

Welcome Thanks for Coming

# STAGE V

The Future of Temporary Power

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**WE BRING THE ENERGY**

# AGENDA

**What is Stage V?**

**Stage IIIA vs Stage V**

**Do I Need Stage V?**

**Benefits To You**

**Where is the Industry Heading?**

**3 Key Take Aways**



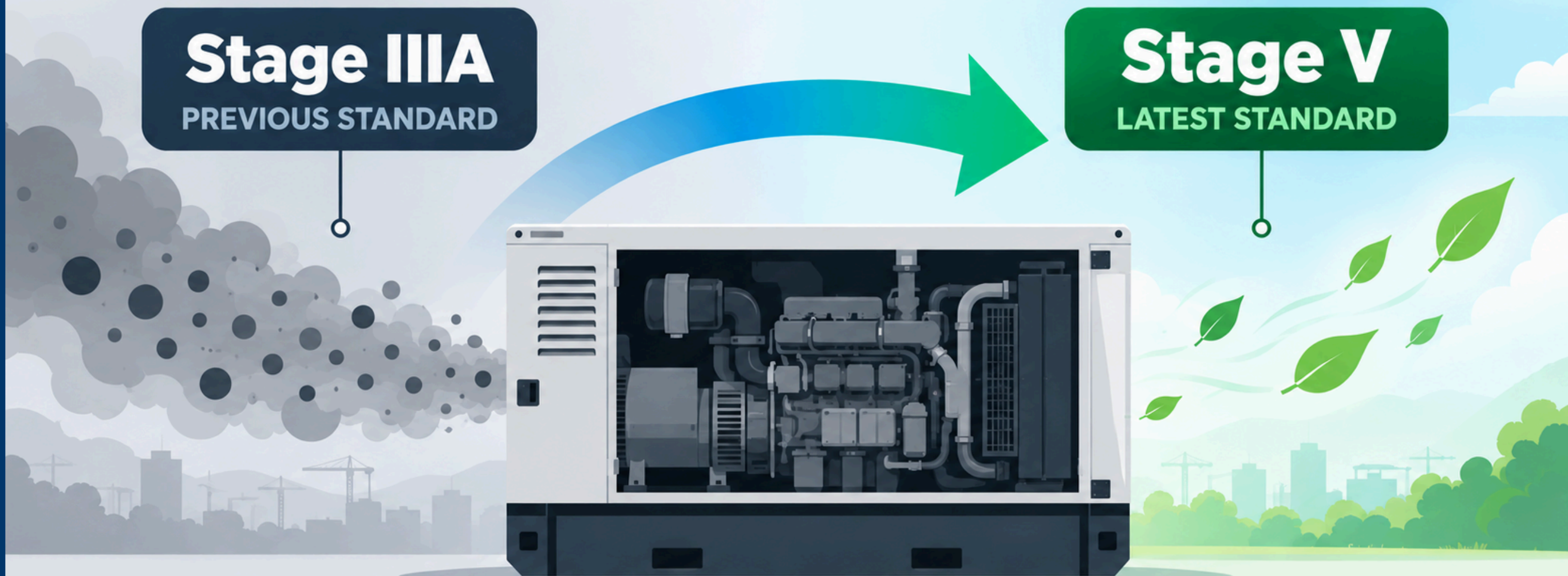
**STAGE V  
COMPLIANT**

## What Actually is Stage V?

An emissions standard for the **engine inside the generator.**

**Stage IIIA**  
PREVIOUS STANDARD

**Stage V**  
LATEST STANDARD

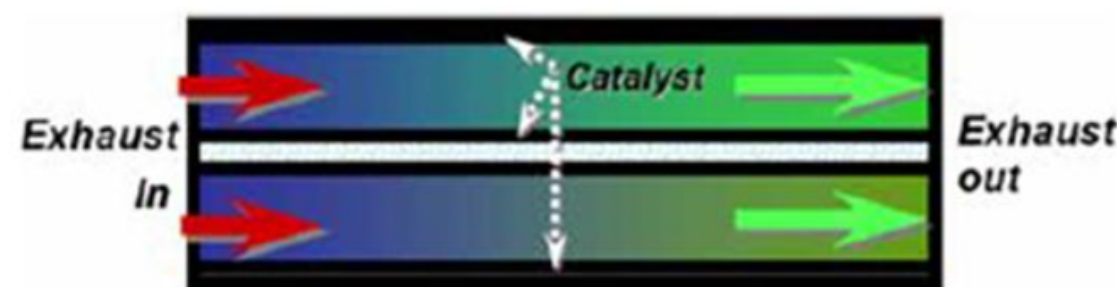


## What Actually is Stage V?

- The Stages are the **European Emissions Standard for Non-Road Machinery Jan 2020**
- 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)



