23rd National Award for Excellence in Energy Management -2022

Presented by

B. MAHESH - DGM (Paper Machine)

C. SIVAKUMAR - SM (Energy)

P. VIVEK - DM (Electrical)

TNPL in brief

- *World's largest bagasse based paper plant Promoted by Government of Tamil Nadu.*
- *Presently produces 4,00,000 MT/year of Writing & Printing Paper and largest exporter of PWP (Unit 1) and 2,00,000 MT of Multi layer board (Unit 2.*
- *ISO 9001: 2015,14001:2015, ISO 50001 :2018 ,ISO 27001:2013. FSC FM/COC & CW/COC Certified .*
- *CII Green Co Rating – Gold.*
- *Installed Wind Power Capacity 35.5 MW & Solar Power Capacity 6 KW reducing 45,000 tCO_2e GHG Emission.*
- *Recycling lime sludge and fly ash to produce " TNPL CEMENT " first of its kind in pulp and paper industry.*
- *6000 MT of flue gas from cement process is reused for the Production of Precipitated Calcium Carbonate*
- *Treated wastewater is used to irrigate 1665 acres benefiting 466 farmers at Unit 1 & 575 acres company's own land in Unit 2*
- *25,000 m3/day biogas generated from bagasse wash water and used in Lime kiln resulting of 15 KL of F.Oil saving.*
- *Utilizing the 1.8 Lakh MT of internally generated Bagasse Pith in Power Boiler reducing 1 Lakh tCO2e GHG Emission.*
- *2,11,280 acres of Pulp wood plantation since 2004 involving 40,379 farmers. Sequestered about 50 Lakh t CO2 Emission.*

TNPL - Highlights

Bagasse Based Pulp & Biogas

TNPL employs Bagasse-a sugar cane residue, as one of its major raw material. Its depithed form is used in making pulp while Biogas is produced from its wash effluents.

Carbon Control

Ensures that wood is used in a sustainable manner. Implement measures to reduce CO2 emissions in the atmosphere.

The trees are a major sequester of atmospheric carbon. The Plantations and Forests sustained by TNPL help sequester of CO2

Absolute Use of Biofuel

TNPL ensures that the wood being used in process is utilized completely in an array of different processes. Even the waste generated during logging process, namely wood dust and pith generated rom bagasse, are used as an agro fuels in operations.

Solid Waste Management

TNPL has set up a Cement plant to produce industry-grade cement using wastes generated during pulp production. The cement factory uses lime sludge, De-inked pulp sludge, fly ash, lime grit and dip sludge, etc.

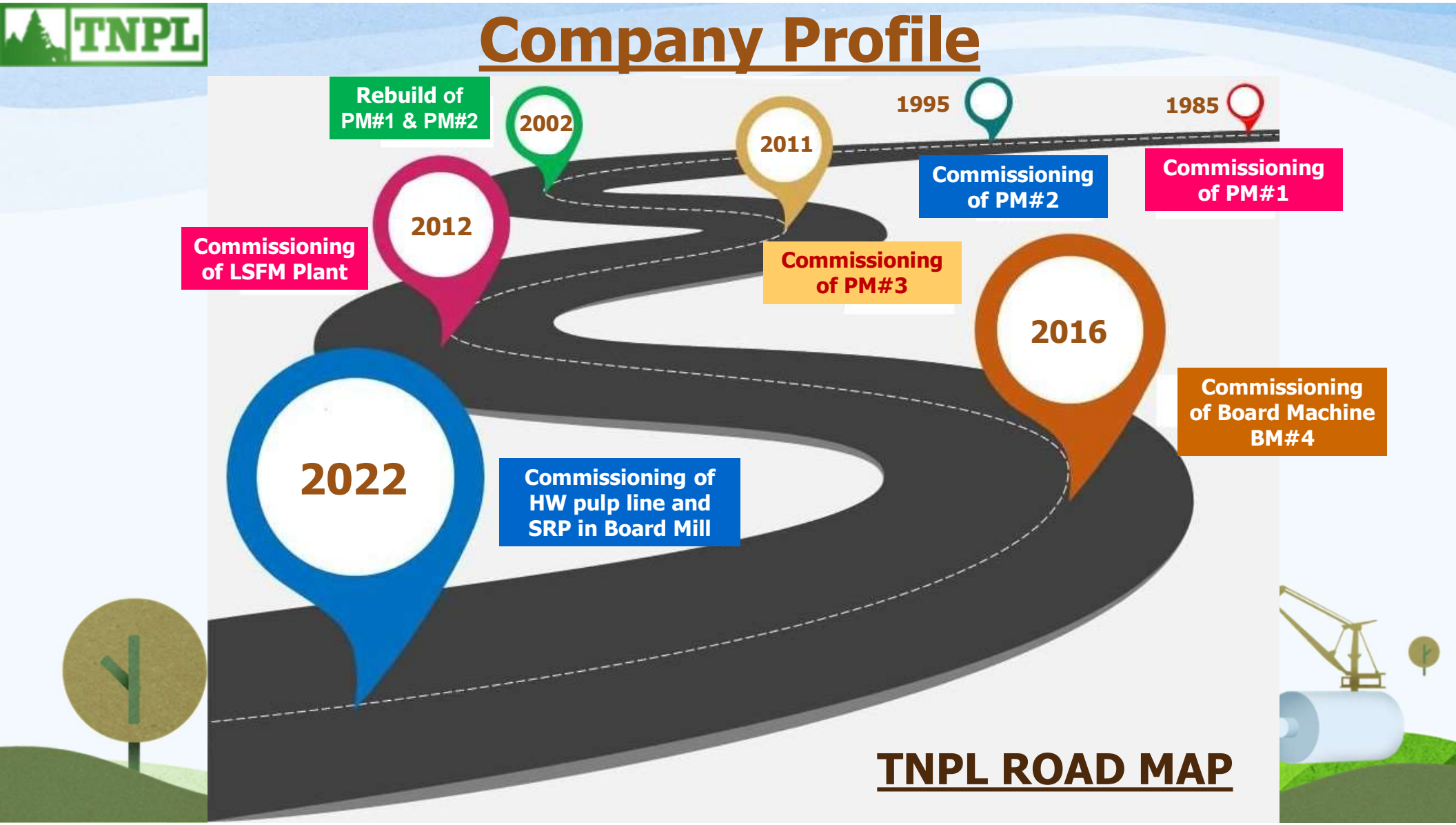
Sustainable Forest Management

FSC-FM and FSC-COC certified captive plantation and farm forestry for pulpwood.

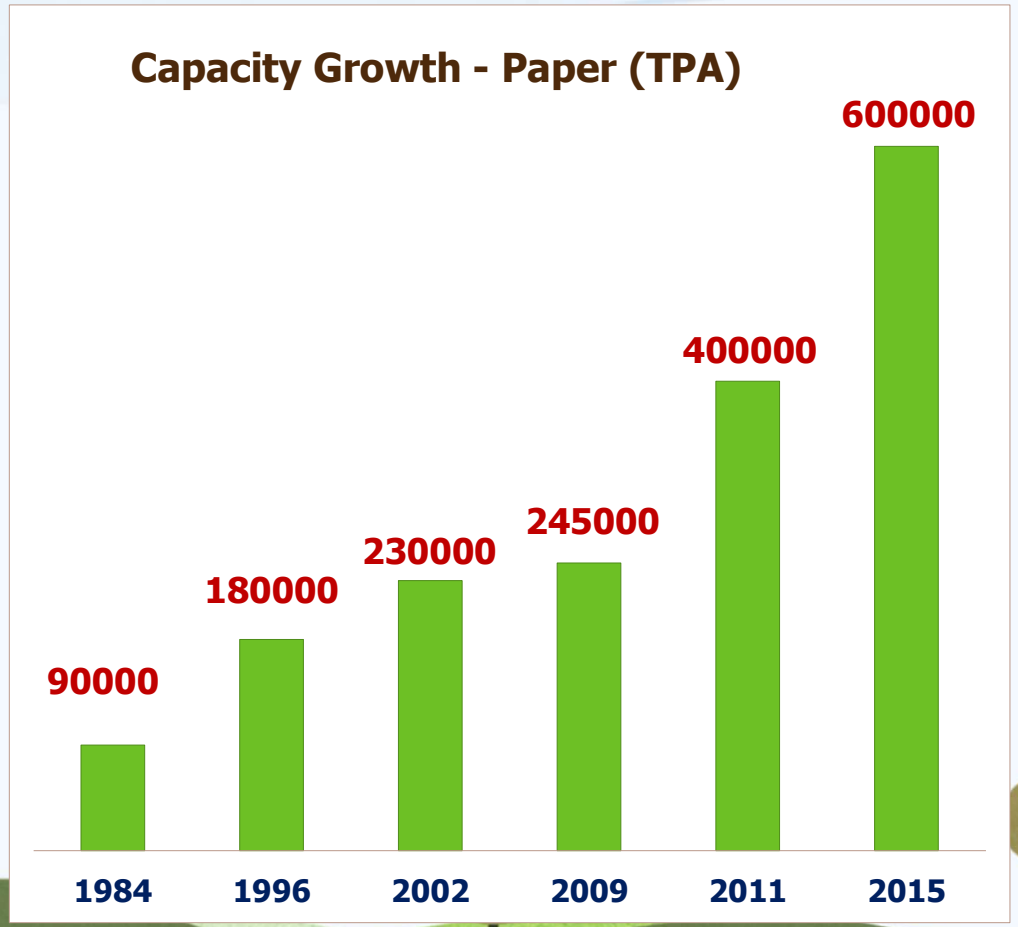
Land across Tamil Nadu is utilized to raise pulpwood.

