

Welcome Thanks for Coming

STAGE V

The Next Generation of Temporary Power

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WE BRING THE ENERGY

AGENDA

What is Stage V, What Does it Mean?

Stage V vs Stage IIIA

Benefits to You

NRMM & MCPD

Where is the Industry Heading?

Key Takeaways

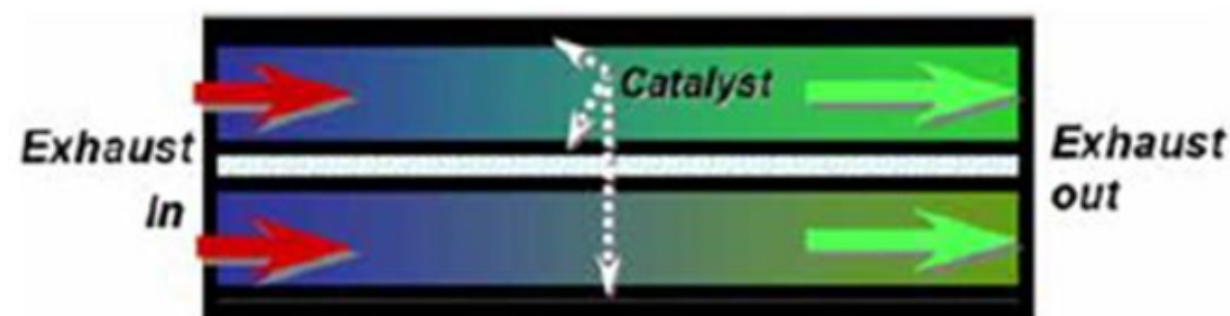


What is Stage V, What Does it Mean?

- The 'Stages' are the **European Emissions Standard for Non-Road Machinery** **Jan 2020**
- Before Stage V, was Stage IIIA – which is what you all will be most familiar with / use day to day
- The biggest change/different from a typical Stage IIIA Generator is the Aftertreatment required to meet the stringent Emission Standards

DOC - Diesel Oxidation Catalyst

(burns hydrocarbons and CO)



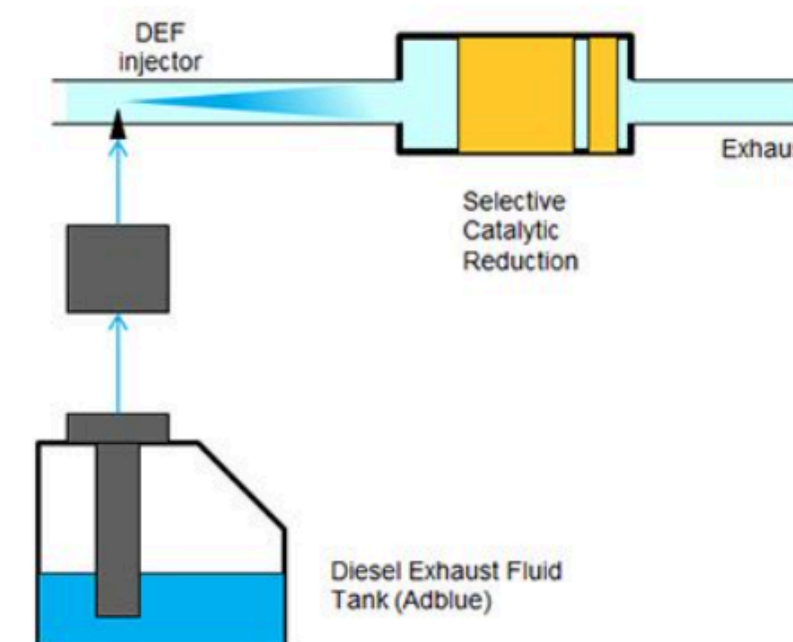
DPF – Diesel Particulate Filter

(traps and burns soot)



SCR – Selective Catalytic Reduction

(uses DEF / AdBlue to convert NO_x to nitrogen and water)



- The Aftertreatment varies depending on the kVA Rating of the Generator

80%+
Reduction in
HC+ NO_x & PM

Look **alike** on the **outside**, but completely **different inside**.

Stage IIIA: relied on **simple in-cylinder controls** to meet limits.

