ENERGY EFFICIENCY IN STREETLIGHT SERVICE WITH IMPROVEMENT IN SERVICE DELIVERY

VADODARA MUNICIPAL CORPORATION

1. ENERGYEFFICIENCY MEASURES IMPEMENTED IN STREET LIGHT SERVICE:

Vadodara Municipal Corporation (VMC)has implemented Energy Conservation measures in Street Light Service since 1992-93as per details summarised hereunder.

SUMMARY

VMC has implemented energy saving measures since 1992. The measures have been implemented as a part of day to day activities of the streetlight department with the involvement of Executive Engineer, Dy. Executive Engineer, Additional Assistant Engineer and Foreman (Head of the maintenance team). Energy efficiency is considered before project planning phase, which avoids additional investment for energy efficiency after project implement. Most of the energy efficiency measures are No Cost measures which includes:

Summary of Energy Efficiency Measures Implemented

1. Design based Lighting with dimming technology during off peak hours. (58% Energy efficiency by Improving 300% service delivery compared to conventional installations)

2. Conversion of T12 FTL(40W) into T8 FTL(36W) &Procurement of low watt loss (9W)Ballast. [Energy savings1.442 million kwh during 2009-2010]

3. Conversion of HPMV into HPSV (Lamp selection based on lumen efficacy)&Procurement of low watt loss Ballast.
   [Energy savings 1.624 million kwh per every year]

4. Material procurement and testing as per relevant indian standard with Government approved lab “ERDA”. [Material Procurement cost decreased from Rs. 111.00 per luminary in the year 2005-06 to Rs. 72.12 per luminary in the year 2009-10].

5. Streetlight Installation policy is based on IS 1944 (part I & II), 1970, sanctioned by General Board of the Corporation.
   (VMC is the only city in the country to implement this policy)

6. Time management. (7% to 10% saving potential)

7. Installation of Microprocessor Based Intelligent Street Light Controller withGSM technology for data transfer (SCADA).
   (VMC is the first city in the country to implement SCADA in street light service.)

8. VMC has implemented decorative lighting during the year 2010 which improves daytime aesthetic value of the city.

1.1 DESIGN BASED LIGHTING (CONCEPT OF PROCURRING LIGHTING NOT LIGHTING MATERIALS)

NEW PROJECTS DEVELOPMENT ON THE BASIS OF LIFE CYCLE COST

Street lights installed by using conventional methods without considering Photometric & Installation terms warranted higher number of luminaries resulting into higher Capital and Operational cost. In spite of spending higher costs, service delivery is poor. (See Picture Gallery)

Under the conventional methods, street light installation on one-kilometer length of fast moving traffic road used to be 33 Nos. of poles (span between poles less than 30mtrs.)totaling 66 nos. of 250 watts HPMV/HPSV luminaries, which consumes an electrical load of 18.5 kW. Also the conventional practice of selecting High Pressure Mercury Vapor Lamps (HPMV) was technically improper.

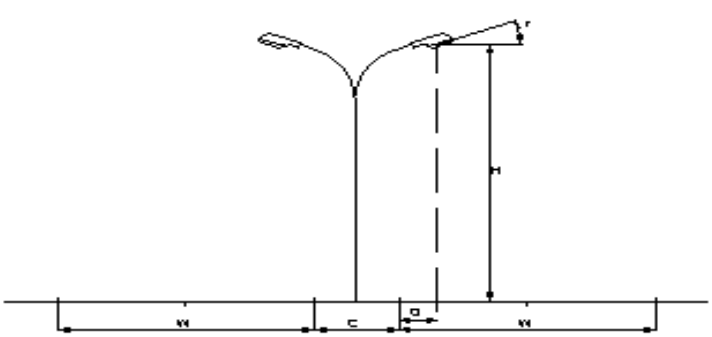
To overcome poor service delivery, higher operational and maintenance cost VMC planned to implement **"code of practice for lighting of public thoroughfares IS 1944 (part I & II) 1970"** in the year 2000. VMC has implemented IS 1944 for the first time in the country in municipal services without appointing any external consultant. VMC invited lighting design based tender to install streetlights on newly developed public roads of A1 / A2 category.

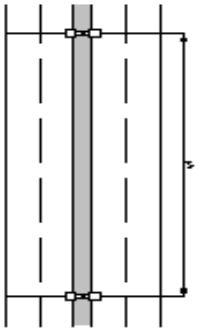
TENDERING PROCESS: -

The Corporation invited tenders to install streetlights, in which the Tenderer was asked to submit installation terms to achieve average illumination level of 30 lux (Group A1) .

Tenderer had to design installation terms like "mounting height (H)", "span" between poles (S)", "overhang (O)", "Angle of tilt (T)" and total "load" in kW including losses for a given length of the road by maintaining average 30 lux illumination level with 40% uniformity.Luminary manufacturer is providing software to design installation Terms.

