Burckhardt Compression

GREENCO

GreenCo Team

Compressors for a Lifetime™

Go Green Policy

Burckhardt Compression

GO GREEN POLICY

We strive to establish and sustain a positive environmental legacy for the company and for future generations through Go Green initiative.

We are committed to minimizing our overall impact on the environment while encouraging and activating environmentally responsible behavior on the part of employees, supply chain partners and other stakeholders.

We will...

- Ensure responsible use of energy throughout our business, including conserving energy, improving energy efficiency, and giving preference to renewable energy sources.
- Reduce water consumption and drive water conservation programme both within the factory premises and beyond.
- Reduce GHG emissions by identifying the sources and implementing feasible solutions, including source elimination, efficiency improvement, minimizing transportation and use of alternative fuels.
- Minimize waste in our operations through careful & efficient use of processes, materials and ensure disposal of waste safely and responsibly.
- Conserve natural resources by reusing and recycling materials, purchasing recycled materials, and using recyclable products and materials where these alternatives are available, economical and suitable.
- Purchase products with lowest environmental impact wherever feasible and encourage suppliers to pursue environment management systems and processes.
- Strive to improve / develop silent, safe & more efficient products in terms of noise, vibrations, reduced power consumption & emissions.
- Reduce use of toxic / hazardous substances in the product/process, seek substitutions and take all reasonable steps to protect the environment when such materials must be used, stored and disposed of.
- Strive to continually improve our Go Green performance and minimize the organizational & social impact by periodically reviewing our Go Green policy in light of our current and planned activities.
- Engage and inspire customers, society & interested parties by advocating Go Green initiatives through education, trainings, communication and sharing best practices.

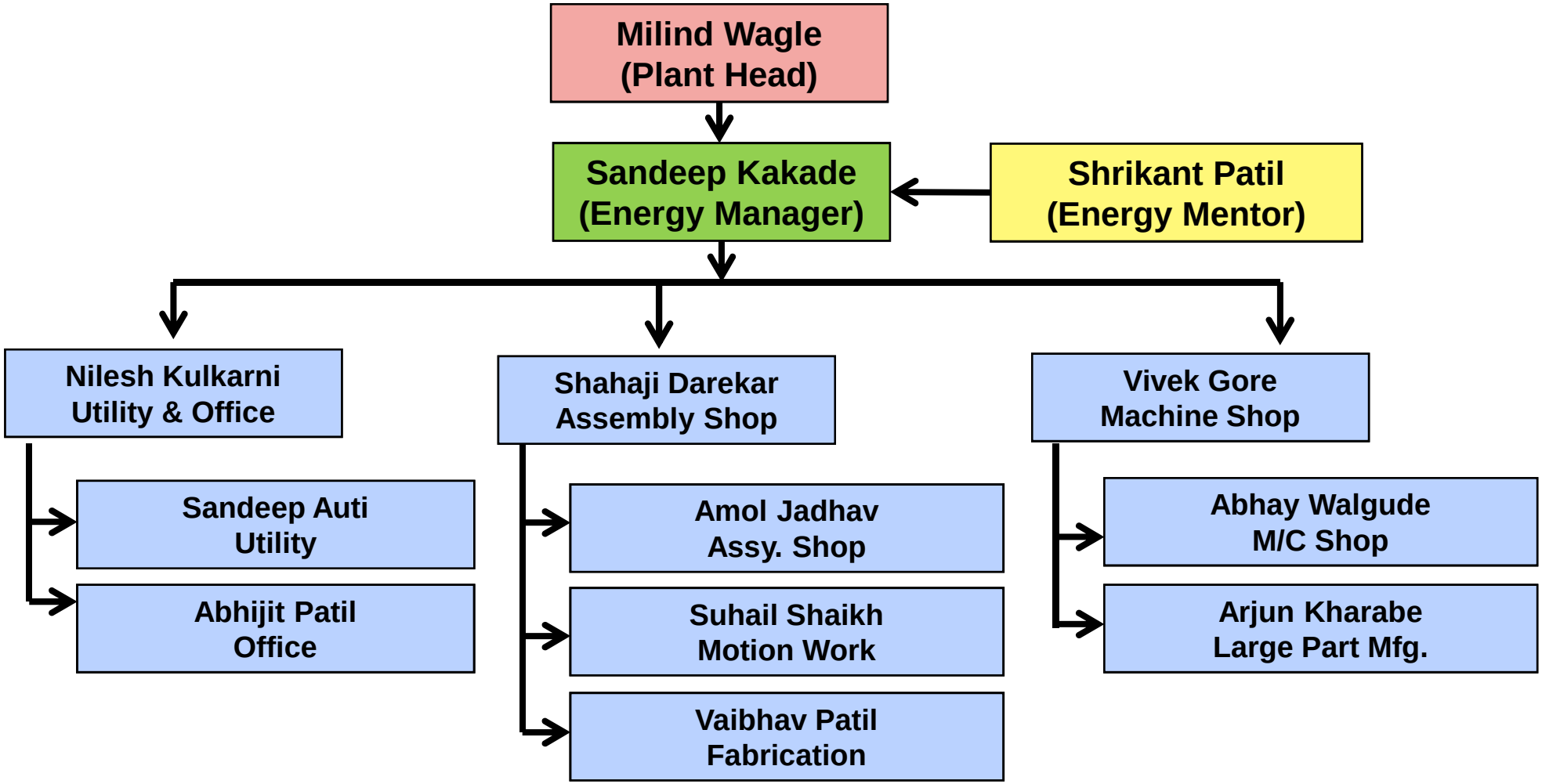
Narasimha Rao
Managing Director

Date: 01.04.2016

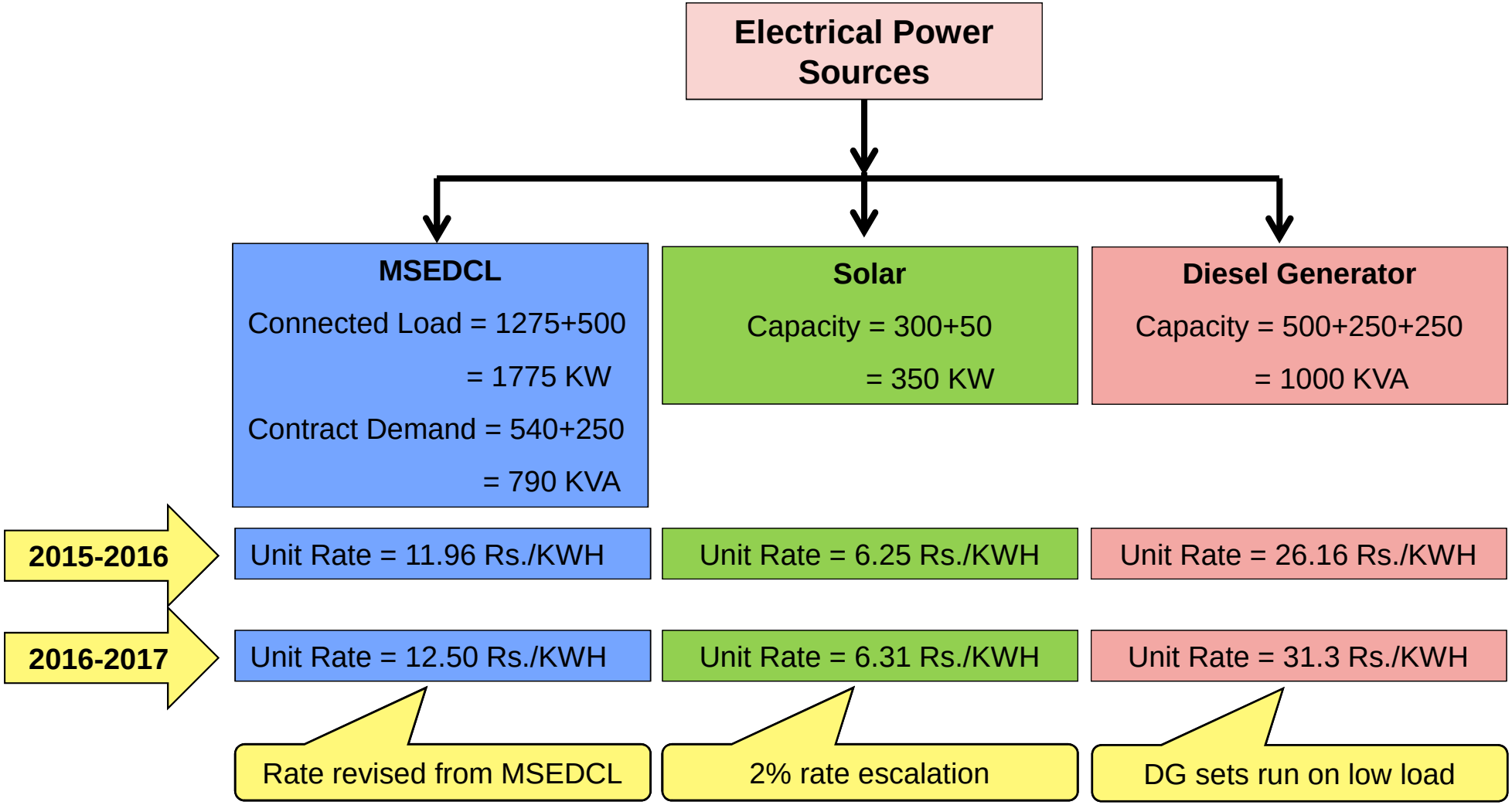
ENERGY EFFICIENCY

Energy Management Cell

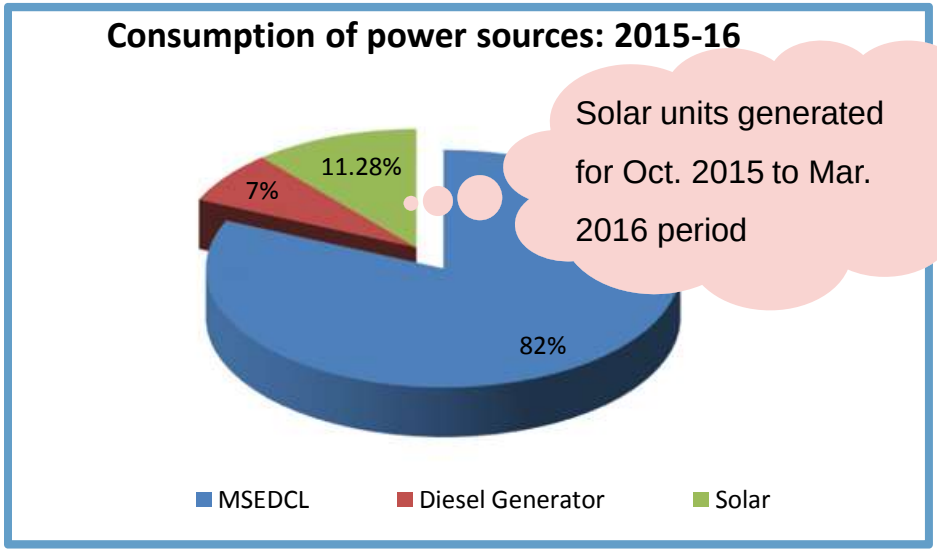
- **Organizational structure of the Energy Management Cell**

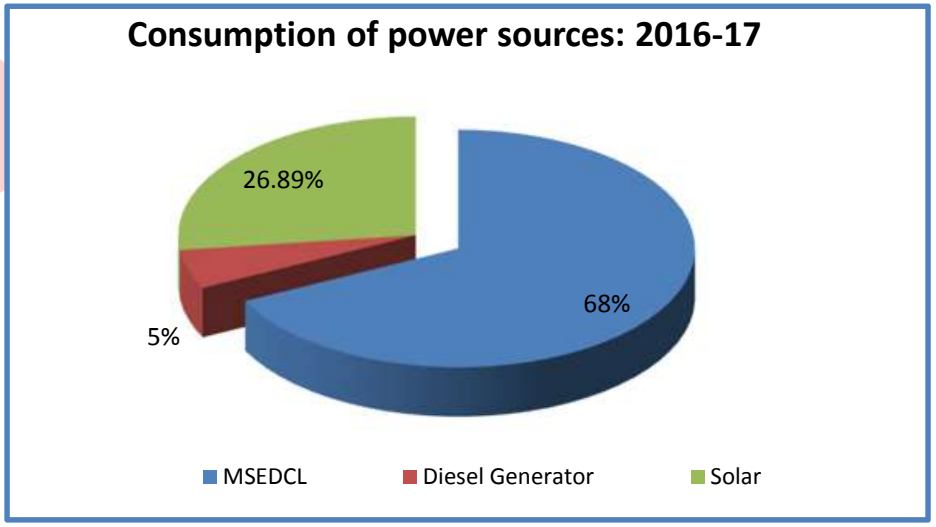


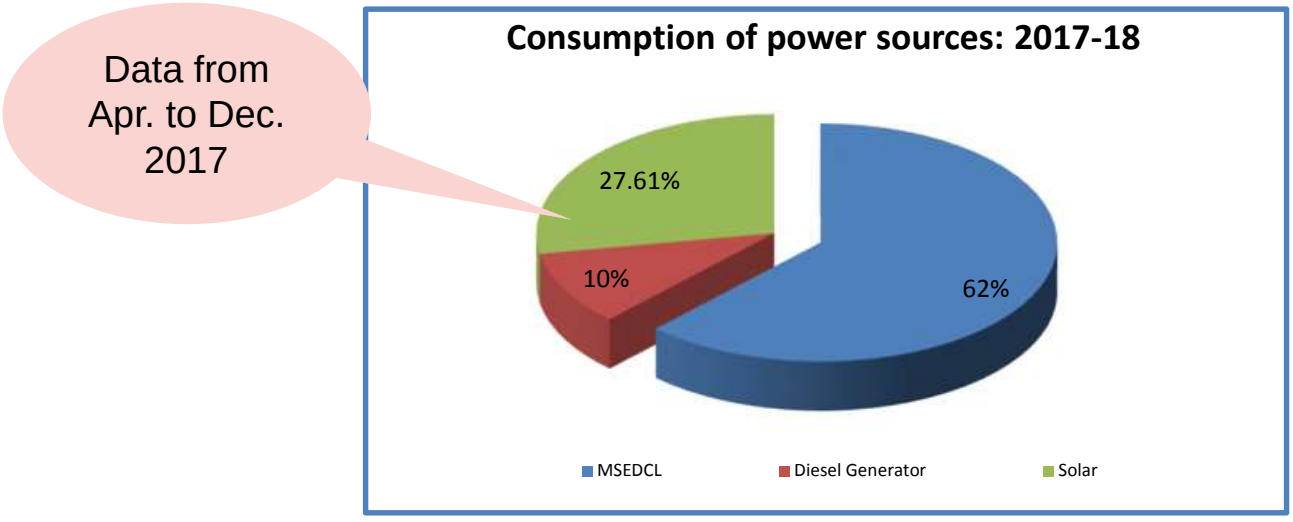
Electrical Power Source



Energy Mix

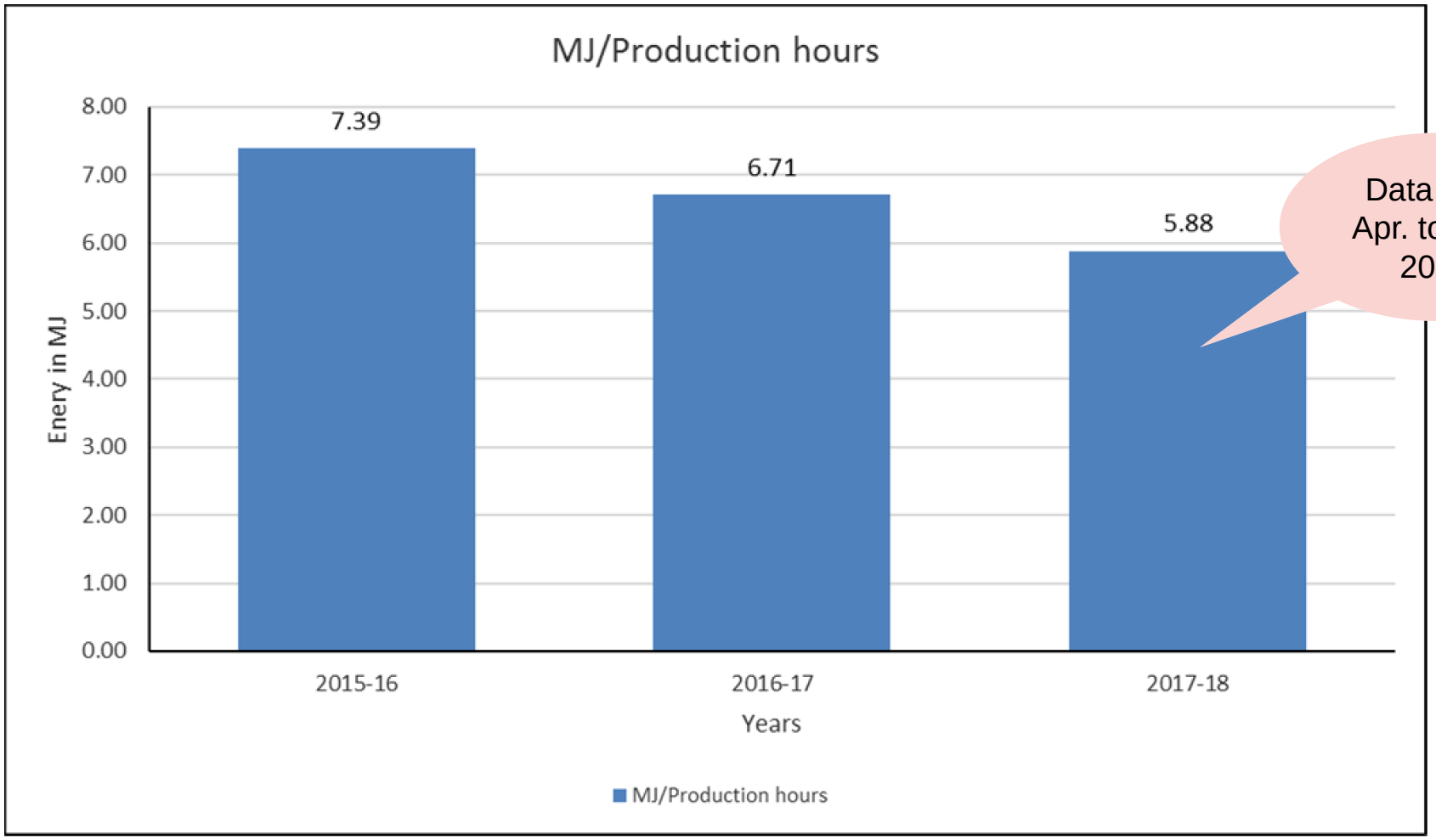

Consumption of power sources: 2015-16
Solar units generated for Oct. 2015 to Mar. 2016 period
11.28%
7%
82%
MSEDCL
Diesel Generator
Solar


