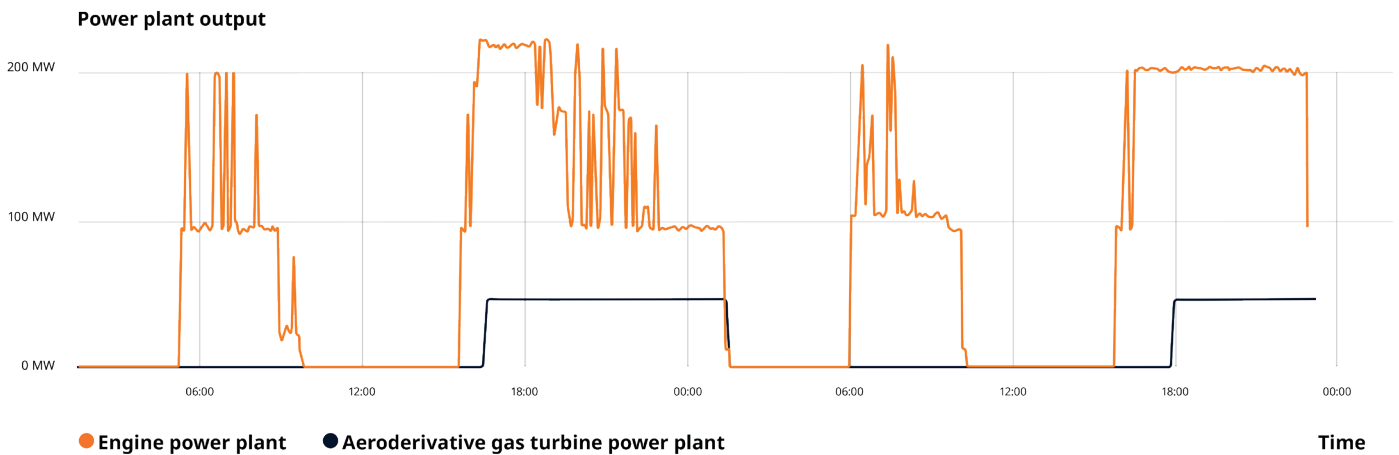




Actual engine power plant output (MW).

## Why engines are the best choice for balancing



Read more about  
Wärtsilä engines.

Engine power plants are the best choice to ensure the stability and reliability of power grids that are using increasing amounts of renewable energy. This is because they can counter the intermittency of renewables and variations in weather in a heartbeat without additional cost. Other power generation technologies don't have equal capabilities. Engines add the needed flexibility to power grids, securing reliable and affordable energy.

# Engine power plants have the added advantage of providing



## Excellent dynamic capabilities

With unbeatable dispatch capabilities, they can go from start-up to full load in as little as two minutes without minimum uptime or downtime. Unlimited starts and stops have no additional cost, e.g., on maintenance.



## Sustainable power generation

They are emitting fewer greenhouse gas emissions than aeroderivative power plants thanks to higher efficiency. In addition, they have the added advantage of extremely low water consumption. Currently, our engines run efficiently on e-methane and on a 25% hydrogen gas blend and we are continuously developing our sustainable fuel capabilities.



## High efficiency and output also in extreme conditions

High full load efficiency can be maintained across a wide range of outputs. The ability to operate at loads as low as 10% makes them ideal for providing spinning reserve. Hot or humid weather conditions or drought have no negative impacts on the performance.



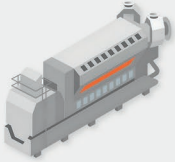
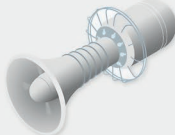
## Modularity

Modularity brings the added value of adaptability, reliability and cost-effectiveness. It enables adjusting capacity to the need, increased redundancy and resilience for uninterrupted operations. It also means fast deployment of the site.



## Security of supply

Ability to operate on a variety of gaseous or liquid fuels provides energy security in case of fuel supply disruptions. In addition to low gas pressure requirements, engines can instantaneously switch between fuels while maintaining full output and high efficiency.

	Engines	Aeros
		
Unit size	13 – 23 MW	45 – 55 MW
Relative plant output 40C/104F	100%	80%
Relative plant output 1 000m/3 280ft	100%	88%
Plant net efficiency 15C/59F	46 – 48%	38 – 40%
Plant net efficiency 40C/104F	45 – 47%	35 – 37%
Start time	2 – 5 min	8 – 10 min
Ramp rate (in spinning mode)	100%/min	50%/min
Min. load	10%	40%
Min. uptime	0 min	10 - 30 min
Min. downtime	0 min	30 - 60 min
Water consumption per hour	5 litres/1.3 gallons	11 500 litres/3 038 gallons
Black start capability	Yes	No