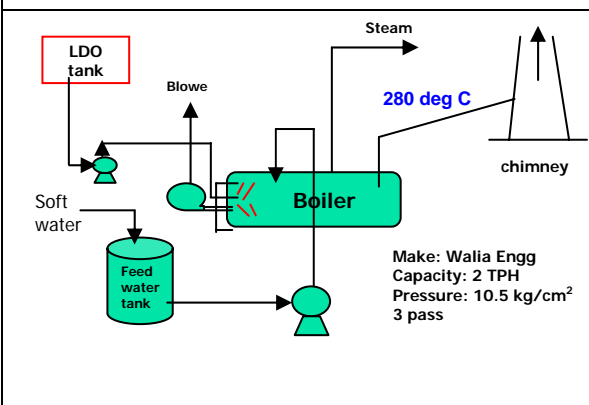
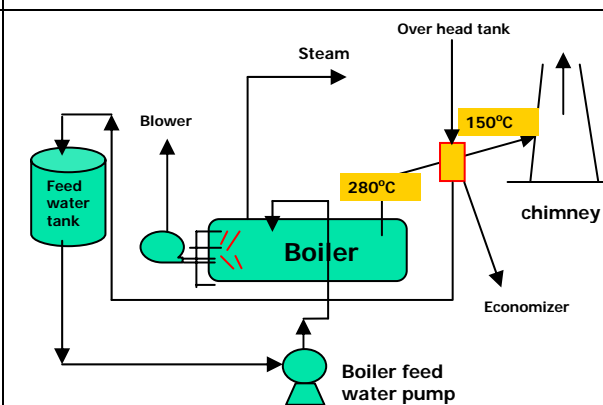

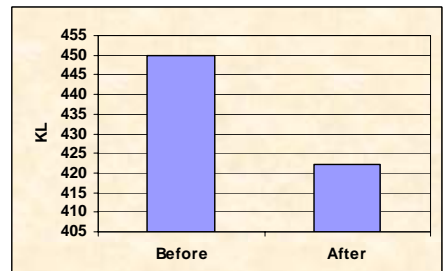


## Energy Conservation Measure implemented in 2006-2007

**Note:** Please submit this sheet separately for each Energy Conservation Measure implemented in 2006-2007 and a CD containing the above information may be please be enclosed.

ID to be filled by BEE	Title of the measure <b>Installation of economizer in the boiler to recover the flue gas waste heat</b>	Sector : <b>Hospital</b>						
Year to be filled by BEE	Technology: <b>Waste heat recovery</b>							
<p>Description of the energy conservation measure:                  BHMRC has 2 nos of 2 TPH fire-tube boilers (one standby). Steam is generated at a pressure of 7.5 to 8.5 kg/cm<sup>2</sup>. The flue gas temperature was measured to be 280 deg C. This high temperature increases the losses in the boiler. It was suggested to install an economizer in the flue gas path to recover the heat from the flue gases. This would heat up the boiler feed water and hence the total system efficiency would increase. The economizer was installed along with 2 boiler feed water tanks.</p>								
<b>Picture/ sketch/ drawing before modification</b> (if available)	<b>Picture/ sketch/ drawing after modification</b>							
	  <p style="text-align: center;">Newly installed economiser</p>  <table border="1" style="margin-left: auto; margin-right: auto;"> <caption>Energy Consumption (KL)</caption> <thead> <tr> <th>Period</th> <th>Consumption (KL)</th> </tr> </thead> <tbody> <tr> <td>Before</td> <td>~448</td> </tr> <tr> <td>After</td> <td>~422</td> </tr> </tbody> </table>		Period	Consumption (KL)	Before	~448	After	~422
Period	Consumption (KL)							
Before	~448							
After	~422							
Agency that executed the project (with complete address and email): <b>DSCL Energy Services Co. Ltd 2<sup>nd</sup> floor, Kanchenjunga Building, 18, Barakhamba road, New Delhi, dscpower@vsnl.com</b>								
Total investment, Rs.: <b>10 Lacs</b>	Year of implementation: <b>2007</b>							

First year energy cost savings, <b>Rs.: 7.5 Lacs</b>					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before				450	
Energy consumption after				422	
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...				32000	
Company complete address:  <b>BATRA HOSPITAL &amp; MEDICAL RESEARCH CENTRE</b> 1, Tughlakabad Institutional Area, M.B Road, New Delhi - 110 062				We authorise Bureau to use this information for dissemination	
Contact person who could be contacted for more information: <b>Mr. Ujjal Majumdar, Chief Engineer</b>				Signature	
				Date	