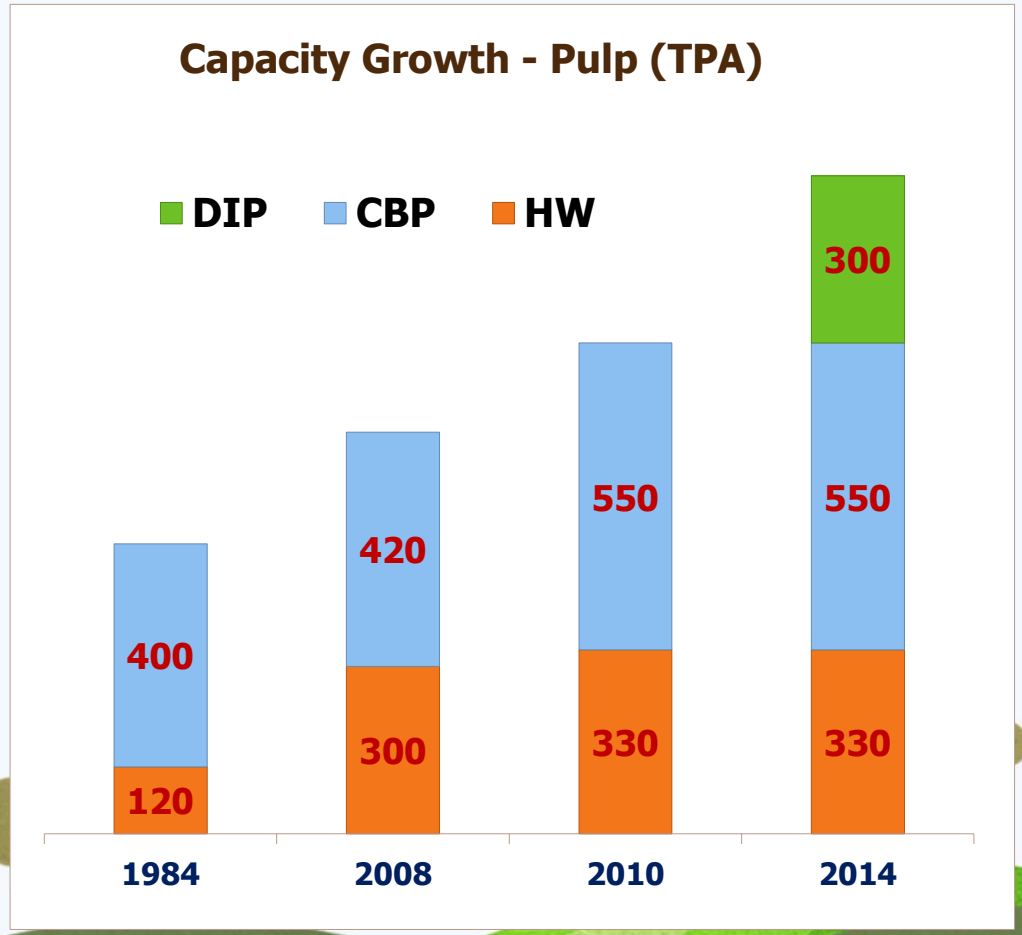
TNPL is the most environmentally conscious and eco-friendly mill in the country with least water consumption

