

# CLEANER EMISSIONS FROM DIESEL GENSETS



## Location

Preston, UK.

## Business sector

Distribution & Manufacturing.

## Size

3,000 employees.

## Equipment

SCRonF emissions solution on MTU 16V 4000G23 generators.

**“ IPU’s technology makes James Hall an example of how businesses can ace their environmental obligations. ”**

Jeff Laker, Engineering and Technical Manager, James Hall & Co

### Problems faced

- James Hall wanted to reduce emissions from its two backup generators long before the deadline set by legislation.
- NOx emissions stood at around 1,300ppm, far above the regulatory maximum that would be imposed in 2025.
- Black smoke was clearly visible from the generators' exhausts.

### Solutions Delivered

- IPU's emissions systems brought NOx emissions down to 140mg, well below the 190mg limit.
- Visible black smoke was eliminated by the Diesel Particulate Filter (DPF) element of the emissions solution.
- IPU and Ingram Installations developed a custom solution to fit the confined space available on site.



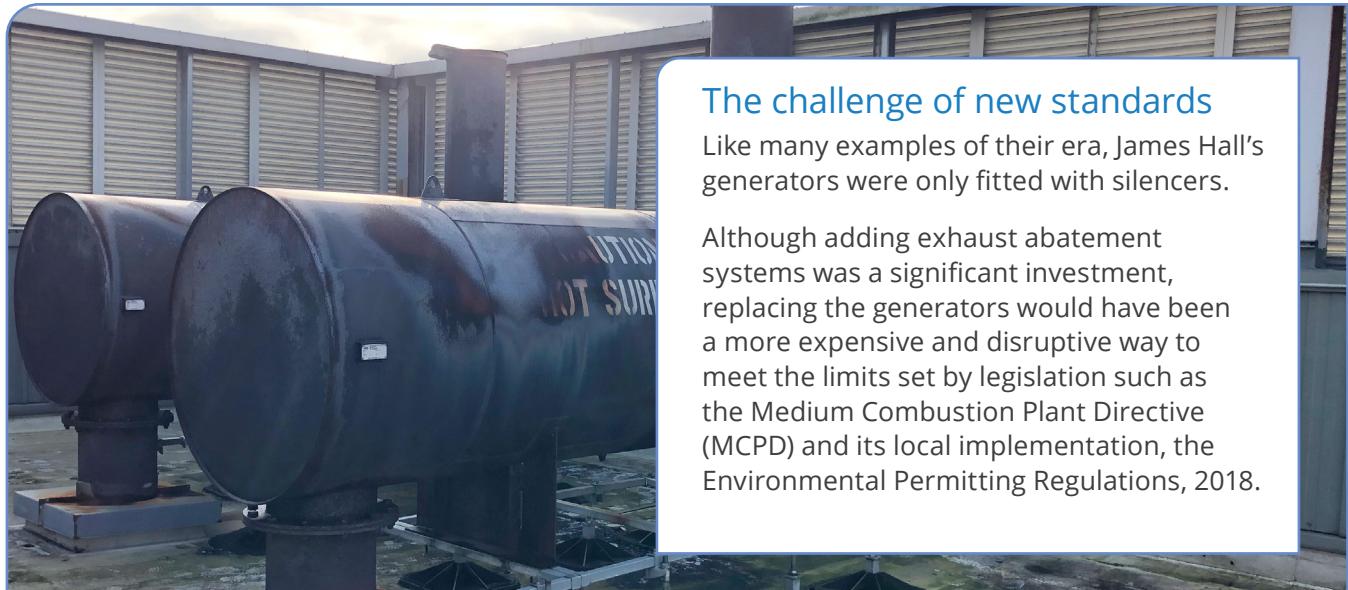
The SCRonF units brought emissions well within regulatory limits.

Let's talk

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# BACKGROUND

As one of the county's largest employers, James Hall wanted to enhance its role in the local community by reducing emissions years before regulatory limits came into force.



## The challenge of new standards

Like many examples of their era, James Hall's generators were only fitted with silencers.

Although adding exhaust abatement systems was a significant investment, replacing the generators would have been a more expensive and disruptive way to meet the limits set by legislation such as the Medium Combustion Plant Directive (MCPD) and its local implementation, the Environmental Permitting Regulations, 2018.

