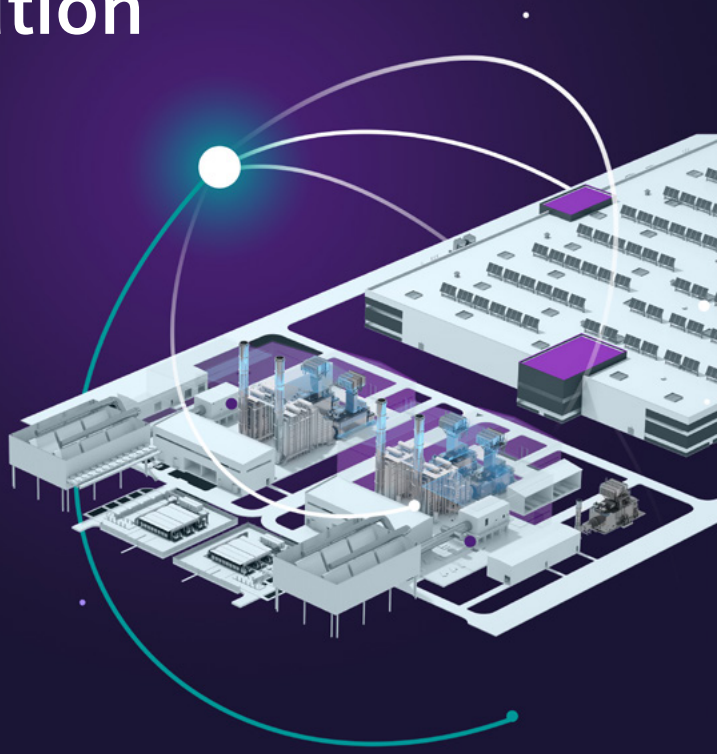
Data center energy expansion

An aeroderivative solution by Siemens Energy



Data centers are rapidly increasing globally due to an ever-growing demand of data management.

The usual reciprocating engines solutions for data centers are not economic in number and size. As such, we need to think differently: efficiency, fast start, energy density, availability, with full consideration to decarbonization.

Using high-scale technology to diminish the footprint of data centers, gas turbines derived from aviation technology is the solution.

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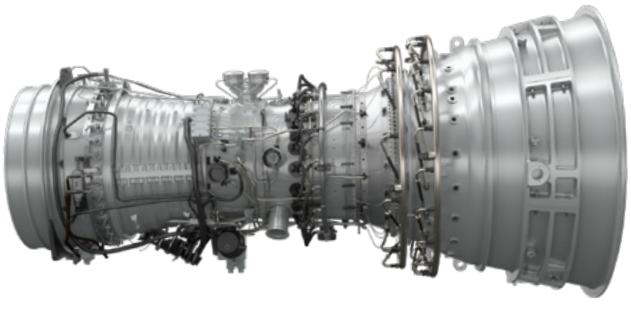
Rapid evolution and growth of data centers' energy demand

Globalization with fast digitalization is changing the narrative of the future of data centers. This growing business relies on solid power generation, as well as reliable back-up power to maintain its competitiveness, steady transactions, and quality computing.

Large data centers are becoming the norm and can no longer depend on reciprocating engines to satisfy their emergency energy needs. A large data center consumes as much electricity as a small town, and when the grid's power fails, online transaction processing (OLTP)[1], cloud & blockchain operations, and business analytics are jeopardized. That is one of the main reasons why robust and reliable backup power is critical for data centers.

Advantages of aeroderivative engines

Siemens Energy gas turbine technology has many advantages compared to reciprocating engines ranging from high efficiency, low maintenance costs (OPEX), low oil consumption, versatility to run on multiple of fuels other than diesel (future proofing for zero-carbon fuels), low weight, very small footprint.



Think differently - attributes of aeroderivative engines for data centers

The progressive transformation of data centers will benefit from aeroderivative technology, providing backup power, while allowing the flexibility from higher power density. Siemens Energy SGT-A35 and the SGT-A05 enables the possibility of decarbonization, allowing not only to grow data centers capacity, but also improving cost efficiency and reliability. Here are five main benefits associated with aeroderivatives engines such as Siemens Energy aeroderivative gas turbines

1. Super-Fast start / Availability: high availability to full power less than 2 minutes[3], thus a great solution for backup power.

2. Power density /Smaller footprint: provide higher stable power for the same footprint, allowing data centers to manage extra space, thus less land and building costs.

3. Fuel flexibility: operate on various fuels such as from Natural gas to Diesel, Bio diesel, HVO[2], Ethanol, an even 100% Hydrogen. This makes data centers conform to a greener alternative and lead the way to a smooth transition in the zero-carbon economy

4. Modular design / Easy scalability: data centers will have a flexibility to add power incrementally due to our compact package design (single lift)

5. Sustainability: produces low emission as well as low noise, which will allow data centers to be located within an urban and residential area

Conclusion

The increasing need for more flexibility and higher power quality, has challenged the designers of future data centers. As they are growing to be bigger in response to the ever-increasing demand, data centers are faced with the reality of needing significantly greater power that must be greener and durable. Fortunately, they can count on aeroderivative gas turbines to meet all their needs. Data centers can count on Siemens Energy aeroderivative engines to answer to high power density, quality, availability, and reliability.

Siemens Energy aeroderivative engines are the suitable solutions to benefit data center business in the long run.

1. OLTP or Online Transaction Processing is a type of data processing that consists of executing a number of transactions occurring concurrently, for example, online banking, shopping, order entry, or sending text messages.

2. HVO: Hydrogenated vegetable oil

3. Super-Fast Start will have a reduced time between overhauls.