Company Profile



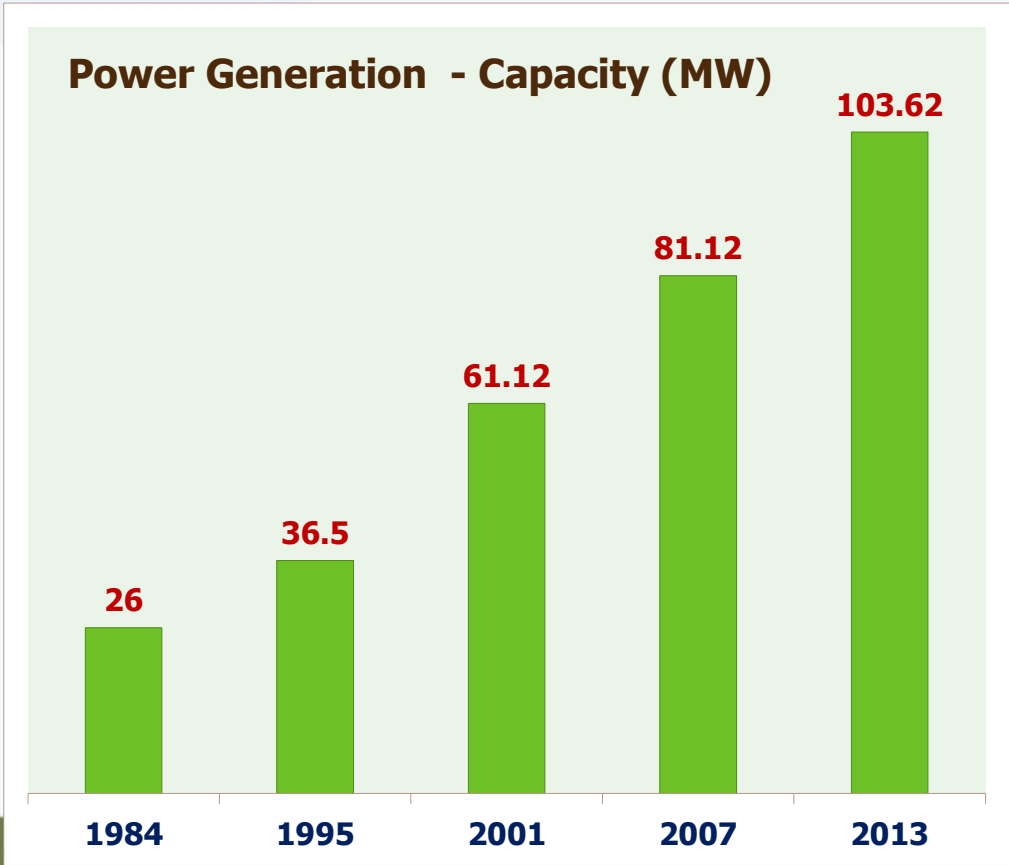
Capacity Growth

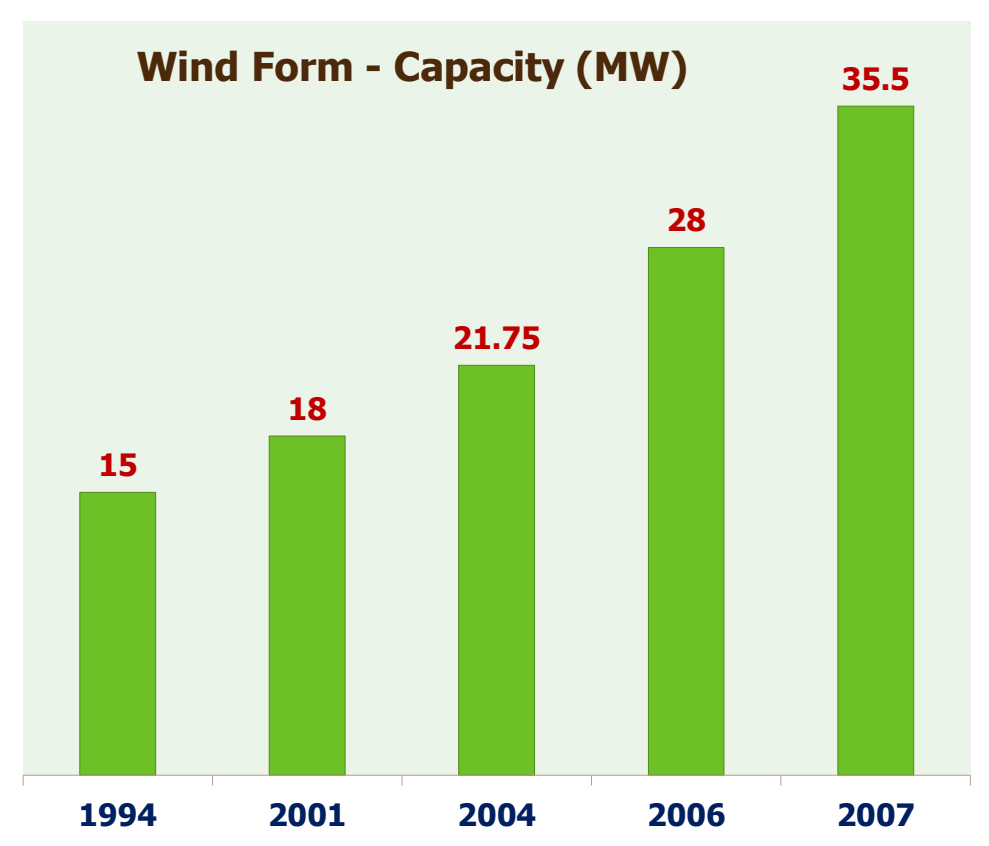




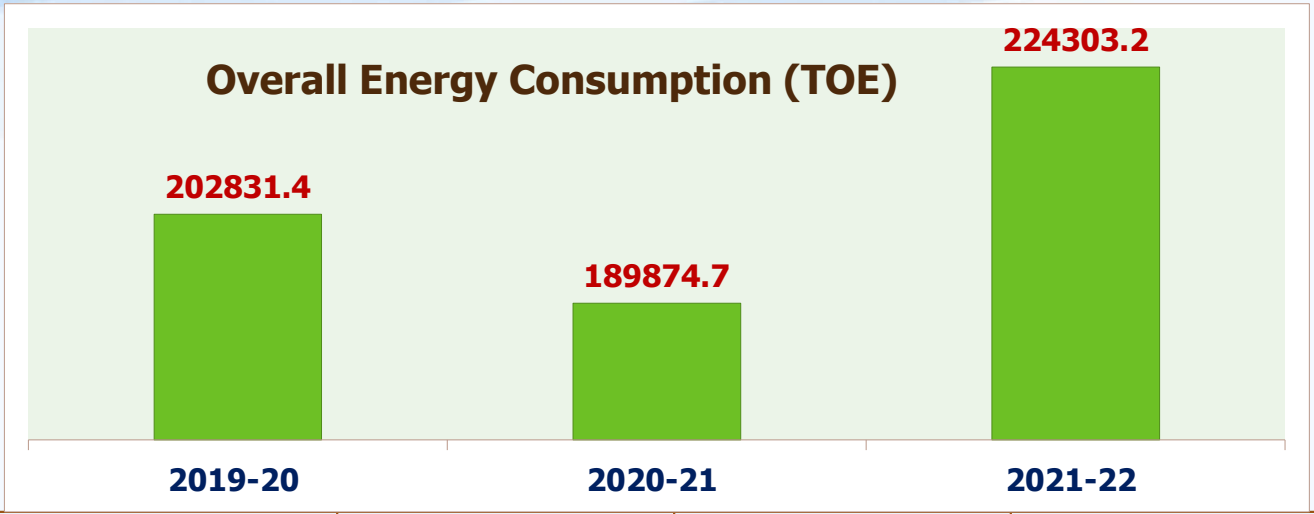
Power Scenario

TNPL is 100% self sufficient in power





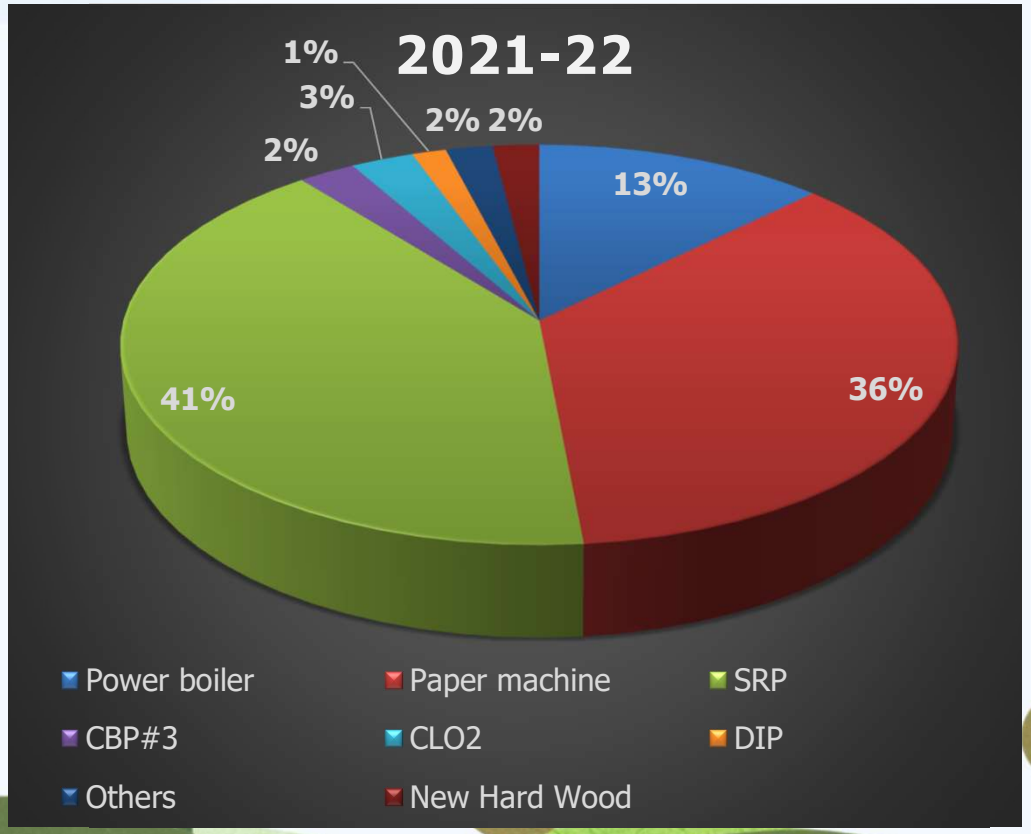
ENERGY CONSUMPTION



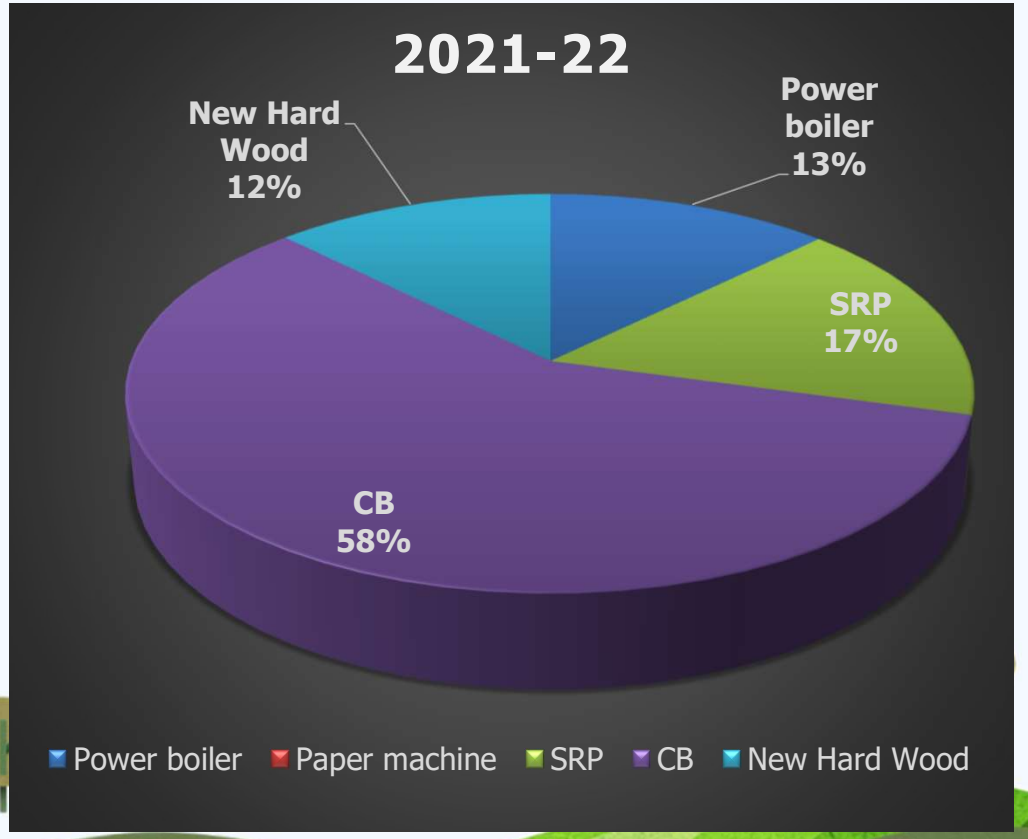
	UOM	2019-20	2020-21	2021-22
Total Thermal Energy consumption	Million Kcal	2201026.28	2107199.75	2339215.08
Total Electrical Energy Consumption	MILLION kWH	525.7	450.19	544.02
Paper production	MT	392248	323587	388880
Overall Energy Consumption	**TOE**	**202831.4**	**189874.7**	**224303.2**

THERMAL ENERGY CONSUMPTION (2021-22)

