



NTPC Tamilnadu Energy Company Ltd

(A Joint Venture of NTPC Ltd & TNEB)

Vallur Thermal Power Project

Ref: NTECL/EMG/F7/FormV2022-23

Date: 30.06.2023

To
Joint Chief Environmental Engineer
Tamil Nadu Pollution Control Board
951/1, Poonamalle High Road,
Arunbakkam,
Chennai -106

Subject: Submission of Environmental statement in Form 5 (2022-23) from NTECL Vallur

Sir,

Please find the enclosed Environmental Statement report in form-5 by NTPC Tamilnadu Energy Company Limited for the year 2022-23

Thanking you

Yadala Apparao
AGM(EMG)

Enclosures:

- Form V 2022-23

Copy to:

- Additional Principal Chief Conservator of Forests, MOEF and Climate Change, 34, Cathedral road, Nungambakkam, Chennai – 34 (ro.moefccc@gov.in)
- DEE Gummidipoondi, TNPCB, SIPCOT, Gummidipoondi - 601201

ENVIRONMENTAL STATEMENT IN FORM - V
Environmental Statement for the year ending March 2023

PART A			
General information			
1	Name and Address of the unit	NTPC Tamilnadu Energy Company Limited,	
	Address	Vallur Thermal Power Project, Vellivoyal Chavadi Post, Ponneri Taluk Thiruvallur Dist., Chennai – 600 103.	
	Name of the Occupier	Aresh Kumar Chattopadhyay Chief Executive Officer	
2	Industry Category Primary (STC code), Secondary (STC code)	Red/ Large	
3	Production capacity	3 × 500 MW	
4	Year of establishment	Dates of commissioning: Unit 1: 28.03.2012, Unit 2: 28.02.2013, Unit 3: 28.02.2014	
5	Date of last environmental statement submitted	28.09.2022	
PART B			
Water and Raw material Consumption			
(i)	Water consumption (m³/day) 2022 -23 (Sea water is only taken)		
	Process	69,758 m ³ /day	
	Cooling	148,235 m ³ /day	
	Domestic	37,101 m ³ /day	
	Total water consumption	2,55,094 m ³ /day	
(ii)	Water consumption per unit of the product		
	Name of the Products	Water consumption per unit of product output L/KWh	
		(2021-22)	(2022-23)
	Electricity	9.22 L/KWh (Sea water)	9.51 L/Kwh (Sea water)
(iii)	Raw Material Consumption		
	Name of the raw material	Name of the product	Raw material consumption per unit of the product (Kg per Kwh)
			(2021-22) (2022-23)
	Coal	Electricity	0.755 Kg/Kwh 0.745 kg/Kwh

PART C				
Pollution discharged to environment/unit of output (Parameters as specified in the consent issued)				
(i) Water Pollution (2022-23)				
Trade effluent (Central Monitoring Basin outlet):				
Pollutants	Prescribed standards	Quantity of Pollutants discharged (mass/day)	Average annual value	Percentage of variation from prescribed standards with reasons
pH	5.5-9		7.71	Nil
Temperature	40°C		32.29°C	Nil
BOD	30 mg/l	1137.65 Kg/day	12.48 mg/l	Nil
COD	250 mg/l	2580.92 Kg/day	28.31 mg/l	Nil
TSS	100 mg/l	6882.79 kg/day	75.50 mg/l	Nil
Flow	243000 KLD	91163.85 KL/day	91163.85 KLD	Nil
(ii) STP Outlet				
Pollutants	Prescribed standards as per CTO	Average annual value	Percentage of variation from prescribed standards with reasons	
pH	5.5-9	7.30	Nil	
TSS	30 mg/l	16.29 mg/l	Nil	
BOD	20 mg/l	7.40 mg/l	Nil	
(iii) Air Pollution (2022-23)				
Pollutant parameter	Prescribed standards	Quantity of Pollutants discharged (mass/day) (Kg/day)	Annual average value (mass/volume) mg/Nm³	Percentage of variation from prescribed standards with reasons
Particulate matter				
a) PM Unit 1	50 mg/Nm ³	2247.09	32.30	Nil
b) PM Unit 2		2697.20	38.77	
c) PM Unit 3		2572.67	36.98	
SO₂ emission				
d) SO₂ Unit 1	Presently no limit.	87205.09	1253.50	FGD (Flue gas desulphurization) installation is in progress to reduce SO ₂ emission.
e) SO₂ Unit 2	200 mg/Nm ³ is to	93115.70	1338.46	
f) SO₂ Unit 3	be met from January 2025.	92808.90	1334.05	
NO_x emission				
g) NO_x Unit 1	450 mg/Nm ³ from January 2023.	25164.60	361.72	DeNO _x system was installed in Unit 1 in Dec 2020, Unit2 in Sept 2021 and Unit 3 in August 2022.
h) NO_x Unit 2		24089.75	346.27	
i) NO_x Unit 3		16982.56	244.11	

