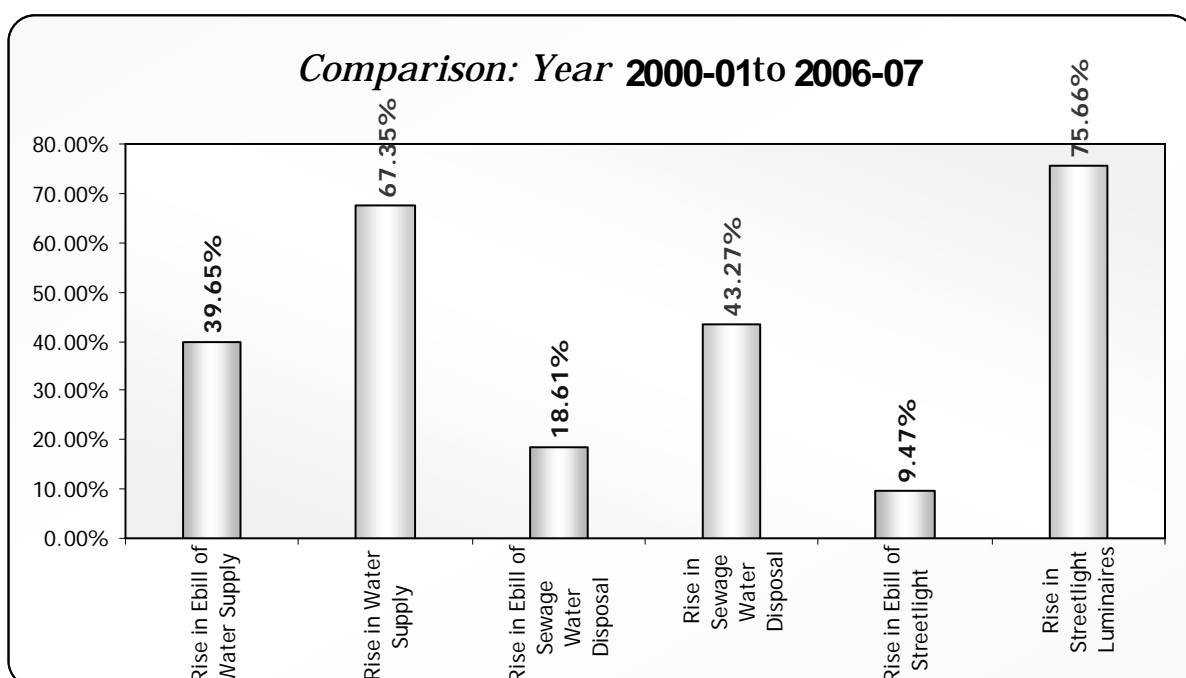




The increase in the electricity bill is compared below in the context of increase in the services.

Sr. No.	Year	Total	Water Supply		Sewage Disposal		Streetlight	
			Electricity Bill Amount (in Lacs Rs.)	Average Water Supplied (MLD)	Electricity Bill Amount (in Lacs Rs.)	Average Sewage Water Disposed (MLD)	Electricity Bill Amount (in Lacs Rs.)	Nos. of Luminaires
1	2000-2001	3953.64	2272.53	354.10	887.23	244.30	507.38	36,419
2	2006-2007	5200.30	3173.70	592.60	1052.36	350.00	555.42	63,973
**	% Rise	31.53%	39.65%	<u>67.35%</u>	18.61%	<u>43.27%</u>	9.47%	<u>75.66%</u>



Surat Municipal Corporation has 4 nos. of water treatment plants, 10 nos. of water distribution station supplying 650 MLD water, 6 nos. of sewage treatments, 27 nos. of sewage pumping stations treating 400 MLD sewage water, 65,596 nos. of various kinds of streetlight luminaires and one Main office, 7 zone offices, 16 city civic centres, 55 ward offices, 31 hospitals & nursing homes, 274 schools, 1 medical college, 2 auditoriums, Indoor stadium etc.

