

Technology	Gas turbine, simple cycle - back pressure - natural gas - small				
year est	2025	2025 lower	2025 upper	Note -	Ref -
cat par					
Energy/technical data					
Generating capacity for one unit [MW_e]	22.5	5	40	F	
Electrical efficiency (net, name plate) []	38%	32%	40%	[G, H]	[6, 12]
Electrical efficiency (net, annual average) []	36%	30%	38%		[6, 11]
Cb coefficient (50°C/100°C)	0.8	0.6	0.8		[6, 12]
Cv coefficient (50°C/100°C)				J	
Forced outage []	2%	2%	3%		6
Planned outage [weeks per year]	2.7	2	3.5		6
Technical lifetime [years]	25	25		E	[6, 7]
Construction time [years]	1.5	1	1.5		6
Space requirement [1000 m2/MW_e]	0.04	0.03	0.07	G	7
Regulation ability					
Primary regulation (of full load, per 30 seconds) []	0%	0%	0%	I	
Secondary regulation (of full load, per minute) []	20%	20%	50%	C	6
Minimum load (of full load) []	22%	20%	25%	A	6
Warm start-up time [hours]	0.2	0.1	0.5		[5, 6, 8]
Cold start-up time [hours]	0.5	0.4	1		[5, 6, 8]
Environment					
SO2 (degree of desulphuring) []	0%	0%	0%		
NOX [g/GJ_i]	13	10	30	D	[7, 9]
CH4 [g/GJ_i]	1.5	1.0	8.0		9
N2O [g/GJ_i]	1.0	0.7	1.2		9
Financial data					
Nominal investment (*total) [MEUR/MW_e]	0.8	0.6	1.1	O	[6, 10]
Nominal investment (equipment) [MEUR/MW_e]	-	-	-	K	
Nominal investment (installation) [MEUR/MW_e]	-	-	-	K	
Variable O&M (*total) [EUR/MWh_e]	5.7	5.3	7.4	O	6
Fixed O&M (*total) [EUR/MW_e/y]	20,707	-	-	B	6
Technology-specific data					
Possible wintertime production (October to March)	4,193				

Notes:

- A. Very low efficiency at low loads and often increased Nox emission
- B. Insurance excluded, unknown. Daily start assumed
- C. Power related
- D. Based on Dry Low NOx (DLN) techniques
- E. Technical- and design life most often > 25 years
- F. Electrical output
- G. Combined with DGC assumptions, CHP configuration
- H. GT's (5 MWe) are available including internal recuperator; the electrical nominal efficiency is then 37 % (LCV basis)
- I. No data available, no known use
- J. Not relevant for this CHP configuration
- K. No data available
- L. DGC Estimate
- M. Air preheating by internal recuperation included

*. Subscript abbreviations used in the datasheets: input = _i, electricity production = _e, heat production = _h

**.. The empty square brackets [] denote parameters expressed in terms of a proportion. The raw data is in the raw decimal form, but note that these values are formatted as percentage in the wide report tables for readability.

References:

5. Danish Gas Technology Centre, analysis on gas engine and gas turbine dynamics, 2013
6. Wärtsilä Technical Journal "in detail" 02-2014
7. Data specs from manufacturers (Web) 2015
8. Danish Gas Technology Centre, analysis and discussion with manufacturers, April 2013
9. Danish Gas Technology Centre, environmental survey 2012
10. Smart Power Generation - The future of electricity production, J. Klimstra & M. Hotakainen 2011
11. IEA: Projected cost of generating electricity, 2010
12. COWI 2015 input
13. The Omes Project results (2005)
14. WBDG-Publication, B. L. Capehart, Microturbines, 2014

Obs original data was taken from "large"

data in 2022 prices