

DATA CENTER OPERATIONS CASE STUDY

Back Up

Case Study 4: Emergency back ups

Diesel reciprocating engines are a reliable and cost-effective option for emergency back-up power generation in data centers. However, changes in regulations and customer preferences may impact the choice of technology. In regions with emissions limitations, natural gas or renewable natural gas solutions may become more popular.

In Tier 1 cities like New York and London, limited land availability and high land costs call for optimized solutions with a smaller footprint.

Some data centers may also require higher power density units to be installed within the same data center footprint due to the increased power needs resulting from upgrading their IT equipment technology.

Delay in power utility grid connection may also drive the need for low NO_x, high power density continuous power rated (COP) power generation.



Gas turbines present numerous advantages. These benefits include:

- Significantly higher power density compared to 3 MW diesel generators with 3 MW blocks of gas engines and even 15 MWe capacity within the same footprint.
- Quick engine warm up – with full load achieved in less than 35 seconds for the Centaur[®] 40.
- COP rated and dry low NO_x to potentially bridge the power utility grid.
- Dual fuel capabilities, reducing the risk of fuel supply disruptions.
- Superior power quality, allowing 100% load block without the need for batteries.
- The ability to switch between diesel and natural gas on the fly, ensuring low emissions and uptime requirements.
- Compatible with renewable liquids and gases, including hydrogen fuel blends.
- Reduced NO_x emissions with less than 15 ppm by volume without SCR need or water injection.
- Lower CO₂ and NO_x emissions resulting in fewer permitting concerns.
- The ability to participate in the energy/power market as a valuable asset.