Luminaire Type		:	SRP51;P4-TOE IN 9,SCO SON(T)250W
Lamp Type		:	1 * SON(T)+250W
Lamp Flux		:	32000 lumen
Tilt90	(T)	:	10.0 deg
Project Maintenance Factor		:	0.70





Carriageway		:	Dual Carriageway
Central Reserve	(C)	:	1.00 m
Road Width	(W)	:	9.00 m
Number of Lanes		:	2
Reflection Table		:	Asphalt CIE C2
Q0 of Table		:	0.070
Installation		:	Twin Central
Height	(H)	:	10.00 m
Spacing	(S)	:	42.00 m
Overhang	(O)	:	0.50 m

Horizontal Illuminance

Average	=	31.6	lux
Minimum/Average	=	0.40	

Based on the span between the poles, quantity of various items like no. of poles, luminaries, length of cable and other accessories can be worked out for a given length of road, and hence the real tender cost.

After receiving tenders, the Corporation evaluated the technical aspects of all the tenders. Most efficient design submitted with250W HPSV SON-T+ lamp, which delivers 18% higher lumen output than 250W HPSV SON-T lamp. The comparison of energy and capital cost saving for conventional and design based lighting for one km length of road is mentioned in Table 1.1 **A**

TABLE - 1.1A	COMPARISION OF CONVENTIONAL V/S DESIGNED BASED LIGHTING		
	Conventional	***Design based***	***Energy Saving***
Poles	**33**	**22**	**33% Reduction**
Fittings	**66**	**44**	**33% Reduction**
Annual Electrical Consumption	**77,500 kwh**	**51,700 kwh**	**33% Saving**
Saving by staggering (implemented in year 2000)	**77,500 kwh**	**38,750 kwh**	**50% from conventional**
Saving by dimming (implemented in year 2008)	**77,500 kwh**	**32,650 kwh**	**58% from conventional**
Level of Illumination for A1 Category road	**12 Lux OR Less**	**30/35 Lux with 40% uniformity**	**Illumination level improved by three folds.**

The lighting design concept has been implemented (year wise) as mentioned hereunder.

YEAR	ROAD LENGTH (IN KM)
2000-2001	41 km
2007-2008	60 km
2009-2010	85 km

1.1.1 Energy savings by staggering during off peak hours (implemented in the year 2001 - No cost Saving)

After 11 p.m., traffic density on the roads is thin and hence full illumination level is not required during this off peak hours. During late night hours MGVCL (electric supply company) operates on low electrical load which increased supply voltage from 220V up to 260V, which increases electricity consumption and increases illumination level. The corporation can compromise with lower level of illumination during off peak hours (low traffic density). As traffic density is low after 11 p.m. , VMC has introduced staggering of

street lighting with the help of microprocessor based annual programmable time switch ,which resulted in further savings.

1.1.2 New project planning based on low life cycle cost. (Implemented in the year 2008)

VMC has implemented design based streetlights in the year 2000, based on the experience VMC has decided to strengthen technical specifications. Based on the available technical data, VMC has decided to upgrade the technical specifications and introducedMicroprocessor Based Intelligent Street Light Controller for remote monitoring and controlling of street lighting from the central computer (SCADA). *VMC has achieved overall energy saving of 58% compared to conventional lighting installations, at the same time service delivery improved by 300%.*

Main features of this project are as mentioned hereunder:

- **HPSV Luminaries** with **IP 66 protections** prevents entry of **moisture, dust & Insects** into luminary resulting into consistent light output throughout its life.
- Lumen maintenance for **250 W HPSV SON T ++ lamp** is also better than any other lamp. (90% lumen output after 10,000 burning hours and 85% lumen output till the end of life) It has a higher lumen package of **33000 lumens** with long burning life of 32000 burning hours.
- ISI marked Mild Steel step pole result into good esthetically look and longer life.
- Decorative poles and luminaries adds esthetic value during daytime.
- Energy Saver unit with GSM technology for monitoring, controlling &data transfer.

Programming of street light operation timings for the entire year which will take care of seasonal variations, which can give approximately 7% savings compared to manual operations.

The energy saver unit will operate in energy saving mode at pre-programmed time during off peak hours when traffic density is very low. This can save 35 % to 40% electricity. Important feature of this controller is remote control and monitoring of streetlights by using wireless GSM technology.

Vadodara Municipal Corporation is the first in the country to implement international level lighting, lowest life cycle cost of the entire project & GSM based intelligent street

light controller. Because of improved illumination level, safety & security of citizens has been improved to the great extent, which resulted in reduction of crime & road accidents (see Graphs 1.10.3 & 1.10.2)

1.2 CONVERSION OF T12 FTL INTO T8 FTL &PROCURING OF LOW WATT LOSS BALLAST (NO COST SAVING):

Methodology:

- Since 1992 VMC started procuring36w FTL (T8) instead of 40wFTL (T12),resulting in 10% saving i.e. 4 watts per FTL with higher burning life of 8000 hours (T8) instead of 5000 hours of T12.
- As this measure is part of routine maintenance (replacement of fused FTL) this is no cost saving.
- In the year 95-96 VMC started procurement of ballast for FTL on watt loss basis. The specified 9 watt loss instead of 12+ watt loss for FTL.
- Ballast procurement are being tested at Government approved lab to ensure quality & watt loss.