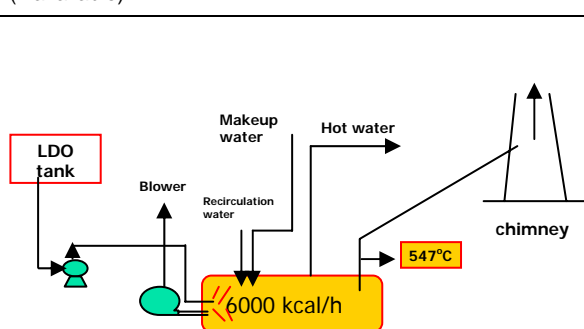
ID to be filled by BEE	Title of the measure <b>Use of steam from boiler to meet the hot water requirement at New Block thereby cutting off the hot water generators</b>	Sector : <b>Hospital</b>
Year to be filled by BEE		Technology: <b>Heat recovery</b>

Description of the energy conservation measure:

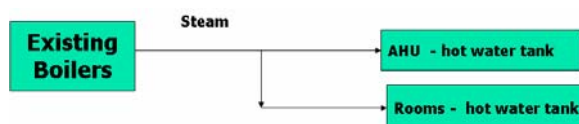
There are 3 nos of hot water generators (1 no. of 6000 kcal/hr and 2 nos of 3000 kcal/hr) of which the 6000 kcal/hr generator and one 3000 kcal/hr generator were in operation. The hot water temperature varies from 60-65 deg C. The flue gas temperature measured at the outlet of the HWG was 547 deg C and the operating efficiency was about 65%.

The boilers at the old block had sufficient margin to generate steam to meet the requirement of hot water for the new block. The efficiency of the boiler was about 80% and was expected to go up after installation of the economizer. It was suggested to install a steam pipeline up to the hot water tank at the new block and cut off the HWG. This was implemented along with a new 10 KL tank.

**Picture/ sketch/ drawing before modification**  
(if available)






**Picture/ sketch/ drawing after modification**



Steam heated system


Agency that executed the project (with complete address and email): <a href="#">DSCL Energy Services Co. Ltd</a> <a href="#">2<sup>nd</sup> floor, Kanchenjunga Building, 18, Barakhamba road, New Delhi, dscpower@vsnl.com</a>					
Total investment, Rs.: <a href="#">18 Lacs</a>			Year of implementation: <a href="#">2007</a>		
First year energy cost savings, Rs.: <a href="#">22 Lacs</a>					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before				<a href="#">68.75</a>	
Energy consumption after				-	
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...				<a href="#">32000</a>	
Company complete address:  <a href="#">BATRA HOSPITAL &amp; MEDICAL RESEARCH CENTRE</a> <a href="#">1, Tughlakabad Institutional Area, M.B Road, New Delhi - 110 062</a>				We authorise Bureau to use this information for dissemination	
Contact person who could be contacted for more information: <a href="#">Mr. Ujjal Majumdar, Chief Engineer</a>				Signature	
				Date	

ID to be filled by BEE	Title of the measure <a href="#">Installation of Energy Efficient lighting system in old and new blocks</a>	Sector : <a href="#">Hospital</a>
Year to be filled by BEE		Technology: <a href="#">Energy Efficient Lighting</a>
Description of the energy conservation measure: <a href="#">The following were the measures implemented in the lighting system at the new and old blocks</a> <ul style="list-style-type: none"> <li>• <a href="#">Change of 4ft T8 FL (Magnetic ballast) with High Lumen T8 (Electronic Ballast)</a></li> <li>• <a href="#">Change of 2 ft T12 FL (Magnetic ballast) with High Lumen T8 (Electronic Ballast)</a></li> <li>• <a href="#">Change of 60 W GLS with 13 W CFL</a></li> <li>• <a href="#">Change of 30 W GLS with 10 W CFL</a></li> <li>• <a href="#">Change of 15 W GLS with 5 W CFL</a></li> </ul> <a href="#">(In the above cases the double fittings were changed to single fittings with reflectors)</a>		
<b>Picture/ sketch/ drawing before modification</b> (if available)	<b>Picture/ sketch/ drawing after modification</b>	
	  	