Consumption of power sources: 2016-17
26.89%
5%
68%
MSEDCL
Diesel Generator
Solar


Data from Apr. to Dec. 2017
Consumption of power sources: 2017-18
27.61%
10%
62%
MSEDCL
Diesel Generator
Solar

SK2

Specific Energy Consumption Trend



Target Setting

- **Specific energy consumption targets for 2017-18**

Description	2015-2016	2016-2017 Achieved	2017-2018 Target-Short	2018-2019 Target-Mid	2019-2020 Target-Long
MJ/ Production Hours	7.39	6.71	6.26	5.67	5.38
Reduction in %	Baseline	9.32 %	6.22 %	15.46 %	19.80 %

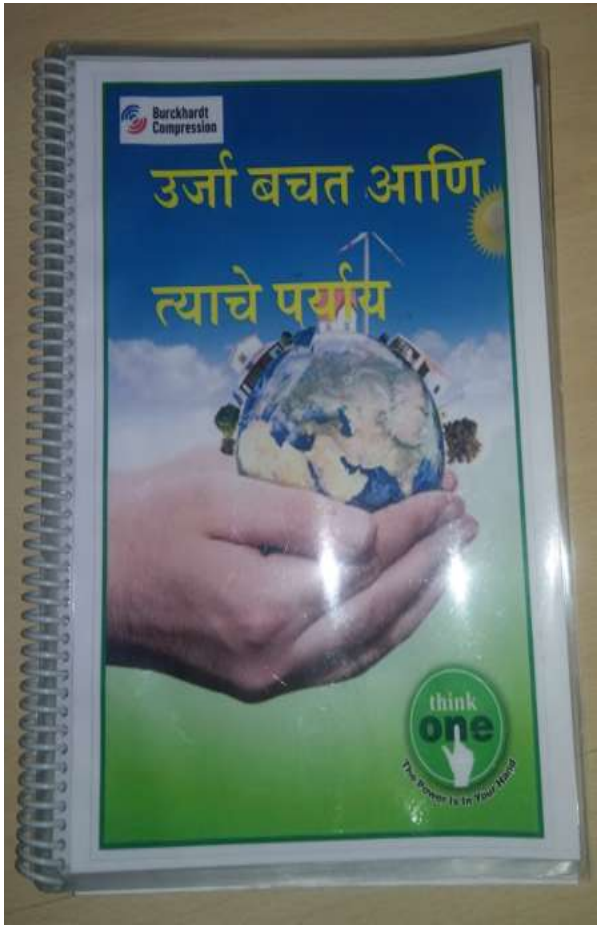
Awareness Creation & Employee Involvement

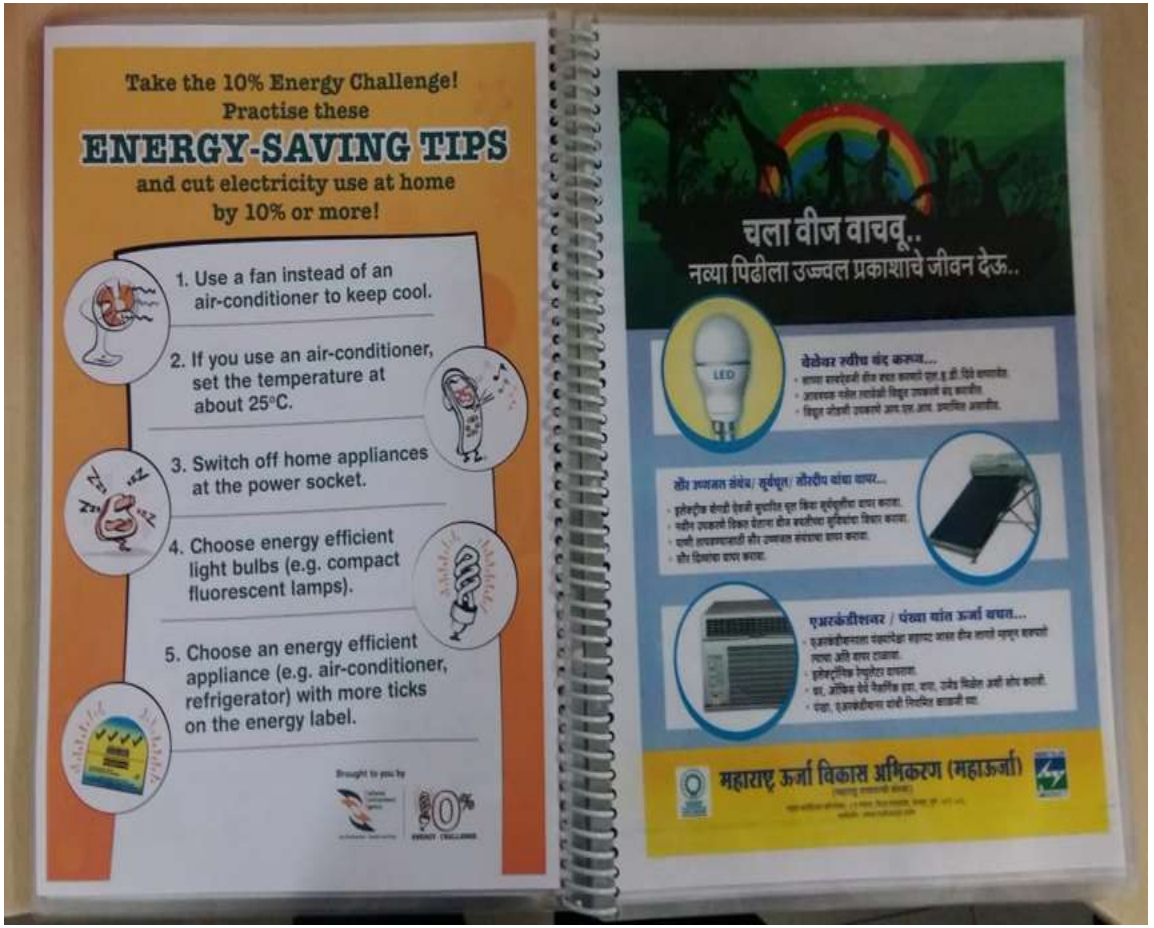
Awareness Creation & Employee Involvement 2/16

- **Tool Box Talk**

Awareness Creation & Employee Involvement 3/16

- **Energy Conservation Booklets (English & Marathi)**





Awareness Creation & Employee Involvement

- **Displays**

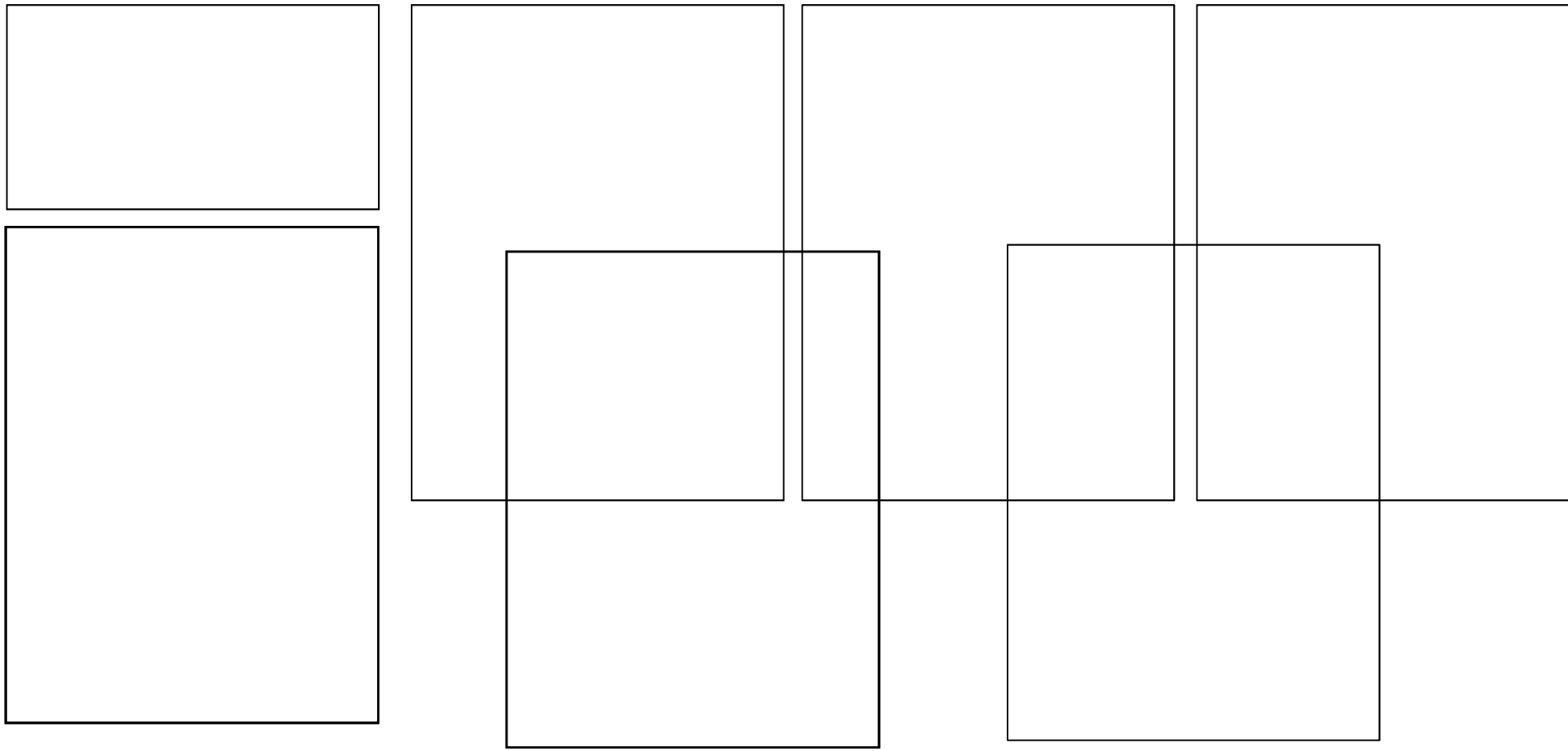
Machine: DMC63V-VMC	KW Per Hrs.	₹ Per Hrs.
Electrical consumption in no load condition & Power ON	2.50	20.00
Electrical consumption on load condition (Cycle ON)	8.50	68.00
Note: Please switch OFF the machine, If not in use.		

Awareness Creation & Employee Involvement 5/16

- **Posters**

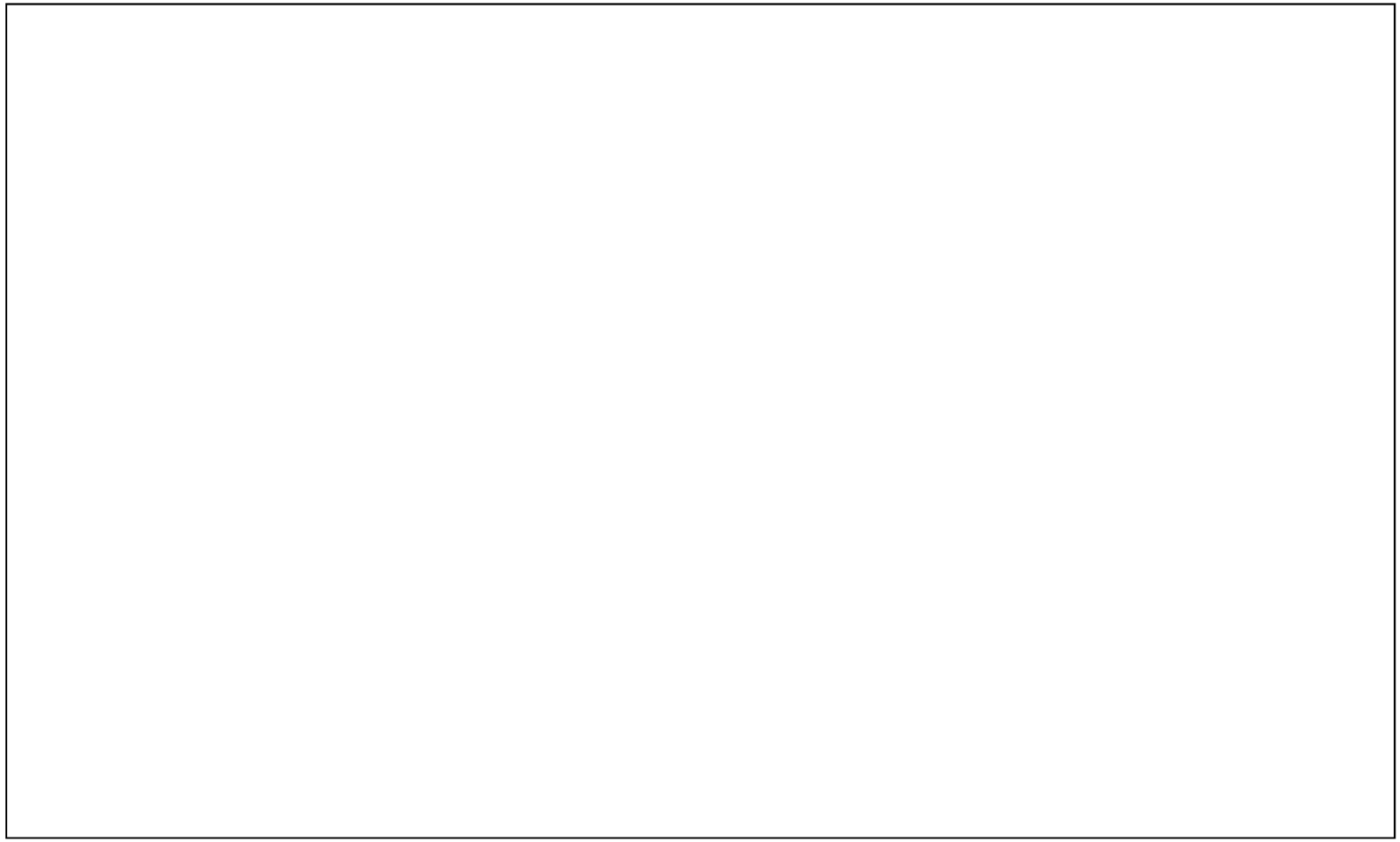
Awareness Creation & Employee Involvement 6/16

- **Green Articles was regularly published in our Half Yearly Magazine ‘Spandan’**



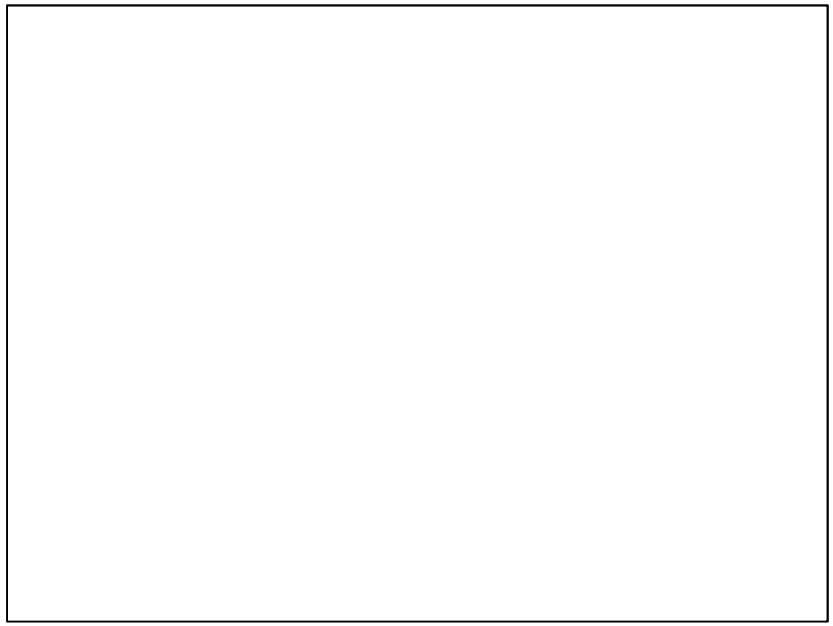
Awareness Creation & Employee Involvement 7/16

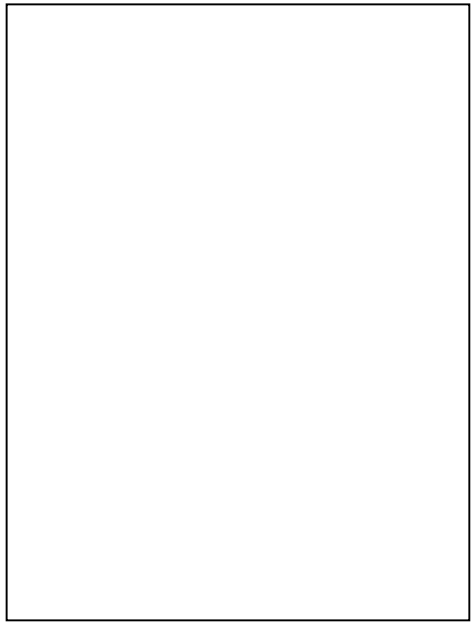
- **GreenCo Videos**

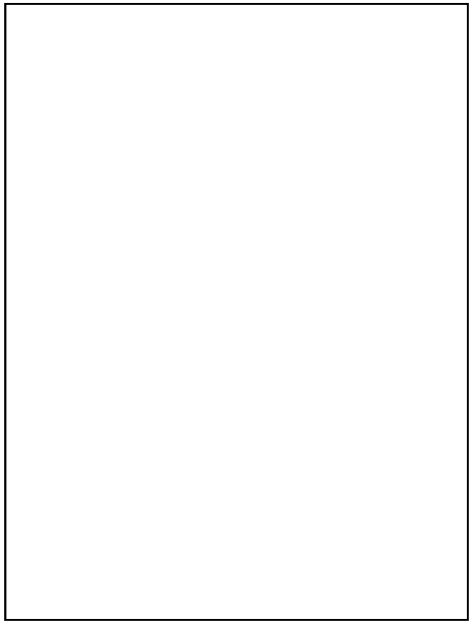


Awareness Creation & Employee Involvement 8/16

- **Celebration of Energy conservation week**
  - **Display Energy conservation posters & banners at various locations**