Year wise savings is mentioned in the following table for the last five years.It helped not only in reduction in electrical consumption but also reduced maintenance expenditure. See **Table 1.2A for last five years.**

TABLE 1.2A

Year	No. of FTL	Total Base Line Load (In KW)	Post Modification Load [using T8 lamp(36W) & low watt loss ballast] (In watt)	Load Reduction (In KW)	Annual Savings (In KWH)	Tariff (Rs./ KWH)	Annual Cost Savings (Rs in Million)
2003-04	39255	2041.3	1766.5	274.8	1103261.8	3.33	3.674
2004-05	40212	2091.0	1809.5	281.5	1130158.3	3.3	3.730
2005-06	41333	2149.3	1860.0	289.3	1161664.0	3.42	3.973
2006-07	42212	2195.0	1899.5	295.5	1186368.3	3.42	4.057
2007-08	43503	2262.2	1957.6	304.5	1222651.8	4.05	4.952
2008-09	47925	2492.1	2156.6	335.5	1346932.1	4.21	5.671
2009-10	51323	2668.8	2309.5	359.3	1442432.9	3.98	5.741

1.3 CONVERSION OF HPMV INTO HPSV (LAMP SELECTION BASED ON LUMEN EFFICACY)& PROCURING OF LOW WATT LOSS BALLAST (NO COST SAVING)

- As HPMV lamps attract more maintenance due to sensitivity to voltage fluctuations and has lower burning life lumen efficacy with compared to HPSV lamps,VMC Started replacing HPMV Lamps in to one size lower HPSV Lamps without compromising lumen efficacy.
- Light output of 250/150/70 W HPSV lamps is same/higher than 400/250/125 W HPMV Lamps**(see lumen output chart1.2A of various lamps)**.
- Main roads, carrying high traffic density, VMC replaced 250 w HPMV lamps by 250 w HPSV lamps. (Benefits of this initiativeismentioned in Design Based Lighting 1.6).

See **Table 1.3A, 1.3B& 1.3C**

TABLE 1.3 A **(No Cost Saving)**

	Conversion Period	Total Quantity	Base line Load (In KW)	Post Modification Load (In KW)	Load Reduction (In KW)	Annual Savings (In Thousand KWH)	Average tariff for period of 1998 to 2004 (Rs./ KWH)	Annual Savings (Rs in Million)
Conversion of 125W HPMV to 70W HPSV	**1998 to 2004**	**692**	**100.34**	**60.204**	**40.136**	**161.15**	**2.66**	**0.429**
Conversion of 250W HPMV to 150W HPSV	**1998 to 2004**	**3225**	**919.125**	**554.7**	**364.425**	**1463.17**	**2.66**	**3.892**
			Total		404.56	1624.31	5.32	4.321

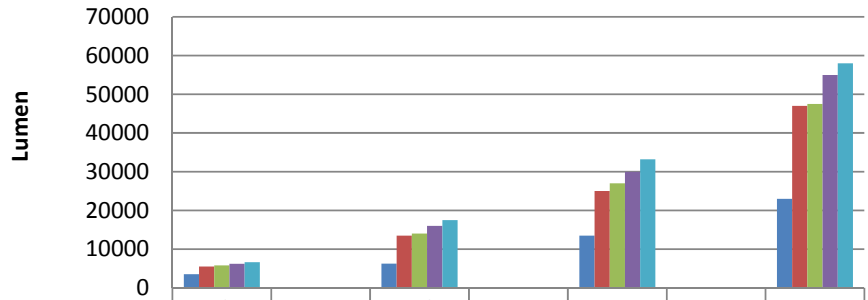
TABLE 1. 3 B	**ENERGY SAVING BY CONVERTING HPMV INTO ONE SIZE LOWER HPSV LAMPS (No costSaving)**						
Existing HPMV			**Replaced with HPSV Lamp**			**% Saving**	**Investment Rs. in Million**
Watt of Lamp	**Lumen Output**	**Burning Life in hours**	**Watt of lamp**	**Lumen output**	**Burning Life in Hours**		
250w HPMV	**12500**	**5000**	**150w SON E**	**17500**	**15000**	**40%**	**NIL**
125w HPMV	**5500**	**5000**	**70w SON E**	**6600**	**15000**	**44%**	**NIL**

TABLE - 1.3 C	SAVINGS ACHIEVED BY PROCURING LOW WATT LOSS BALLAST PER UNIT (No Cost Saving)				
Type of Ballast	**Normal Watt loss of Ballast**	**Procuring Low Watt loss Ballast**	**Savings in Watt per ballast**	**Annual Savings per Ballast in KWH/Annum**	**Additional Investment Rs. in Million**
FTL	**12+**	**9**	**3**	**12**	NIL
70W HPSV	**20+**	**16**	**4**	**16**	NIL
150W HPSV	**27+**	**22**	**5**	**20**	NIL
250w HPSV	**34+**	**29**	**5**	**20**	NIL
400w HPSV	**50**	**45**	**5**	**20**	NIL

- In the year 1998only **HPSV SON E Lamps** were available, therefore VMC selected the same. In recent times**HPSV SON T PIA LAMPS**are available in the market and itslumen efficacy and life is highest in the HID Lamps segment.Lumen efficacy of various HID lamps is shown in **CHART-1.2A**

CHART - 1.3 A

LUMEN OUTPUT OF VARIOUS HID LAMPS



	80/70 watts		125/150 watts		250 watts		400 watts
HPMV lamp	3500		6250		13500		23000
HPSV SON - E lamp	5500		13500		25000		47000
HPSV SON T lamp	5800		14000		27000		47500
HPSV SON T + lamp	6200		16000		30000		55000
HPSV SONT PIA	6600		17500		33200		58000

1.4 MATERIAL PROCUREMENT AND TESTING AS PER RELEVANT INDIAN STANDARDWITH ERDA

- VMC has implemented material procurement & new projects with highest specifications available in the market, which have resulted in longer life of the various materialsand lower maintenance cost. Because of this VMC could maintain street light service with constant decreasing manpower since 1988.
- The number of luminairehas increased from 20,000 to 60,000 and the manpower has decreased from 350 to 200 personnel. The area of the Corporation hasalso increased from 108 to 160 sq.K.M.
- As VMC has started procuring material with ERDA testing,the quality of materials purchased has improved;resulting in drastic reduction of total expenditure for the material procurement.