PART D			
Hazardous Wastes			
(As specified under Hazardous and other Wastes (Management and Transboundary Movement) Rules, 2016)			
Hazardous Wastes	Total Quantity (Kg)		
	2021-22	2022-23	Remarks
a) From Process			
5.1 - Used Oil	48 MT	24 MT	Quantity given to recyclers in the year 2022-23
5.2 - Waste Oil	30 MT	50 MT	
33.1 - Empty Containers	7 MT	19.4 MT	
b) From pollution control facilities			

PART E	
Solid Wastes	
Solid Wastes (Domestic solid waste)	Total Quantity (Kg)
	2022-23
a) From process	140525
b) From pollution control facilities	
(1) Quality recycled or reutilized within the unit	91341
(2) Sold	-
(3) Disposal	-

PART F	
Characteristic (in terms of consumption of quantum) of hazardous as well as solid wastes and disposal practice adopted for both these categories of wastes.	
Hazardous Waste	Used/Spent oil, Waste Oil and empty containers of Paint and Oil are being stored in sealed drums under covered shed at NTECL and disposed to authorized recyclers through M/s MSTC auction.
Solid Waste	Colour coded dustbins are distributed to every house in NTECL township. Solid waste is being segregated at source. Organic waste is being composted. Accumulated Plastic Waste is given to recyclers and waste that cannot be recycled is given to or pre-processors or Pyrolysis agency.

PART G	
Impact of the pollution abatement measures taken on conversation of natural resources and on the cost of production	
<u>Complete Sea water based plant</u>	NTECL meets all its purposes entirely through sea water thereby preserving the scarce fresh water/ground water resource. Everyday 12,150 m ³ /hr of sea water is taken inside, purified into service water, potable water and demineralised to produce process water and used inside NTECL. NTECL operates on closed cycle cooling water system. Further, Ash water recirculation system is in service where ash pond effluent is circulated back to the station for ash mixing and disposal into ash pond.

Additionally, a solar drinking water project of 125TPD that uses waste Sea Water and Solar Energy to produce Potable Water is erected at NTECL. BIS certificate for drinking water produced from NTECL Solar desalination Plant was obtained on 03.08.2022 and the water is being distributed to Township residents.



Fig 1: Solar Desalination Plant installed at NTECL

PART H

Additional measures/investment proposal for environmental protection including abatement of pollution or prevention of pollution

Electro Static Precipitator

Each Unit is connected to highly efficient Electro static Precipitator (99.969 % efficiency) that maintains the Particulate Matter emissions from stack within 50 mg/Nm^3 . Stacks for height 275 m are provided for wide dispersion of emissions into the atmosphere.



Fig 2: Electro Static Precipitator at NTECL

FGD construction and NO_x control measures

NTECL has to achieve SO₂ limit of 200 mg/Nm³ before Dec 2024. NTECL awarded contract for FGD (Flue Gas Desulphurization) installation to M/s Tata Projects Ltd in April 2020 and the works are in progress.



Fig 3: FGD construction at NTECL

In order to meet NO_x emission limit of 450 mg/Nm³, NTECL has completed Combustion Modification in Unit 1 in Dec 2020, Unit 2 in Sept 2021, Unit 3 in Aug 2022. NO_x standards are achieved at NTECL.

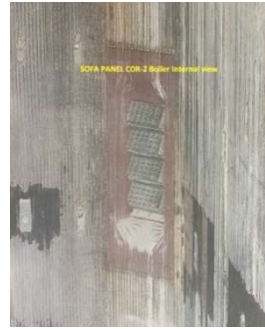


Fig 4: NO_x reduction – combustion modification works in boiler

Ash Utilization

There are 3 Ash Silos of capacity 1700 MT each for collecting Ash in Dry form. Bottom Ash is sent to Ash Dyke. Ash utilization at NTECL is shown in the table below.