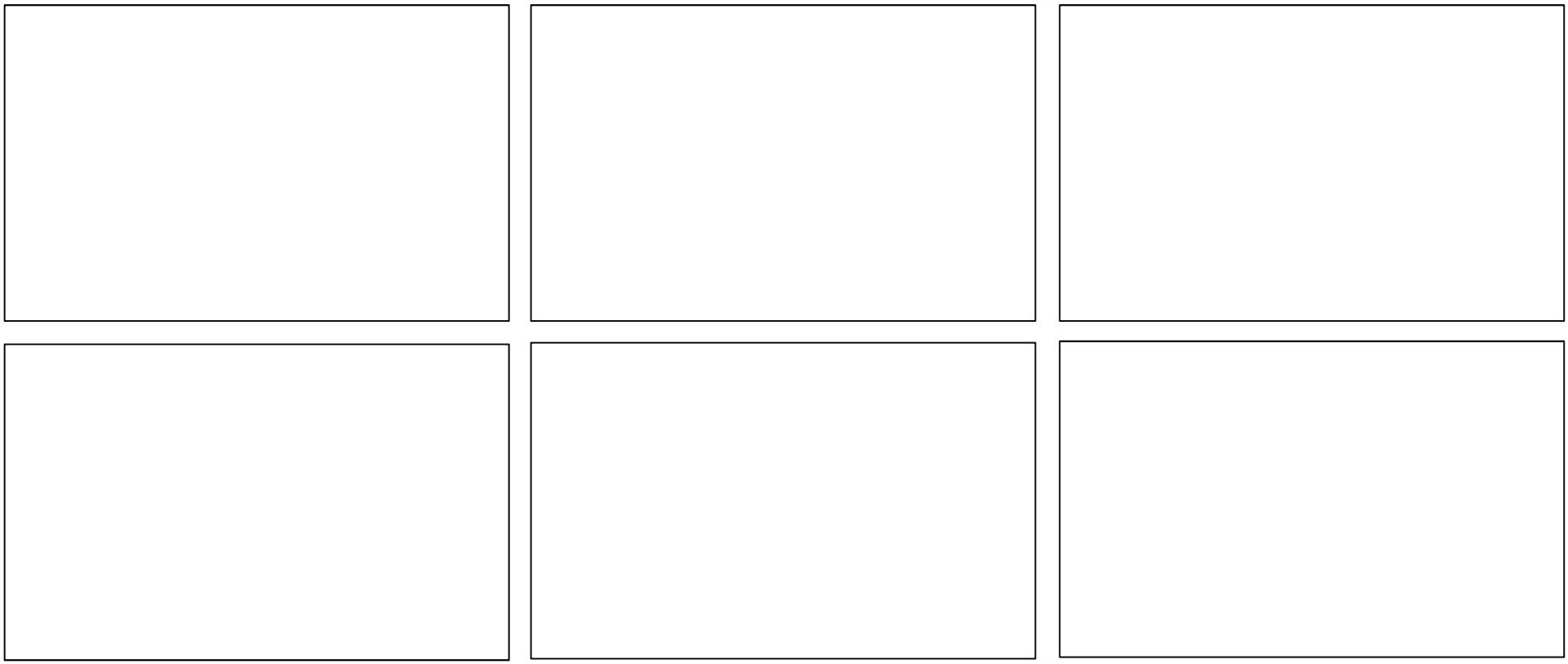






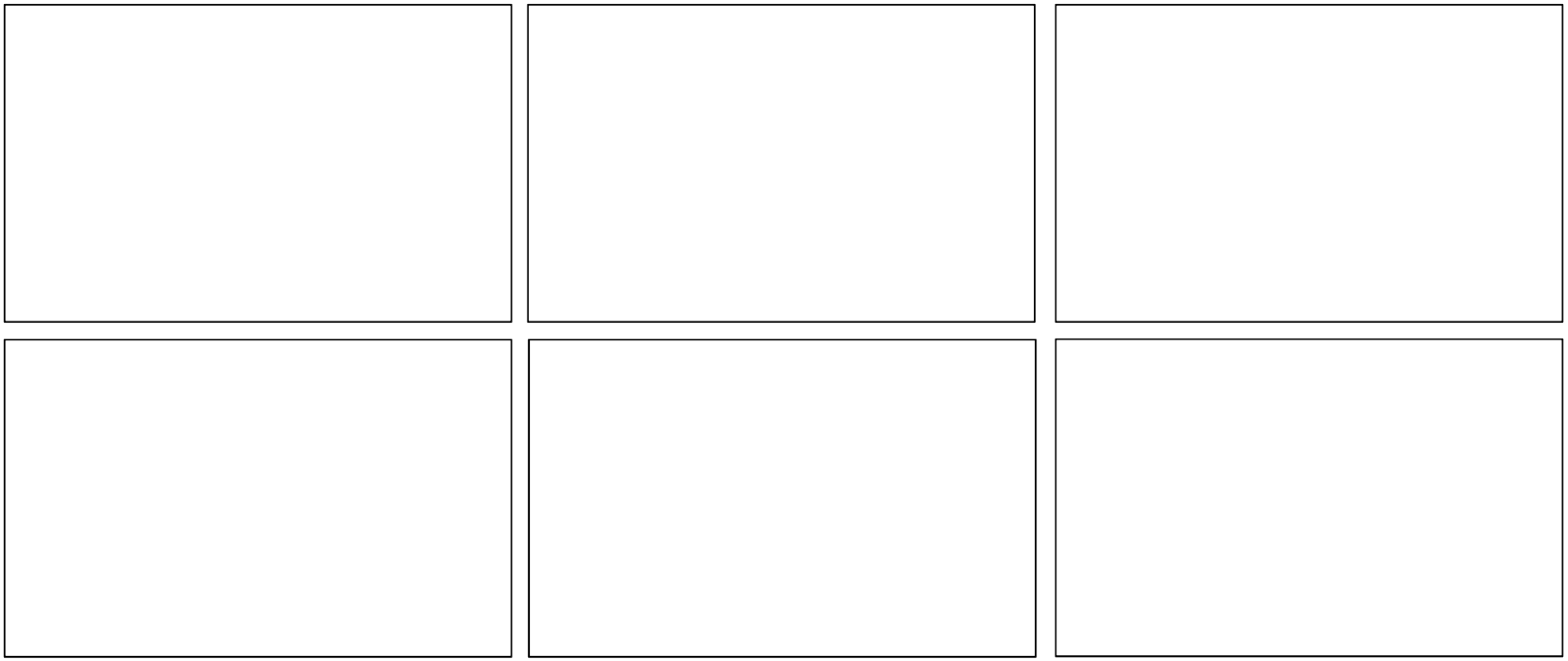
Awareness Creation & Employee Involvement 9/16

- **Celebration of Energy conservation week**
  - **Energy conservation Oath**



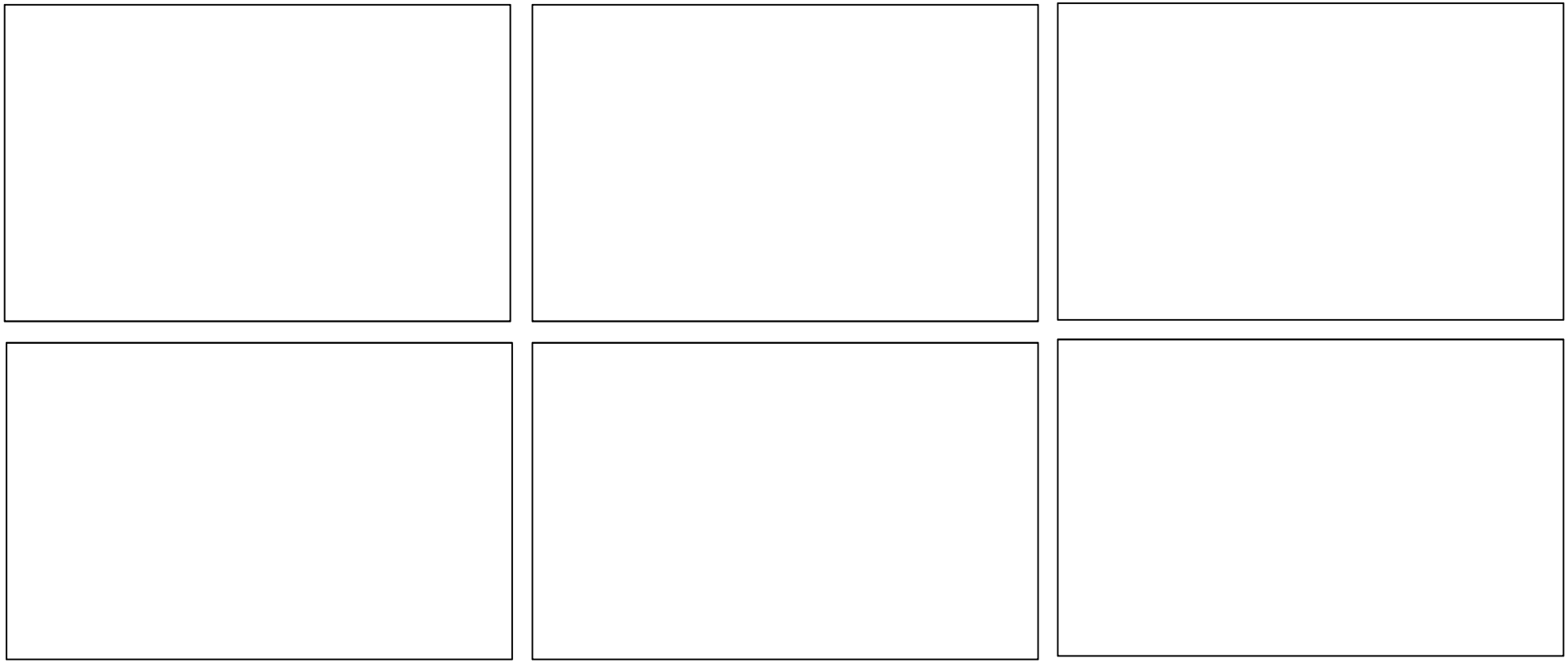
Awareness Creation & Employee Involvement 10/16

- **Celebration of Energy conservation week**
  - **Presentation on Energy conservation at ITI Shirur**



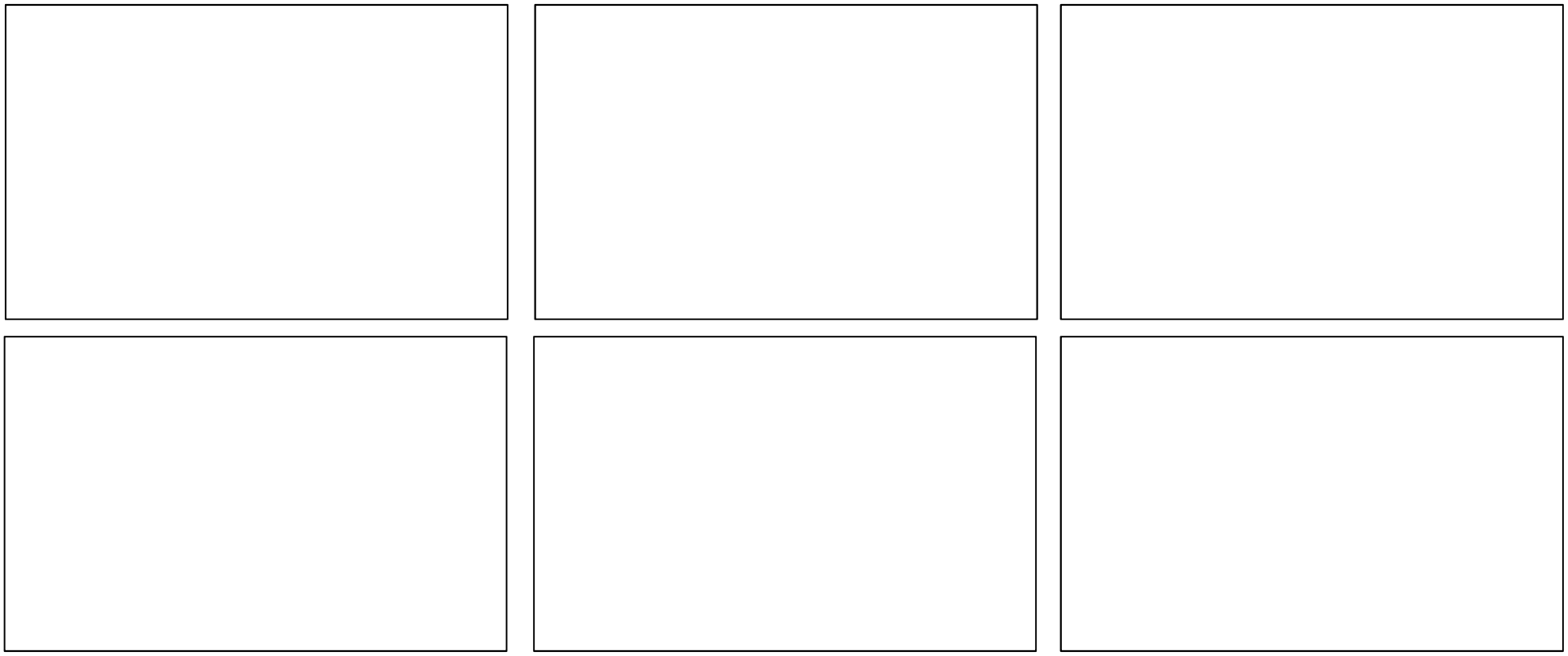
Awareness Creation & Employee Involvement 11/16

- **Celebration of Energy conservation week**
  - **Presentation on Energy conservation at Kondhapuri School**



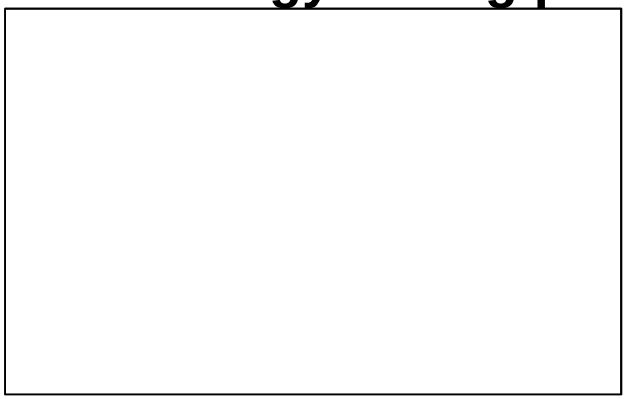
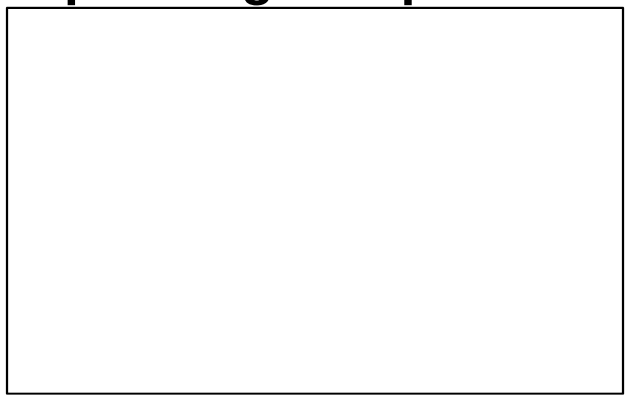
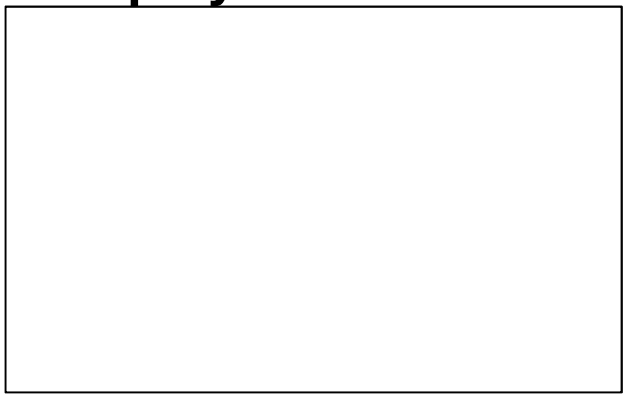
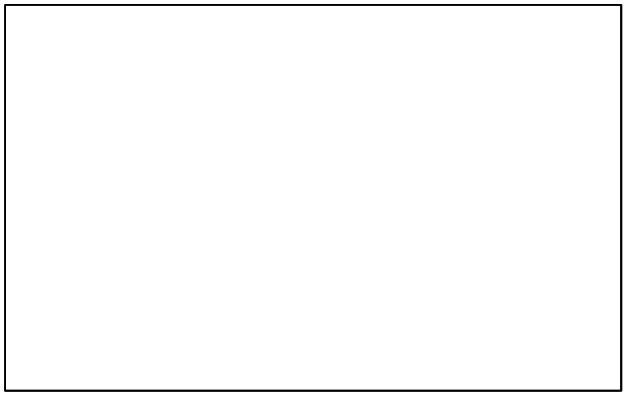
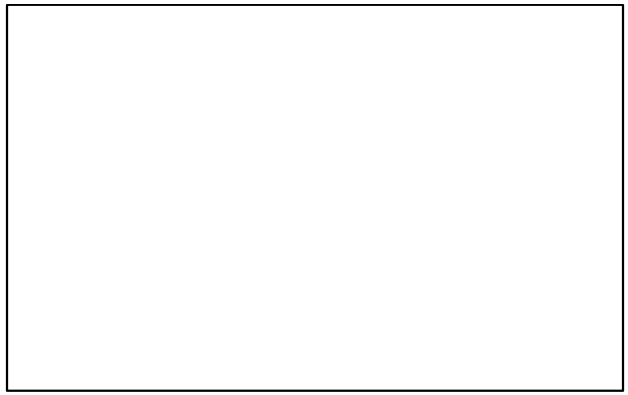
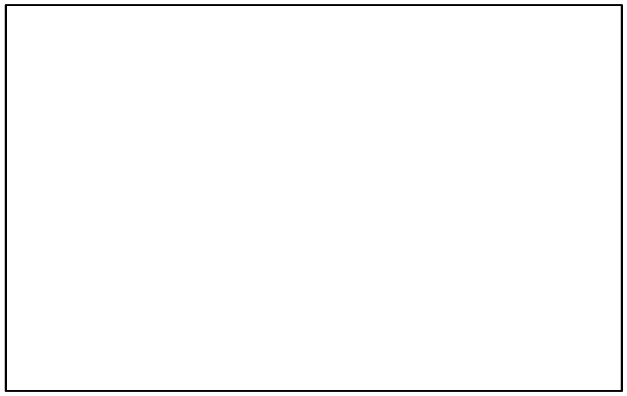
Awareness Creation & Employee Involvement 12/16