Table 1.4 A	**Material Procurement cost decreased from Rs. 111.00 per luminaryin the year 2005-06 to Rs. 72.12 per luminary in the year 2009-10.**		
YEAR	**Material Purchase Cost (Rs. In million)**	**Total no of Luminairies**	**Material purchase cost per luminary**
2005-06	6.236	55973	111.41
2006-07	6.000	58146	103.19
2007-08	5.000	60670	82.41
2008-09	5.750	67788	84.82
2009-10	5.100	70718	72.12

1.5 STREET LIGHT INSTALLATION POLICY BASED ON IS 1944 (PART I & II), 1970 (NO COST SAVING)

- IS 1944 mentions illumination level on different category of roads based on traffic density and the speed of traffic.
- VMC has translated the required illumination level mentioned in IS, into width of the road and its usage. See **Table 1.5 A.**
- This policy was informally implemented in the year 2000. Looking to resistance from elected representatives, street light department got this policy sanctioned from

General Board of the Corporation in consultation with the then Municipal Commissioner and Mayor.

- **VMC is the only Municipal Corporation in the country to implement Street Light Installation Policy.**
- By implementing this policy VMC could restrict demand of elected representatives to install higher wattage luminaries on narrow roads. It resulted in year on year incremental ratereduction of electrical load.
- In this policy VMC hasrestricted use of HPMV & MH lamps for street lighting application. Use of MH is permissible only for city beautification activities.

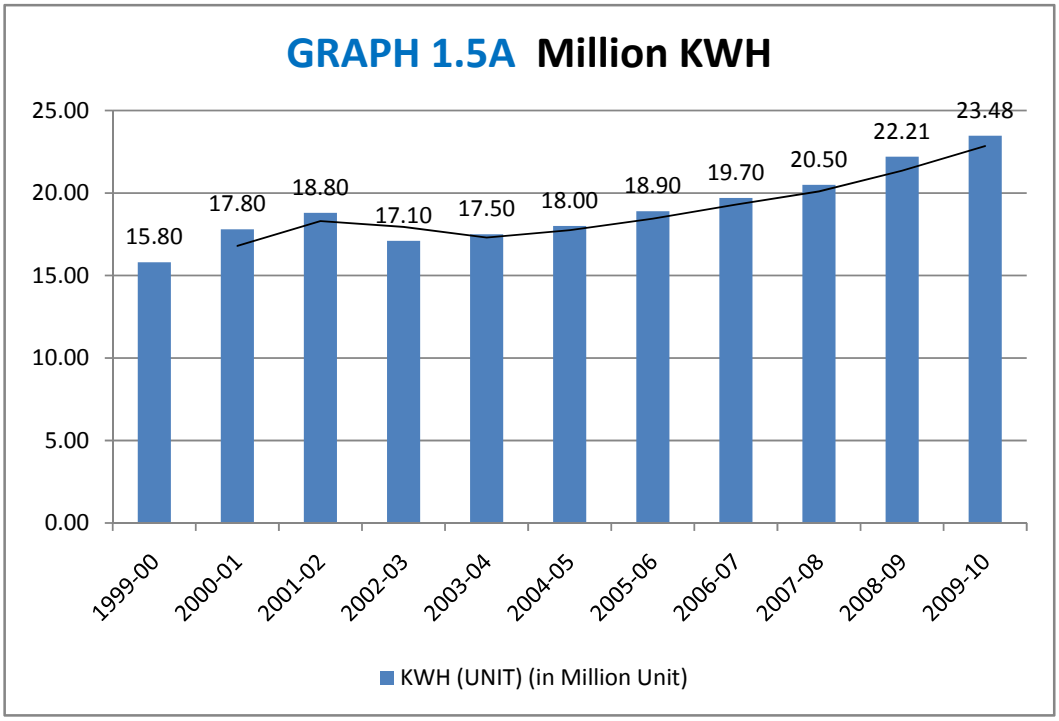
TABLE -1.5 A	**STREET LIGHT INSTALLATION POLICY BASED ON "IS 1944 (part I & II), 1970"(NO COST SAVING)** **SANCTIONED BY GENERAL BOARD OF THE CORPORATION**						
ROAD USAGE	**ROAD WIDTH**						
	5 Mtrs	**6 Mtrs**	**7.5 Mtrs**	**9 Mtrs**	**10 to 13.5 Mtrs**	**15 to 18 Mtrs**	**21 Mtrsand Above Design Based Lighting**
RESIDENTIAL AREA	**36W**	**36W**	**36W**	**36WFTL OR 70W HPSV**	**70/150W HPSV**	**150W HPSV**	**250W HPSV**
COMMERCIAL AREA WITH MODERATE TRAFFIC DENSITY	**36W FTL**	**70W HPSV**	**70W HPSV**	**70W/150W HPSV**	**150W HPSV**	**250W HPSV**	**250W HPSV**
COMMERCIAL AREA WITH HIGH TRAFFIC DENSITY	**70W HPSV**	**70W HPSV**	**150W HPSV**	**150WHPSV**	**250W HPSV**	**250W HPSV**	**250W HPSV**

As a result of all the above energy saving measures implemented by VMC, the corporation could achieve a reduction in electrical load, yearly consumption, specific energy consumption and year on year incremental rate reduction in electrical load &consumption.