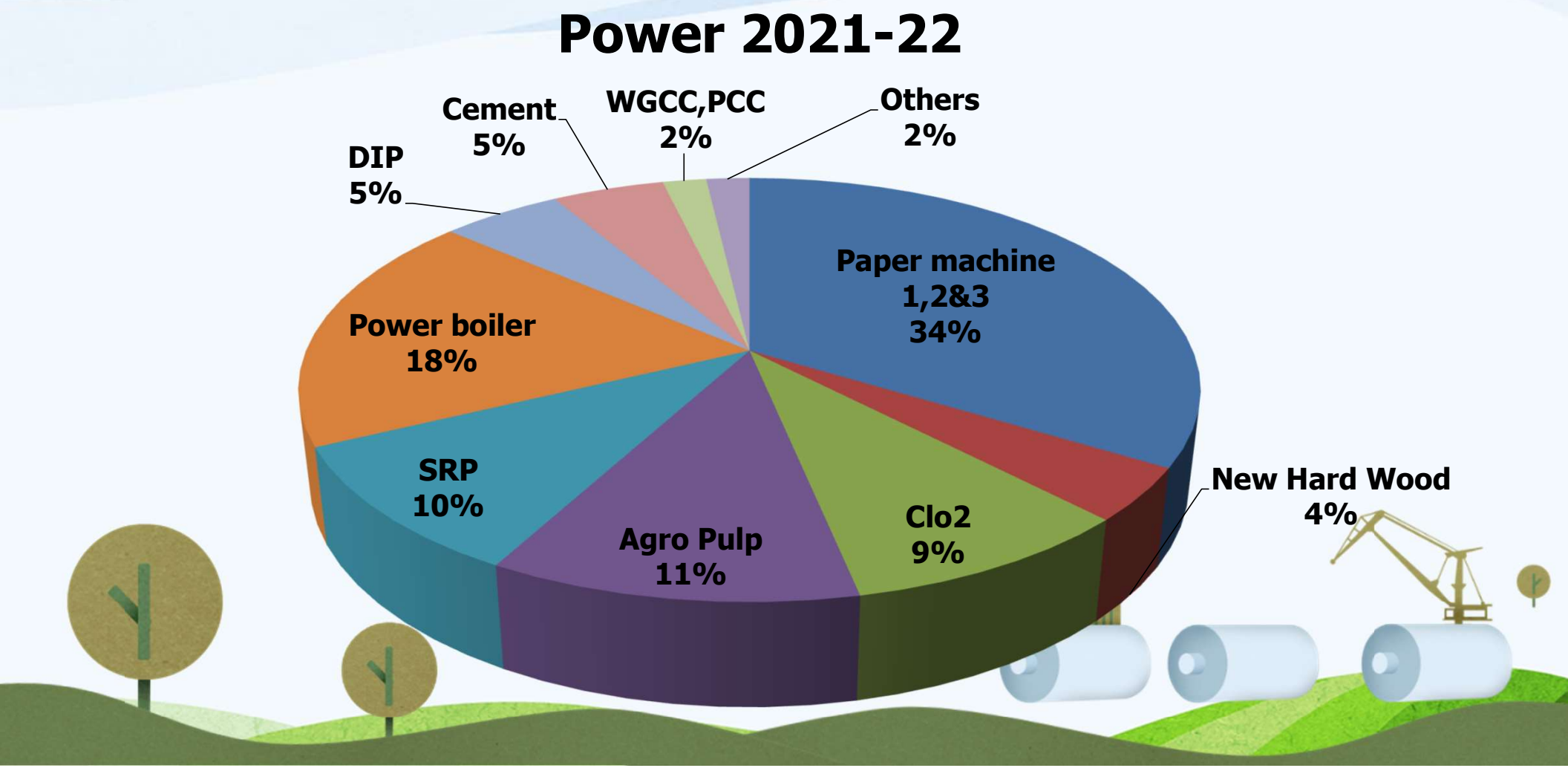
LP STEAM DISTRIBUTION



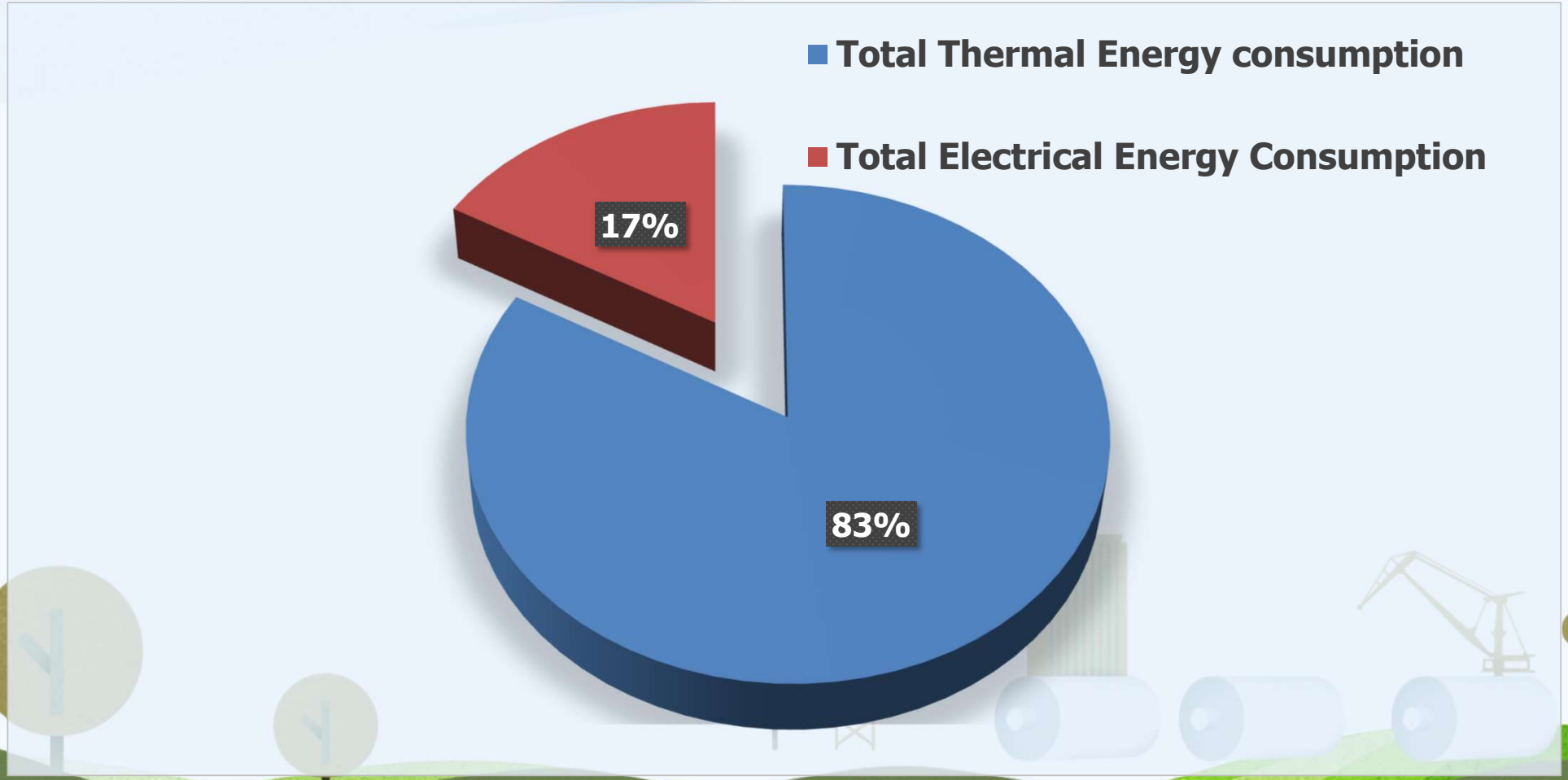
MP STEAM DISTRIBUTION



ELECTRICAL ENERGY CONSUMPTION (2021-22)

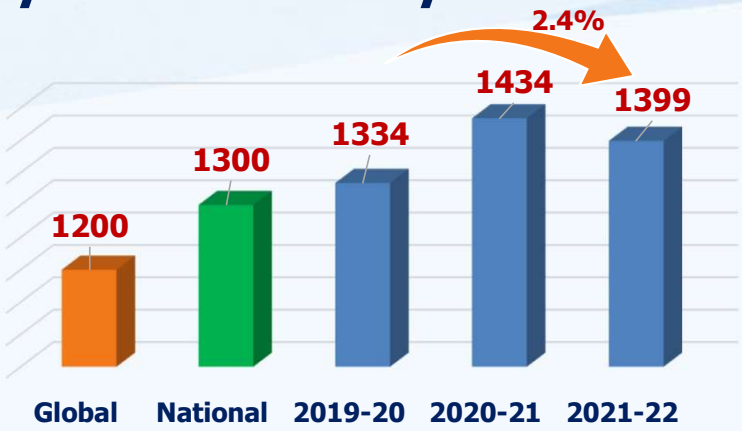


OVERALL ENERGY CONSUMPTION (2021-22)

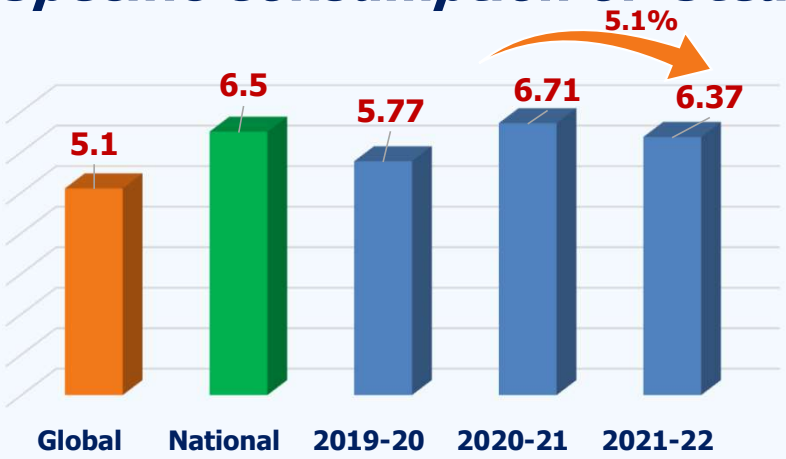


HOW CLOSE TO GLOBAL BEST IN SEC

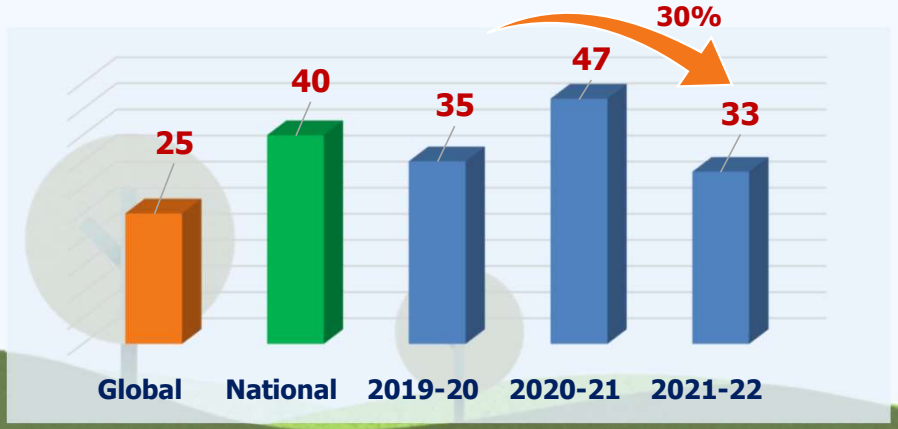
Specific Consumption of Power



Specific Consumption of Steam



Specific Consumption of Water

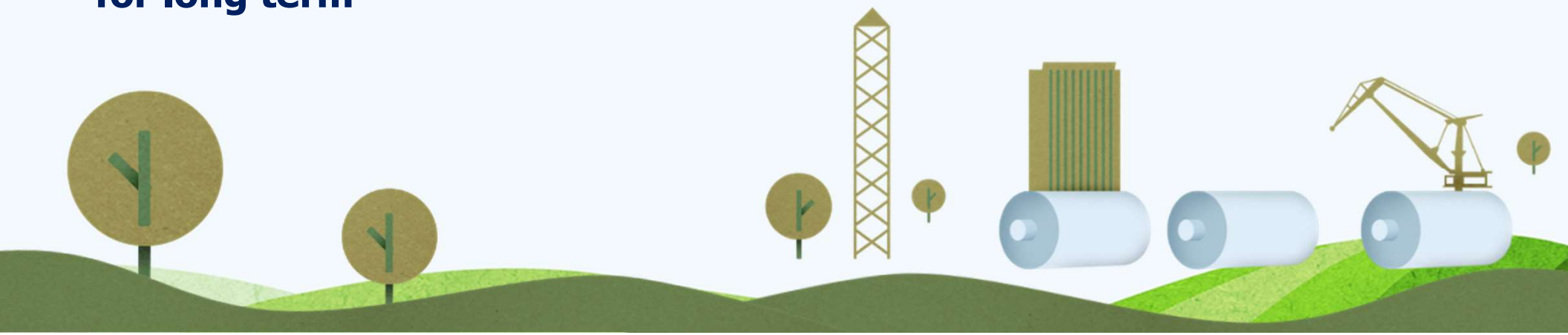


	Total Energy Cost as % of Manufacturing Cost
Global Average	16 - 25
TNPL	21.34

TARGETS

- SEC Reduction planned for **Short term** (2022-23) : 2%
- SEC Reduction planned for **Medium term** (2023-24) : 4%
- SEC Reduction planned for **Long term** (2024-25) : 6%

- Based on the future expansion we have planned for 6% reduction in SEC for long term



Short Term Projects (2022-23)

ELECTRICAL ENERGY SAVINGS	**1.06 Million KWH**
THERMAL ENERGY SAVINGS	**15502 Million Kcal**
TOTAL COST SAVING	**Rs. 301.79 Lakhs**

S.NO	PROJECT NAME	ENERGY SAVING / Year	COST SAVING (Rs. in Lakhs)
1	Installation of additional de-super heater in IB primary super heater outlet of Power Boiler # 6	**3370 MT of Imported coal**	**245.97**
2	Stopping of Power Boiler # 6 & 7 Deaerator supply pump (75KW -1 No) by suitable modification in TG#6 condensate Extraction Pump delivery line	**4.16 lakhs Kwh**	**21.85**
3	Providing new slaker in Recausticizer plant of SRP	**2.76 lakhs Kwh**	**14.50**
4	Providing LED lamps in place of MV / SV Lamps	**3.71 lakhs Kwh**	**19.47**

Medium Term Projects (2023-24)

ELECTRICAL ENERGY SAVINGS	**0.864 Million KWH**
THERMAL ENERGY SAVINGS	**7109 Million Kcal**
TOTAL COST SAVING	**Rs. 199.72 Lakhs**

S.NO	PROJECT NAME	ENERGY SAVING / Year	COST SAVING (Rs. in Lakhs)
1	Providing VFD for one no. feed pump in boiler#6 & 7	**8.64 lakhs Kwh**	**45.36**
2	Introduction of Bio gas firing system in Power Boiler 6 or 7	**1200 MT of Imported coal**	**87.59**
3	Furnace Oil Savings by Reduction of Lime Sludge Moisture in Lime Kiln of SRP	**157 MT of Furnace oil**	**66.77**

Long Term Projects (2024-25)

ELECTRICAL ENERGY SAVINGS	**12.24 Million KWH**
THERMAL ENERGY SAVINGS	**42711 Million Kcal**
TOTAL COST SAVING	**Rs. 1320.18 Lakhs**

S.NO	PROJECT NAME	ENERGY SAVING / Year	COST SAVING (Rs. in Lakhs)
1	Installation of new high pressure boilers replacing the old low pressure boilers	**9285 MT of Imported coal**	**677.71**
2	Installation of new high capacity Steam Turbine replacing the old low capacity steam turbines	**19.47 lakhs Kwh**	**102.25**
3	Replacing of Liquid ring vacuum pump into turbo air blower in Paper machine # 1	**10.29 lakhs Kwh**	**540.22**

ENERGY SAVING PROJECTS IN LAST THREE YEARS

Year	Total Encon Projects	Annual Electrical savings Achieved		Annual Thermal Savings			Total Annual savings	Investment made
	Nos.	Units Lakhs	Rs. Lakhs	Tons of Fuel - Imp.Coal	Furnace Oil in KL	Rs. Lakhs	Rs. Lakhs	Rs. Lakhs
2019-20	18	47.88	174.28	4736	3593	1347.26	1521.54	74.76
2020-21	27	27.59	105.12	3900	3864	1295.32	1400.44	43.37
2021-22	27	40.45	212.36	306	5073	1979.49	2191.85	82.13