- **Celebration of Energy conservation week**
  - **Showing Energy conservation videos at Shop Floors**



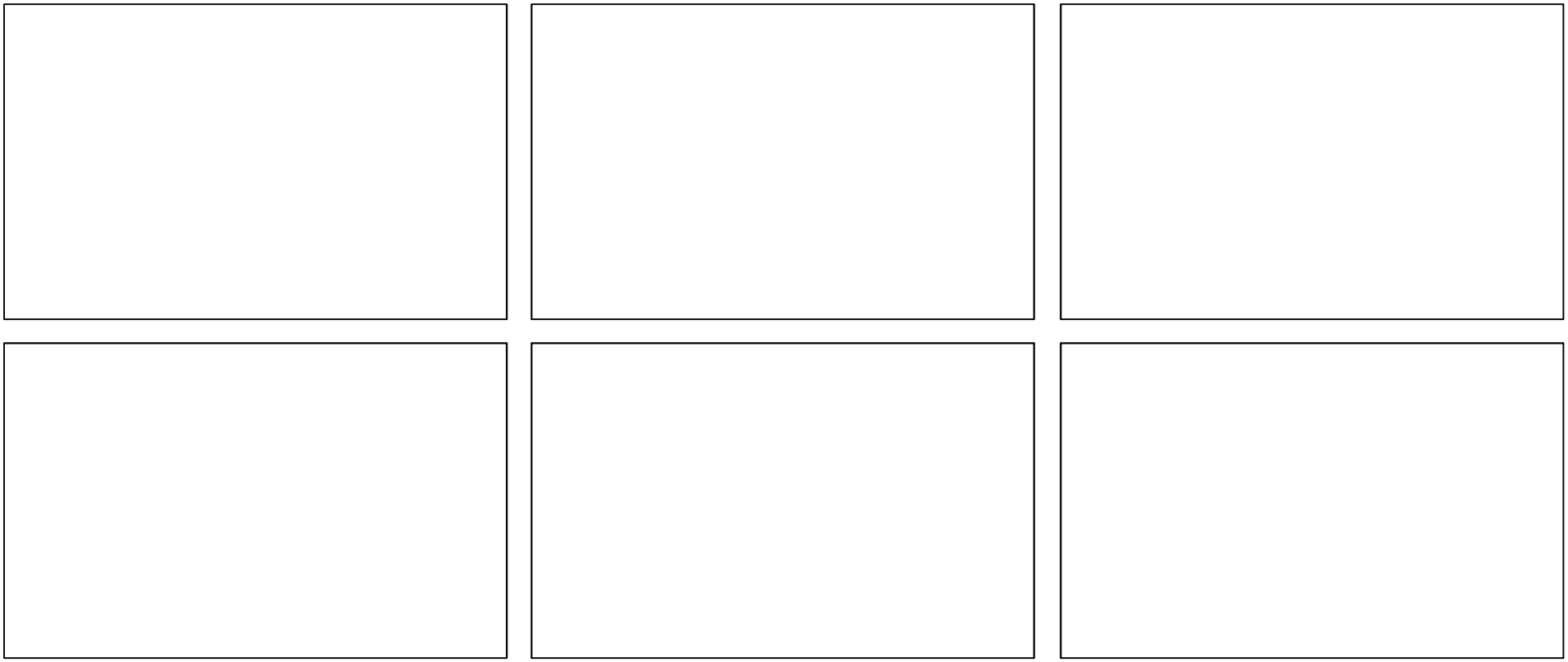
Awareness Creation & Employee Involvement 13/16

- **Celebration of Energy conservation week**
  - **Energy saving poster/painting competition for employee children's**

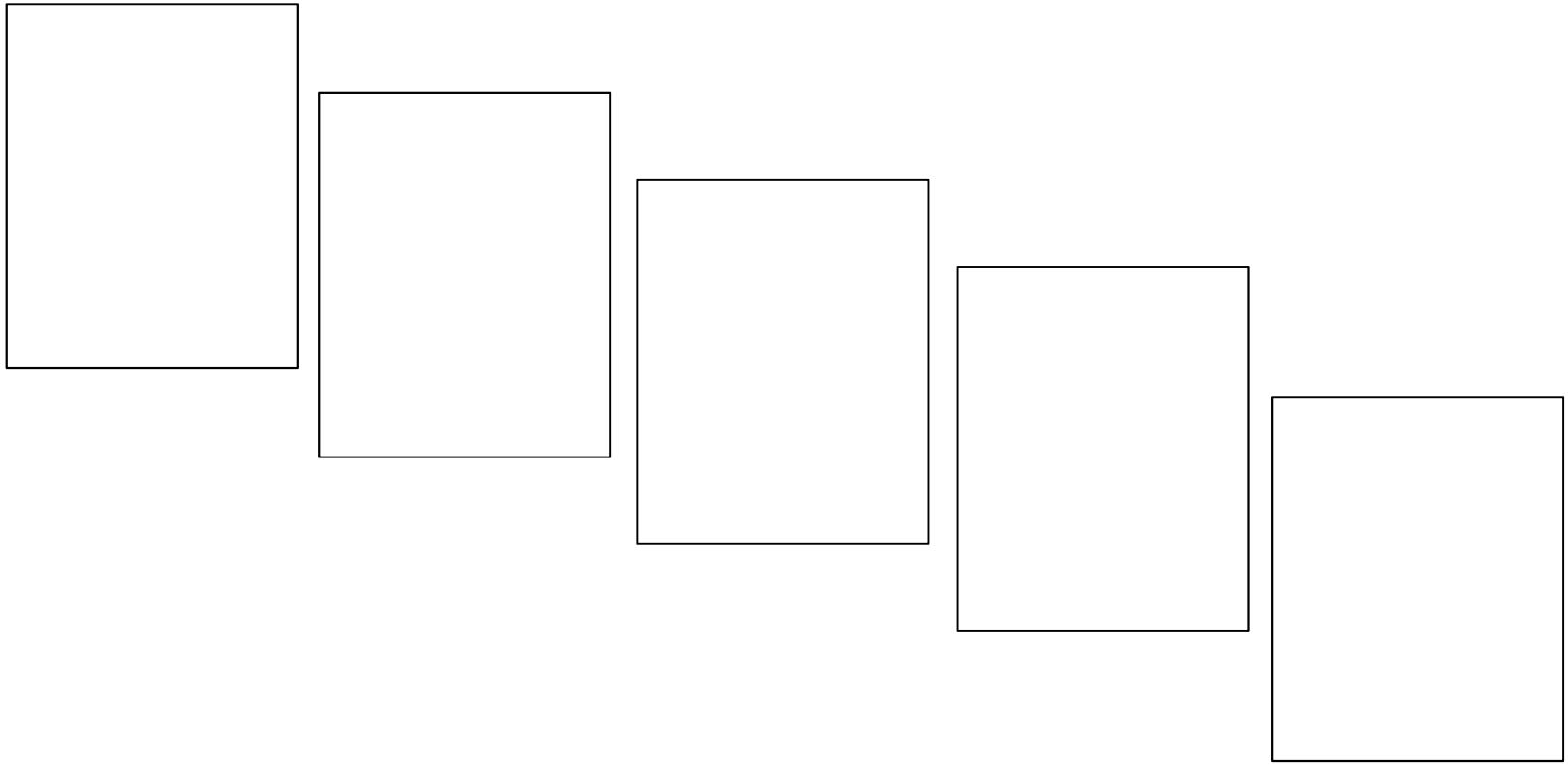
Awareness Creation & Employee Involvement 14/16

- **Celebration of Energy conservation week**
  - **Inter departmnental competition on Energy conservation**



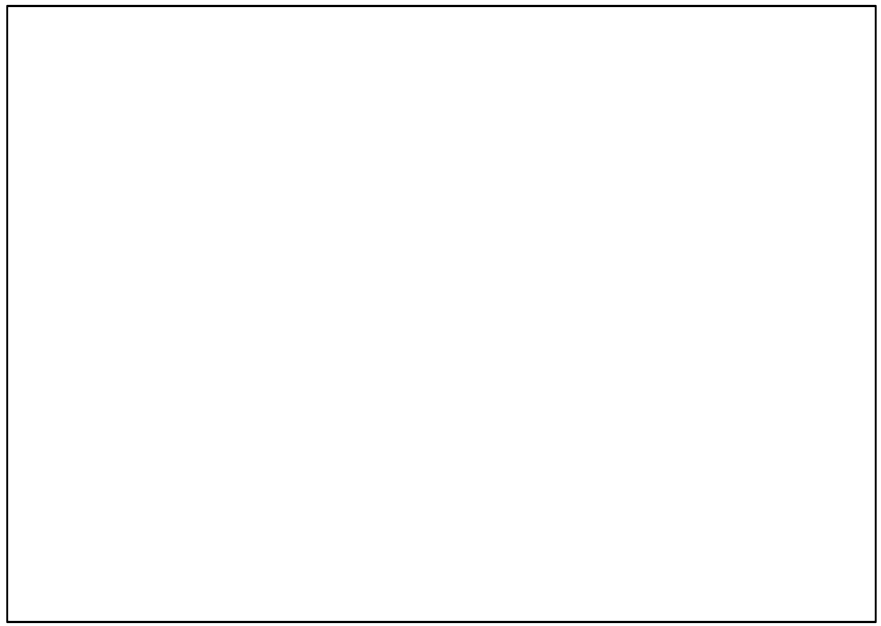
Awareness Creation & Employee Involvement 15/16

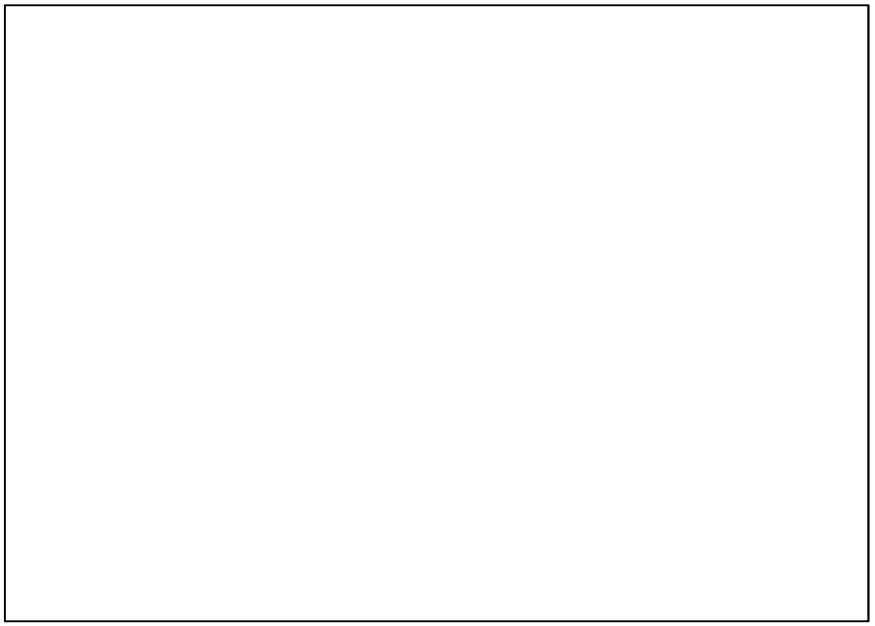
- **Celebration of Energy conservation week**
  - **Energy saving suggestions Competition**



Awareness Creation & Employee Involvement 16/16

- **Celebration of Energy conservation week**
  - **Energy saving online quiz competition for staff**





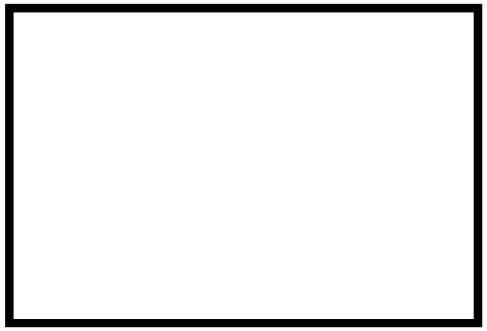
Back

Awareness Creation - Out of fence 1/2

- **For improving the energy efficiency, we have successfully organised 7 wt. LED bulbs booths at special discounted rate**
- **BCIN employees purchased around 900 LED bulbs.**
- **90% of employees have 100% LED’s at Home**

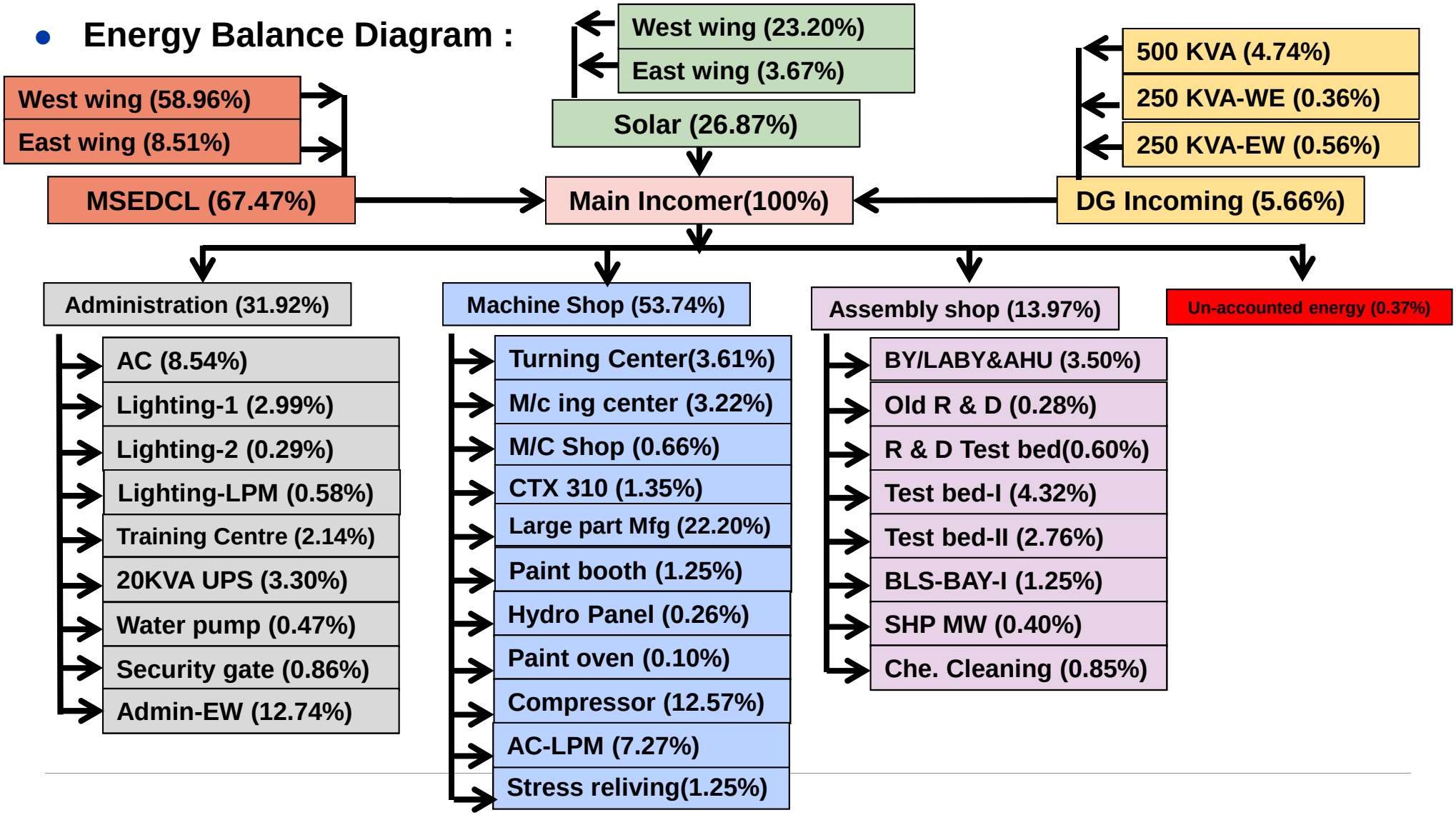
Awareness Creation- Out of fence 2/2

- **BCIN donate Solar Water heater in Shrimati Babaitai Takalkar Primary Ashram Shala, Nimgaon Mhalungi, Tal. Shirur, Pune.**