Refer **Table 1.5B, 1.5C and graph 1.5A and 1.5 B**

TABLE 1.5 B	**REDUCTION ACHIEVED IN SPECIFIC ENERGY CONSUMPTION KWH/KW LOAD**		
YEAR	**KWH IN Million**	**LOAD IN KW**	**SPECIFIC ENERGY CONSUMPTION KWH (unit) / KW(load)**
1999-00	**15.8**	**3650**	**4329**
2000-01	**17.8**	**4160**	**4279**
2001-02	**18.8**	**4370**	**4303**
2002-03	**17.1**	**4500**	**3800**
2003-04	**17.5**	**4680**	**3740**
2004-05	**18**	**4960**	**3630**
2005-06	**18.9**	**5160**	**3663**
2006-07	**19.7**	**5380**	**3662**
2007-08	**20.5**	**5610**	**3655**
2008-09	**22.21**	**6400**	**3471**
2009-10	**23.48**	**7200**	**3262**

Specific energy consumption mentioned in table 1.5B is overall specific energy of the streetlight installations of entire city. The load connected with intelligent streetlight controller with dimming facility has specific energy consumption 2650 kwh/kw/annum. VMC intense to implement intelligent streetlight controller with dimming facility for entire streetlighting load within three years, it will help to achieve further energy savings and will result into reduction in specific energy consumption much below 3000 kwh/kw/annum and reduction in associated carbon emission.


GRAPH 1.5A Million KWH
25.00
20.00
15.00
10.00
5.00
0.00
15.80
17.80
18.80
17.10
17.50
18.00
18.90
19.70
20.50
22.21
23.48
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
2009-10
KWH (UNIT) (in Million Unit)

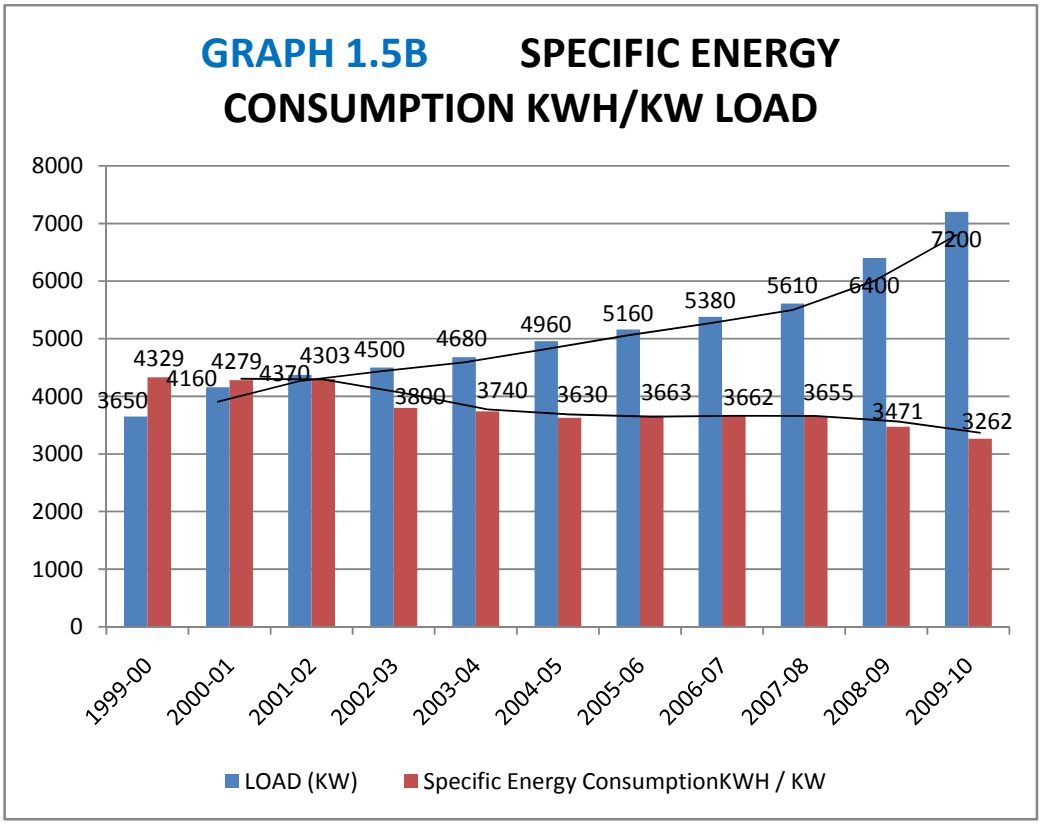

GRAPH 1.5B SPECIFIC ENERGY CONSUMPTION KWH/KW LOAD
8000
7000
6000
5000
4000
3000
2000
1000
0
3650
4329
4279
4160
4303
4370
4500
3800
4680
3740
4960
3630
5160
3663
5380
3662
5610
3655
6400
3471
7200
3262
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
2009-10
LOAD (KW)
Specific Energy ConsumptionKWH / KW