ENERGY SAVING PROJECTS WITH

ZERO COST INVESTMENT

Year	Total Encon Projects	Total No. of Zero Investment projects	Total savings from zero investment projects in Rs. Lakhs
2019-20	18	14	1394.10
2020-21	27	18	1349.63
2021-22	27	16	2100.70

ENCON PROJECTS FOR FY 2021-22

(ELECTRICAL ENERGY SAVINGS)

S.No	Description	Electrical savings		Total Savings	Investment
		Lakh kwh	Rs. Lakhs	Rs. Lakhs	Rs. Lakhs
1	Downsizing of Turbo Air compressor cooling water pump from 90 KW to 55 KW resulted in power savings of **64,800 units** and the cost saving is **Rs.3.40 Lakhs**	**0.65**	**3.40**	**3.40**	**2.50**
★ 2	Downsizing of Soft water transfer pump from 55 KW to 30 KW resulted in power savings of **1,75,200 units** and the cost saving is **Rs.9.20 Lakhs**	**1.75**	**9.20**	**9.20**	**4.00**
★ 3	Replacing vortex finders LHS & RHS in Power Boiler# 7 resulted in power saving of **167732 units** and cost savings is **Rs.8.81 Lakhs**	**1.68**	**8.81**	**8.81**	**38.50**
4	Optimising the operation of Reel pulper agitator during broke feeding in Paper Machine#3 resulted in saving of **2,37,600 Units** of Power and cost savings is **Rs. 12.47 Lakhs.**	**2.38**	**12.47**	**12.47**	**0.00**
★ 5	Optimising the operation of PDS pulper agitator during broke feeding in Paper Machine#3 resulted in saving of **2,37,600 Units** of Power and cost savings is **Rs. 12.47 Lakhs.**	**2.38**	**12.47**	**12.47**	**0.00**

ENCON PROJECTS FOR FY 2021-22

(ELECTRICAL ENERGY SAVINGS)

S.No	Description	Electrical savings		Total Savings	Investment
		Lakh kwh	Rs. Lakhs	Rs. Lakhs	Rs. Lakhs
6	Downsizing of Evaporator#1 SCBL tank agitator in SRP from 15 KW to 7.5 KW resulted in power savings of **48,697 units** and the cost saving is **Rs.2.56 Lakhs**	**0.49**	**2.56**	**2.56**	**0.23**
7	Replacement of 296Nos of 150W MH lights into 45W LED lamp in RB3 and Lime Kiln area, 223 Nos of 36W tube light fiitings into 20W LED lamp in ETP & Gas plant area resulted in power saving of **93299 units** and cost savings is **Rs.4.90 Lakhs**	**0.93**	**4.90**	**4.90**	**10.40**
★ 8	Replacement of 48 Nos of 400W MH lights into 250W LED lamp, 36 Nos of 250W MH lights into 150W LED lamp, 75 Nos of 150W MH lights into 90W LED lamp, 100Nos of 150W MH lights into 45W LED lamp, 200 Nos of 150W MH lights into 40W and 53 Nos of 36W MH lights into 18W in Energy Department resulted in power saving of **2,13,543 units** and cost savings is **Rs.11.21 Lakhs**	**2.14**	**11.21**	**11.21**	**8.70**
9	Air cooled condenser fans stoppage by utilizing seasonal effects resulted in savings of **2,60,552 Units** of Power and cost savings is **Rs. 13.68 Lakhs.**	**2.61**	**13.68**	**13.68**	**0.00**
10	Stopping of one air drier permanantly resulted in power savings of **80,000 units** and the cost saving is **Rs.4.20 Lakhs**	**0.80**	**4.20**	**4.20**	**0.00**

ENCON PROJECTS FOR FY 2021-22

(ELECTRICAL ENERGY SAVINGS)

S.No	Description	Electrical savings		Total Savings	Investment
		Lakh kwh	Rs. Lakhs	Rs. Lakhs	Rs. Lakhs
11	Replacement of 21 Nos of 400W MH lights into 250W LED lamp, 27 Nos of 400W MH lights into 200W LED lamp, 41 Nos of 250W MH lights into 150W LED lamp, 25 Nos of 150W MH lights into 90W LED lamp, 70 Nos of 150W MH lights into 40W LED lamp,28 Nos of 150W MH lights into 70W LED lamp, 255Nos of 36W MH lights into 18W LED lamp in Paper Machine Department resulted in power saving of **1,18,827 units** and cost savings is **Rs.6.24 Lakhs**	**1.19**	**6.24**	**6.24**	**7.93**
12	Replacement of 24 Nos of 400W MH lights into 250W LED lamp, 34 Nos of 400W MH lights into 150W LED lamp, 30 Nos of 250W MH lights into 150W LED lamp, 91 Nos of 150W MH lights into 90W LED lamp, 20 Nos of 150W MH lights into 75W LED lamp, 204 Nos of 150W MH lights into 40W LED lamp,25Nos of 108W MH lights into 36W LED lamp in Pulp Mill Department resulted in power saving of **1,49,464 units** and cost savings is **Rs.7.85 Lakhs**	**1.49**	**7.85**	**7.85**	**9.87**
13	Optimisation of Co-gen cooling Tower fan operation by utilising seasonal effect resulted in **1,33,749 units** of power and cost savings is **Rs.7.02 Lakhs**	**1.34**	**7.02**	**7.02**	**0.00**

ENCON PROJECTS FOR FY 2021-22

(ELECTRICAL ENERGY SAVINGS)

S.No	Description	Electrical savings		Total Savings	Investment
		Lakh kwh	Rs. Lakhs	Rs. Lakhs	Rs. Lakhs
14	Optimisation of Paltech Cooling Tower fan operation by utilising seasonal effect resulted in **40,176 units** of power and cost savings is **Rs.2.11 Lakhs**	**0.40**	**2.11**	**2.11**	**0.00**
15	Installation of 10KW solar power plant at the terrace of staff club in colony resulted in power saving of **13644 units** and the cost saving is **Rs.0.72 Lakhs.**	**0.14**	**0.72**	**0.72**	**0.00**
16	Downsizing of PM#2 filter water pump from 110 KW to 37KW in WTP resulted in power savings of **1,66,320 units** and the cost saving is **Rs.8.73 Lakhs**	**1.66**	**8.73**	**8.73**	**0.00**
17	By isolating one no.of first stage causticizing unit in SRP resulted in power saving of **1,57,608 units** and cost savings is **Rs.8.27 Lakhs**	**1.58**	**8.27**	**8.27**	**0.00**
18	Stopping the operation of one agitator and one pump by suitable modification of Broke preparation system in PM#2 resulted in **2,77,200 units** of power and the cost saving is **Rs.14.55 Lakhs**	**2.77**	**14.55**	**14.55**	**0.00**
19	Replacing high capacity vaccum pump by low capacity vaccuum pump in New Evaporator#2 resulted in power saving of **2,11,680 units** and cost savings is **Rs.11.11 Lakhs**	**2.12**	**11.11**	**11.11**	**0.00**

ENCON PROJECTS FOR FY 2021-22

(ELECTRICAL ENERGY SAVINGS)

S.No	Description	Electrical savings		Total Savings	Investment
		Lakh kwh	Rs. Lakhs	Rs. Lakhs	Rs. Lakhs
20	Installation of VFD for sweetener stock pump in PM#2 resulted in **1,10,880 units** of power and the cost saving is **Rs.5.82 Lakhs**	**1.11**	**5.82**	**5.82**	**0.00**
21	Elimination of Bagasse collection conveyor in CBP#3 wet washing area by providing a chute resulted in power saving of **40,986 units** and the cost saving is **Rs.2.15 Lakhs**	**0.41**	**2.15**	**2.15**	**0.00**
22	Stopping of broke dilution pump in PM#3 by modification of pipe line resulted in **47,520 units** of power and the cost saving is **Rs.2.49 Lakhs**	**0.48**	**2.49**	**2.49**	**0.00**
23	Downsizing the LMCD feed pump in Soda Recovery Plant resulted in power savings of **2,05,920 units** and the cost saving is **Rs.10.81 Lakhs**	**2.06**	**10.81**	**10.81**	**0.00**
24	Stopping of soft wood refiners street in Paper Machine#3 resulted in saving of **5,62,464 Units** of Power and cost savings is **Rs. 29.53 Lakhs.**	**5.62**	**29.53**	**29.53**	**0.00**
25	Stopping of one Hard Wood refiner street in Paper Machine#3 resulted in saving of **2,29,407 Units** of Power and cost savings is **Rs. 12.04 Lakhs.**	**2.29**	**12.04**	**12.04**	**0.00**

ENCON PROJECTS FOR FY 2021-22

(THERMAL ENERGY SAVINGS)

S.No	Description	Electrical savings		Total Savings	Investment
		Lakh kwh	Rs. Lakhs	Rs. Lakhs	Rs. Lakhs
1	**1,83,161** M^3 of Bio gas consumption in Power Boilers resulted in saving of **306 MT** of Imported coal and the net cost saving is **Rs. 22.09 Lakhs.**	**306**		**22.09**	**22.09**
2	**84,55,302 M^3** of Bio gas consumption in Lime Kiln resulted in saving of **5073.18 KL** of Furnace oil and the net cost saving is **Rs. 1957.4 Lakhs.**		**5073**	**1957.40**	**1957.40**

Innovative Project

REDUCE POWER CONSUMPTION BY OPTIMISING CAPACITY UTILISATION OF REFINERS IN PAPER MACHINE#2

BACKGROUND

As is:	**Existing refining process for SW Pulp:** **In PM#2 soft wood pulp is consumed for lower Gsm (<50 Gsm) &10R306 refiner operated to bring down the BSWSP pulp freeness from 650 to 550 ml CSF during the production of lower gsm.** **Limitation of existing process:** **a) The usage of BSWSP is 0.5 to 1.0 Mt/hr only against the refining capacity of 3.0 Mt/hr** **b) BSWSP is a slushed pulp at low consistency (<2.0%) and hence refining is not effective.** **C) Waste of energy, Additional refiner is running for BSWSP with Motor cap:375 kw** **d) Under utilization of Metso refiner (Instead of refining 07 TPH in Metso refiner we use to refine max 4.5TPH)**

Innovative Project...

S.NO	Description
Goal:	**Maximum utilization of Metso refiner by adding 0.5 - 01TPH Bswsp with HW without affecting paper properties.** **Energy savings by shutdown the 10R306 Refiner**
Modification:	**Change in refining process:** **Diverted BSWSP to HW receiving chest and blend of BSWSP with home HW pulp will be refining in Metso refiner. Thus achieving the maximum utilization of Metso refiner.**
Requirement:	**Investment - Rs:One lakh** **200NB pipe line 15 meter,200 NB valve–2 Nos,Stubend-04Nos,Bend–2Nos**
Benefits :	**Maximum utilization of Metso refiner** **Procurement of 10R306 refiner segments not required** **10R306 refiner maintenance minimized** **Energy Savings & No change in Paper properties**

Innovative Project...