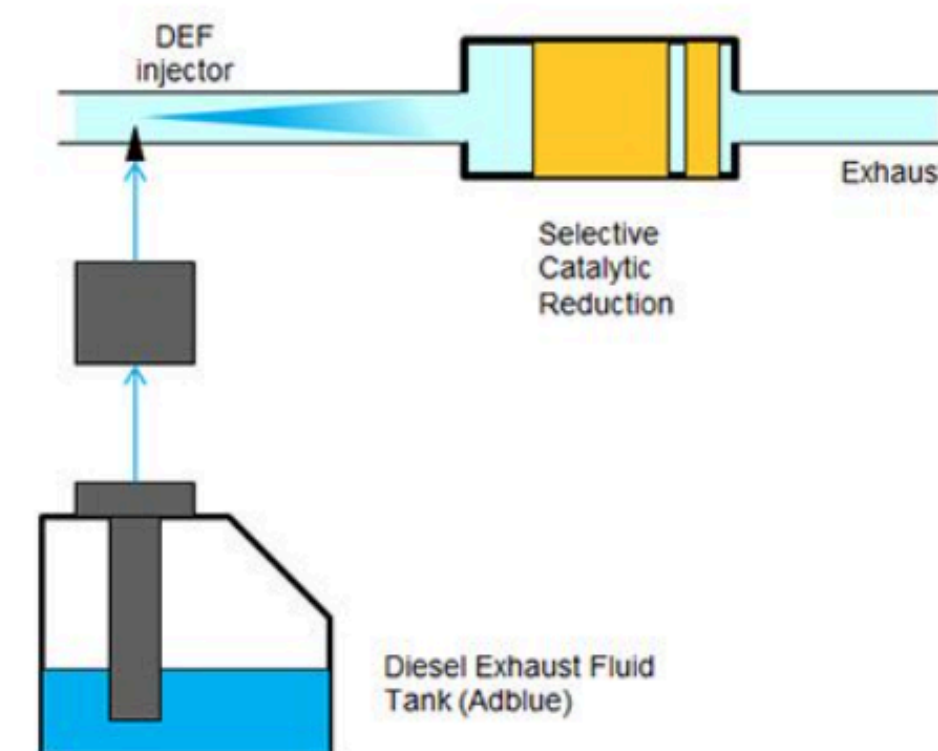
### **DPF – Diesel Particulate Filter**

(traps and burns soot)



### **SCR – Selective Catalytic Reduction**

(uses DEF / AdBlue to convert NO<sub>x</sub> to nitrogen and water)



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

## Stage IIIA vs Stage V

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.

**80%+  
Reduction in  
HC+ NO<sub>x</sub> & PM**

**Stage IIIA**



**Stage V**



## Why Will You See More Stage V?

### Legislation

**NRMM  
MCPD  
EU Regulations**

### Fleet Renewal

**Generator  
Replacement**

### Customer Expectation

**Modern, Low Hours  
& Sustainable**

**Stage IIIA  
OUT**

**Stage V  
IN**

## Do I actually Need Stage V?

Not necessarily....