TABLE 1.5 C	ENERGY SAVINGS ACHIEVED BY IMPLEMENTING ENERGY EFFICIENCY MEASURES IN THE CORPORATION			Reduction in CO2 emissionMillion Kilo Gram (1 kwh = 0.85 kg of co_2 emission
YEAR	KWH Million Unit	KWH without energy efficiency Million Unit	KWH Saving by implementing Energy Saving measures Million Unit	
1999-00	15.8	16.839	1.039	0.884
2000-01	17.8	19.197	1.397	1.188
2001-02	18.8	21.041	2.241	1.905
2002-03	17.1	21.113	4.013	3.412
2003-04	17.5	21.67	4.17	3.545
2004-05	18	22.275	4.275	3.634
2005-06	18.9	23.232	4.332	3.683
2006-07	19.7	24.081	4.381	3.724
2007-08	20.5	24.943	4.443	3.777
2008-09	22.21	27.7	5.5	4.675
2009-10	23.48	32.114	8.634	7.339
Total KWH Savings SINCE 1999-2000			44.425	37.766
Energy Savings since 2007-08			18.577	15.791

1.6 TIME MANAGEMENT

Energy saving by optimizing operating hours introduced Annual Programmable Time Switch (Low cost Saving)

With changing seasons, street light ON & OFF timings vary. The ON time varies from **6:10** p.m. during winters to **8:00** p.m. during summers. The OFF time varies from **7:15** am during winters to **5:35** am during summers. Twilight has also considered in the timings. Managing ON-OFF streetlight operation manually is inefficient and labor intensive.

TABLE 1.6A	**SEASONAL VARIATIONS IN SWITCHING ON/OFF TIME FOR VADODARA CITY.**		
Sr.No.	**Date / Month**	**SWITCH ON TIME (PM)**	**Switching off time (AM.)**
1	**1 - 15 JAN**	**6.20**	**7.15**
	16 - 31 JAN	**6.35**	**7.15**
2	**1 - 15 FEB**	**6.50**	**7.05**
	16 - 28 FEB	**7.00**	**7.00**
3	**1 - 15 MAR**	**7.10**	**6.40**
	16 - 31 MAR	**7.15**	**6.30**
4	**1 - 15 APR**	**7.25**	**6.15**
	16 - 30 APR	**7.30**	**6.00**
5	**1 - 15 MAY**	**7.35**	**5.45**
	16 - 31 MAY	**7.45**	**5.40**
6	**1 - 15 JUN**	**7.50**	**5.35**
	16 - 30 JUN	**8.00**	**5.35**
7	**1 - 15 JUL**	**7.45**	**5.50**
	16 - 31 JUL	**7.45**	**5.55**
8	**1 - 15 AUG**	**7.40**	**6.0**
	16 - 31 AUG	**7.25**	**6.05**
9	**1 - 15 SEP**	**7.15**	**7.10**
	16 - 30 SEP	**7.00**	**6.15**
10	**1 - 15 OCT**	**6.50**	**6.20**
	16 - 31 OCT	**6.35**	**6.25**
11	**1 - 15 NOV**	**6.15**	**6.40**
	16 - 30 NOV	**6.10**	**6.45**
12	**1 - 15 DEC**	**6.10**	**7.0**
	16 - 31 DEC	**6.15**	**7.10**

ON-OFF timings for the entire year can be scheduled according to sunset and sunrise timings. VMC has implemented microprocessor based annual programmable time switch with staggering / dimming facility, which resulted in to further savings.

1.7 Microprocessor Based Intelligent Street Light Controller. (Implemented in the year 2008 – Low Cost Saving)

VMC has implemented energy efficiency approach in new street light projects in the year 2008 with lighting design approach. Most important feature of this project is Installation of Microprocessor Based Intelligent Street Light Controller with GSM technology for data transfer, remote operation & monitoring of streetlight (SCADA).

Function of Microprocessor Based Intelligent Street Light Controlleris:

- Optimizing switch ON & switch OFF timings at preprogrammed time, which will take care of seasonal variations (table 1.6A).
- Voltage reduction after 11.00 P.M. (i.e. during low traffic density timings) which gives savings of approximately 40%.
- Remote operation & monitoring from central computer.
- All electrical parameters transferred to central computer after switching ON.
- Non working luminaries can be monitored from current (Amp.) at central computer. Control room operator can pass on the instructions to the maintenance team without doing physical patrolling.
- In case of fault, energy saver unit generate & send SMS to the concerned person looking after maintenance of that area.
- In case of emergency, streetlights connected with GSM technology can be switched ON/OFF.
- Day to day monitoring of energy consumption.

