

ADANI POWER LIMITED
Tal - Mundra, Distt. Kutch (Gujarat)

Unit Profile

Adani Power Mundra, is having 4x330MW of units and 5x660 MW units. In the year 2010-11 all four units of 330 MW commissioned and one unit of 660 MW commissioned successfully.

Subcritical units of 330 MW comprises of boiler which is designed and manufactured by B& W company and meets the standard of ASME, turbine is designed by Beijing BEIZHONG steam turbines generator Company Ltd. The boiler adopts the standard arrangement of natural-circulation coal fired boiler. It adopts single drum with subcritical parameters, single reheater, wet bottom slag, semi- outdoor single furnace, balance draft, full suspension arrangement. Design fuel is Indonesia bituminous coal. It adopts medium speed direct firing pulverizing system under positive pressure with opposite combustion mode. The coal burner is the latest DRB-4Z type super low NOx double air adjustment of rotational flow burner.



Turbine is tandem compound, reheating, condensed steam with three cylinders and two exhaust pipes. There are 7 extraction stages in the turbine. High pressure rotor is of 11 stages, Medium pressure rotor is having 12 stages, low pressure rotor is having 2X5 stages.

Technical specification of subcritical turbine:

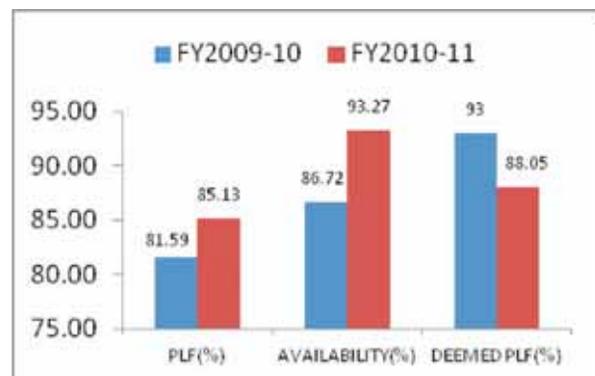
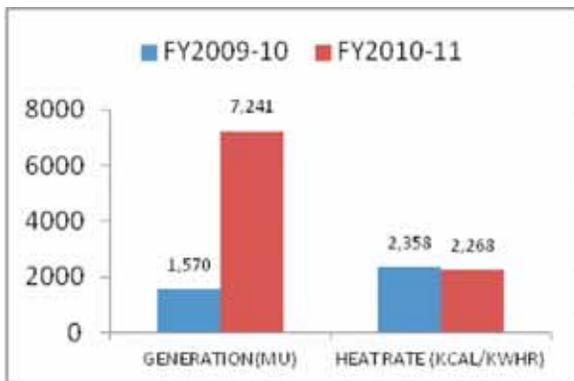
Rate capacity – 330 MW
Main steam pressure – 17.75 Mpa
Main steam Temperature – 540 degC
Reheat temperature – 540 deg C

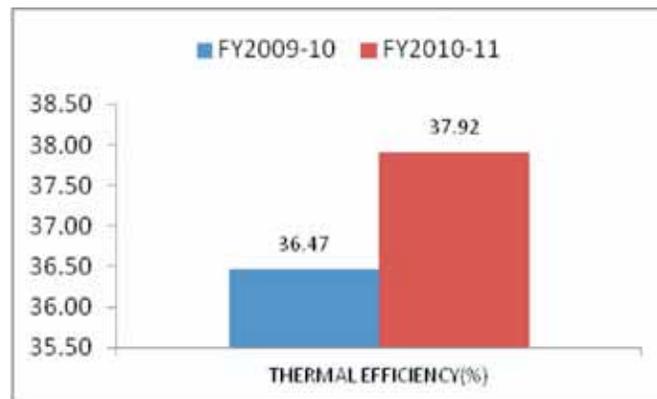
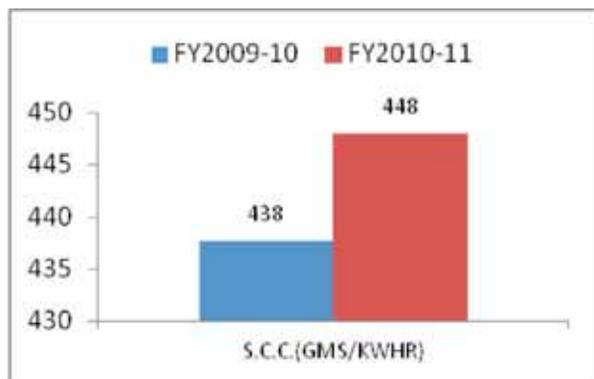
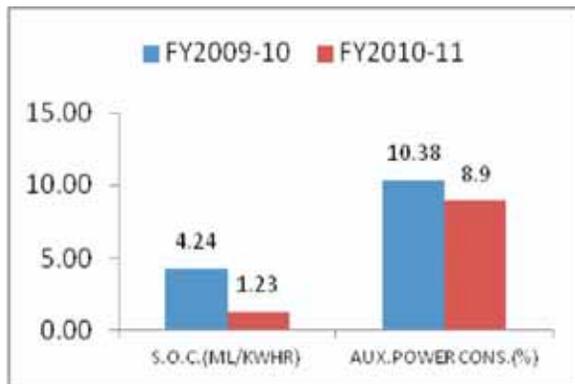
Technical specification of supercritical turbine:

Rate capacity – 660 MW
Main steam pressure – 24.2 Mpa
Main steam Temperature – 566 deg C
Reheat temperature – 566 deg C

Plant Performance and Energy Consumptions

PARAMETER	FY2009-10	FY2010-11
GENERATION (MU)	1570.268	7241.203
PLF (%)	81.59	85.13
AVAILABILITY (%)	86.72	93.27
S.O.C.(ML/KWHR)	4.24	1.23
S.C.C.(GMS/KWHR)	438	448
DEEMED PLF (%)	93	88.05
HEAT RATE (KCAL/KWHR)	2358	2268
AUX. POWER CONS.(%)	10.38	8.9
THERMAL EFFICIENCY (%)	36.47	37.92





Adani Power Limited has created the history in power sector by commissioning 1320 MW in a single calendar year. This milestone company have achieved because of effective monitoring of the projects and commissioning activities. Company have not only commissioned the units but also operated efficiently.

Adani Power Limited also created history of synchronizing first supercritical unit (660 MW) of India within 36 months from zero date.

Heat rate and auxiliary power consumption reduced in the year-2010-11 due to efficient way of operation and adapting energy efficiency programs.

Thermal efficiency improved in the year 2010-11 mainly due to optimum usage of primary fuel viz. Imported Indonesian and South African coal and also concentrated on the proper usage of secondary fuel.

- APL has achieved monthly highest station PLF of 91.5 % with total station generation of 673.7 Million Units in the month of Oct-2010.
- Lowest monthly DM water consumption 0.88 % achieved with total station generation of 447.4 Million Units by APL in the month of July-2010.
- APL has achieved lowest station heat rate of 2215 Kcal/KWh with total generation of 888.9 Million Units in January-2011

Energy Conservation

The following benefits have been accrued to APL as a result of innovations and best practices without any investment in the year 2010-11.

1) Interconnecting Instrument and service air compressor:

In the year 2010-11 one no of service air compressor and instrument air compressor stopped in each unit of Phase I and Phase II. In Phase I company has stopped IAC & SAC since 1st January -11 and in Phase II company has stopped IAC and SAC since February-11 respectively, this company could able to achieve by loading/unloading pattern study and interconnecting the service air and instruments air lines. Earlier company used to run two instrument air compressor and two service air compressors for each units.

Energy Saved in the year 2010-11 = 1.93 Million Units
Saving is monetary terms = Rs. 43.06 Lacs



2) Reducing the pressure set points in instrument air compressor:

Loading and unloading pressure set points modified in Instrument air compressors and service air compressors. Normally for all control valves required pressure of 5-6 kg/cm² hence to cater this plant has reduced the set

point of all instruments air compressor from 8.2kg/cm² to 6.5 kg/cm². Resulted in saving of power without affecting the process.

Energy Saved in the year 2010-11 = 0.13 Million Units
Saving is monetary terms = Rs. 2.79 Lacs

3) Regulated Cooling tower fans operation:

Last year during the season of winter plant has regulated the Cooling tower fans as per the cooling water temperature and condenser vacuum. Plant has 20 nos of cooling tower fans are available, normal operation 19 CT fans are running and one is standby. During the month of November, December and January company stopped 3 nos of CT fans during the night shift (5hrs)

Energy Saved in the year 2010-11 = 0.39 Million Units
Saving is monetary terms = Rs. 8.77 Lacs



4) Stopping of One Circulating water pump during winter :

In 4x330 MW Units, each unit is having three circulating water pumps running in normal operation and one Circulating water pump standby between two units. Each circulating water pump having flow of 18000 m³/h. In the year 2010-11 plant has stopped one circulating water pump in each unit since 20th Dec till 15th March

Energy Saved in the year 2010-11 = 12.9 Million Units
Saving is monetary terms = Rs. 287.72 Lacs

5) Oil consumption reduced in 4x330 MW :

Phase I and II boilers are front and rear fired and having five and six vertical grinding mills. Normally four mills in operation and one standby. While taking fifth mill in operation plant used to take three nos of oil guns to satisfy the ignition system. Later on to save oil consumption company have modified operation procedure. Whenever the flame intensity is above 80 % of all other running mills and fire ball in good condition unit starts fifth mill.

Secondary Fuel Saved in the year 2010-11 =144 KL
Saving is monetary terms = Rs. 57.6 Lacs

6) Oil consumption saving during the Commissioning of Unit 3 and 4 :

By optimising the process, people and technology the commission group has saved the 1801 KL of oil. This was achieved with proper co-ordination, keen monitoring during the chemical cleaning and by adapting the technique of "Do it right first time". Unit-3 full load achieved within 72 hrs from 1st synchronisation.

Secondary Fuel Saved in the year 2010-11 =1657 KL
Saving is monetary terms = Rs. 662.8 Lacs