 **STAGE V  
MAY BE REQUIRED**

Project specification



Location / regulation



Environmental  
requirements

**STAGE IIIA  
REMAINS SUITABLE**

For many  
applications



Increasingly, Stage V will simply  
be the equipment being quoted.



## What Are We Actually Comparing?

### GENERATOR A



**6 YEARS OLD**



**35,000  
HOURS**

**VS**

### GENERATOR B



**2 YEARS OLD**



**<10,000  
HOURS**

**WEEKLY HIRE RATE IS **ONLY ONE PART** OF THE DECISION**



AGE



HOURS



TECHNOLOGY



EMISSIONS



APPLICATION

## What Does Stage V Mean For You?

It doesn't change much. It's still a Generator

### ADBLUE / DEF



Another consumable  
to manage



Typically ~2–4%  
of diesel consumption



Managed AdBlue  
service available

### LOAD

Stage V needs to work



LOAD



TEMPERATURE



**YOU DON'T NEED TO BECOME  
A STAGE V EXPERT. THAT'S OUR JOB.**

**Bigger isn't always better.**

## Traditional Methods



**Transformer Size**



**MCCB/ACB Size**



**Peak Load**  
(highest recording)



## Size Does Matter



Low Loading Generators has never been good.  
With Stage V, **bigger isn't always better.**



**TOO BIG**

Low load  
= inefficient  
and not ideal



**RIGHT SIZE**

Matched to the application  
= better performance,  
efficiency and compliance



**Pumps / Motors**  
are a great  
example.



**Batteries**  
will feature more  
and more.



**GIVE US THE APPLICATION – NOT JUST THE kVA**

## Benefits to You

### Compliance

NRMM REGS & MCPD  
LEGISLATION

### Confidence

MODERN, LATEST-  
GENERATION  
EQUIPMENT, LOWER  
HRS

### Environmental

SIGNIFICANTLY  
REDUCED EMISSIONS

### SUPPORTED

PE EXPERTISE &  
SUPPORT



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

*Stage IIIA remains an important and capable part of our fleet.*



**Stage V** will gradually become the standard.



**STAGE V**  
Cleaner generation



**BATTERY STORAGE**  
Smarter power management



**CLEANER WHEN IT RUNS.**  
**SMARTER ABOUT WHEN IT RUNS.**



Correct sizing  
+ BES



Fewer unnecessary  
engine hours



Lower fuel  
consumption

## 3 Key Take Aways

**Stage V is  
Here**

Legislation + Fleet Renewal

**Bigger Isn't  
Always Better**

Correct Sizing Matters

**Work With Us**

Give us the Application -  
We'll Provide the Solution



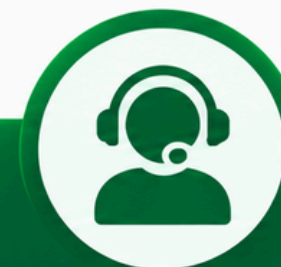
**RIGHT  
EQUIPMENT**



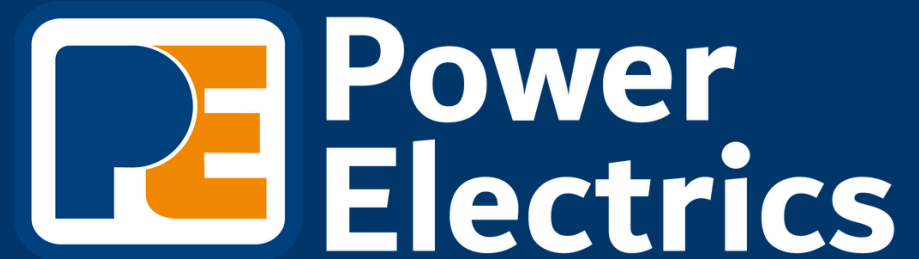
**RIGHT  
SPECIFICATION**



**RELIABLE  
DELIVERY**



**24/7  
SUPPORT**



**POWERING THE PEOPLE WHO MAKE A DIFFERENCE**

**THANKS FOR LISTENING**