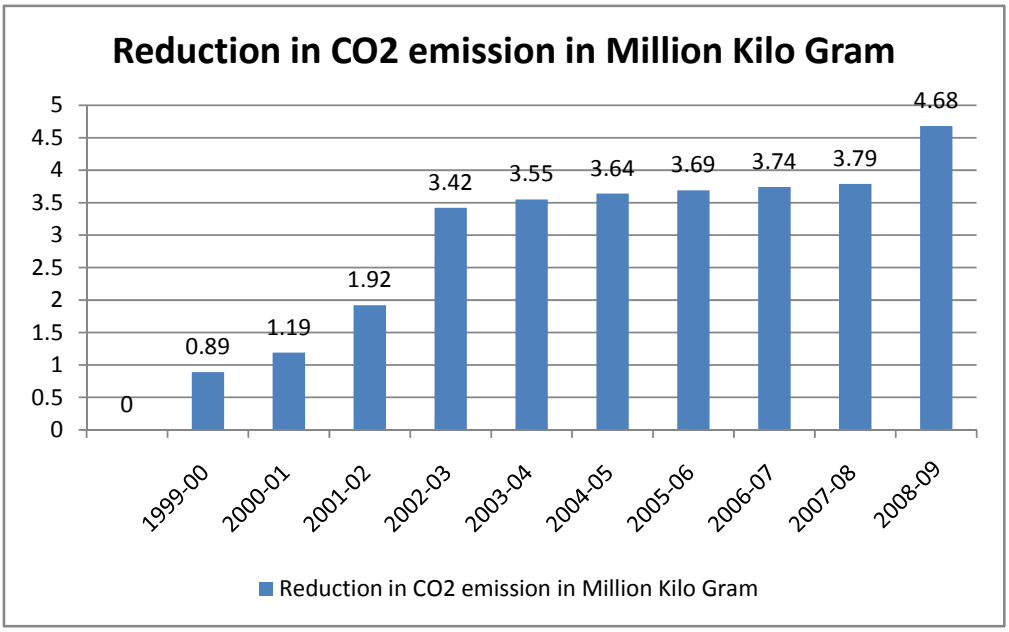
1.8 DECORATIVE LIGHTING

VMC has introduced decorative lighting concept by using different colors of poles and luminaries. Which improves daytime esthetic value of the city along with visual improvement during night time.

1.9

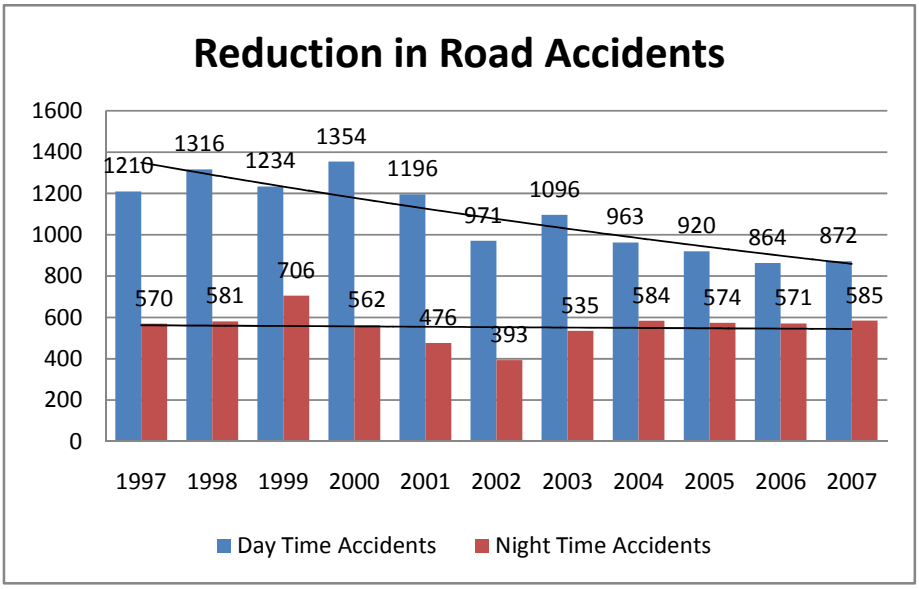
1.10 SOCIAL AND ENVIRONMENTAL BENEFITS OF ENERGY EFFICIENCY IN STREETLIGHT SERVICE

1.10.1 Reduction in GHG Emission



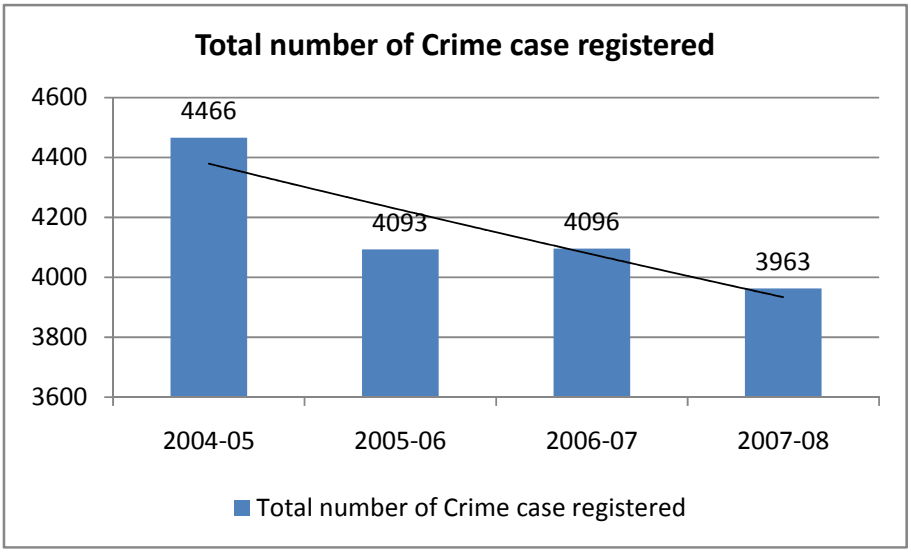
1.10.2 Reduction in Number of Road Accidents

In spite of increase in number of vehicles, total number of accidents has reduced since year 2000, in which design based lighting was implemented for the first time in the city.