Energy Savings

10R306:-

Running Load – 45A

45*3.3*1.732*.8 = 200Kwhr

Energy Savings = 200kwhr

Refiner Runs 08 days /Month

=200*08*24 Hrs

=38400units*12months

=460800units/year *3.5Rs

=16.13 Lakh /year savings

Excess power(Metso)

=65units/hr

=65*192*12 Months

149760 units/year = 5.24 Lakh /year - Excess cost

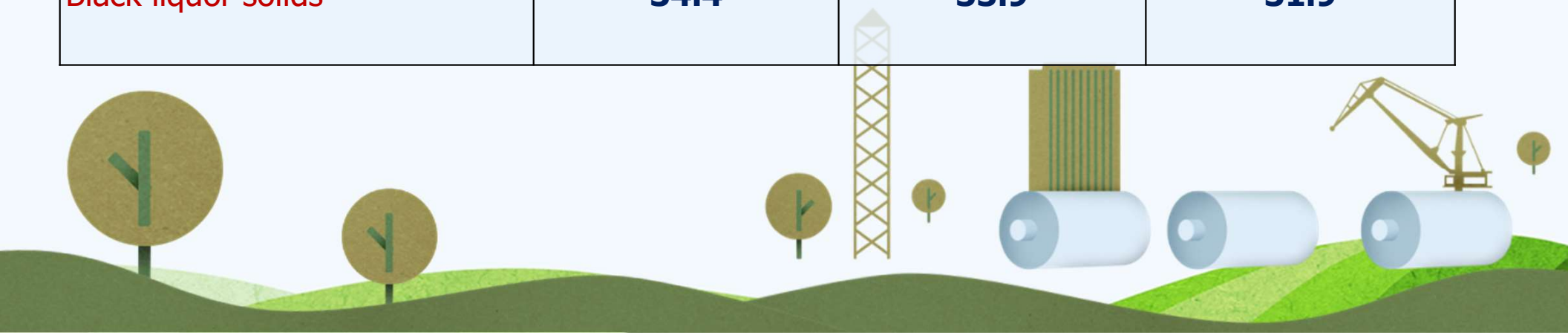
Total savings = 16.13 – 5.24 = 10.89 Lakh /year

UTILISATION OF RENEWABLE ENERGY SOURCES

	2019-20		2020-21		2021-22	
Types of RE Sources	Energy Generated (Lakh kwh)	Annual savings Rs. Million	Energy Generated (Lakh kwh)	Annual savings Rs. Million	Energy Generated (Lakh kwh)	Annual savings Rs. Million
Wind	**369.50**	**135.24**	**361.18**	**137.61**	**407.31**	**213.84**
Solar	**0.0635**	**0.0232**	**0.0697**	**0.0266**	**0.0594**	**0.0311**
BL Solids	**1334**	**488.24**	**1344**	**512.06**	**1422.85**	**746.99**

UTILISATION OF RENEWABLE ENERGY SOURCES

Type of material used	Renewable fuel as a percentage of total energy (%)		
	2019-20	2020-21	2021-22
Black liquor solids	**34.4**	**33.9**	**31.9**



UTILISATION OF WASTE MATERIAL AS FUEL

Type of waste material used	Quantity of waste material used (MT)			Equivalent qty. of conventional energy of fuel used (tons or KL of fuel)		
	2019-20	2020-21	2021-22	2019-20	2020-21	2021-22
Bio mass	**179462**	**100147**	**169267**	**42568 MT**	**40215 MT**	**69201 MT**
Bio gas-'000m3	**6190**	**6885**	**8638**	**3714KL**	**4131KL**	**5183KL**

UTILISATION OF WASTE MATERIAL AS FUEL...

Type of waste material used	Annual savings Rs. (Million)			Waste fuel as a percentage of total energy		
	2019-20	2020-21	2021-22	2019-20	2020-21	2021-22
Bio mass	**230.0**	**205.9**	**505.1**	**7.3**	**4.2**	**6.3**
Bio gas-'000m3	**121.0**	**118.4**	**37.8**	**1.1**	**1.2**	**1.4**
TOTAL	**351**	**324.3**	**524.9**	**8.4**	**5.4**	**7.7**

WASTE UTILIZATION AND MANAGEMENT

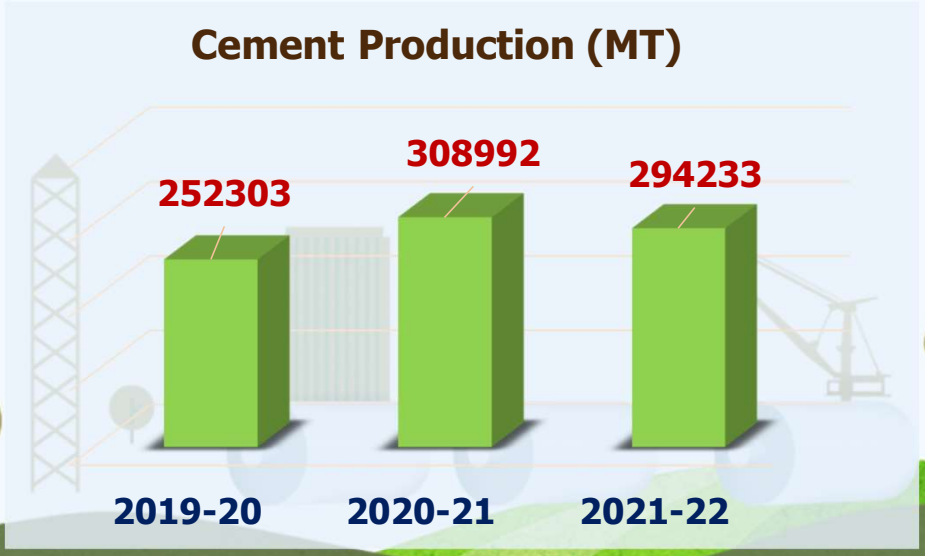
FLY ASH UTILISATION

- **TNPL is the first in paper industry to install cement plant as a circular economy.**
- **The lime sludge from SRP and fly ash generated from power boilers are entirely used in our cement plant.**

YEAR	2019-20	2020-21	2021-22
QTY.OF FLY ASH DESPATCHED TO TNPL CEMENT	25192.62	24536.42	32325.64

WASTE UTILIZATION AND MANAGEMENT…

Solid waste (MT)	2019-20	2020-21	2021-22
Lime sludge	59963	56322	53225
Fly ash	25192.62	24536.42	32325.64
De inking plant sludge	16613	14735	5944
Lime grits & sludge from Paper Machine Coating	8248	7505	7754



GHG INVENTORISATION

Sources of GHG Emission in TNPL

Scope 1	Sources
Stationary Fuel Combustion using fossil fuels	Seven Power Boilers, two Lime Kilns and two recovery boilers
Emission from Makeup Carbonates	Lime Kiln Process
Automobile Fuel Combustion	Automobiles owned by TNPL in factory
Emission from Waste water Treatment	Anaerobic Lagoon

Scope 2	Sources
Purchased energy	Electricity imported,

Sources of GHG Emission in TNPL…

Scope 3	Sources
Fossil fuel usage	Employees Travel
Emission from Raw Material Transport	Wood, Bagasse , Coal and Waste Paper
Emission from product Transport	Product transport

Carbon Neutral	Sources
Stationary Fuel Combustion using biomass fuels	Seven Power Boilers, two Lime Kilns and two recovery boilers

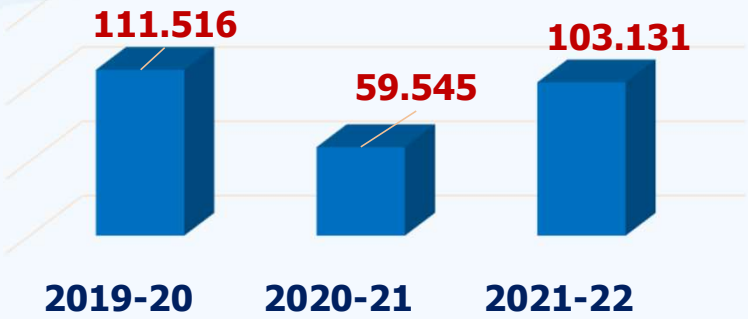
Carbon Sequestration	Sources
Carbon offset due to Plantation Activities	Plantation Activities

GHG Emission Intensity Reduction

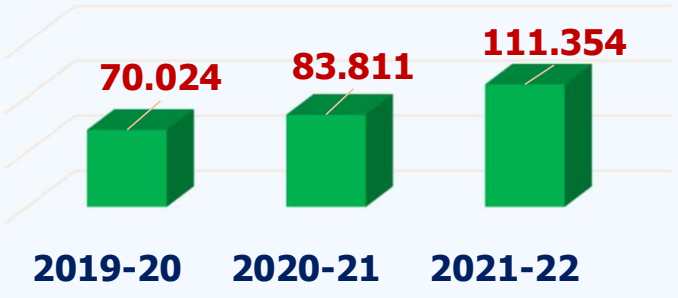
Sl.No	Description	2019-20	2020-21	2021-22
1	Carbon Sequestration by TNPL Plantation (tCO_2e)	443438	526200	523080
2	Avoided Emission due to exported electricity in Wind Farms (tCO_2e)	37697	35362	36776
3	Total Emission under Scope 1 and Scope 2	1121509	1080713	1116134
4	CO_2 Offset by Plantation & Windfarms (1) + (2)	481135	561562	559856
5	Net Emission (3) - (4)	640374	519151	556277
6	Paper production in MT	392250	323588	388942
7	Net Emission per MT of paper production (tCO_2e)	1.63	1.60	1.43

GHG EMISSION REDUCTION

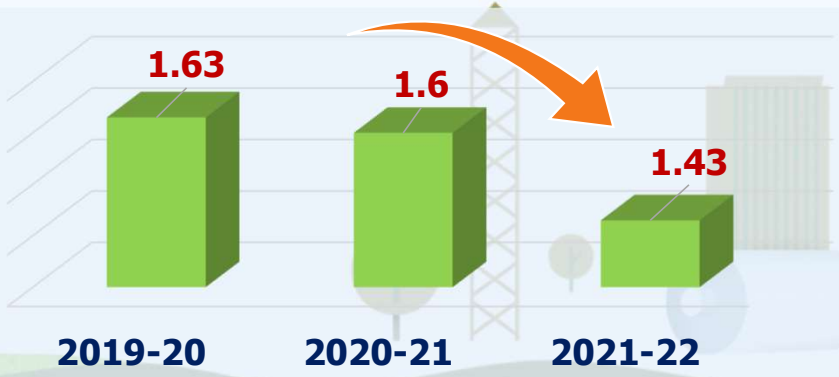
Use of Agro fuels in Steam Generation
(Tonnes of CO2 emission per Annum)