Stage V: **tackles emissions** both inside the engine and after combustion.

Before Combustion

- ➔ High-Pressure Fuel Injection – precise fuel delivery for efficient, cleaner combustion
- ➔ EGR (Exhaust Gas Recirculation) – reuses a small portion of exhaust gas to lower NO_x formation

After Combustion

- ➔ DOC (Diesel Oxidation Catalyst) – converts $\text{CO} + \text{HC} \rightarrow \text{CO}_2 + \text{H}_2\text{O}$
- ➔ DPF (Diesel Particulate Filter) – traps and burns off soot (PM)
- ➔ SCR (Selective Catalytic Reduction) – injects AdBlue to convert $\text{NO}_x \rightarrow \text{N}_2 + \text{H}_2\text{O}$

Stage V generators are a major step forward in technology.

They're smarter too — the engine constantly monitors its own temperature, pressure, and exhaust quality to keep performance consistent and emissions low.

However, **size does matter...**

Stage V engines need to reach the right exhaust temperature to keep the after-treatment system working efficiently.

Get that right, and from the operator's point of view it's simple — just keep the **AdBlue tank topped up**, and the system takes care of the rest.



- **Compliance**
NRMM Regulations & MCPD
Legislation
- **Confidence**
Modern, Low Hour, Latest
Equipment
- **Environmental Responsibility**
Reduced Emissions associated
with running Generators



Customers are transitioning to Stage V, driving cleaner, lower-emission performance

What is it?

- **NRMM** rules limit emissions from mobile generators on construction and demolition sites to improve air quality.
- **MCPD** sets UK-wide emission limits for larger combustion plants over 1 MWth (400kVA), outside construction sector. 6 month+ hire.

Who it Affects

- **NRMM:** Any construction or demolition project within Greater London area using mobile generators.
- **MCPD:** Industrial, commercial installations running for 6 months or more (not construction sites).

Where it Applies

- **NRMM:** Within the GLA area
Central Activities Zone (CAZ) → Stage V required
- **MCPD:** UK-wide, prime power applications outside of construction.

**Emission
Standards**

Stage V generators meet or outperform these limits, ensuring compliance for both mobile (NRMM) and static (MCPD) use.

**What it Means
for You**

- In London, only Stage V generators satisfy NRMM requirements.
- For long-term use, Stage V units also meet MCPD emission limits, often removing the need for extra mitigation.

