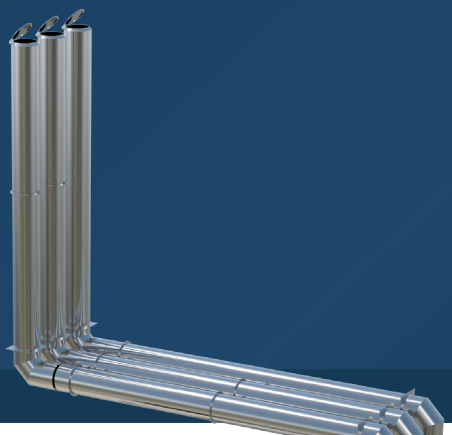
DATA CENTER BACK-UP POWER

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Top 5 Takeaways for Engineers

From **The Last Mile of Uptime**: exhaust and SCR design for data center backup generators

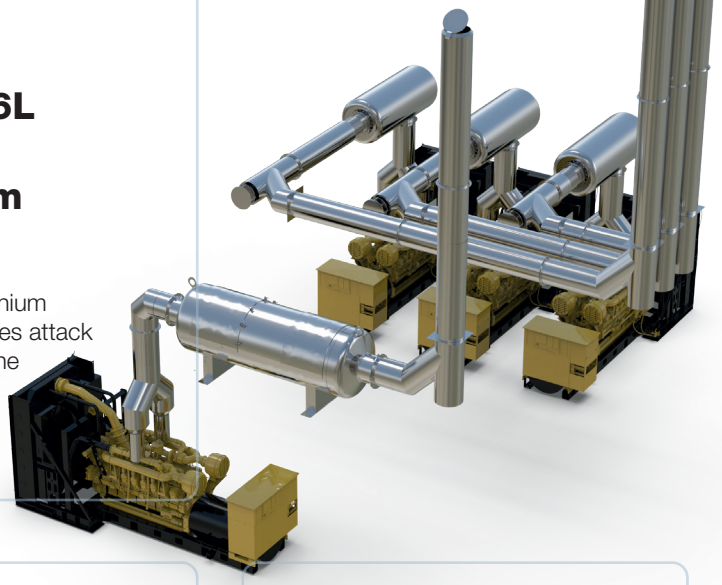


1 Let permit requirements drive engine and SCR choices

Emergency vs. non-emergency classification, run-hour limits and attainment status decide the engine tier and whether you need SCR. Some permits now require both SCR and DPF on emergency engines.

2 Specify 316L or better downstream of SCR

Sulfuric acid, ammonium bisulfate and chlorides attack 304 stainless from the inside, starting at welds and seams.



3 Most corrosion happens while the generator is off

Standby duty keeps the exhaust in the 100–260 °C range, where acid condenses and deposits form. Build in drains, insulation and inspection ports from the start.

4 Recalculate backpressure whenever after-treatment is added

Every pipe run, elbow, silencer and catalyst counts against the engine maker's limit. Adding SCR without redoing the numbers is one of the most common mistakes.

5 Design for afterfire, and design to code

NFPA 37 requires the exhaust to withstand the forces or relieve them safely. Use exhaust listed to UL 103/2561 or engineered per NFPA 211. Field-welded Schedule 40 doesn't meet those requirements.

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