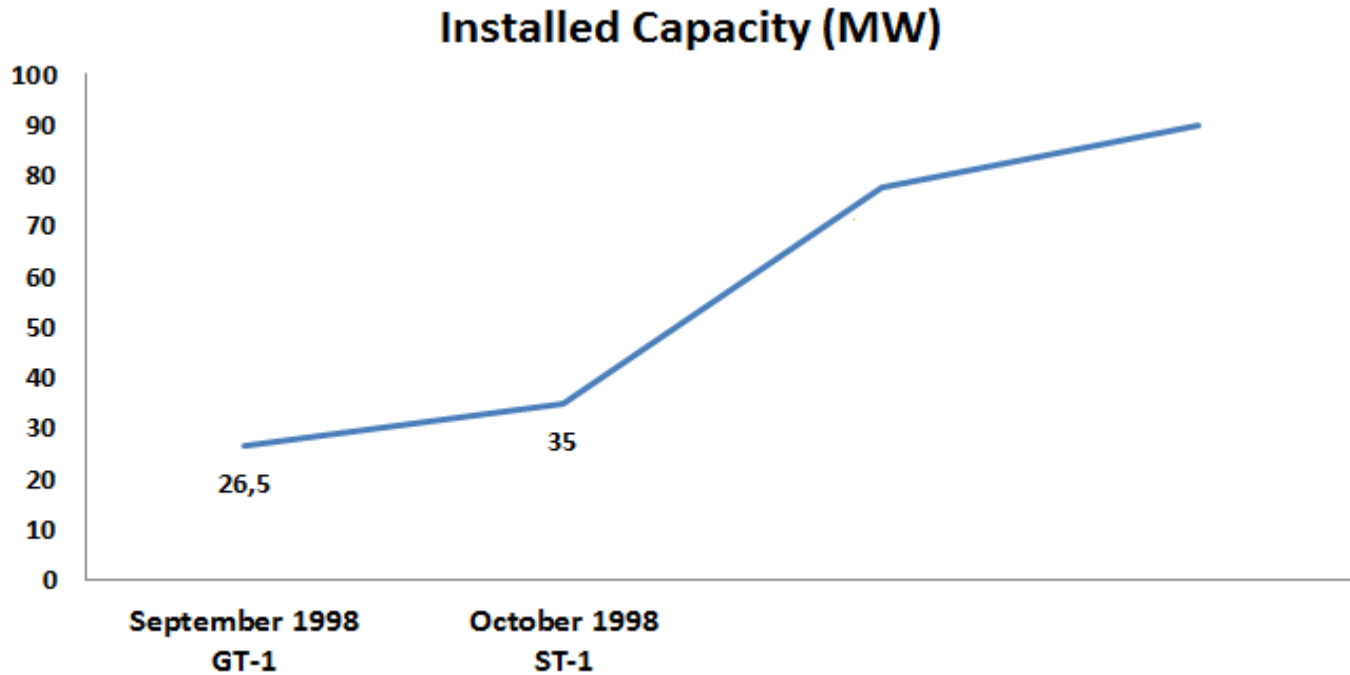


GE LM2500+ Combined Cycle Power Plant



HISTORY

- 1997 - Construction of CCPP was started
- 1998 - Electricity generation started as first gas turbine was commissioned.



GENERAL INFORMATION

- There are 1 gas turbine, 1 steam turbine and turbo generator in the plant.
- The installed capacity for the Plant is 35 MW.

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	Manufacturer	Model	Capacity (MW)
GT-1	GENERAL ELECTRIC	LM 2500+	26,5
ST-1	SIEMENS	GK 32/45	8,5

PLANT EQUIPMENT INFORMATION

EQUIPMENT INFORMATION				
	GT1	ST1	GEN1 (GT1,ST1)	HRSRG1
Manufacturer:	GE	SIEMENS	BRUSH	DESA
Model Number:	7LM2500-PK-MGG02	GK 32/45	BDAX7-290PR	Water Pipe
Prod.Date:	1996	-	1997	-
NaturalGas Cons. (Sm3/h):	7500 Sm3	-	-	-
Licence Power (MW):	35 MW (GT1+ST1)	-	-	-
Nominal Power (MW):	26,605	8,1 MW	-	-
Gen MVA Value (MVA):	59,50 MVA	59,50 MVA	59,50 MVA	-
Gen Nominal Voltage (kV):	11 kV	11 kV	11 kV	-
Gen Cooling Type :	AIR	AIR	AIR	-
Grid Voltage (kV):	34,5 kV	-	-	-
Inside Cons. (MWh):	0,8MWh	-	-	-
Steam Capacity (T/h):	-	-	-	38 t/h
Steam Pressure (barg):	-	46 bara	-	48 barg
Steam Temp. (degC):	-	395 degC	-	400 degC
Electrical Efficiency :	38,10%	-	-	-
Combined Efficiency :	-	-	-	-
Maint. Period:	6 M and Per Year	6 M and Per Year	6 M and Per Year	

PLANT GENERAL INFORMATION

- PLANT has **35 MW** capacity.
- There are 3 equipments in the plant:
 - GE LM2500+ Gas Turbine (GT-1) **26,5 MW** power.
 - Siemens G32/45 Steam Turbine (ST-1) **8,5 MW** power.
 - DESA HRSG steam capacity is **38 t/h** Heat Recovery Steam Generator Boiler (HRSG).
- Turbo generator driven by both GT-1 and ST-1 and Total Generator capacity 59,5 MVA.
 - Brush Turbo Generator (GEN-1), 11 kV, 3000 RPM.
- Combined Cycle Efficiency: %48 (LHV).