Energy Monitoring & Management Systems 1/3

- **Energy Balance Diagram :**



Daily Variance Analysis & Correction 1/3

- **40 Nos. of energy meters**

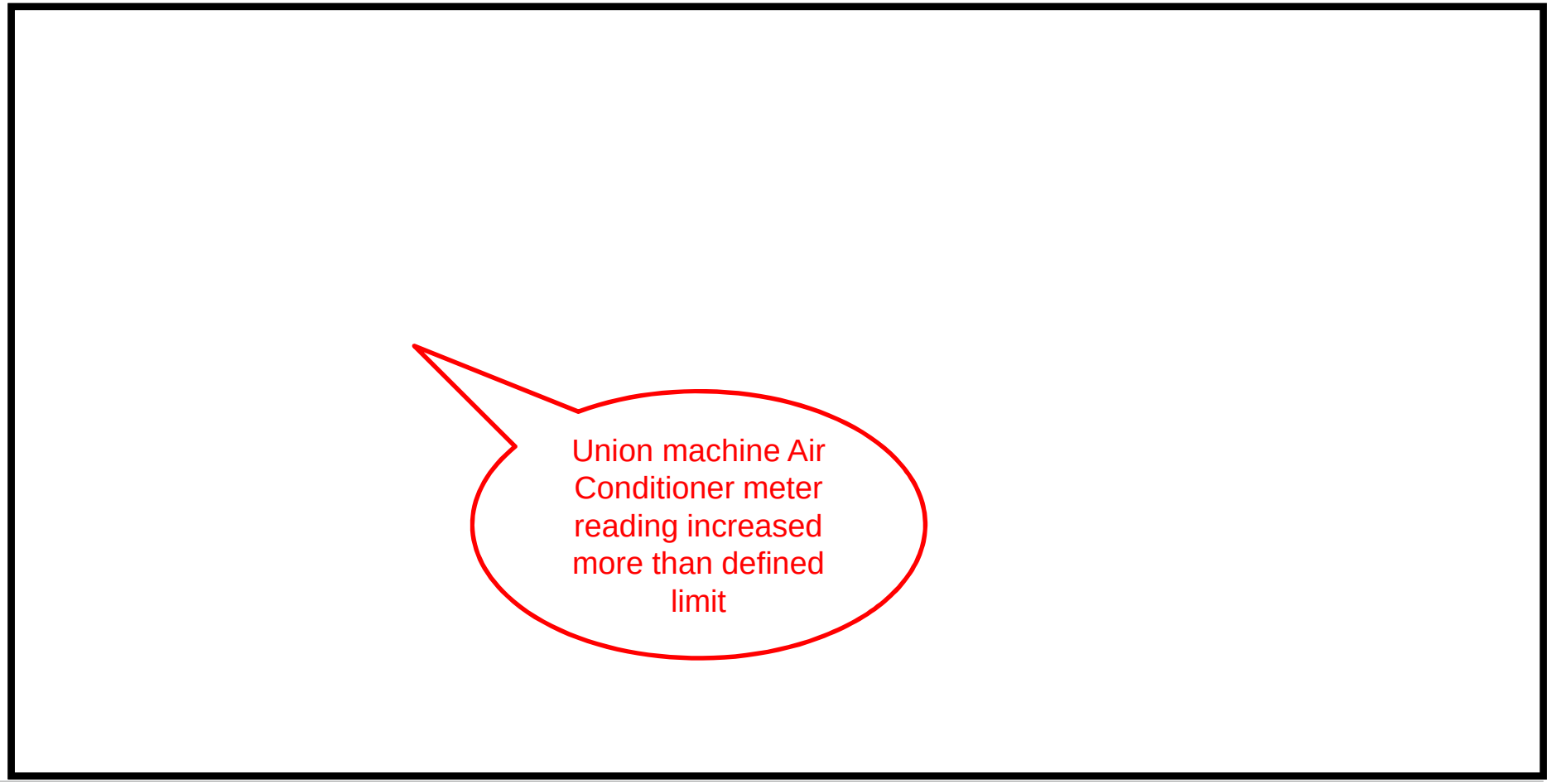
  Reasons for increase in energy consumption

  Analysis carried out

  Corrective action taken

Daily Variance Analysis & Correction 2/3

- **Case Study for Union machine Air Conditioner meter reading increased more than defined limit.**



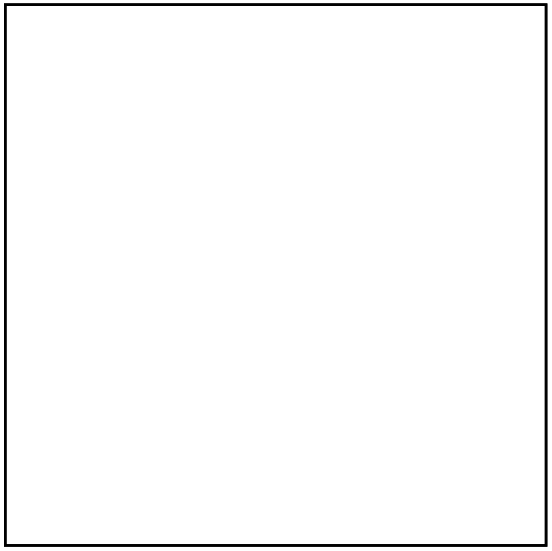
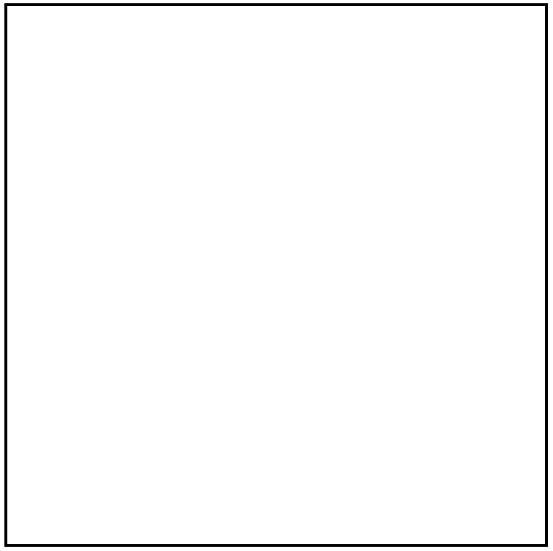
Daily Variance Analysis & Correction 3/3

- **Case Study for Union machine Air Conditioner meter reading increased more than defined limit.**

Problem	Root Cause	Corrective Action	Planned Action
• Union m/c AC meter reading increased	• Air conditioner outdoor unit and inlet ducting joining bellow found tear out so cold air partially leak into atmosphere	• Tear out bellow opening closed by sticky rubber.	• Joining bellow should be checked & replaced if necessary, during Preventive Maintenance on quarterly basis

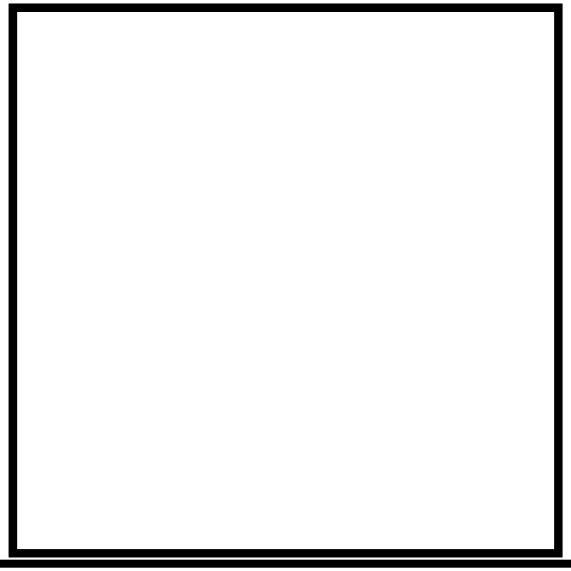
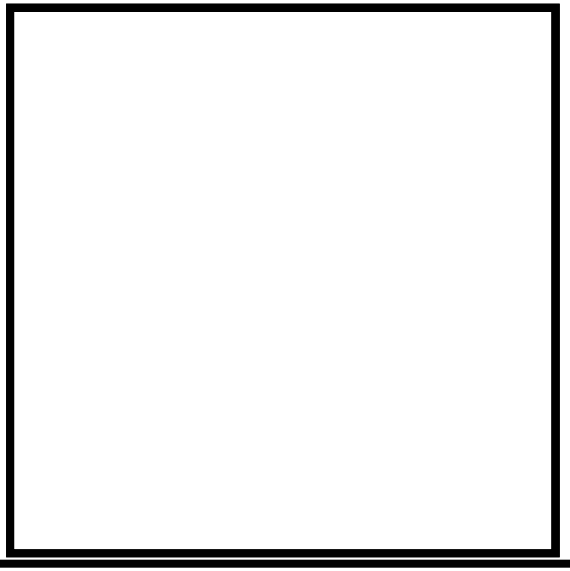
Energy Saving Projects

- **Project title: Sodium Vapor street lights replaced with LED lights**

Before	After
	
125 watt metal halide high bay lights installed	60 watt LED high bay lights installed (17 Nos.)
Annual Energy saving = 7767 KWH, Annual cost saving = Rs. 0.97 Million Investment = 0.94 Million, Payback = 0.96 Years	

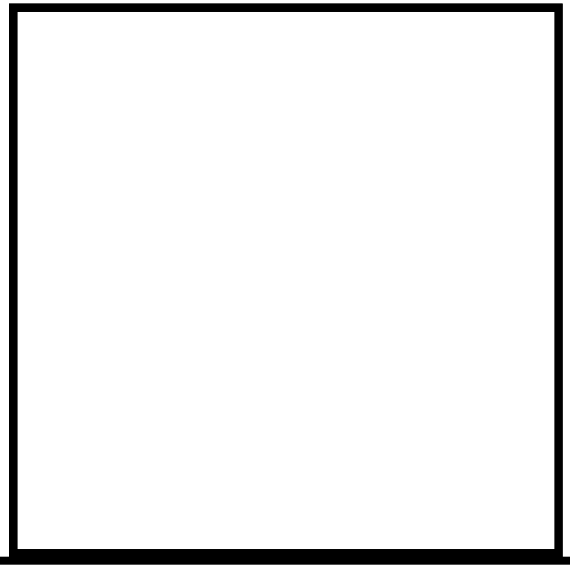
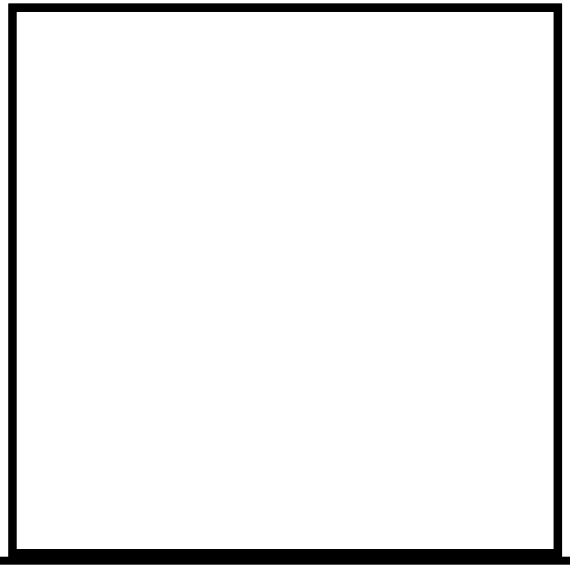
Energy Saving Projects

- **Project title: Office CFL spot light fittings retrofitted with LED fittings**

Before	After
	
36 & 18 watt CFL spot light fittings installed	7 watt CFL spot light fittings installed (60 Nos.)
Annual Energy saving = 1710 KWH, Annual cost saving = Rs. 0.21 Million Investment = 0.12 Million, Payback = 0.57 Years	

Energy Saving Projects

- **Project title: East wing 2'X2' office CFL lights replaced with LED lights**

Before	After
	
72 watt CFL 2'X2' office lights fittings installed	34 watt LED 2'X2' office lights fittings installed (54 Nos.)
Annual Energy saving = 4924 KWH, Annual cost saving = Rs. 0.62 Million Investment = 0.52 Million, Payback = 0.84 Years	

Energy Saving Projects

- **Project title: Metal Halide high bay lights replaced with LED**

Before	After
400 watt metal halide high bay lights installed	119 watt LED high bay lights installed (75 Nos.)
Annual Energy saving = 75852 KWH, Annual cost saving = Rs. 0.83 Million Investment = 1.01 Million, Payback = 1.2 Years	

Energy Saving Projects

- **Pneumatic air gun replaced with Trans vector nozzles guns**

Before	After
Pneumatic air gun used for cleaning	Trans vector nozzles type of guns used for cleaning (05 Nos.)
Annual Energy saving = 4800 KWH, Annual cost saving = Rs. 0.043 Million Investment = 0.015 Million, Payback = 0.35 Years	

Energy Saving Projects

- **Separate air ring blower provided for ETP aeration**

Before	After
Air used for aeration process from regular air compressor	Separate air ring blower provided for ETP aeration
Annual Energy saving = 26712 KWH, Annual cost saving = Rs. 0.142 Million Investment = 0.075 Million, Payback = 0.53 Years	

Energy Saving Projects

- **Star-Delta starters replaced with VFD**

Before	After
Star-Delta starters used to run blower motors	VFD used to run blower motors
Annual Energy saving = 123586 KWH, Annual cost saving = Rs.1.112 Million Investment = 0.467 Million, Payback = 0.42 Years	

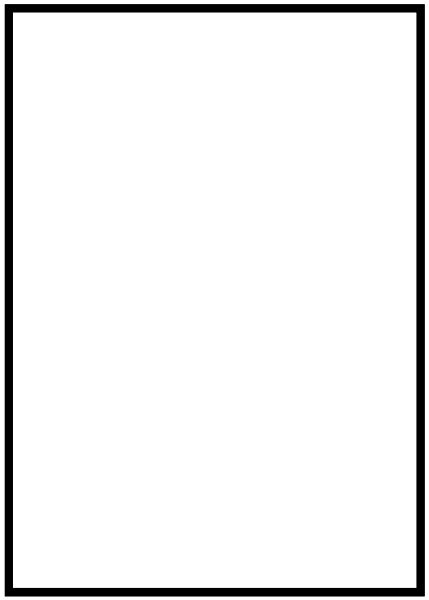
Energy Saving Projects

- **All possible air leakages arrested from air line**

Before	After
Air leakages from various pipe joints	All possible air leakages arrested after Ultrasonic leak inspection
Annual Energy saving = 20635 KWH, Annual cost saving = Rs. 0.186 Million Investment = 0.042 Million, Payback = 0.22 Years	

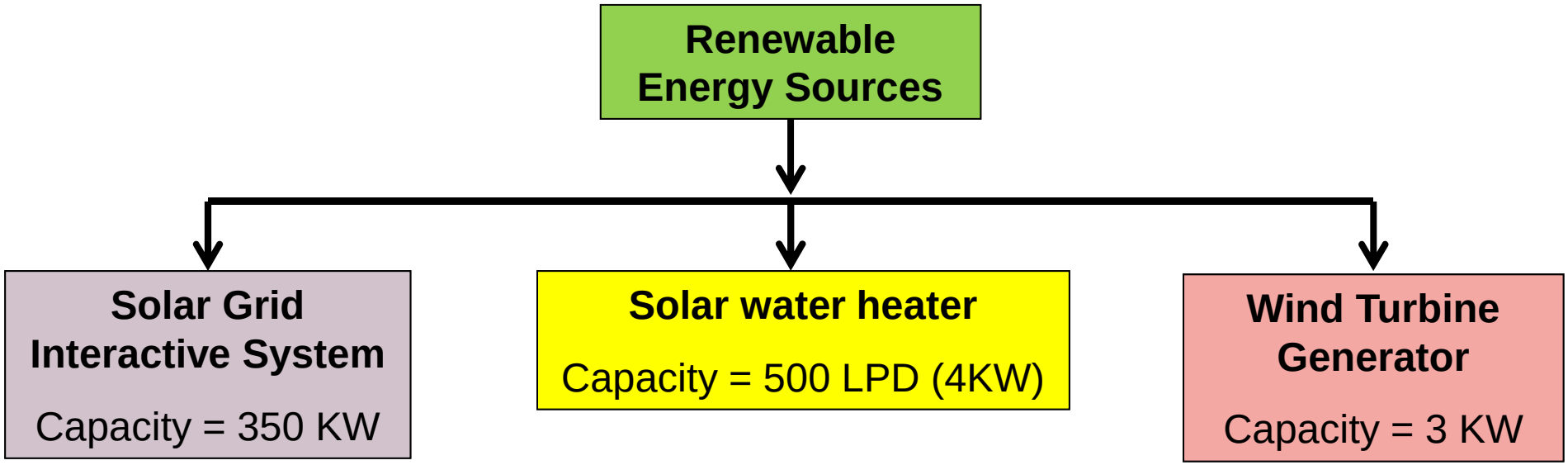
Energy Awards

- **We are winner of SEEM National Energy Management Award 2016.**
  - **Category : Industries**
  - **Sector : Engineering**
  - **Position : Silver**

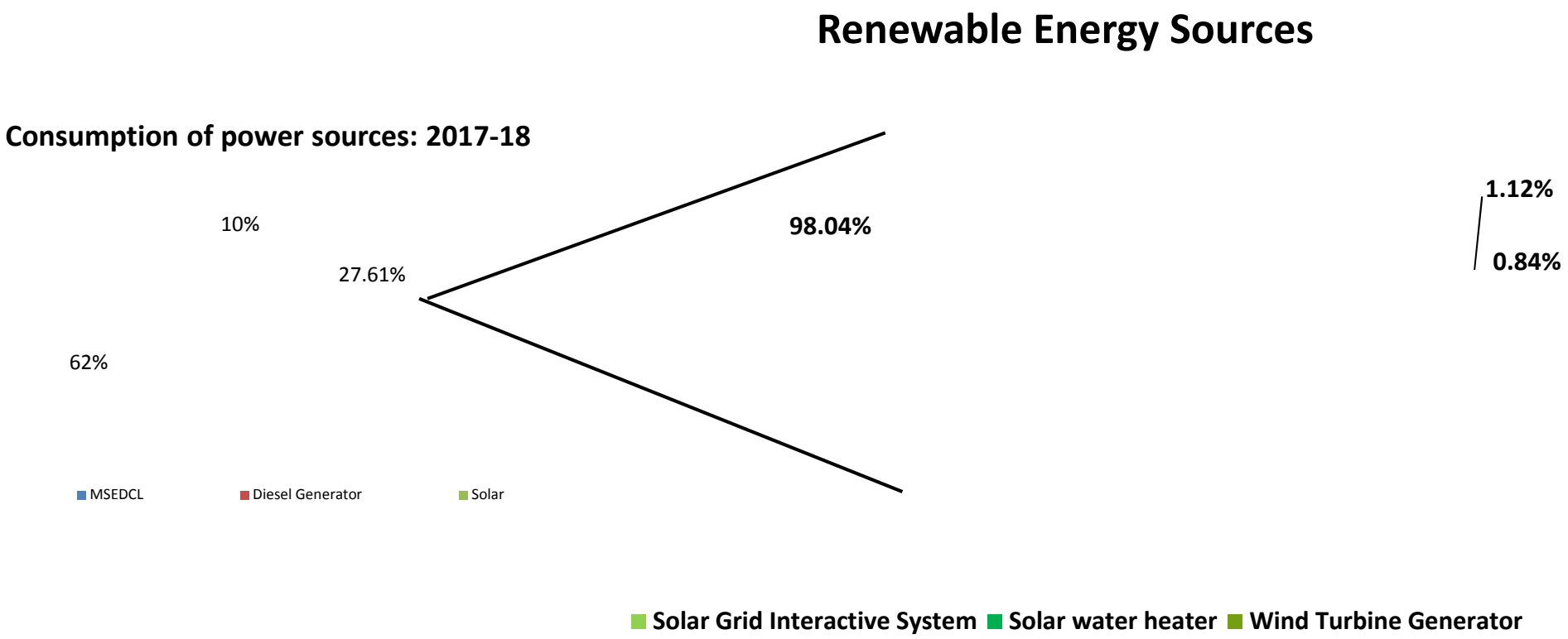


RENEWABLE ENERGY

Renewable Energy Source:



Renewable energy Scenario:



Energy Saving RE Projects

- **350 KW Grid interactive solar system installed**

Before	After
Electrical Input power source from MSEDCL	Electrical Input power source from Solar (Renewable energy source)
Annual Energy saving = 511000 KWH, Annual cost saving = Rs.1.533 Million Investment = 0.000 Million, Payback = 0.00 Years	

Energy Saving RE Projects

- **MSEDCL power replaced with wind turbine power**

Before	After
MSEDCL power is used for electric load.	Wind turbine is used for electric load.
Annual Energy saving= 10800 KWH, Annual cost saving= Rs. 0.0972 Million Investment = 0.325 Million, Payback = 3.34 Years	

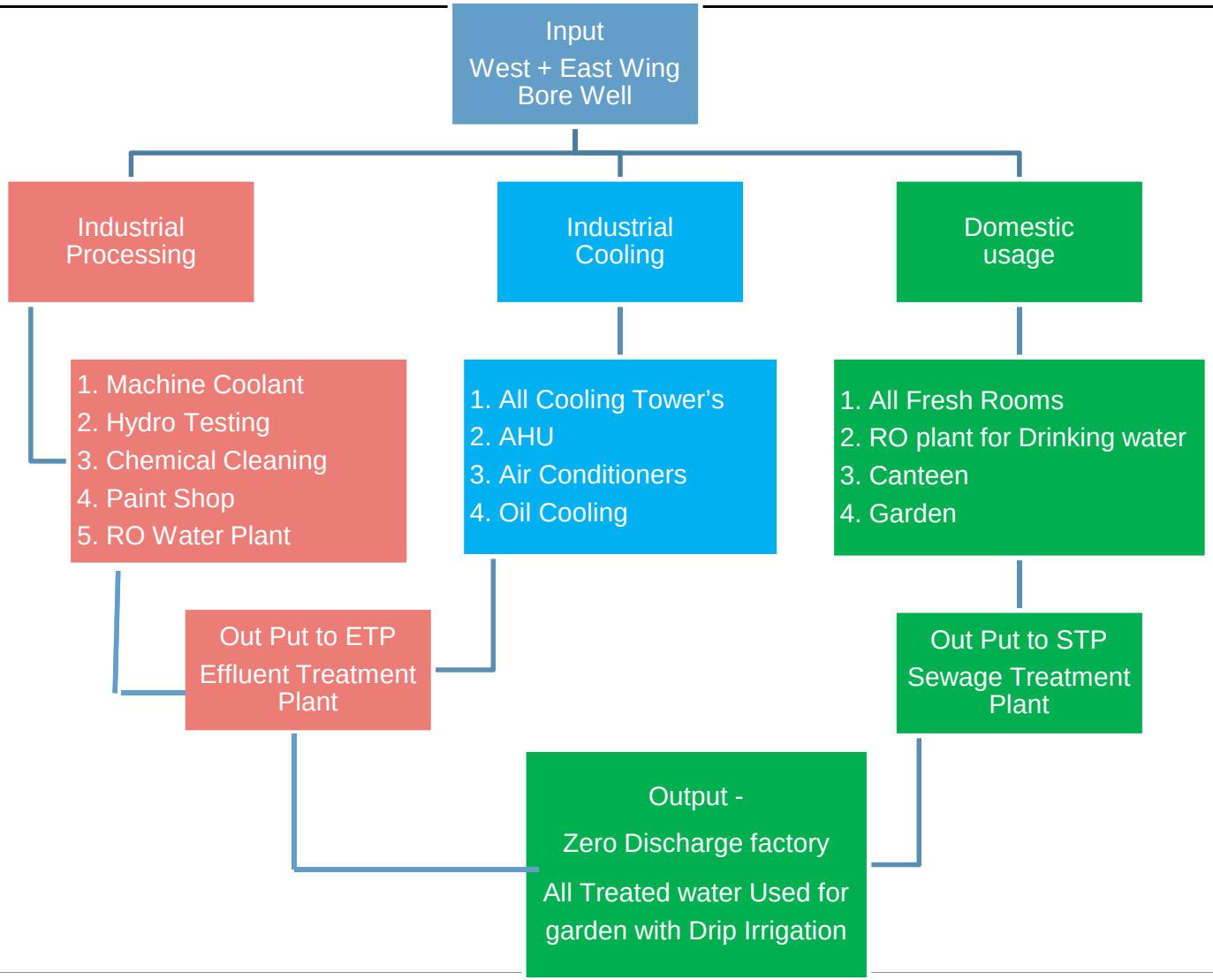
Energy Saving RE Projects

- **MSEDCL power replaced with Solar water heater**

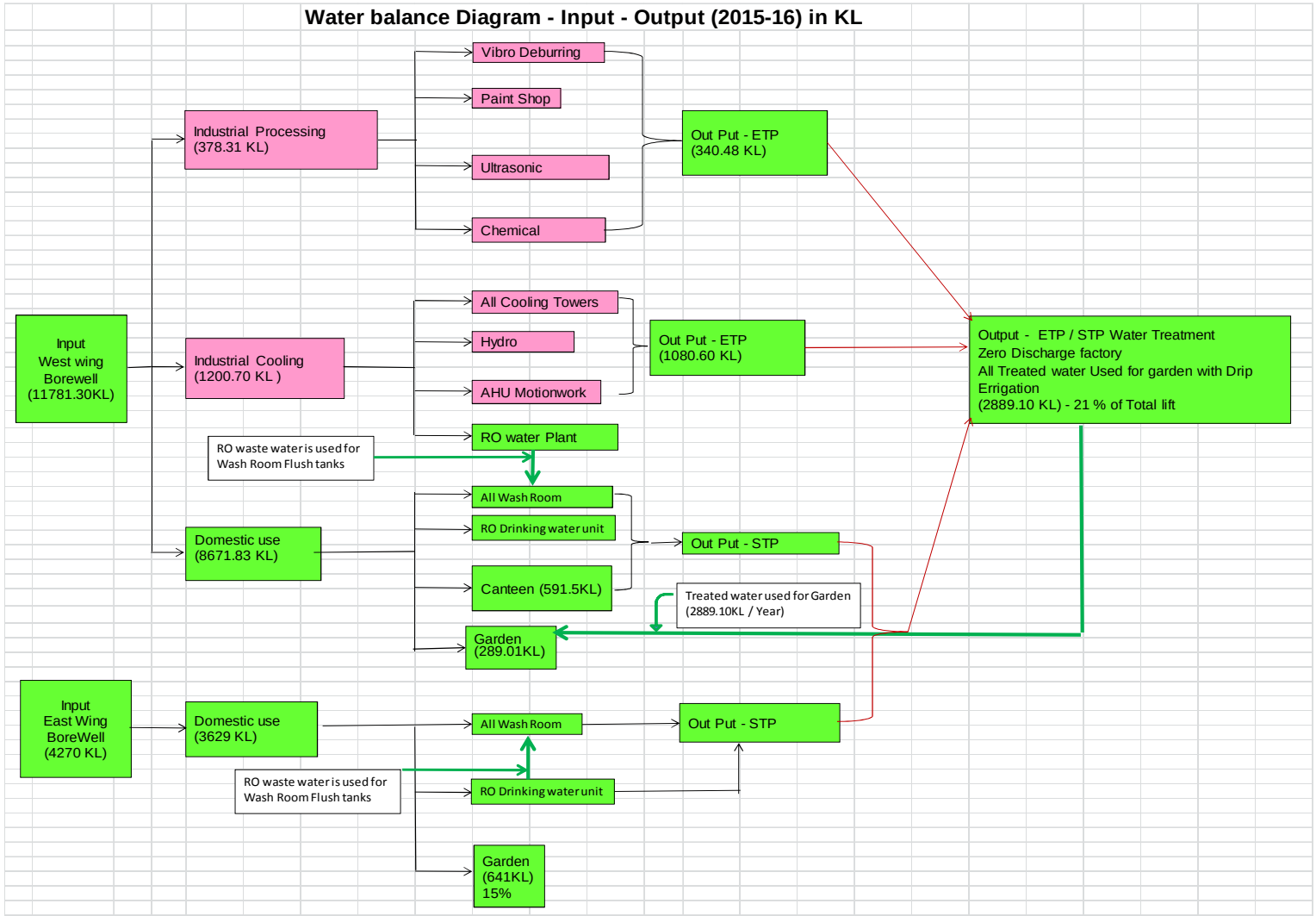
Before	After
MSEDCL power is used for Water heating.	Solar is used for water heating.
Annual Energy saving= 4800 KWH, Annual cost saving= Rs. 0.0432 Million Investment = 0.03 Million, Payback = 0.69 Years	

WATER CONSERVATION

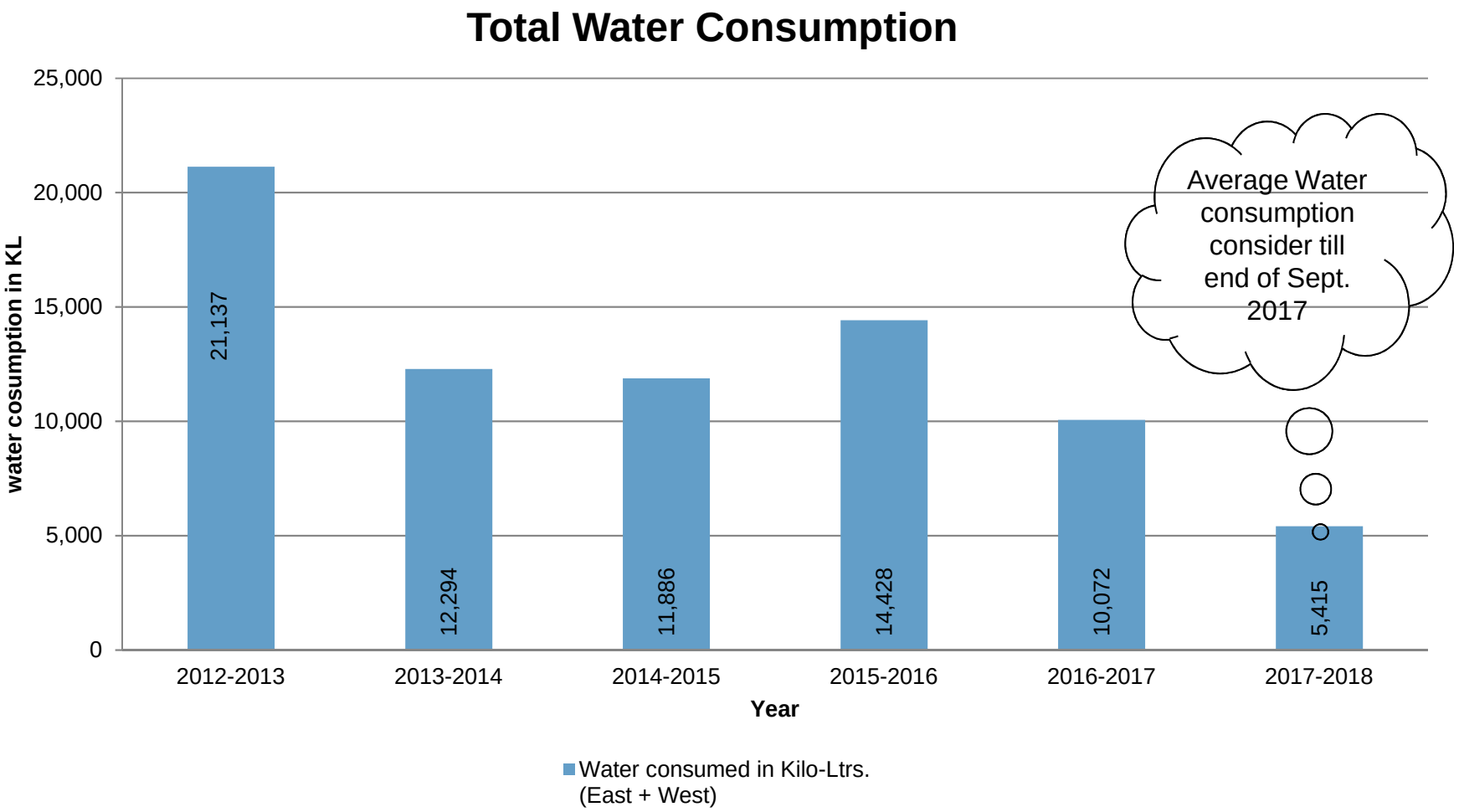
Water Source at BCIN –
Block Diagram of Water Input - Output matrix



Water Balance Diagram

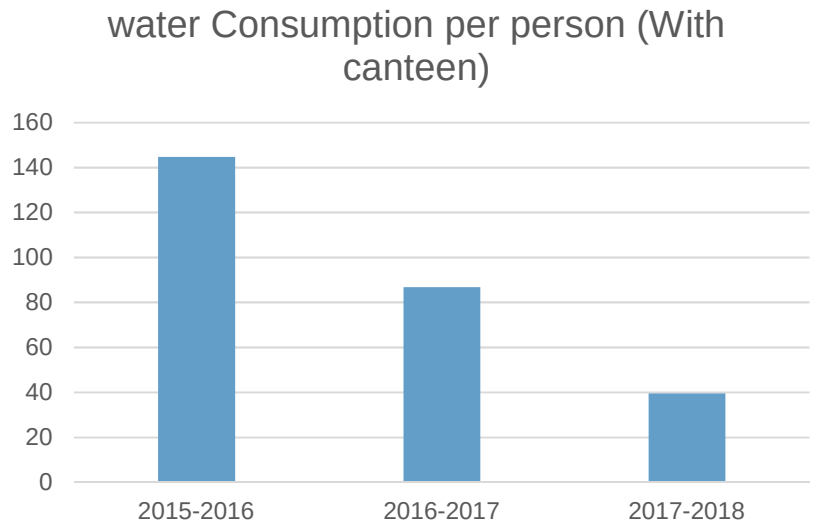


Total Water Consumption Trend



Water Source – Domestic Water Consumption / Person

Total Water Consumption / Man-day				
S.N.	Years	Water Consumption including canteen	No. of Man-days	water Consumption per person (With canteen)
1	2015-2016	11874	82013	145
2	2016-2017	7135	82189	87
3	2017-2018	1668	42162	40