Bio-Methanation of Bagasse Waste Water
(Tonnes of CO2 emission per Annum)



Net Emission per MT of paper production (tCO2e)



Developing action plan for achieving the Co2 Emission targets

- Energy Efficiency improvement in all the possible areas of mill
- Increase Renewable energy fuel sources
- Decrease distance of transportation for raw materials, products, byproducts and in-process wastes like sludge, wood dust, etc.
- Installation of solar electricity panel
- Installation of solar lights in colony streets
- Increase carbon sequestration through pulp wood plantations by TNPL captive plantation and farm forestry schemes.
- With all the above efforts, TNPL will progress towards carbon neutrality

GREEN SUPPLY CHAIN MANAGEMENT

Green Supply Chain Policy

TNPL Tamil Nadu Newsprint and Papers Limited

INTEGRATED MANAGEMENT SYSTEM POLICY

TNPL தமிழ்நாடு செய்தித்தாள் காகித நிறுவனம்

ஒருங்கிணைந்த மேலாண்மை அமைப்பு கொள்கை

Green Supply Chain policy

"The Company is manufacturing paper from eco-friendly raw material bagasse"

Stimulate rational usage of Water, Energy and other natural resources through technological improvements and behavioural aspects

Minimise waste and Maximise reuse / recycling (Deinking Pulp)

Adopting Manufacturing Excellence Model

Issue No: 01
June 7, 2019

S. Sivashanmugaraja, I.A.S.,
Managing Director

வெளியீடு எண்: 01
ஜூன் 7, 2019

க. சிவசண்முக ராஜா இ.ஆ.ப.
மேலாண்மை இயக்குநர்

GREEN SUPPLY CHAIN MANAGEMENT

Projects Implemented:

Elimination of packing material in procurement of Optical Brightening Agent (OBA). was initially procured in powder form in bags and later through in 1 m3 reusable container

Investment Made – NIL

Benefits Achieved

1. Environment issues and Health & safety related issues are eliminated,
2. Eye irritation, suffocation and throat irritation in handing powder/granular form are completely eliminated.
3. Using of packing materials in procurement of OBA is completely eliminated.

GREEN SUPPLY CHAIN MANAGEMENT

Description:

Optical Brightening Agent (OBA) was initially procured in powder form in bags and later through 1 m3 reusable containers. Now it is being procured in slurry form through tankers and stored in IBC (Intermediate Bulk Container). This resulted in 100% elimination of packaging in procurement of OBA.

Action Plan

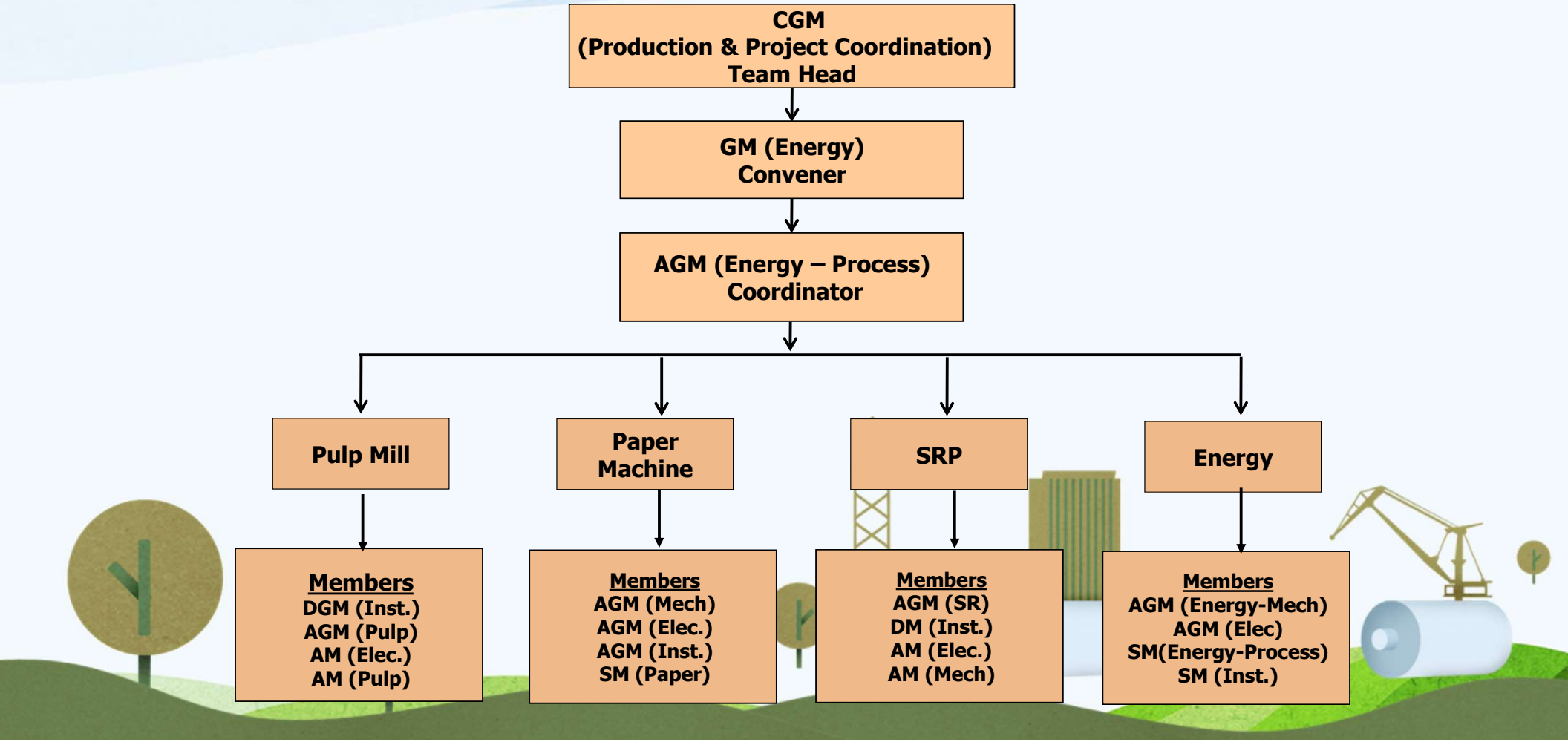
TNPL plans to increase the quantity of procurement of indigenous waste paper to 1,10,000MT per year especially post consumed waste papers. Currently, we were procuring around 90,000MT of waste paper from waste paper dealers, Educational institutions & Government departments.

GSC : Logistics

- Precipitated Calcium Carbonate (PCC) and Wet Ground Calcium Carbonate (WGCC) are used as fillers.
- Initially, it was procured in powder form in 50 kg bags and later in jumbo bags.
- TNPL entered into an agreement with M/s OMYA to set up PCC & WGCC plant on BOO basis at a site near the TNPL LSFM Plant.
- OMYA is supplying PCC & WGCC in liquid form since 2014. This has resulted in reduction of Transportation.
- In Future, TNPL is planning to expand the procurement of "Green certified products" especially for high spend materials. Through this, procurement can be emphasized on low-impact materials through the low-impact manufacturing process by environmentally conscious suppliers.

