

Wärtsilä Turbogenerator



The Wärtsilä Turbogenerator is an exhaust gas energy recovery turbogenerator that improves power plant efficiency by increasing the electrical output without increasing fuel consumption.

Depending on engine condition and turbochargers, the turbogenerator can improve engine efficiency by up to 1.5% through an increase in electricity production. It does this by using the waste exhaust gas by-passed from the turbocharger to drive the generator, with no impact on engine operation, performance or emissions.

The solution is applicable to power plants equipped with Wärtsilä gas engines (Wärtsilä 34SG/Wärtsilä 50SG) and can also be retrofitted to Wärtsilä liquid fuel engines converted to gas operation.

The Wärtsilä Turbogenerator is a sound investment with a direct effect on overall plant operation efficiency*

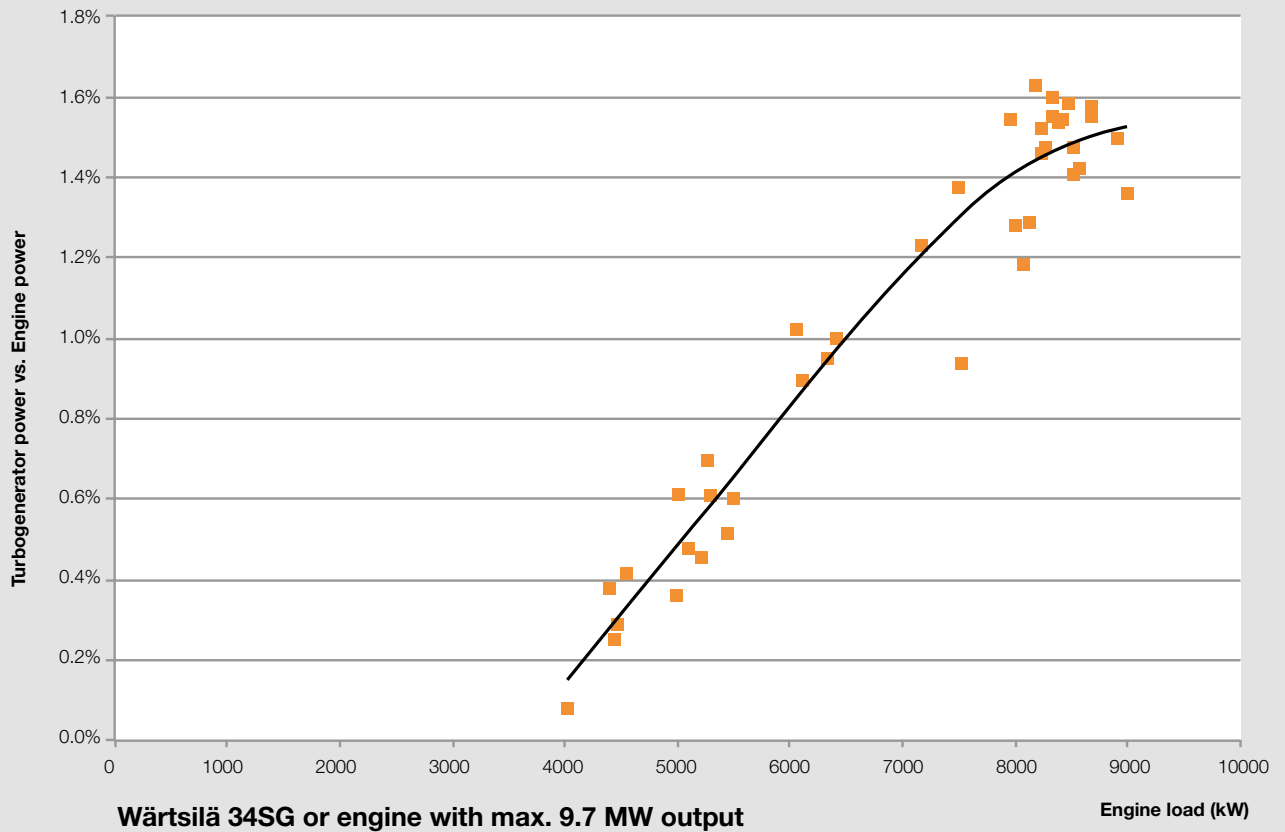
- Up to 1.5% increase in plant electrical output
- No impact on fuel consumption
- No impact on emissions

* The generated extra power can be used to increase overall power output of the engine, or the total net power may be kept constant, but with reduced fuel consumption.

MOST BENEFICIAL FOR

- Base load power plants (with Wärtsilä SG gas engines)
 - High electrical efficiency required
 - High availability for additional capacity
- Peaking power plants (with Wärtsilä SG gas engines)
 - High electricity price
 - Additional reserve capacity





The efficiency of the turbogenerator rises quickly as the engine load is increased.



COMPACT AND EASY TO OPERATE

The Wärtsilä Turbogenerator consists of an additional exhaust turbine placed in the wastegate line after the standard wastegate. A high-speed permanent magnet generator is assembled directly onto the shaft of the new turbine, generating electrical power when there is a flow of exhaust gases in the waste gate/turbocharger by-pass. Automatic isolation capability ensures continuous engine operation.

The energy recovered by the turbogenerator is processed with a unique power electronics module, which processes the high frequency, unregulated AC power output from the turbogenerator and converts it into a more useful form. For stationary power applications, an AC inverter produces a 3-phase 50/60 Hz, 400/480 VAC output.

SCOPE OF SUPPLY

- Site audit or design study of existing installation or new power plant/new installation
- Turbogenerator unit (turbine, high-speed generator, power electronics) optimised for the specific application
- WOIS update for controlling and measurements
- Mechanical design and connection
- Electrical design and connection
- Automation design
- Commissioning works / operational on-site instructions
- OEM documentation
- One year warranty
- Lifecycle maintenance and spare part support by Wärtsilä Services
- Logistics and installation works as an option