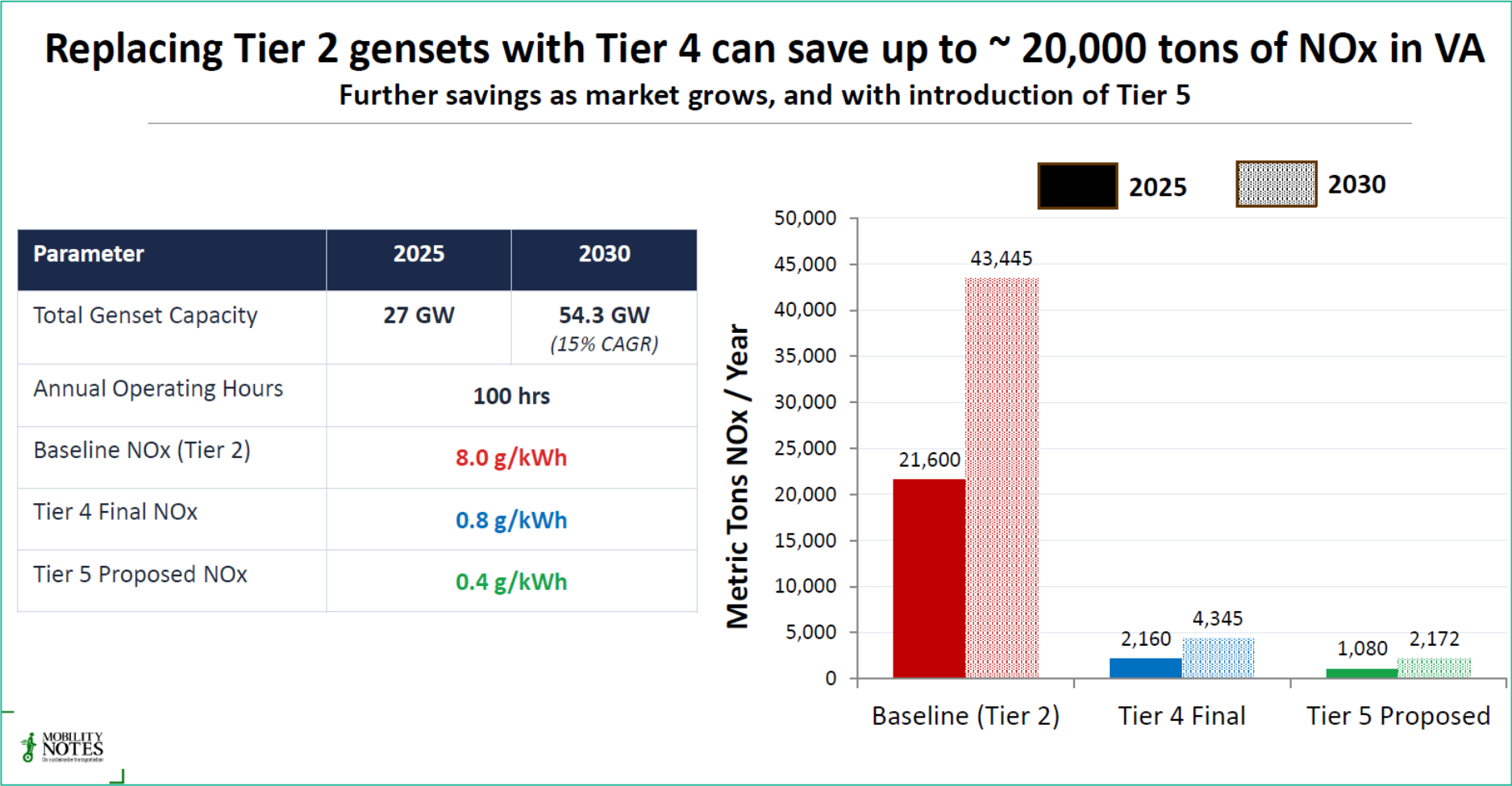
Emission limit values (mg/Nm³) for new engines and gas turbines

Pollutant	Type of medium combustion plant	Gas oil	Liquid fuels other than gas oil	Natural gas	Gaseous fuels other than natural gas
SO ₂	Engines and gas turbines	—	120 ⁽¹⁾	—	15 ⁽²⁾
NO _x	Engines ⁽³⁾ ⁽⁴⁾	190 ⁽⁵⁾	190 ⁽⁵⁾ ⁽⁶⁾	95 ⁽⁷⁾	190
	Gas turbines ⁽⁸⁾	75	75 ⁽⁹⁾	50	75
Dust	Engines and gas turbines	—	10 ⁽¹⁰⁾ ⁽¹¹⁾	—	—



- Environment Omnibus
 - Establishes link with Non-Road Mobile Machinery Stage V for new data centres > 20 MW
 - [AECC supports](#) this, but calls for Stage V review to address e.g. NO_x and PN gaps

Similar debate ongoing in US



Source: “A review of emissions from gensets for data center applications”, Ameya Joshi, Off-highway & Power Generation USA, May 2026

THANK YOU!