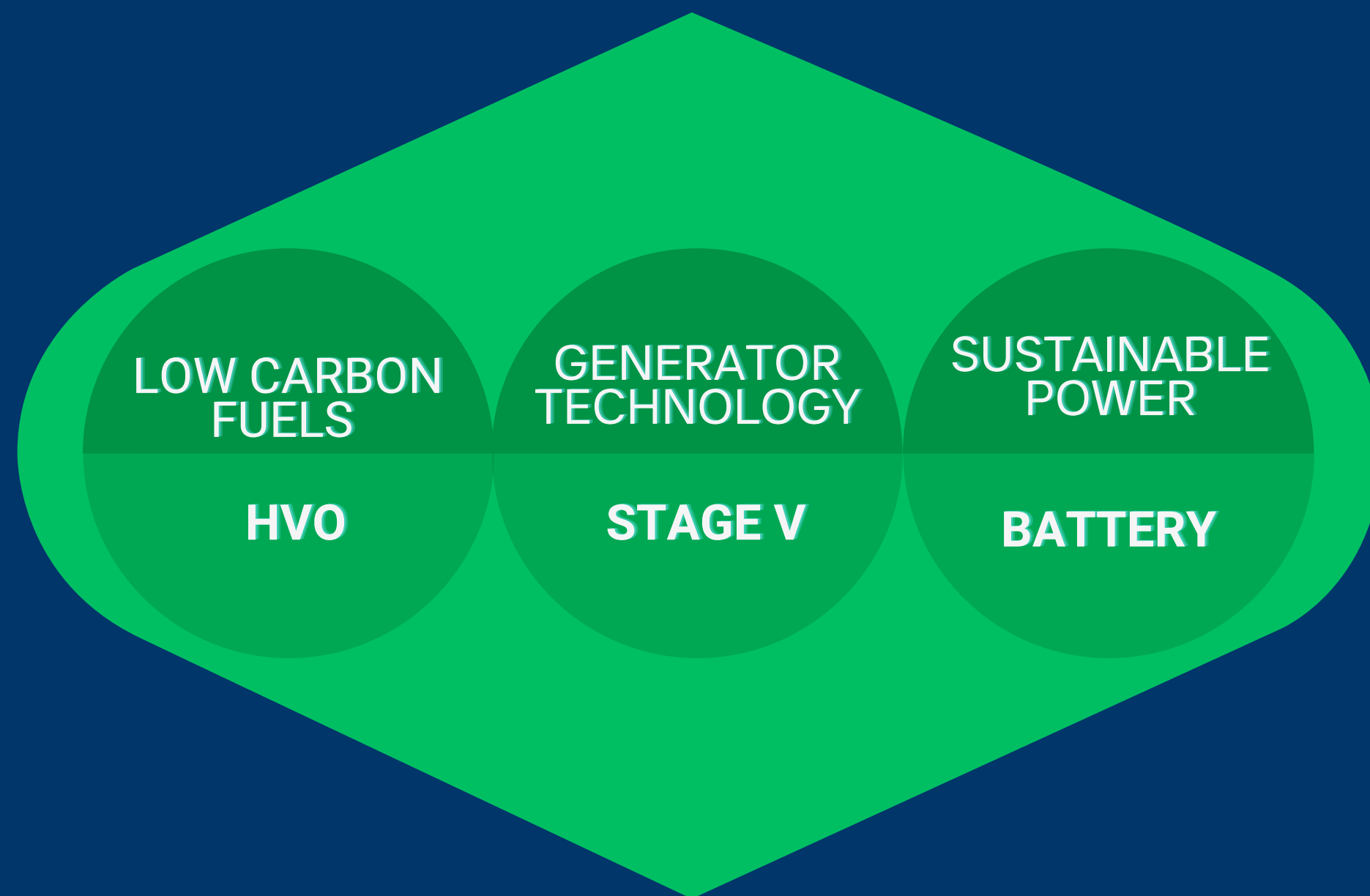
Power Electrics' Stage V fleet offers Full compliance

NRMM ✓ | MCPD ✓ | Nationwide use ✓

Where is the Industry Heading?

- **Stage V** isn't the end of the Story for us – the lower emission solution is the foundation of what comes next
- **All industries** are on a **shift** to more **sustainable power** alternatives.
- It doesn't stop at the exhaust
 - **HVO Fuel**
 - **Battery Technology**
 - Batteries work very well with Stage V Generators, handling low loads so the generator runs efficiently only when needed.

Shift to More Sustainable Power



Key Takeaways for Stage V

**Cleaner Power
Clearer Future**

**Regulations are
here to stay**

**Ready for
Whats Next..**

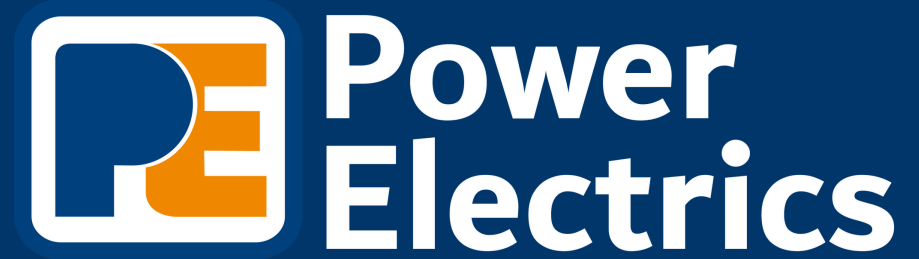
**Early Adopters
Lasting Impact**

**200+ Stage V
Units in our Fleet**

Our fleet is fully prepared for the next phase of temporary power.

- **Beyond Compliance**
- Stage V isn't just compliance — it's real progress for performance and sustainability.

For us, it's been a **major investment** and a **big operational shift**
One we're proud to have made early.



POWERING THE PEOPLE WHO MAKE A DIFFERENCE

THANKS FOR LISTENING
ANY QS