		<table border="1"> <caption>Energy Consumption Data</caption> <thead> <tr> <th>Period</th> <th>kWh</th> </tr> </thead> <tbody> <tr> <td>Before</td> <td>1365</td> </tr> <tr> <td>After</td> <td>670</td> </tr> </tbody> </table>				Period	kWh	Before	1365	After	670
Period	kWh										
Before	1365										
After	670										
Agency that executed the project (with complete address and email): <a href="#">DSCL Energy Services Co. Ltd</a> 2 <sup>nd</sup> floor, Kanchenjunga Building, 18, Barakhamba road, New Delhi, <a href="mailto:dscpower@vsnl.com">dscpower@vsnl.com</a>											
Total investment, <b>Rs.: 23 Lacs</b>			Year of implementation: <b>2006</b>								
First year energy cost savings, <b>Rs.: 43 Lacs (Rs. 31 Lacs in old building and Rs. 12 Lacs in new building)</b>											
First year other savings, Rs.:											
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other						
Energy consumption before	<b>1365</b>										
Energy consumption after	<b>670</b>										
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	<b>4.9</b>										
Company complete address:  <b>BATRA HOSPITAL &amp; MEDICAL RESEARCH CENTRE</b> 1, Tughlakabad Institutional Area, M.B Road, New Delhi - 110 062				We authorise Bureau to use this information for dissemination							
Contact person who could be contacted for more information: <b>Mr. Ujjal Majumdar, Chief Engineer</b>				Signature							
				Date							

ID to be filled by BEE	<b>Title of the measure</b> <b>Online Transfer of water to Overhead Tanks through filters for both New &amp; Old Building Blocks</b>	Sector : <b>Hospital</b>
Year to be filled by BEE		Technology:
Description of the energy conservation measure: Initially there were 2 pumps running to deliver soft water and chlorinated water to the over head tanks. Chlorination was done online at the soft water pumps and hence the chlorinated water pumps were stopped.		
<b>Picture/ sketch/ drawing before modification</b> (if available)		<b>Picture/ sketch/ drawing after modification</b>
Agency that executed the project (with complete address and email): <b>BHMRC, 1, Tughlakabad Institutional Area, M.B Road, New Delhi - 110 062, <a href="mailto:um_engg@batrahospitaldelhi.org">um_engg@batrahospitaldelhi.org</a></b>		
Total investment, <b>Nil (O&amp;M measure)</b>		Year of implementation: <b>2007</b>

First year energy cost savings, <b>Rs.: 14.5 Lacs</b>					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	<b>295</b>				
Energy consumption after	<b>Nil</b>				
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	<b>4.9</b>				
Company complete address:  <b>BATRA HOSPITAL &amp; MEDICAL RESEARCH CENTRE</b> <b>1, Tughlakabad Institutional Area, M.B Road, New Delhi - 110 062</b>				We authorise Bureau to use this information for dissemination	
Contact person who could be contacted for more information: <b>Mr. Ujjal Majumdar, Chief Engineer</b>				Signature	
				Date	

ID to be filled by BEE	Title of the measure <b>Stoppage of one Cooling Tower by doing proper maintenance &amp; de-scaling of the Chiller</b>	Sector : <b>Hospital</b>
Year to be filled by BEE		Technology:
Description of the energy conservation measure: <b>The chiller condenser tubes were choked and hence was not able to deliver proper TR. Descaling and maintenance of the chiller was done. By this measure one cooling tower was stopped.</b>		
<b>Picture/ sketch/ drawing before modification</b> (if available)	<b>Picture/ sketch/ drawing after modification</b>	
		
Agency that executed the project (with complete address and email): <b>BHMRC, 1, Tughlakabad Institutional Area, M.B Road, New Delhi - 110 062, um_engg@batrahospitaldelhi.org</b>		
Total investment, <b>Nil (O&amp;M measure)</b>	Year of implementation: <b>2007</b>	

First year energy cost savings, <b>Rs.: 6 Lacs</b>					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	<b>122</b>				
Energy consumption after	<b>Nil</b>				
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	<b>4.9</b>				
Company complete address:  <b>BATRA HOSPITAL &amp; MEDICAL RESEARCH CENTRE</b> <b>1, Tughlakabad Institutional Area, M.B Road, New Delhi - 110 062</b>				We authorise Bureau to use this information for dissemination	
Contact person who could be contacted for more information: <b>Mr. Ujjal Majumdar, Chief Engineer</b>				Signature	
				Date	

