GE Power

9E & GT13E2 Power Plants

Whether meeting peak loads, providing baseload heat and power, or driving industrial processes, GE's 9E/GT13E2 heavy duty gas turbines deliver power and performance while maintaining the simplicity and operational strengths expected of the E-class fleet. GE's 9E/13E2 power plants operate in the most rugged conditions, from arctic cold to extreme desert heat, and burn a wide range of fuels, from syngas to propane to crude oil. The 9E.04 delivers more power and performance with a new 4-stage turbine, while the GT13E2 offers a flexible extended maintenance concept that reduces operating costs while saving fuel.

132-210 MW SIMPLE CYCLE OUTPUT

>55% COMBINED CYCLE EFFICIENCY

Capability
Burns more than 50 types of fuels; operates in ambient conditions ranging from -40°F to 120°F

Versatility
Capable of order to operation in less than six months

Sustainability
World Bank-compliant, including dual fuel heavy fuel oil plants

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132-210 MW SIMPLE CYCLE OUTPUT

>55% COMBINED CYCLE EFFICIENCY

		9E.03	9E.04	GT13E2 2012
SC Plant Performance	SC Net Output (MW)	132	145	210
	SC Net Heat Rate (Btu/kWh, LHV)	9,860	9,210	8,980
	SC Net Heat Rate (kJ/kWh, LHV)	10,403	9,717	9,474
	SC Net Efficiency (%, LHV)	34.6%	37.0%	38.0%
Gas Turbine Parameters	Compression Pressure Ratio (X:1)	13.1	13.3	18.2
	GT Generator Type (Cooling)	Air	Air	Air
	Number of Combustor Cans	14	14	48 (AEV burners)
	Number of Compressor Stages	17	17	16
	Number of Turbine Stages	3	4	5
	Exhaust Temperature (°F)	1,012	1,007	959
	Exhaust Temperature (°C)	544	542	515
	Exhaust Energy (MM Btu/hr)	828	818	1,155
	Exhaust Energy (MM kJ/hr)	874	863	1,219
	GT Turndown Minimum Load (%)	35%	35%	30%
	GT Ramp Rate (MW/min)[1]	50	16	14/36/68
	NO_X (ppmvd) at Baseload (@15% O_2)	5	15	15
	CO (ppm) at Min. Turndown w/o Abatement	25	25	25
	Wobbe Variation (%)	+/-30%	+/-30%	+/-20%
	Startup Time, Conventional/Peaking (Min.)[2]	30/10	30/10	25/15/10
1x1 CC Plant Performance	CC Net Output (MW)	204	216	305
	CC Net Heat Rate (Btu/kWh, LHV)	6,399	6,220	6,189
	CC Net Heat Rate (kJ/kWh, LHV)	6,751	6,563	6,530
	CC Net Efficiency (%, LHV)	53.3%	54.9%	55.1%
	Plant Turndown – Minimum Load (%)	45%	46%	39%
	Ramp Rate (MW/Minute)[1]	50	16	14
	Startup Time (RR Hot, Minutes)[3]	38	38	30
1x1 CC Power Plant Features	Bottoming Cycle Type	2PNRH	2PNRH	2PNRH
	HP Throttle Press. (psia/bar)	1,015/70	1,015/70	1,088/75
	HP Throttle Temp. (°F/°C)	986/530	986/530	930/499
	Reheat Temp. (°F/°C)	N/A	N/A	N/A
	ST Configuration (Type)	STF-A200	STF-A200	STF-A200
	GT Generator Type (Cooling)	Air	Air	Air
	ST Generator Type (Cooling)	Air	Air	Air
2x1 CC Plant Performance	CC Net Output (MW)	410	436	613
	CC Net Heat Rate (Btu/kWh, LHV)	6,353	6,180	6,153
	CC Net Heat Rate (kJ/kWh, LHV)	6,703	6,520	6,492
	CC Net Efficiency (%, LHV)	53.7%	55.2%	55.5%
	Plant Turndown – Minimum Load (%)	22%	22%	19%
	Ramp Rate (MW/Minute)[1]	100	25	28
	Startup Time (RR Hot, Minutes)[3]	38	38	30
2x1 CC Power Plant Features	Bottoming Cycle Type	2PNRH	2PNRH	2PNRH
	HP Throttle Press. (psia/bar)	1,085/75	1,085/75	1,160/80
	HP Throttle Temp. (°F/°C)	986/530	986/530	930/499
	Reheat Temp. (°F/°C)	N/A	N/A	N/A
	ST Configuration (Type)	STF-D200	STF-D200	STF-D200
	GT Generator Type (Cooling)	Air	Air	Air
	ST Generator Type (Cooling)	Air	Air	Air

1.) Ramp rates are Fast Ramp via AGC.

2.) Start times recognize purge credit. Turning gear to full speed, full load and synchronized to grid. Peaking maintenance factors may apply depending on the operating profile.

3.) Start times are based on rapid response technologies in hot start conditions with purge credit recognized. Simultaneous start sequence of gas turbine may apply depending on exact project configurations.

NOTE: All ratings are net plant, based on ISO conditions and natural gas fuel. Actual performance will vary with project-specific conditions and fuel.All performance figures based on Once-Through condenser with 1.2" Hga condenser pressure. 2PNRH = Two pressure, non-reheat; 3PRH = Three pressure, reheat.

GE's 9E.04 shares the same footprint as the 9E.03 but delivers 9.8% more power and 2.7% more efficiency.

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