Sl. No	Financial year	Ash generated (Million Tonne)	Ash utilized (Million Tonne)	Ash utilization (%)
1	2022-23	2.947	2.050	69.58%
2	2021-22	2.447	1.910	78.09 %
3	2020-21	1.277	1.568	122.80%
4	2019-20	1.744	2.11	121.02%



Fig 5: 3 No of Dry ash silos at NTECL

Ash utilization achievements in 2022-23

- NTECL achieved highest ever monthly Dry Fly Ash Utilization from Silos 1,23,419 MT in the month of May 2022 since inception.
- NTECL had highest ever one day sale of Pond ash of 15993 MT on 24.01.2023 and highest ever monthly pond ash sale of 213001 MT in January 2023.

Online continuous environmental monitoring

Effluent, stack, and Ambient Air Quality parameters are being transmitted continuously to TNPCB since 2015 and to CPCB since 2017. In 2021, NTECL replaced its SO₂, NO_x analysers with efficient Forbes Marshall Codel 40 series analysers.

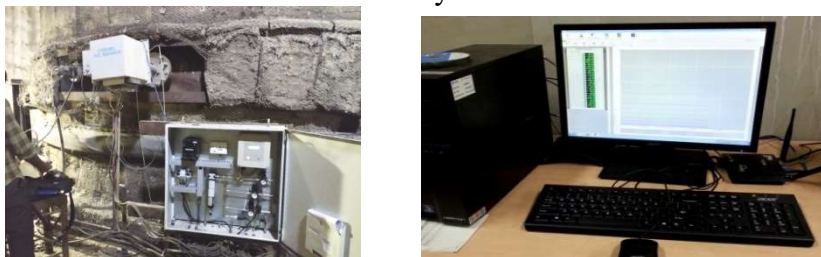


Fig 6: Online continuous environmental parameters Monitoring system

PART I

Any other particulars for improving the quality of the environment

Wind Barriers for Coal Stock yard

Wind barriers of 12 m height that are taller than coal stocks are erected in coal stock yard to catch coal dust. Wash water from coal handling area is collected at Coal Slurry Settling Pit, treated and sent for final disposal.



Fig 7: Wind barrier for coal stock yard at NTECL

Dust suppression, Dust extraction at Coal Handling Plant

Dust suppression system is installed at all transfer points of coal handling system to contain the fugitive dust due to coal movement.

Installation Dust Extraction System at coal handling area was completed and it was made operational in 2022-23.



Fig 8: Dust extraction sytem at Coal crusher house

Green belt development

Till March'23 NTECL has planted 25,310 trees inside and 24,000 trees outside its premises through Tamilnadu Forest Department.

NTECL has done Mangrove plantation through MS Swaminathan Research Foundation in its own land by adopting Fish bone canal method.





Fig 9: Green belt development at NTECL

NTECL tried Bio Seed Roll saplings an innovative way of tree plantation in 2022-23. Bio Seed is made up of fly ash and manure. Seed/sapling is kept inside the roll and planted. Increase in survival rate of trees has been the result of this method.



Fig 10: Bio seed Roll plantation at NTECL

WASTE RECYCLING

E –Waste including computer accessories, Electronic cards and relays of 4.5 MT was sold to recyclers in 2022-23. Metallic scrap of about 1000 MT was sold to recyclers in 2022-23.

World Environment Day celebration

World Environment Day is celebrated on June 5th at NTECL with various competitions and events among employees, contractors, families and children in order to raise awareness about Environment and its protection. Prizes were given to those who composted kitchen waste, who always carried their own shopping bags to township shops and those who planted trees.



Fig 11: Increasing Environmental awareness at NTECL on World Environment Day June 2022

World Water Day 2023

NTECL conducted mass awareness programme on Water conservation to the students of LNG college Ponneri. Nukkad Natak, Lecture and Quiz were organized on World Water Day 22nd March 2022. Quiz competition was conducted to NTECL township children.



Fig 12:World water Day March 2023

Environmental Awards to NTECL in 2022-23

- 'WINNER' in the prestigious "TERI-IWA-UNDP Water Sustainability Awards 2022-23" under the category 'Water use efficiency in industries.'



Fig13: NTECL was Winner at TERI UNDP WSA Award March 2023

- NTECL received **Silver Award** in 12th Exceed Environmental Award in August 2022 by Sustainable Development Foundation (A unit of Ek kaam desh ke naam) under the category Environment Improvement.