TEAM WORK , EMPLOYEE INVOLVEMENT AND MONITORING

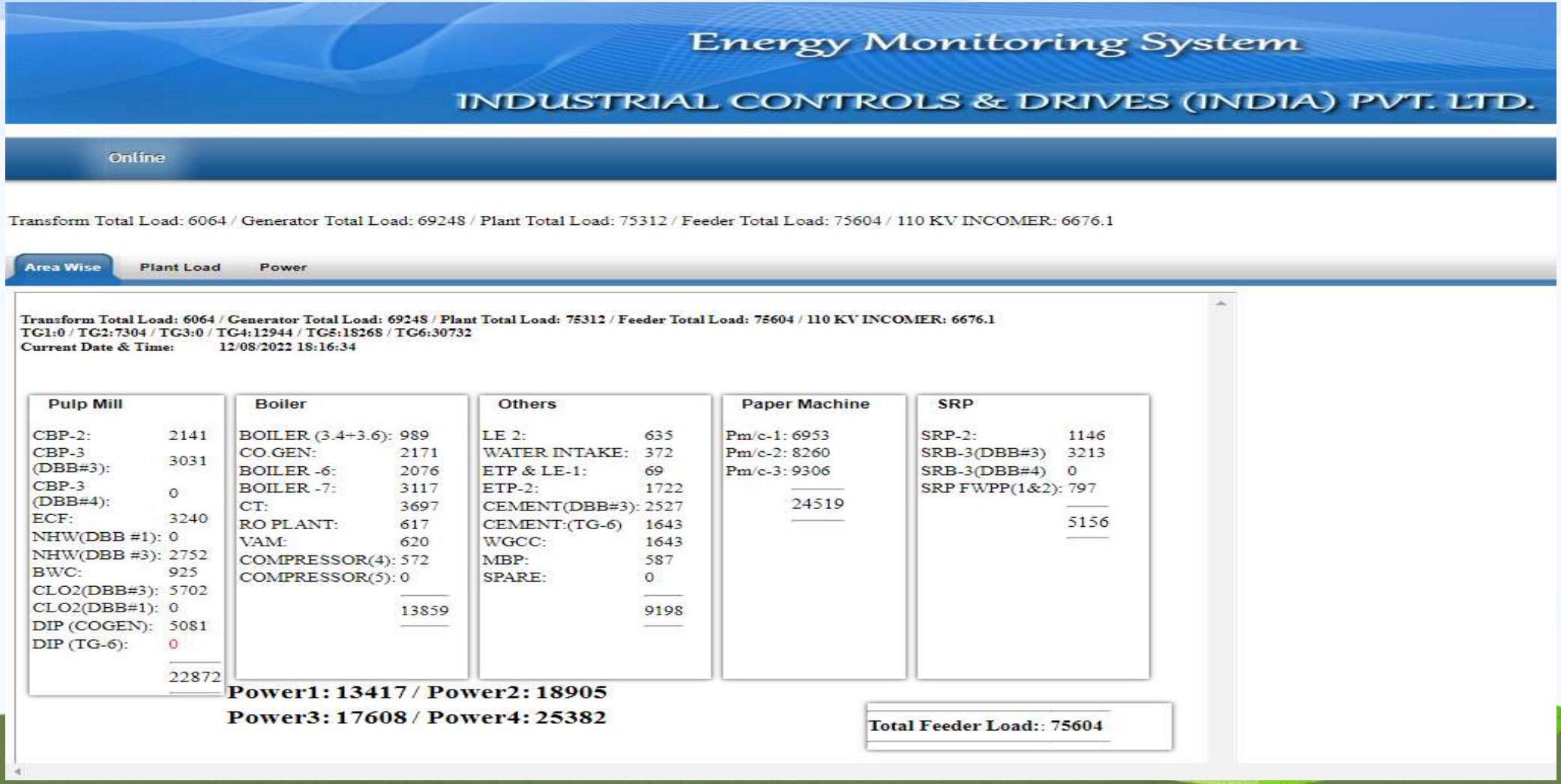
ENERGY CONSERVATION TEAM



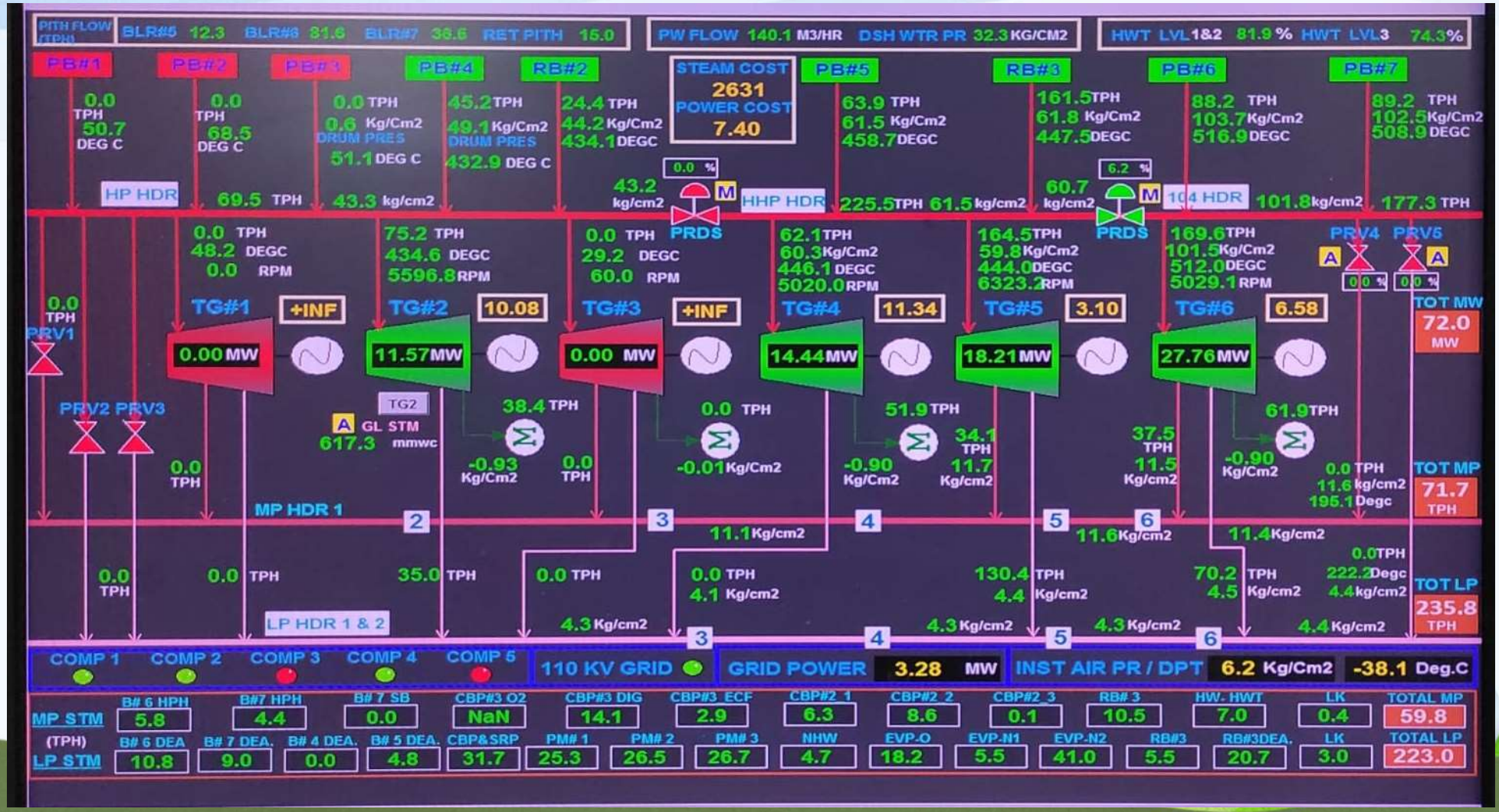
Teamwork, Employee Involvement & Monitoring

- *Daily monitoring system is available for Electrical &Thermal Energy.*
- *Review meeting is chaired by CGM (Production and P&C).*
- *Separate budget of 100 Lakhs/annum is allotted for Energy Conservation.*
- *Energy efficiency/awareness training program is conducted for Executives & Workers level.*
- *Projects implemented through Manufacturing Excellence (ME) (Workers and Supervisor level) are awarded*

On-line monitoring system with use of IOT



On-line Thermal Energy monitoring system



Energy efficiency/awareness training program

Projects implemented through Manufacturing Excellence (ME)

Enablers:

* 5S

* Lean

* 6 Sigma

* 7 Step

Department/Concept	6 sigma	Lean	Safety	5 S	Total
Energy	6	16	3	9	34
Paper	19	20	21	27	87
Pulp	26	35	15	10	86
Services	1	4	1	9	15
SRP	5	7	5	5	22
Total	57	82	45	60	244

MERIT AWARD 2021-22

ISO 50001 & GreenCo Gold CERTIFICATE

TÜV NORD

CERTIFICATE

Management System as per
ISO 50001 : 2018

The Certification Body TÜV NORD CERT GmbH hereby confirms as a result of the audit, assessment and certification decision according to ISO/IEC 17021-1:2015, that the organization

TAMIL NADU NEWSPRINT AND PAPERS LTD.
Kagithapuram (PO), Karur District,
Karur - 639 136, Tamilnadu,
India

TNPL

operates a management system in accordance with the requirements of ISO 50001 : 2018 and will be assessed for conformity within the 3 year term of validity of the certificate.

Scope -

Design and Manufacture of Pulp and Paper.

Certificate Registration No. **44 764 21393138**
Audit Report No. **2.5-2720/2001**

Valid from **25.03.2021**
Valid until **24.03.2024**

Certification Body
at TÜV NORD CERT GmbH

Mumbai, **25.03.2021**

TÜV India

GreenCo

CII
Confederation of Indian Industry
125 Years: 1895-2020

CII - Sohrabji Godrej Green Business Centre

hereby certifies that

Tamil Nadu Newsprint and Papers Limited, Kagithapuram

has successfully achieved the standards as required for the following level of certification under the GreenCo - Green Company Rating System which is valid for a period of 3 years

GreenCo Gold

Issue Date: 29-11-2019 Expiry Date: 29-11-2022

agiri
rector
GBC

Percentage of investment of energy saving projects on total turnover of the company (FY 21-22) is 0.03 %

ISO 9001 & ISO 14001 CERTIFICATE

TÜV NORD

CERTIFICATE

Management system as per

ISO 9001 : 2015

In accordance with TÜV NORD CERT procedures, it is hereby certified that

TAMIL NADU NEWSPRINT AND PAPERS LIMITED
HEAD OFFICE : 67, Mount Road, Guindy,
Chennai - 600 032, Tamilnadu,
India
and other location as per annexure

TNPL

applies a management system in line with the above standard for the following scope

Design, Manufacture and Supply of Printing and Writing Paper

Certificate Registration No. **04 100 980539**
Audit Report No. **2.5-2720/2001**

Valid from **21.02.2020**
Valid until **20.02.2023**
Initial Certification **18.08.1998**

Certification Body
at TÜV NORD CERT GmbH

Mumbai, **18.02.2020**

This certification was conducted in accordance with the TÜV NORD CERT auditing and certification procedures and is subject to regular surveillance audits.

TÜV NORD CERT GmbH Langemarckstrasse 20 45141 Essen www.tuev-nord-cert.com

TUV India Pvt. Ltd., 801, Raheja Plaza – 1, L.B.S. Marg, Ghatkopar (W), Mumbai - 400 086, India www.tuv-nord.com/in

IAF DAkkS

TÜV NORD

CERTIFICATE

Management system as per

ISO 14001 : 2015

In accordance with TÜV NORD CERT procedures, it is hereby certified that

TAMIL NADU NEWSPRINT AND PAPERS LIMITED
Kagithapuram (PO), Karur District - 639 136,
Tamilnadu,
India

TNPL

applies a management system in line with the above standard for the following scope

Development and Manufacture of Printing and Writing Paper

Certificate Registration No. **04 104 020340**
Audit Report No. **2.5-2720/2001**

Valid from **21.02.2020**
Valid until **20.02.2023**
Initial Certification **07.02.2002**

Certification Body
at TÜV NORD CERT GmbH

Mumbai, **18.02.2020**

This certification was conducted in accordance with the TÜV NORD CERT auditing and certification procedures and is subject to regular surveillance audits.

TÜV NORD CERT GmbH Langemarckstrasse 20 45141 Essen www.tuev-nord-cert.com

TUV India Pvt. Ltd., 801, Raheja Plaza – 1, L.B.S. Marg, Ghatkopar (W), Mumbai - 400 086, India www.tuv-nord.com/in

IAF DAkkS

Learning from CII Energy Award or any other award program

- *Learning about innovation best practices of various companies.*
- *Benchmarking the organization among the other innovative companies.*
- *Gaining technical knowledge to set ourselves apart from the competitors.*
- *Imparts opportunity to shine and to be known nationally & internationally for our products & services.*

AWARDS & ACCOLADES

S.No.	Description of Awards	Year	Given by
1	Energy Efficient Unit Award	2021	CII
2	Most Innovative Environment Project Award	2021	CII
3	Corporate Social Responsibility Award	2021	ICC
4	Industry Excellence Award	2021	QCI
5	Green Champions Award	2021	Govt.of Taminadu
6	IPMA Environment Award	2022	IPMA
7	Most Innovative Environment Project Award	2021	CII
8	HR Scores Award	2021	IIM

Energy Efficient Unit Award

CII

Confederation of Indian Industry

22nd National Award for Excellence in Energy Management 2021

This is to certify that

Tamilnadu Newsprint and Papers Ltd., Karur

has been recognized as

"Energy Efficient Unit"

This acknowledgement is based on the evaluation by the panel of judges at the "National Award for Excellence in Energy Management" held during 24 - 27 August 2021.

K S Venkatagiri
Executive Director
CII - Godrej GBC

Ravichandran Purushothaman
Chairman, Energy Efficiency Council
CII - Godrej GBC

Most Innovative Environment Project Award

Out of 35 short listed projects who made their presentation during the above virtual platform, 19 projects are selected as "Most Innovative Environment Project".

Corporate Social Responsibility Award-2021

TNPL received Corporate Social Responsibility Award-2021 under the Category of "Corona Warrior" from M/s Green Tech Foundation, Delhi during 8th CSR INDIA Summit and Award in Nov'21

IPMA Environment Award

TNPL won "IPMA Environment Award" for the year 2019-2020 conducted by Indian Paper Manufacturer Association (IPMA), New Delhi in Jan' 2022.

THANK YOU