Source: Office of Commissioner of Police, Traffic Branch

1.10.3 Reduction in Number of Crimes



Source: Office of Commissioner of Police

1.11 TRANSFER OF ENERGY EFFICIENCY INITIATIVES

- VMC in association with City Managers Association Gujarat (CMAG) conducted two days training program on "Energy Efficiency in Municipal Utilities", in August 2003, at Vadodara. More than 35 ULBs of Gujarat have participated.
- International Council for Local Environmental Initiatives (ICLEI), South Asia is using VMC's initiatives for capacity building in other ULBs across the Country.
- International City Managers Association (ICMA)have transferred VMC's initiatives to Indonesian cities in the year 2004.
- Best practice transferred in Jabalpur city of Madhya Pradesh state of India.

1.11 BEST PRACTICE AWARD

- Received first prize – "National Energy Conservation Award – 2008" for streetlight service, from honorable minister of power, Government of India, New Delhi.
- Energy Conservation activities has been identified as a state & National level Best Practice by **CMAG, ICMA & ICLEI.**
- VMC's Initiatives has been shortlisted in 100 best practice by Dubai Best Practice Award Committee in the year 2002.

1.12 NATIONAL AWARD & MEDIA COVERAG

- The Municipal commissioner of Vadodara Municipal Corporation Shri M.K. Das, IAS is accepting first prize – "National Energy Conservation Award – 2008" for streetlight service, from Shri Shushil Kumar Shinde, honorable minister of power, Government of India, New Delhi.

VMC wins national award for energy conservation

EXPRESS NEWS SERVICE
VADODARA, DECEMBER 14

THE Vadodara Municipal Corporation (VMC) on Sunday received an award from the Union Ministry of Power for boosting energy saving efforts. The award was specifically given for VMC's initiative of installing Global System for Mobile communications (GSM) to cut upon the energy consumption.

Over 90 other cities in the country, which have been working on similar lines of energy saving methods, participated in the National Energy Conservation Award –2008, held by the Ministry of Power. Out of these, the VMC was ranked first for adopting the latest and most effective technology to conserve energy.

Around 50 GSM lights have been installed on the major roads of the city over the past one year. According to VMC officials, GSM lights have the capacity to save nearly 60 per cent of energy consumption. The lights are monitored through a centralised system, wherein the lights are dimmed after the peak hours, when the traffic density mellows down. The centralised system also helps in monitoring the wastage of light.

As per VMC officials, with a budget of Rs 11 crore, the installation of GSM lights is an indigenous project by any city's municipal corporation. The lights have an estimated life span of 15 to 20 years.

VMC Commissioner M K Das was in Delhi on Sunday to receive the award, which was given by Union Minister of Power Sushil Kumar Shinde.

"This is certainly a great achievement for the VMC. We are now striving to bag yet another award," said city Mayor Balkrishna Shukla.

Students from Royale International School take out a rally to highlight the significance of conservation of natural resources in Vadodara on Sunday. *Newsline photo by Chandan Giri*

VMC gets national award for power conservation

TIMES NEWS NETWORK

Ashwin Rajput

Street lights have helped save nearly 35 per cent of energy

Vadodara: It's raining awards for Vadodara Municipal Corporation (VMC). Just a week after it bagged a special award from urban development ministry for running city bus service, the civic body has added another feather to its cap by bagging first national energy conservation award.

On Sunday, which was observed as national energy conservation day, VMC became the only municipal corporation in India to bag the National Energy Conservation Award 2008 from Union power ministry.

Union power minister **Sushil Kumar Shinde** conferred the award on VMC in municipalities category — one of the 39 categories — during a function at New Delhi.

"We have been awarded the prize for our efforts in saving energy and adoption of newer technologies in municipal sector," said municipal commissioner MK Das. Das said adopting new technology and designs in streetlights have helped VMC save at least Rs 1.5 crore in its electricity bill annually for the last three years.

"For instance, we have adopted global system for mobile communication (GSM) control for city's streetlights, through which the street light department is in position to monitor the complete picture on their computer screens rather than going for personal verification. This new system has helped us save energy," added Das.

With a click of mouse, the department is able to switch on and off the streetlights of any given unit (the number of poles fixed in one km of a road) in the city.

"Through GSM control, we have saved 30 to 35 per cent of energy consumed by streetlights and also set an example for other municipal bodies of the country," said VMC's mayor Balkrushna Shukla.

"With the new technology, the street lights switch onto the energy saving mode in accordance with the timings set by us. The programming of the streetlight timings also takes care of seasonal variations, which contributes to saving energy as compared to conventional operating methods," said Shukla.

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