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Light-duty gasoline emissions control technology evolution

Single Three-Way Catalyst
for Euro 6a/b

Three-Way Catalyst (TWC)

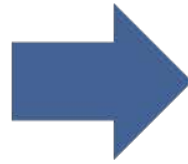


Source: Volvo



TWC

Source: VW



Introduction of Gasoline Particulate Filter on cars with direct injection
and integration with Three-Way Catalyst for Euro 6d(-TEMP)

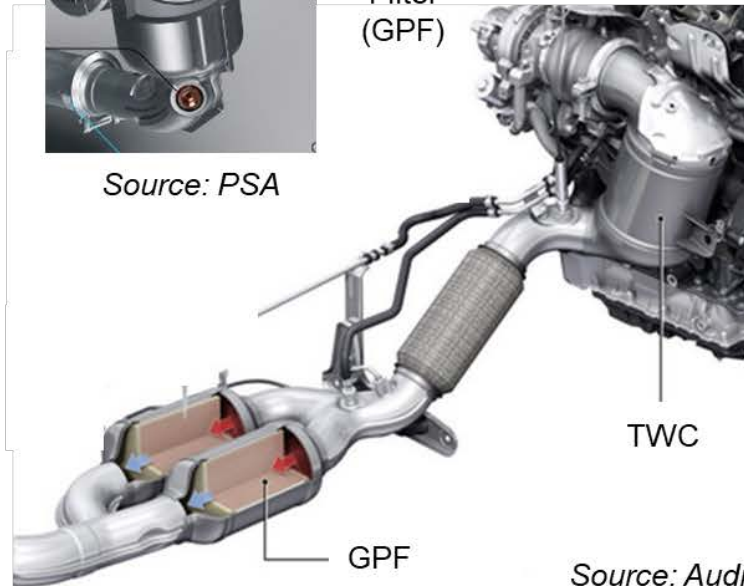
= Euro 7



TWC

Gasoline
Particulate
Filter
(GPF)

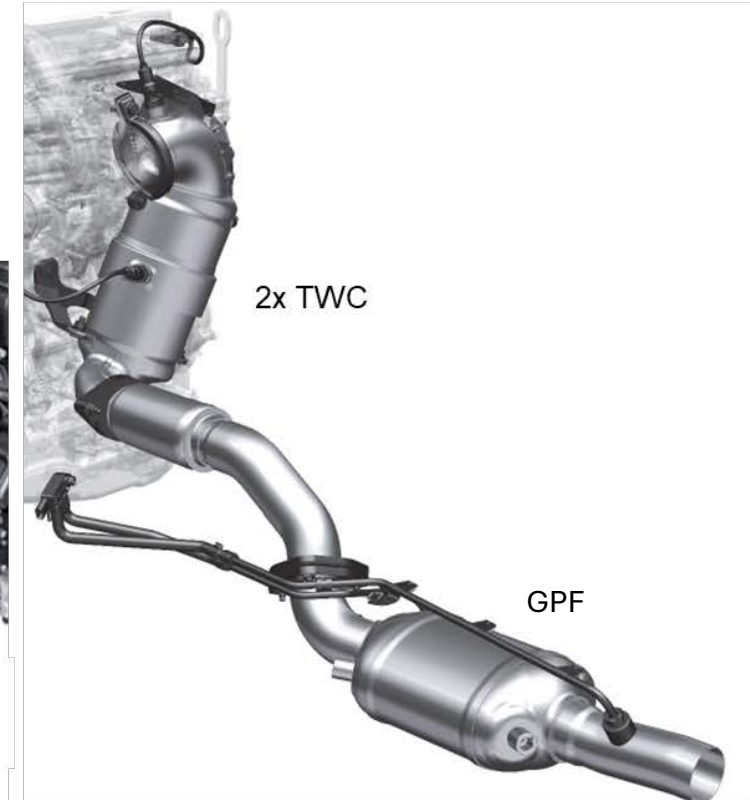
Source: PSA



TWC

GPF

Source: Audi



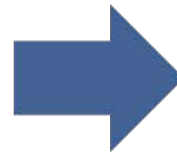
2x TWC

GPF

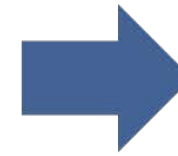
Source: Opel

Light-duty diesel emissions control technology evolution

Introduction of individual deNOx technologies for Euro 6a/b



Combination of deNOx technologies for Euro 6d-TEMP



Further integration for Euro 6d