ID to be filled by BEE	Title of the measure <b>Power factor improvement</b>	Sector : <b>Hospital</b>																																																																																																														
Year to be filled by BEE		Technology:																																																																																																														
Description of the energy conservation measure: <b>The power factor varied between 0.95 to 0.98. By maintenance of the capacitor banks and close monitoring of pf and proper operating the power factor is being maintained at 0.99/1.</b>																																																																																																																
<b>Picture/ sketch/ drawing before modification</b> (if available)	<b>Picture/ sketch/ drawing after modification</b>																																																																																																															
	<table border="1"> <tr> <td>REFREN 2120/9000/0056</td> <td>BILLING</td> <td>Jan-2007</td> </tr> <tr> <td>CE NO</td> <td>MONTH :-</td> <td></td> </tr> <tr> <td>K- Y10191000835/2121/KHAN</td> <td>PAYMENT</td> <td></td> </tr> <tr> <td>NUMBE PUR(ALN)</td> <td>ACCOUNTED</td> <td>31-Dec-2006</td> </tr> <tr> <td>R</td> <td>UPTO:</td> <td></td> </tr> <tr> <td>NAME :- BATRA HOSP. &amp; MEDICAL</td> <td>BILL</td> <td>02-Jan-2007</td> </tr> <tr> <td>MAILIN RESEARCH</td> <td>DATE :-</td> <td></td> </tr> <tr> <td>G</td> <td>DUE DATE</td> <td>17-Jan-2007</td> </tr> <tr> <td>ADDRE CH. AISHI RAM BATRA</td> <td>:-</td> <td></td> </tr> <tr> <td>SS :- PUBLI</td> <td>DUE</td> <td></td> </tr> <tr> <td></td> <td>AMOUNT</td> <td>2528477</td> </tr> <tr> <td></td> <td>:-</td> <td></td> </tr> <tr> <td>CHAR.TRUST</td> <td>TARIFF :-</td> <td>9000(Y4)</td> </tr> <tr> <td>1,TUGHLAKABAD</td> <td></td> <td>HT-MLHT</td> </tr> <tr> <td>AREA,MEHRAULI</td> <td>Prev. Rdg.</td> <td></td> </tr> <tr> <td>BADARPUR RO</td> <td>Date</td> <td>01-Dec-2006</td> </tr> <tr> <td>SUPPLY</td> <td>Curr. Rdg.</td> <td>01-Jan-2007</td> </tr> <tr> <td>AT :-</td> <td>Date</td> <td></td> </tr> <tr> <td>REMAR</td> <td></td> <td></td> </tr> <tr> <td>KS :- Regular Connection</td> <td></td> <td></td> </tr> </table> <table border="1"> <tr> <td>DEM</td> <td>AND(</td> <td>960</td> <td>KWH</td> <td>39846</td> <td>KVA</td> <td>40398</td> <td>KWH-</td> <td>0</td> <td>Adv./</td> </tr> <tr> <td>MDI)</td> <td></td> <td></td> <td></td> <td>0</td> <td>H</td> <td>0</td> <td>OTHER</td> <td></td> <td>Ajd.U</td> </tr> <tr> <td>SANC.LD/C</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>POWER</td> <td></td> <td>nits</td> </tr> <tr> <td>ONTR.DEM.</td> <td>4043.07/2550/2043.07</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>FACTOR</td> <td>0.99</td> <td></td> </tr> <tr> <td>/CONN.LD</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		REFREN 2120/9000/0056	BILLING	Jan-2007	CE NO	MONTH :-		K- Y10191000835/2121/KHAN	PAYMENT		NUMBE PUR(ALN)	ACCOUNTED	31-Dec-2006	R	UPTO:		NAME :- BATRA HOSP. & MEDICAL	BILL	02-Jan-2007	MAILIN RESEARCH	DATE :-		G	DUE DATE	17-Jan-2007	ADDRE CH. AISHI RAM BATRA	:-		SS :- PUBLI	DUE			AMOUNT	2528477		:-		CHAR.TRUST	TARIFF :-	9000(Y4)	1,TUGHLAKABAD		HT-MLHT	AREA,MEHRAULI	Prev. Rdg.		BADARPUR RO	Date	01-Dec-2006	SUPPLY	Curr. Rdg.	01-Jan-2007	AT :-	Date		REMAR			KS :- Regular Connection			DEM	AND(	960	KWH	39846	KVA	40398	KWH-	0	Adv./	MDI)				0	H	0	OTHER		Ajd.U	SANC.LD/C							POWER		nits	ONTR.DEM.	4043.07/2550/2043.07						FACTOR	0.99		/CONN.LD									
REFREN 2120/9000/0056	BILLING	Jan-2007																																																																																																														
CE NO	MONTH :-																																																																																																															
K- Y10191000835/2121/KHAN	PAYMENT																																																																																																															
NUMBE PUR(ALN)	ACCOUNTED	31-Dec-2006																																																																																																														
R	UPTO:																																																																																																															
NAME :- BATRA HOSP. & MEDICAL	BILL	02-Jan-2007																																																																																																														
MAILIN RESEARCH	DATE :-																																																																																																															
G	DUE DATE	17-Jan-2007																																																																																																														
ADDRE CH. AISHI RAM BATRA	:-																																																																																																															
SS :- PUBLI	DUE																																																																																																															
	AMOUNT	2528477																																																																																																														
	:-																																																																																																															
CHAR.TRUST	TARIFF :-	9000(Y4)																																																																																																														
1,TUGHLAKABAD		HT-MLHT																																																																																																														
AREA,MEHRAULI	Prev. Rdg.																																																																																																															
BADARPUR RO	Date	01-Dec-2006																																																																																																														
SUPPLY	Curr. Rdg.	01-Jan-2007																																																																																																														
AT :-	Date																																																																																																															
REMAR																																																																																																																
KS :- Regular Connection																																																																																																																
DEM	AND(	960	KWH	39846	KVA	40398	KWH-	0	Adv./																																																																																																							
MDI)				0	H	0	OTHER		Ajd.U																																																																																																							
SANC.LD/C							POWER		nits																																																																																																							
ONTR.DEM.	4043.07/2550/2043.07						FACTOR	0.99																																																																																																								
/CONN.LD																																																																																																																
Agency that executed the project (with complete address and email): <b>BHMRC, 1, Tughlakabad Institutional Area, M.B Road, New Delhi - 110 062, um_engg@batrahospitaldelhi.org</b>																																																																																																																
Total investment, <b>Nil (O&amp;M measure)</b>	Year of implementation: <b>2007</b>																																																																																																															

