Electricity Demand:

Iraq's per capita consumption increased 8 folds in the 20 years from 1970 to 1990. This was mainly due to aggressive program of bringing electricity to every customer in Iraq, including extending the distribution network to over 7,000 villages.
While Iran Iraq war had a minor impact on the per capita consumption, the 1991 Gulf War had a major impact on Iraq consumption rate. Since then, the per capita consumption had been suppressed at around 1400 kWh per capita. Currently, the consumption is expected to be around 700 kWh per capita.

This rate is well below regional neighbours with similar climate and potential. In 1999, the Arab World average per capita consumption was 10% higher than Iraq's, even though it included several populous countries like Sudan that had a mere 54 kWh/capita consumption rates.

Neighboring hot climate countries like Saudi Arabia consumed over 4 times Iraq per capita consumption rate. It is clear that the pre 1991 Gulf War per capita consumption of 1,700 kWh is a realistic estimate of the unsuppressed demand in Iraq.
Another factor that will impact the per capita numbers would be the percentage of Iraqi households that do have electricity. Currently, it is estimated that 2,600,000 of the 3,000,000 Iraqi households are connected to the CoE grid (87%). Access to electricity for remote and neglected areas will increase the average Iraq per capita consumption rates.
This table illustrate the type of the power stations in Iraq and the difference between the design and the actual production.

Stations	Design MW		Actual MW
Steam	8	5,415	1,600
Gas Turbines	14	2,181	800
Hydro	7	2,518	650
Diesel Plant	3	87	87
Total	32	10,206	3,137

Generating Stations :

Iraq's generating stations received little damage during the recent conflict, although many were significantly damaged during the 1991 war. Only 50 units (2,325 MW) of the original Iraq's 120 power plants (10,000 MW) were back on line after the 1991 Gulf War. From 1991, to the start of Oil-for-Food Programme (OIP) in 1996, Iraqi managed to bring on line close to 4,800 MW. Between 1998 and 2003, another 1,000 MW were rehabilitated or new gas turbine units added under a UNDP administered OIP programme. The 2003 conflict brought the system completely down due to operational considerations. Currently 3,137 MW is being feed into the grid as clear from table above.

Most of the plants are operating well below their rated capacity with frequent breakdowns. In general, Iraq power plants are 10 to 25 years old and have suffered substantial deterioration over the years. The common problems limiting each type of generation are:

• Steam Thermal Units: Old components with minimum maintenance, in particular boiler and condenser tubes, cooling water systems and control systems.

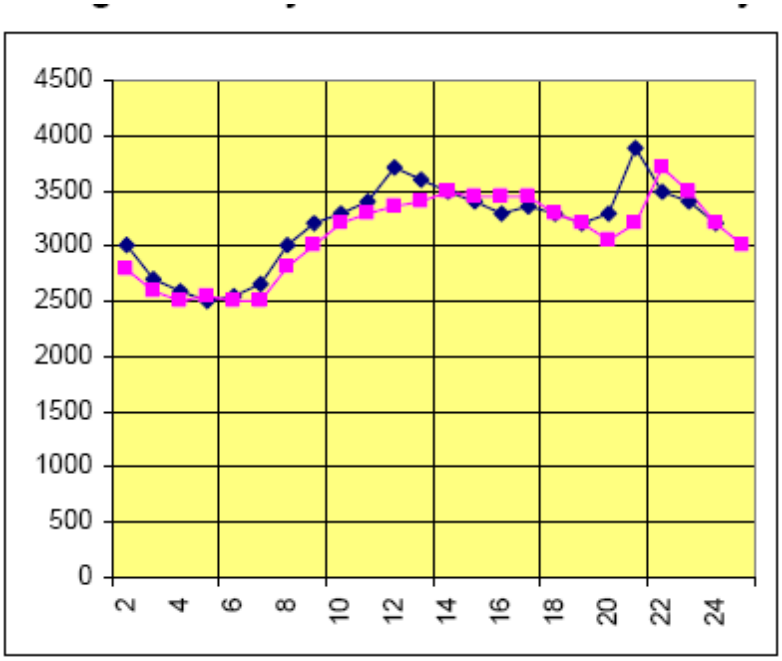
• Gas Turbines Units: Problems with compressor and turbine blades, air filters, control systems, and low fuel supply gas pressures.

• Hydro Units: Lack of sufficient water flow.

Currently, the system is operated at lower than 50 Hz frequency to reduce demand, causing detrimental affect on turbine blades, which lower system efficiencies even further.

Load Characteristics:

The latest Iraqi load curve data were collected in the second half of the eighties and manually tabulated in report published in 19901. The daily load curves for peak days in the period from 1985 to 1989 are shown below. There are two daily peaks, one in the early afternoon, and the other after 10:00 pm. Difference between night and day loads is not as high as expected for hot-climate countries (night is 60% of day peak). It is expected that the no-residential load of 52%, especially the industrial, is contributing to the high demand at night.



We could not obtain data for the seasonal variations for peak days; however, we obtained total monthly consumption for each month of the year for 2004, as shown below. The table below illustrates how much each governorate consumed.

8 January, 2004			
GOVERNORATE	**Peak Load MW**	**MWH**	**Average Load MW**
Baghdad	1250	26509	1105
Duhok	80	1821	76
Naynawa	330	7026	293
Tamim	135	2788	116
Salah Aldeen	165	4403	183
Anbar	145	3736	156
Dyala	75	1689	70
Babil	95	1917	80
Kirbala	55	1375	57
Najaf	80	2056	86
Kadsya	55	1212	51
Wasit	85	1390	58
Muthana	50	1176	49
Nasirya	120	2723	113
Misan	65	1306	54
Basra	320	6612	276
	3105