GAS TURBINE (GE LM2500+)

	GT1
Manufacturer:	GE
Model Number:	7LM2500-PK-MGG02
Prod.Date:	1996
NaturalGas Cons. (Sm3/h):	7500 Sm3
Licence Power (MW):	35 MW (GT1+ST1)
Nominal Power (MW):	26,605 MW
Gen MVA Value (MVA):	59,50 MVA
Gen Nominal Voltage (kV):	11 kV
Gen Cooling Type :	AIR
Grid Voltage (kV):	34,5 kV
Inside Cons. (MWh):	0,8 MWh (BRS1)
Steam Capacity (T/h):	-
Steam Pressure (barg):	-
Steam Temp. (degC):	-
Electrical Efficiency :	38,10%
Combined Efficiency :	SAHA-1 (GT1-ST1) SAHA-2 (GT2-ST2)
Maint. Period:	6 M and Per Year



GAS TURBINE (GE LM2500+)



STEAM TURBINE (SIEMENS)

	ST1
Manufacturer:	SIEMENS
Model Number:	GK 32/45
Prod.Date:	-
NaturalGas Cons. (Sm3/h):	-
Licence Power (MW):	-
Nominal Power (MW):	8,1 MW
Gen MVA Value (MVA):	59,50 MVA
Gen Nominal Voltage (kV):	11 kV
Gen Cooling Type :	AIR
Grid Voltage (kV):	
Inside Cons. (MWh):	
Steam Capacity (T/h):	-
Steam Pressure (barg):	46 bara
Steam Temp. (degC):	395 degC
Electrical Efficiency :	
Combined Efficiency :	
Maint. Period:	6 M and Per Year



STEAM TURBINE (SIEMENS)



HRSG (DESA)

	HRSG-1
Manufacturer:	DESA
Model Number:	Water Pipe
Prod.Date:	-
NaturalGas Cons. (Sm3/h):	-
Licence Power (MW):	-
Nominal Power (MW):	-
Gen MVA Value (MVA):	-
Gen Nominal Voltage (kV):	-
Gen Cooling Type :	-
Grid Voltage (kV):	-
Inside Cons. (MWh):	-
Steam Capacity (T/h):	38 t/h
Steam Pressure (barg):	48 bar
Steam Temp. (degC):	400 degC
Electrical Efficiency :	-
Combined Efficiency :	-
Maint. Period:	6 M and Per Year



HRSG (DESA)



GENERATOR (BRUSH)

	GEN1 (GT1,ST1)
Manufacturer:	BRUSH
Model Number:	BDAX7-290PR
Prod.Date:	1997
NaturalGas Cons. (Sm3/h):	-
Licence Power (MW):	-
Nominal Power (MW):	-
Gen MVA Value (MVA):	59,50 MVA
Gen Nominal Voltage (kV):	11 kV
Gen Cooling Type :	AIR
Grid Voltage (kV):	
Inside Cons. (MWh):	
Steam Capacity (T/h):	-
Steam Pressure (barg):	-
Steam Temp. (degC):	-
Electrical Efficiency :	
Combined Efficiency :	
Maint. Period:	



GENERATOR (BRUSH)



PLANT-1 EQUIPMENT INFORMATION

- 11kV BREAKERS



PLANT PRODUCTION INFORMATION

- Gross Production Values for the year 2014 to 2015
- GT1 and ST1 Working hours

Gross Prod. And Work.Hours		April 2014	May 2014	June 2014	July 2014	Aug. 2014	Sept.2014	Oct.2014
GT1+ST1 Gross Production :	kWh	666.790	890.270	2.068.930	7.391.500	3.900.060	896.890	320.820
GT1 Working Hours :	hours	20,0	28,0	70,0	263,0	145,0	32,0	11,0
ST1 Working Hours :	hours	17,0	25,0	60,0	236,0	122,0	23,0	8,0
		Nov.2014	Dec.2014	Jan.2015	Feb.2015	March 2015	April 2014	Total
GT1+ST1 Gross Production :	kWh	23.100	12.910	11.394	87.878	372.701	804.832	16.135.260
GT1 Working Hours :	hours	1,0	1,0	0,5	3,0	12,0	28,0	569,0
ST1 Working Hours :	hours	0,0	0,0	0,0	0,5	7,0	20,0	491,0
Total GT1 Working Hours :	19.923	hours						
Total ST1 Working Hours :	95.726	hours						

PLANT-1 MAINT. INFORMATION

GT-1 (LM2500+) CRITICAL EVENTS

Stance Time			Start Time		Total Stance Time		Stance Reasons
Date	Hours	Working Hours	Date	Hours	Hours	Minutes	
28.09.2005	08:37	GT1 27083	30.09.2005	05:01	44	24	Change Gas Turbine with new one
26.10.2008	05:01	GT1 51820	02.11.2008	19:23	182	0	Change Gas Turbine from the maintenance
13.02.2010	01:01	GT1 7787	20.02.2010	11:40	178	39	GT1 Hot Section Maintenance
07.01.2011	00:00	GT1 12897	10.02.2011	16:55	771	46	HPT Maintenance
18.09.2014	10:00	GT1 19865	27.09.2014	12:14	218	0	Change HPT Section