First year energy cost savings, <b>Rs.: 27 Lacs</b>					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before					
Energy consumption after					
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...					
Company complete address:  <b>BATRA HOSPITAL &amp; MEDICAL RESEARCH CENTRE</b> 1, Tughlakabad Institutional Area, M.B Road, New Delhi - 110 062				We authorise Bureau to use this information for dissemination	
Contact person who could be contacted for more information: <b>Mr. Ujjal Majumdar, Chief Engineer</b>				Signature	
				Date	

ID to be filled by BEE	Title of the measure <b>Modifications in Air-conditioning System for Telephone Exchange.</b>		Sector : <b>Hospital</b>		
Year to be filled by BEE			Technology:		
Description of the energy conservation measure: <b>Certain modifications were carried out in the AC system for telephone exchange and 144 units per day of power was saved.</b>					
<b>Picture/ sketch/ drawing before modification</b> (if available)			<b>Picture/ sketch/ drawing after modification</b>		
Agency that executed the project (with complete address and email): <b>BHMRC, 1, Tughlakabad Institutional Area, M.B Road, New Delhi - 110 062, um_engg@batrahospitaldelhi.org</b>					
Total investment, <b>Nil (O&amp;M measure)</b>			Year of implementation: <b>2007</b>		
First year energy cost savings, <b>Rs.: 2.3 Lacs</b>					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	<b>47.5</b>				
Energy consumption after	<b>Nil</b>				
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	<b>4.9</b>				
Company complete address:  <b>BATRA HOSPITAL &amp; MEDICAL RESEARCH CENTRE</b> 1, Tughlakabad Institutional Area, M.B Road, New Delhi - 110 062				We authorise Bureau to use this information for dissemination	
Contact person who could be contacted for more information: <b>Mr. Ujjal Majumdar, Chief Engineer</b>				Signature	
				Date	