## An essential part of the business

The James Hall site in Preston is the company's main distribution and manufacturing centre.

Its pair of MTU generators perform two vital roles. Firstly, they provide backup power in case of a mains failure. This is a critical role. The site produces and distributes thousands of chilled food products every day. It is a power-intensive operation. Any disruption to the power supply would have massive repercussions to SPAR stores in the region.

Secondly, the generators supply electricity to the grid under a capacity market agreement, proving useful revenue to the company. The contract requires James Hall to provide power on-demand. It usually supplies up to three hours of power per day in the winter months.

## Setting an example

England's latest regulations require businesses to dramatically reduce emissions from diesel generators before 1st January, 2025.

James Hall took the decision to meet the new limits long before that deadline came into effect. As one of the county's largest employers, it takes pride in its position as a good corporate citizen.

The company had four goals:

- bring NOx emissions down from 1,300ppm to well below the limits set by legislation,
- reduce the NOx emissions long before the legislation comes into effect,
- tackle emissions such as black smoke that may not be covered by legislation, and
- be ready for any future emissions legislation.

The company's MTU 16V 4000G23 generators had been producing about 1,300ppm of NOx. With IPU's abatement system, it could demonstrate its sense of responsibility and commitment to the community it serves.

# THE IPU SOLUTION

## A collaborative partnership with Ingram Installations

IPU and Ingram Installations fitted each engine with an 'SCRonF' abatement system. This type of unit combines both SCR and DPF (Diesel Particulate Filter) substrates in one unit. The SCR element removes NOx. The DPF removes black smoke.

The systems were installed on a roof-top with weight restrictions. IPU is one of the few suppliers of combined SCRonF units that are smaller and lighter unit than separate systems. This, combined with a series of load-bearing pads that spread the weight, suited the site.

The IPU system uses a metallic substrate (filter) that warms up faster than other substrates. It starts removing emissions far sooner after engine start than other systems. This is especially important because engines produce more emissions at start-up than any other time.

The system uses a closed loop design that constantly monitors the exhaust gases coming out of the engines and adjusts the treatment accordingly. This avoids 'ammonia slip', a characteristic of less precise systems that use too much AdBlue and pass toxic ammonia into the atmosphere.

## Meeting all four goals

Once installed and commissioned, the abatement systems brought NOx emissions down to 144 and 137mg/NM<sup>3</sup> in the two engines. This is well below the limit of 190mg/NM<sup>3</sup>.

The installation was commissioned and working long before the 2025 deadline.

The DPF elements of the units also removed the appearance of black smoke.

Although the two engines are already well within regulatory limits, the flexibility of the IPU solution means emissions could be reduced even further. The systems can be configured to bring NOx emissions to near-zero.

If legislation reduces limits in the future, James Hall will not face the unpleasant situation of having to upgrade their abatement systems again.

## Exceeding standards

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**144 & 137mg/NM<sup>3</sup>**

The new level of NOx emissions from James Hall's two generators.

Both units are well below the legal limit of 190mg/NM<sup>3</sup>, four years before that limit is enforced.

## ABOUT IPU

IPU helps businesses reach the profitability and efficiency they seek.

For nearly sixty years, we have delivered the expert assistance and customer service that lets our domestic and international customers excel in their industries.

We support businesses in sectors including power-generation, oil & gas, marine, IT & telecoms, manufacturing and government.

Our industry experience, competitive pricing and superb support let us evolve from a regular supplier to become the company our customers *want* to do business with.

## ABOUT JAMES HALL

The James Hall group of companies is a Lancashire-based, family business which operates as the primary wholesaler to around 600 SPAR retailers throughout the North of England.

The company also owns and operates a number of other manufacturing and non-food businesses.

With over 3,000 employees, the company is one of the largest employers in the county. Its people are vital to the success of the business. The company ensures that the family values it prides itself on run throughout the entire organisation.

## ABOUT INGRAM INSTALLATIONS

Since 1972, Ingram Installations have been providing complete power protection and energy security.

Ingrams are experts in supplying, installing, and maintaining emergency standby generators. Their services range from site design and consultation, to generator supply and turnkey installation, as well as exceptional after sales service.

The company also specialises in implementing green energy improvements to diesel generators to reduce harmful emissions.