Daily water Monitoring Format

																																Document No.		MAINT/213
																															Revision no.		06
																															Issued on		01-08-2016
All reading are in Kilo- Ltrs																															Month: March 2017		
	Incoming Water						Industrial Processing			Industrial Cooling						Domestic consumption						Sewage generated					Gardening water			Trade effluent	Domestic effluent	
Date	Water consumed from Main Gate Bore well (A)	Water consumed from Backside Bore well (B)	Water consumed from East wing Bore well (C)	Water lift from Under Ground tank (D)	Union building rain water harvesting (E)= (D-A-B-C+P)	Total water lift from Ground (F) =(A+B+C+E)	Paint Booth (G)	Chemical Cleaning Shop (H)	Total Water consumed for Industrial Processing (I) =(G+H)	Cooling Tower - 1 (Test bed canopy) (J)	Cooling Tower - 4 (Honing M/c) (k)	AHU-1 & 2 (Near DG sets) (L)	AHU-3 (Above Utility-I) (M)	RO plant for machine shop (N)	Total Water consumed for Industrial Cooling (O) =(J+K+L+M+N)	Canteen (P)	Solar grid interactive system (Q)	Office Block (R)	Security gate bathroom (S)	All bathroom (T) =(R-H-L-M-AB)	Total water used for Domestic (U) =(P+Q+S+T)	Septic tank 1 (Shop floor toilets) (V)	Septic tank 2 (Office toilets) (W)	Septic tank 3 (Canteen & security toilets) (X)	Septic tank 4 (East wing office toilets) (Y)	Total sewage generated (Z) =(V+W+X+Y)	Raw water for Garden (Near Cooling tower-1) (AA)	Raw water for Garden (Near four wheeler parking) (AB)	Treated water from ETP outlet/ Gardening water (AC)	Primary Industrial Treated Effluent (Treated Effluent from ETP) (AD)	Treated Effluent from STP (AE) =(AC-AD)	Electricity used for ETP in KW
Per day/ per cycle Avg. Cons. Trigger	23.50	0.00	0.00	18.00	0.00	23.50	Daily = 0.5 Cycle = 18	1.00	Daily = 1.5 Cycle = 18	2.00	0.50	2.00	0.10	2.00	6.60	5.50	Daily = 0 Cycle = 15	5.00	1.00	2.00	Daily = 8 Cycle = 23	4.50	2.00	7.00	6.00	19.50	1.00	1.00	23.50	3.50	20.00	15.00
Last month reading	3930.00	6.00	2184.30	18984.00	0.00	6120.30	692.02	486.77	1178.79	1241.99	0.59	446.14	9.68	2742.01	4440.41	6724.00	54.22	2344.10	245.01	1249.50	8272.73	1620.00	335.10	3038.10	521.60	5514.80	408.01	152.01	32155.00	634.00	31521.00	6143.00
01-03-2017	3961.00	6.00	2184.30	19010.00	0.00	6151.30	692.69	491.89	1184.58	1245.02	0.59	446.14	9.68	2744.01	4445.44	6727.00	55.11	2347.10	246.10	1246.29	8274.50	1624.00	335.10	3038.10	521.60	5518.80	410.51	153.10	32163.10	634.00	31529.10	6146.00
02-03-2017	3961.00	6.00	2184.30	19010.00	0.00	6151.30	692.69	192.00	884.69	1245.02	0.59	446.14	9.68	2746.00	4447.43	6727.00	55.22	2350.10	246.10	1547.18	8575.50	1624.00	335.10	3040.10	521.60	5520.80	411.51	155.10	32170.10	634.00	31536.10	6150.00
03-03-2017	4002.00	6.00	2184.30	19106.00	0.00	6192.30	692.69	493.01	1185.70	1250.45	0.59	446.14	9.68	2754.01	4460.87	6738.00	56.10	2355.10	274.01	1250.17	8318.28	1624.00	340.10	3040.10	521.60	5525.80	411.51	156.10	32177.00	638.02	31538.98	6154.00
04-03-2017	4020.00	6.00	2184.30	19118.00	0.00	6210.30	692.69	494.01	1186.70	1252.01	0.59	446.14	9.68	2755.01	4463.43	6743.00	56.10	2355.10	274.01	1249.17	8322.28	1630.00	340.10	3040.10	521.60	5531.80	411.51	156.10	32185.10	638.02	31547.08	6157.00
05-03-2017																																	
06-03-2017	4055.00	6.00	2186.00	19167.00	0.00	6247.00	692.69	497.16	1189.85	1252.01	0.59	446.14	9.68	2761.00	4469.42	6759.00	56.10	2430.10	274.17	1314.68	8403.95	1636.00	340.10	3055.10	521.60	5552.80	411.51	162.44	32191.00	640.00	31551.00	6161.00
07-03-2017	4065.00	6.00	2186.00	19178.00	0.00	6257.00	692.69	497.16	1189.85	1252.01	0.59	446.14	9.68	2761.00	4469.42	6763.00	56.10	2435.10	274.17	1319.68	8412.95	1636.00	340.10	3066.10	521.60	5563.80	411.51	162.44	32198.10	640.00	31558.10	6165.00
08-03-2017	4085.00	6.00	2186.00	19203.00	0.00	6277.00	692.69	498.16	1190.85	1254.01	0.59	446.14	9.68	2763.00	4473.42	6766.00	56.10	2440.10	274.17	1323.68	8419.95	1636.00	340.10	3065.10	521.60	5562.80	411.51	162.44	32195.10	640.00	31555.10	6169.00
09-03-2017	4097.00	6.00	2186.00	19224.00	0.00	6289.00	692.69	500.16	1192.85	1256.10	0.59	446.14	9.68	2770.00	4482.51	6770.00	56.10	2445.10	274.17	1323.68	8423.95	1636.00	340.10	3070.10	521.60	5567.80	411.51	165.44	32202.10	640.00	31562.10	6172.00
10-03-2017	4099.00	6.00	2186.00	19239.00	0.00	6291.00	692.69	500.16	1192.85	1256.10	0.59	446.14	9.68	2770.00	4482.51	6773.00	56.10	2445.10	274.17	1323.68	8426.95	1636.00	340.10	3070.10	521.60	5567.80	411.51	165.44	32209.50	640.00	31569.50	6177.00
11-03-2017	4110.00	6.00	2186.00	19255.00	0.00	6302.00	692.69	500.16	1192.85	1256.10	0.59	446.14	9.68	2770.00	4482.51	6773.00	56.10	2445.10	274.17	1323.68	8426.95	1636.00	340.10	3070.10	521.60	5567.80	411.51	165.44	32215.10	640.00	31575.10	6179.00
12-03-2017																																	
13-03-2017	4162.00	6.00	2186.00	19277.00	0.00	6354.00	692.69	502.01	1194.70	1256.10	0.59	450.01	9.68	2779.00	4495.38	6782.00	56.95	2462.10	276.01	1330.39	8445.35	1693.00	345.10	3080.10	521.60	5639.80	415.11	170.01	32225.10	640.00	31585.10	6183.00
14-03-2017	4190.00	6.00	2186.00	19286.00	0.00	6382.00	692.69	502.01	1194.70	1256.10	0.59	450.01	9.68	2784.00	4500.38	6782.00	56.95	2465.10	276.01	1333.39	8448.35	1693.00	345.10	3085.10	521.60	5644.80	415.11	170.01	32230.10	640.00	31590.10	6185.00
15-03-2017	4232.00	6.00	2186.00	19310.00	0.00	6424.00	692.69	502.01	1194.70	1256.10	0.59	450.01	9.68	2784.00	4500.38	6788.00	56.95	2470.10	281.01	1338.39	8464.35	1693.00	345.10	3090.10	521.60	5649.80	415.11	170.01	32237.00	640.00	31597.00	6189.00
16-03-2017	4276.00	6.00	2186.00	19342.00	0.00	6468.00	692.69	502.16	1194.85	1256.10	0.59	450.01	9.68	2786.00	4502.38	66791.00	56.95	2474.01	285.01	1342.15	68475.11	1693.00	345.10	3090.10	521.60	5649.80	415.11	170.01	32245.00	640.00	31605.00	6190.00
17-03-2017	4280.00	6.00	2186.00	19355.00	0.00	6472.00	692.69	502.16	1194.85	1256.10	0.59	450.01	9.68	2788.00	4504.38	6795.00	56.95	2478.10	285.10	1346.24	8483.29	1693.00	345.10	3090.10	521.60	5649.80	415.11	170.01	32252.00	640.00	31612.00	6194.00
18-03-2017	4298.00	6.00	2186.00	19365.00	0.00	6490.00	692.69	502.16	1194.85	1256.10	0.59	450.01	9.68	2790.00	4506.38	6801.00	56.95	2483.10	287.10	1351.24	8496.29	1693.00	345.10	3100.10	521.60	5659.80	415.11	170.01	32259.00	640.00	31619.00	6196.00
19-03-2017																																	
20-03-2017	4300.00	6.00	2186.00	19407.00	0.00	6492.00	693.10	503.16	1196.26	1256.10	0.59	450.01	9.68	2797.00	4513.38	6801.00	56.95	2517.00	289.89	1362.05	8509.89	1693.00	360.10	3100.10	544.90	5698.10	421..12	192.10	32264.00	640.00	31624.00	6198.00
21-03-2017	4326.00	6.00	2186.00	19443.00	0.00	6518.00	693.10	503.16	1196.26	1256.10	0.59	450.01	9.68	2800.00	4516.38	6828.00	56.95	2521.00	290.01	1366.05	8541.01	1697.00	360.10	3100.10	544.90	5702.10	421..13	192.10	32271.00	640.00	31631.00	6102.00
22-03-2017	4362.00	6.00	2186.00	19465.00	0.00	6554.00	693.10	503.16	1196.26	1256.10	0.59	450.01	9.68	2802.00	4518.38	6828.00	56.95	2525.00	290.10	1369.15	8544.20	1697.00	360.10	3100.10	544.90	5702.10	421..14	193.00	32280.00	640.00	31640.00	6203.00
23-03-2017	4381.00	6.00	2186.00	19490.00	0.00	6573.00	693.10	504.16	1197.26	1256.10	0.59	450.01	9.68	2802.00	4518.38	6828.00	56.95	2530.00	290.10	1370.05	8545.10	1697.00	360.10	3110.10	544.90	5712.10	421..15	196.10	32285.00	640.00	31645.00	6209.00
24-03-2017	4395.00	6.00	2186.00	19511.00	0.00	6587.00	693.10	506.16	1199.26	1256.10	0.59	450.01	9.68	2802.00	4518.38	6830.00	56.95	2535.00	297.01	1373.05	8557.01	1697.00	360.10	3110.10	544.90	5712.10	421..16	196.10	32292.00	640.00	31652.00	6216.00
25-03-2017	4402.00	6.00	2186.00	19522.00	0.00	6594.00	693.10	507.16	1200.26	1256.10	0.59	450.01	9.68	2804.00	4520.38	6833.00	56.95	2540.00	298.10	1377.15	8565.20	1697.00	360.10	3110.10	544.90	5712.10	424.12	196.00	32298.00	640.00	31658.00	6220.00
26-03-2017																																	
27-03-2017	4458.00	6.00	2186.00	19597.00	0.00	6650.00	693.10	507.16	1200.26	1256.10	0.59	450.01	9.68	2819.00	4535.38	6838.00	56.95	2550.00	299.10	1383.05	8577.10	1700.00	360.10	3110.10	544.90	5715.10	428.12	200.10	32306.00	640.00	31666.00	6222.00
28-03-2017																																	
29-03-2017	4495.00	6.00	2186.00	19635.00	0.00	6687.00	693.10	538.10	1231.20	1256.10	0.59	450.01	9.68	2820.00	4536.38	6850.00	56.95	2560.00	299.10	1351.96	8558.01	1710.00	365.10	3110.10	544.90	5730.10	429.12	210.25	32311.00	650.00	31661.00	6228.00
30-03-2017	4521.00	6.00	2186.00	19680.00	0.00	6713.00	693.10	553.10	1246.20	1256.10	0.59	450.01	9.68	2823.00	4539.38	6857.00	56.95	2565.00	300.10	1341.11	8555.16	1715.00	365.10	3110.10	544.90	5735.10	430.12	211.10	32316.00	650.00	31666.00	6231.00
31-03-2017	4548.00	6.00	2186.00	19715.00	0.00	6740.00	693.10	556.10	1249.20	1256.10	0.59	455.10	9.68	2825.00	4546.47	6860.00	56.95	2580.00	300.10	1348.02	8565.07	1715.00	365.10	3110.10	544.90	5735.10	430.12	211.10	32321.00	650.00	31671.00	6234.00
Total Consumption	618.00	0.00	1.70	731.00	0.00	619.70	1.08	69.33	70.41	14.11	0.00	8.96	0.00	82.99	106.06	136.00	2.73	235.90	55.09	98.52	292.34	95.00	30.00	72.00	23.30	220.30	22.11	59.09	166.00	16.00	150.00	91.00
N																																	
															Total Water consumed (I+O+U+AA+AB) =					550.01	Total water regenerated (AC) =							166.00		
Total Water Consumption Per Day	22.13						2.51			3.79					10.44					7.87					6.72				0.57	5.36	
Total Water Consumption Limit Day							5.00			7.00					24.00																
Excess Water Consumption Limit Day							-2.49			-3.21					-13.56					7.87										

Projects/activities :

- **Arrested underground leakages. Water pipes taken above ground.**

Projects/activities :

- **Sprinklers & Drip irrigation**

Projects/activities :

- **RO waste water used for toilet flushing**

Projects/activities :

- **Push cocks with nozzles**

Projects/activities :

- **Waterless urinals**

Projects/activities :

- **Reuse of ETP/STP treated water for Gardening**

Projects/activities :

- **Automation of water pump operations – eliminate overflow**

Water Index

- Water Index – 84% for year 2016-2017(Water Credit to Debit Ratio)
- Border line area of compound, Guest Parking, Bus parking in front of gate is not covered.(16%)
- Overall 84% RWH potential area is captured.

Total (East + West) 2016-17			
Year	Total water consumed (East + West wing) in 10 lakh-ltrs / year	Total (west+East wing) harvested water /year in 10 lakh litrs	Ratio Debit to Credit
2012-2013	21.14	6.90	33%
2013-2014	12.29	6.90	56%
2014-2015	11.89	6.90	58%
2015-2016	14.43	8.48	59%
2016-2017	10.07	8.48	84%

Rainwater Harvesting - Facilities

World Water Day – 22nd March

WASTE MANAGEMENT

Types of Wastes

Waste Management – Collection Mechanism

Waste Management – Storage with awareness display

Action Plan & Resources Allocation

Project name	Proposed Budget in INR	Status	Expected benefits
Magnetic Sweeper	10,000	Completed	Eliminate iron grit waste
Domestic effluent separator	4,00,000	Completed	Reduction in hazardous ETP sludge
Bio gas Plant	1,10,000	Offer received	Eliminate land filling by food waste.
Recycle of plastic waste	Nil	Proposal received work going on	Environment protection
Reuse of Oil soaked Cotton waste	2,00,000	Supplier Evaluation in Process	Reduce hazardous waste
Use of Paint Sludge for Brick	Nil	Preliminary state	Reduce hazardous waste

Solid Waste Management – Hazardous

Sr. No.	Year	Total production hours	Total quantity of hazardous waste generated	Specific waste disposed
1	2015-2016	648688	14584	0.022
3	2016-2017	657512	13103	0.019 13.64% reduction (compare with 15-16)
3	2017-2018 **(Till Sept.17)**	361300	4889	0.013 40.90% reduction(compare with 15-16)

Solid Waste Management – Hazardous recycling

Sr No	Year	Total quantity of hazardous waste generated	Total quantity of hazardous waste recycled	% recycling
1	2015-2016	14584	5135	35.20 %
2	2016-2017	13103	5678	43.33 %
3	2017-2018	4889	2195	55.10 %

Solid waste management –Non Hazardous

Sr. No.	Year	Total production hours	Total quantity of non hazardous waste generated	Specific waste disposed
1	2015-2016	648688	159529	0.24
2	2016-2017	657512	127446	0.19 21% reduction (compare to base year 15-16)
3	2017-2018 **(Till Sept.17)**	361300	71782	0.19 21% reduction (compare to base year 15-16)

Waste Management Projects

- **Major projects undertaken:**

  Replacement of plastic tea cups by ceramic cups for individual use

  Re use of transportation box for sub contractors

  Recycling of rejected castings at supplier site

  Monitoring of waste food at canteen

  Using nails to bolted wooden box.

  Recycling of plastic waste.

  Use of STP sludge for gardening.

  Reuse of ETP sludge, Shot blasting waste, Paint sludge, Grinding waste for brick making.

  Reuse of oily cotton waste after washing

GREENHOUSE GAS EMISSION

Introduction - GHG Emission Sources

- Electricity from grid ,
- Green power -offset

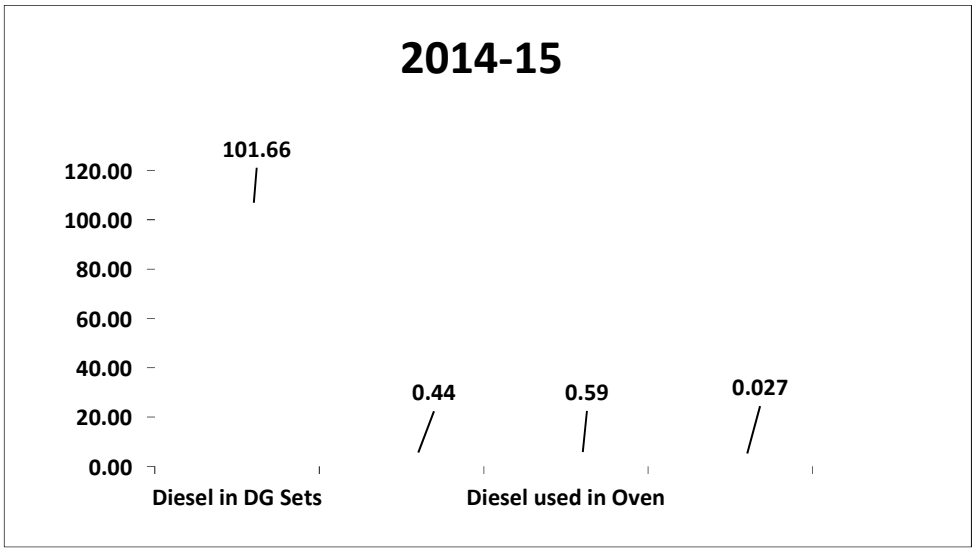
- Diesel in DG set ,
- Oven,
- Forklift,
- CO2 extinguisher

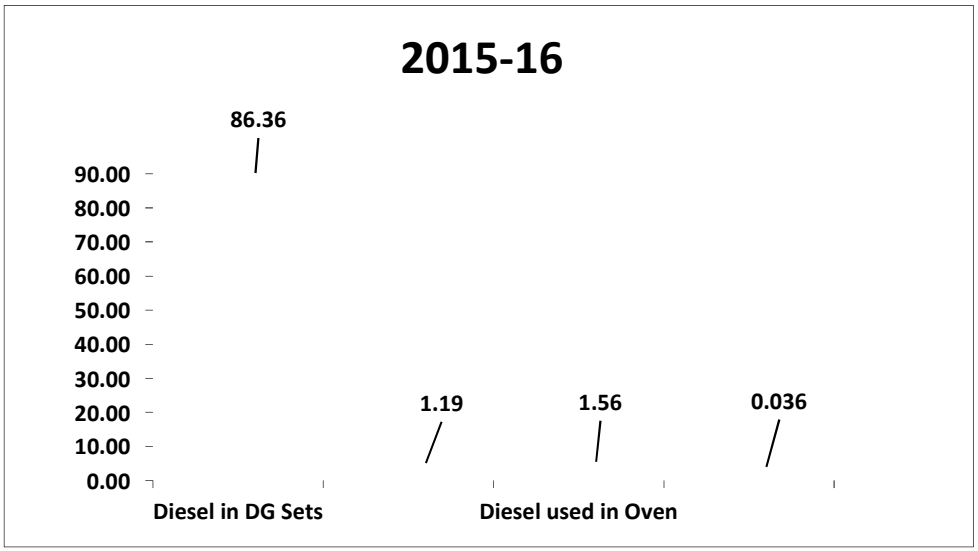
- Business travels,
- Material movements in & out,
- Employee commute

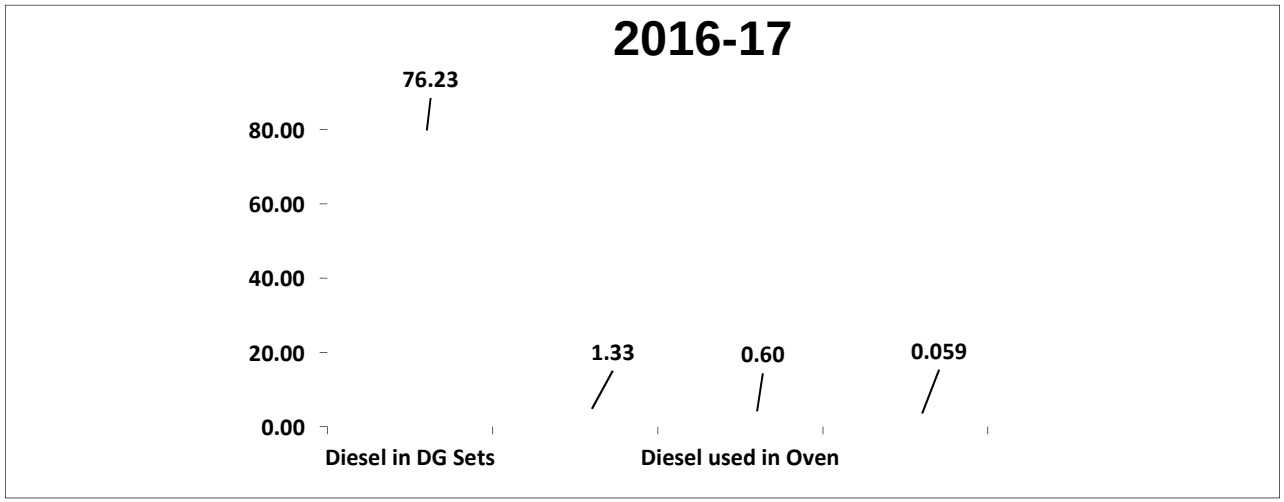
GHG Emission Inventorization

	FY14-15	FY15-16	FY16-17
Scope 1	**102.72**	**89.15**	**78.22**
Scope 2	**881.39**	**810.33**	**428.65**
Total scope1 + scope 2 ton of CO2 eq.	**984.11**	**899.48**	**506.86**
Total Production Hours	**575,376**	**648,688**	**657512**
Kg CO2 equivalent / production hours	**1.71**	**1.39**	**0.77**