## Energy Efficiency Step Taken During Year 2004-05, 2005-06, 2006-07

### (I) **Water Transmission Grid**

#### **– A huge potential for energy saving**

##### A. Umarwada WDS UGTs Filling from Sarthana WW

###### **What was previously?**

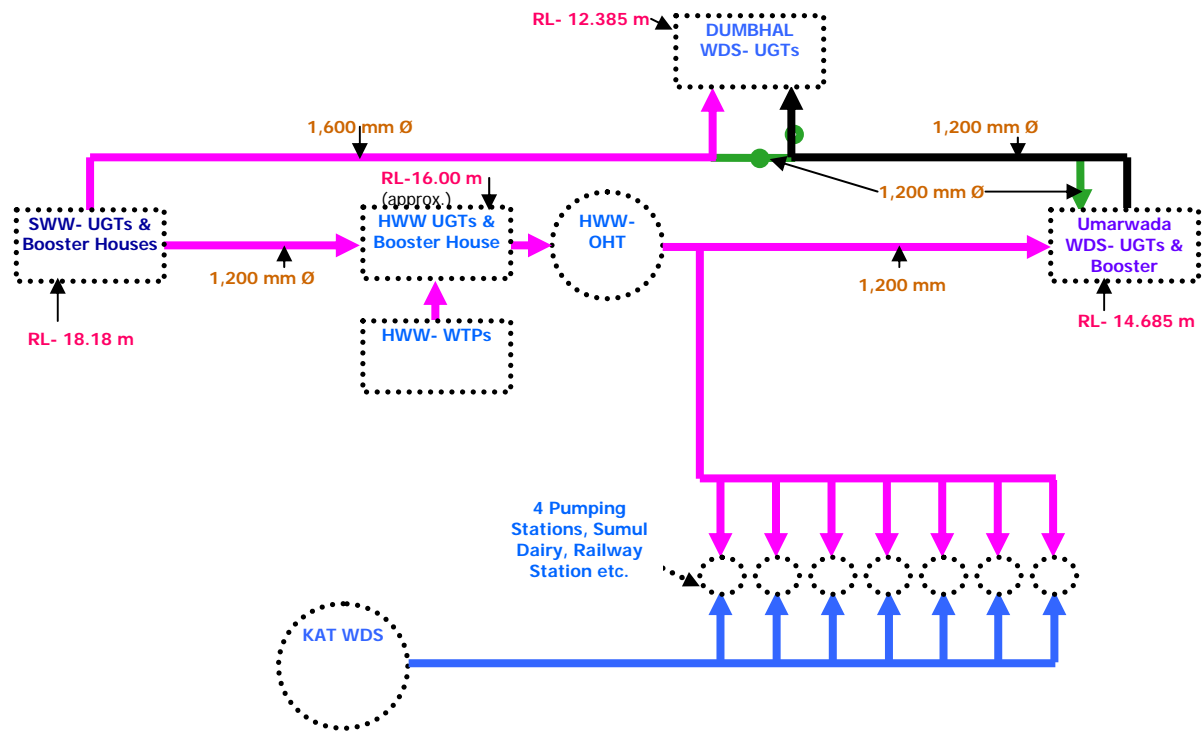
As mentioned earlier, Water supply system consists of 4 water treatment plant, 9 water distribution station (presently 10) & 4 pumping stations. Most of the water distribution stations are interconnected and water transmission grid is made for achieving reliability in availability of the water. Water Supply Grid System is important part of water supply system to ensure continuous water supply to the Surat City.

###### **What has been done?**

Details study of interconnections between water distribution station (WDS) & Water Treatment Plant (WTP) has been made in the context of specific energy consumption i.e. KWH/ML required for transmitting the water from each water treatment plant to each water distribution station and accordingly the most economical route for transmitting water has been found.

During study we found that, Umarwada WDS was supplying around **59 MLD** of potable water in various areas of City in 2004. Umarwada WDS was previously receiving water from Head Water Works, which in turn was receiving water from Sarthana Water Works. In past, Dumbhal WDS was receiving water from Umarwada WDS via 1200 mm  $\phi$  pipe line. Presently Dumbhal is receiving water supply from Sarthana Water Works via **1,600 mm  $\phi$**  to feed water directly to Dumbhal WDS. Hence, **1,200 mm  $\phi$**  pipe line between Umarwada WDS to Dumbhal WDS was not in use.

Considering the above facts & figures, connection has been made between the existing 1,200 mm  $\phi$  pipe line and 1,600 mm  $\phi$  pipe line, which is connecting Sarthana Water Works directly to Umarwada Water Distribution Station. Thus duplicate pumping from S.W.W. to H.W.W. & H.W.W. to Umarwada WDS has been stopped.



**Note:** Lines in Green colour indicates the energy efficiency actions.



#### Advantage:

By changing the transmission route for Umarwada WDS Underground Tank from Varachha Water Works to Sarthana Water Works, specific energy consumption has been reduced to 256.77 from earlier 313.14 KWH/ ML & SMC has saved Rs. 1.68 crore per annum (41.63 Lacs KWH/ annum).

Estimated saving: **121.00 Lacs Rs./ annum**

Saving Realized: **168.00 Lacs Rs./ annum**

**41.63 Lacs KWH/ annum**

[Implemented in **Year 2004**]







(6) ***Ongoing/ Future Planning: -  
-persistent efforts in energy conservation***

(a) ***Energy Generation from Sewage Liquid Waste:***

SMC is first Corporation of India to install 0.5 MWe capacity power plant based on bio-gas based generated from liquid sewage waste at Anjana Sewage Treatment Plant in Oct-2003. Till date, this plant has generated 5.18 million KWH & amounting to Rs. 2.03 Crores.



Bio-Gas based power plant at Anjana Sewage Treatment Plant

Inspiring from the success of aforesaid plant, SMC has started to install three other 1 MWe capacity at Bhatar, Singanpore and Karanj Sewage Treatment Plant. The details of important aspects are as below: -

Total Project Cost: -	<b>1375 Lacs Rs.</b>
Expected Energy generation: -	<b>110 lacs KWH/ annum</b>
	<b>Rs. 432 lacs Rs./ annum</b>