GHG Emission Inventorization Scope 1

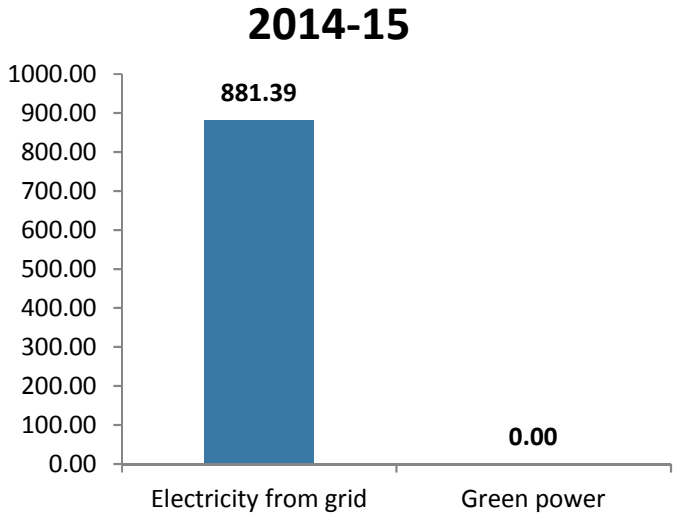


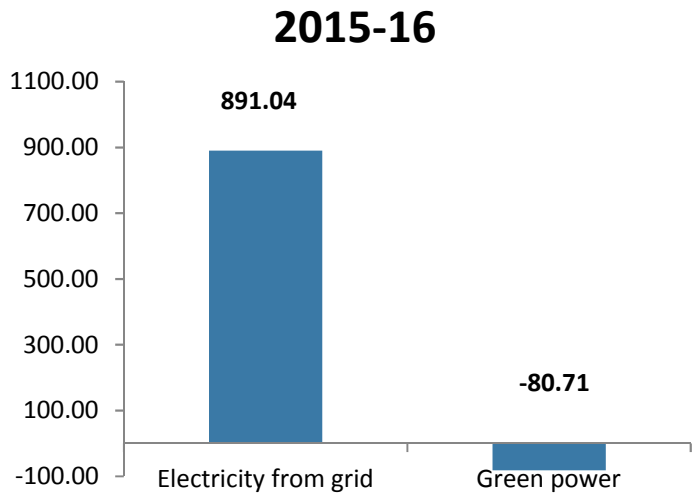


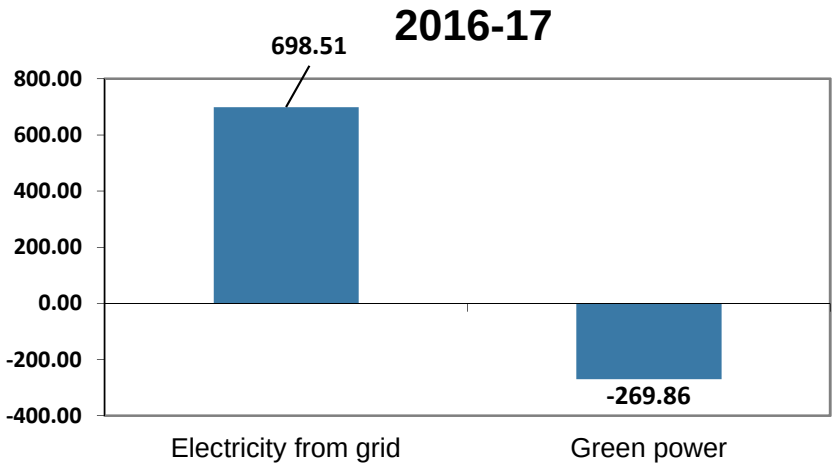


Figures in tons CO2 equivalent

GHG Emission Inventorization Scope 2

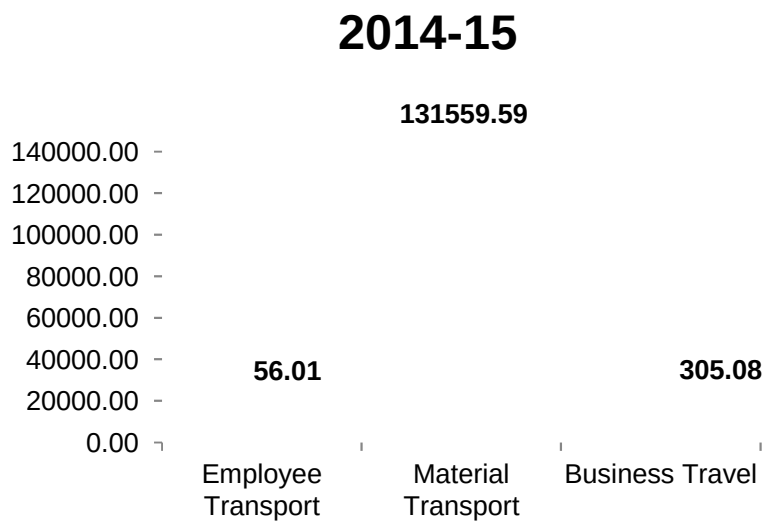


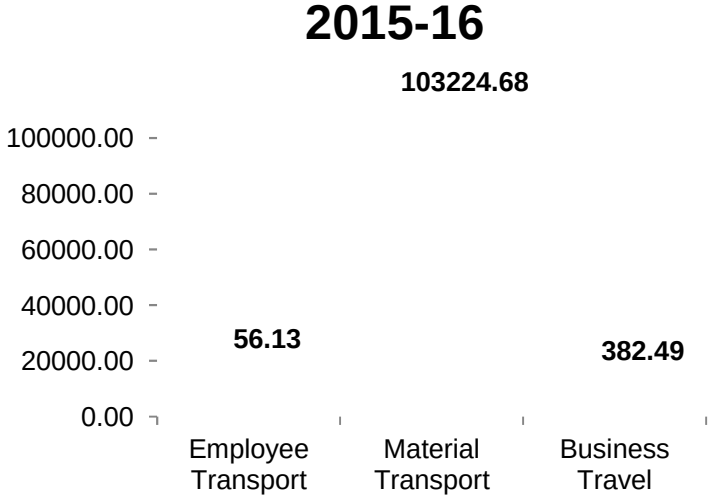


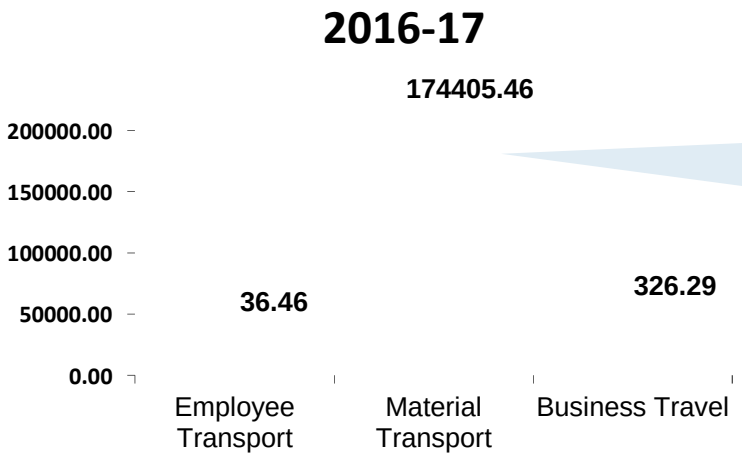


Figures in tons CO2 equivalent

GHG Emission Inventorization Scope 3







Because of Increase in turnover from 120 to 168 Cr. and customer specific imported supplier requirement

Figures in tons CO2 equivalent

GHG Management System

- **Data collection excel sheet available for each parameter**

  e.g.

  - Electricity consumption & analysis
  - Diesel consumption & analysis
  - Material movement
  - Employee commute & business travels

GHG Management Systems

- **GHG Monitoring System : MS Excel Tool**

GHG Emission Intensity Reduction

Parameter	2014-15	2015-16	2016-17
Scope 1	**102.72**	**89.15**	**78.22**
Scope 2	**881.39**	**810.03**	**428.65**
Total = Scope1 + Scope2	**984.11**	**899.48**	**506.86**
Production Hours	**575376**	**648688**	**657512**
Kg CO2 eq. / production hours	**1.71**	**1.39**	**0.77**
% Reduction (Scope 1& 2)		**54.9 %**	

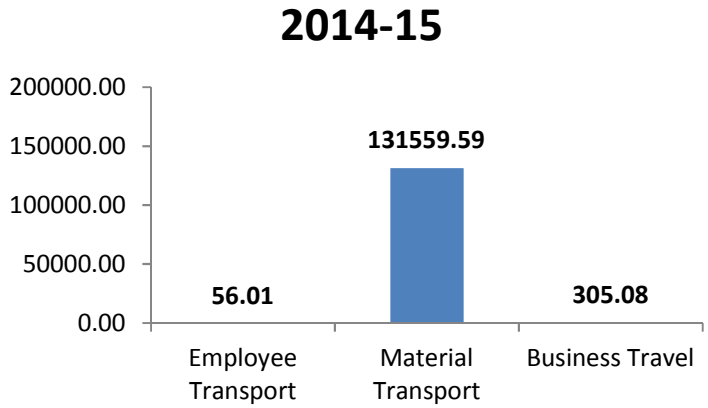
GHG Credit 5 – Carbon Neutral Approach

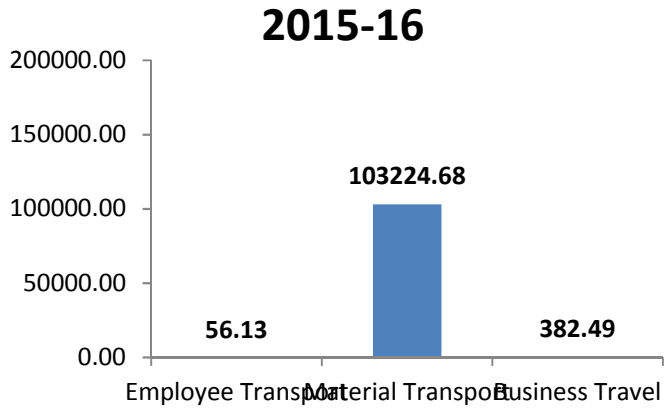
Non GHG intensive industry

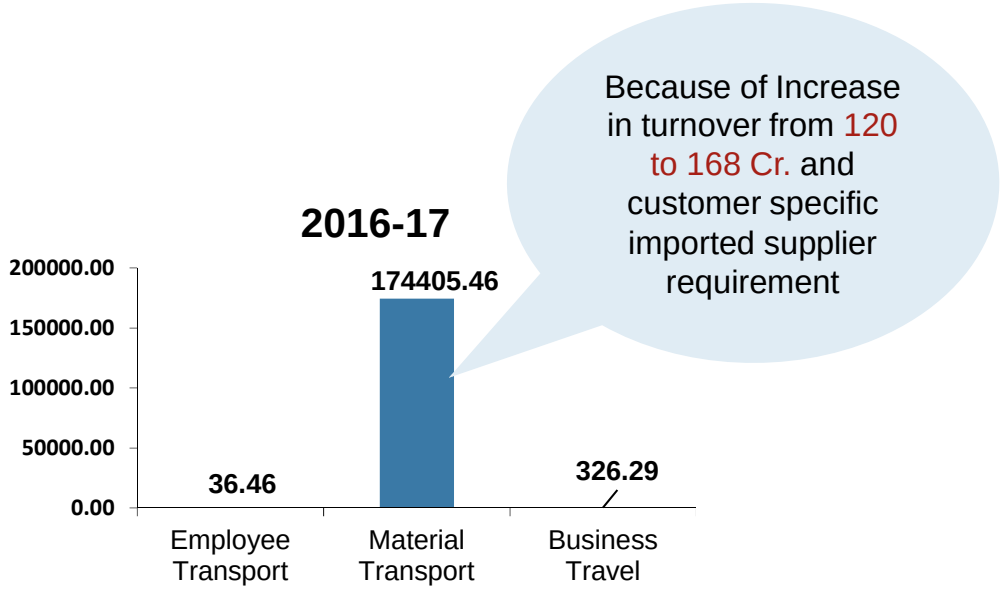
Steps taken towards being carbon neutral or positive				
Description	**Total Units consumed (Apr'16 to Mar'17)**	**Renewable units generated (Apr'16 to Mar'17)**	**Percentage reduction**	**Total GHG emission / carbon offset Kg CO2 eq.**
Use of Renewable Energy sources	**851841**	**329103**	**38.6%**	**269864**

Last year 26.7 %

Scope 3 Inventorization

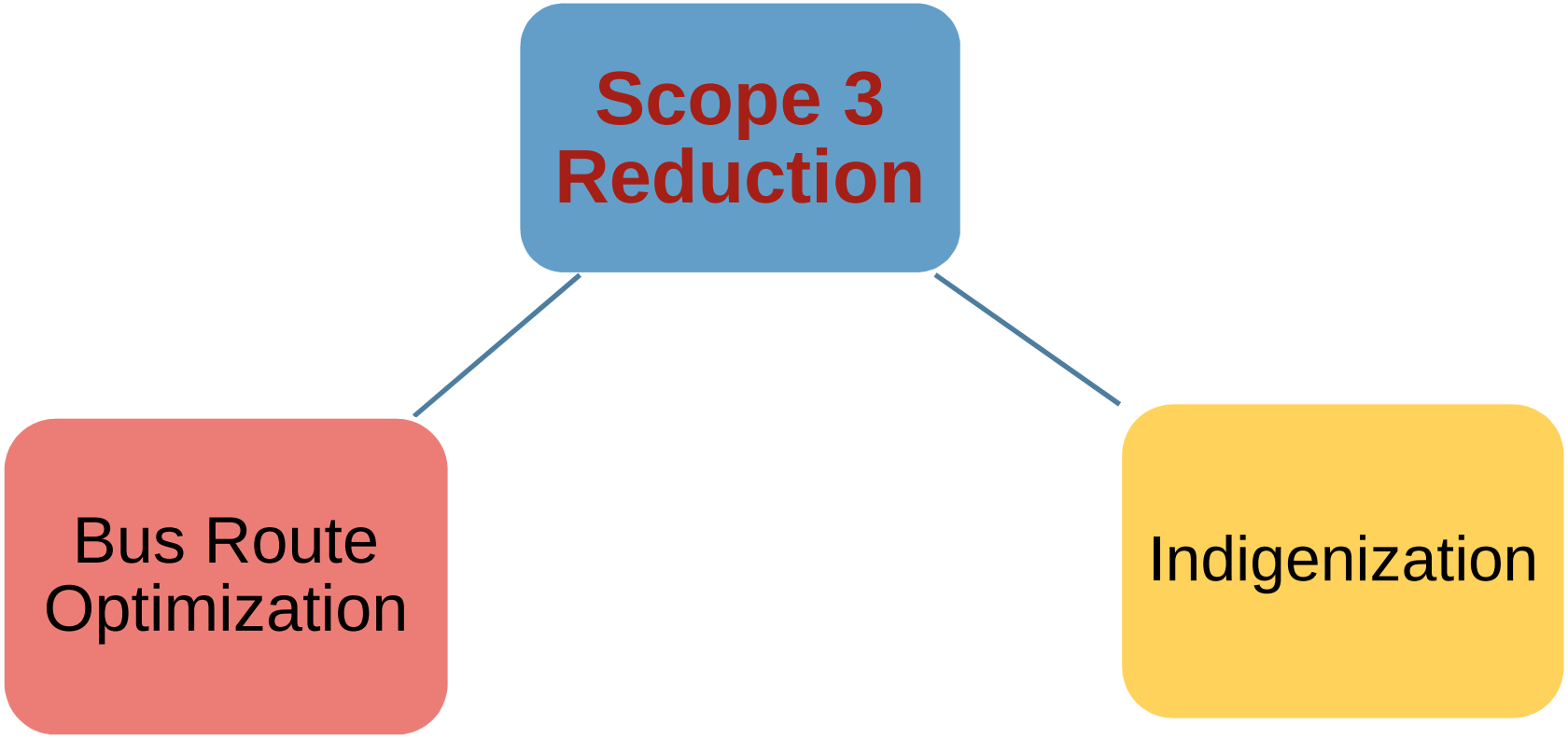






Figures in tons CO2 equivalent

Action Plan for achieving GHG Emission targets (Scope 3)



% Reduction in GHG Emission (Scope 3)

Major GHG Actions planned for achieving scope 3 Emission targets

Area for energy saving	Total No	Total ton CO2 eq. emission saving	Plan for work	Status
Indigenization by developing local parts	15	755.9	2017-18	Implemented
Bus route optimization for decreasing commute	1	0.36	2016-17	Implemented

Scope 3 GHG Emission Intensity Reduction

Parameter	2014-15	2015-16	2016-17	2016-17 (Normalized)
Scope 3	131920.67	103663.30	174768.21	136783.66
Production Hours	575376	648688	657512	627192
Ton CO2 eq. / Production hours	0.229	0.159	0.262	0.218
% Reduction (Scope 3)	4.8 % (Normalized)			

Because of Increase in turnover from 120 to 168 Cr. and customer specific imported supplier requirement

Scope 3 Reduction

- **Scope 3 Intensity reduction due to indigenization**

Year	2014-15	2015-16	2016-17
Ton CO2 eq. reduction due to Indigenization	1370.0	2.4	755.9

Year	2014-15	2015-16	2016-17
No. of items indigenized	17	16	15
Distance in KMs reduced	477600	218300	2847890
Weight of parts In ton	1.81	0.007	0.168

Scope 3 Reduction

Intensity reduction due to employee commute to office

One bus eliminated by clubbing employees into other buses

Total saving 24000 Km (2016-17)

Saving in 2016-17 : 0.36 Eq. Tonnes of CO2 emission