



NTPC Tamilnadu Energy Company Ltd

(A Joint Venture of NTPC Ltd & TNEB)

Vallur Thermal Power Project

Ref: NTECL/EMG/ES Form-5/ 2021-22/F7

Date: 26.09.2022

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

Subject: Submission of Environmental status in Form 5 (2021-22) by NTECL

Sir,

Please find the enclosed Environmental Statement report in form-5 by NTPC Tamilnadu Energy Company Limited for the year 2021-22.

Thanking you

Yadala Apparao
AGM(EMG)

Enclosures:

- Form V 2021-22

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

Vallur Thermal Power Project Site Office : Vellivoyal Chavadi Post, Ponneri Taluk

Thiruvallur Dist., Chennai – 600 103 Email emgntec@gmail.com, yapparao@ntpc.co.in,

Mob 9491371817

ENVIRONMENTAL STATEMENT IN FORM - V
Environmental Statement for the year ending March 2022

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	Shri Sanjay Kumar Singh 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	28.09.2021		
PART B				
Water and Raw material Consumption				
(i)	Water consumption (m³/day) 2021-22			
	Process	53,477 m ³ /day		
	Cooling	113,639 m ³ /day		
	Domestic	32,694 m ³ /day		
	Total water consumption	1,99,811 m ³ /day		
(ii)	Water consumption per unit of the product			
	Name of the Products	Water consumption per unit of product output L/KWh		
		(2020-21)	(2021-22)	
	Electricity	13.43 L/KWh	9.22 L/Kwh	
(iii)	Raw Material Consumption			
	Name of the raw material	Name of the product	Raw material consumption per unit of the product (Kg per Kwh)	
			(2020-21)	(2021-22)
	Coal	Electricity	0.738 Kg/Kwh	0.755 kg/Kwh

PART C				
Pollution discharged to environment/unit of output (Parameters as specified in the consent issued)				
(i) Water Pollution (2021-22)				
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		7.78	Nil
Temperature	40°C		33.60°C	Nil
BOD	30 mg/l	1025.31 Kg/day	9.65 mg/l	Nil
COD	250 mg/l	6343.70 Kg/day	59.72 mg/l	Nil
TSS	100 mg/l	6006.26 kg/day	56.54 mg/l	Nil
Flow	243000 KLD	106222.50 KL/day	106222.50 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	7.43	Nil	
TSS	30 mg/l	17.72 mg/l	Nil	
BOD	20 mg/l	7.56 mg/l	Nil	
(iii) Air Pollution (2021-22)				
Pollutant parameter	Prescribed standards	Quantity of Pollutants discharged (mass/day) (Kg/day)	Annual average value (mass/volume) mg/Nm ³	Percentage of variation from prescribed standards with reasons
Particulate matter				
a) PM Unit 1	50 mg/Nm ³	2032.28	32.07	Nil
b) PM Unit 2		2385.63	37.64	
c) PM Unit 3		2498.82	39.43	
SO₂ emission				
d) SO ₂ Unit 1	Presently no limit. 200 mg/Nm ³ is to be met from January 2025.	60748.62	958.52	FGD (Flue gas desulphurization) installation is in progress to reduce SO ₂ emission.
e) SO ₂ Unit 2		57805.24	912.08	
f) SO ₂ Unit 3		63085.57	995.39	
NO_x emission				
g) NO _x Unit 1	450 mg/Nm ³ is to be met from January 2023.	20532.54	323.97	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		25393.07	400.66	
i) NO _x Unit 3		29492.16	465.34	

PART D**Hazardous Wastes
(As specified under Hazardous and other Wastes (Management and Transboundary Movement) Rules, 2016)**

Hazardous Wastes	Total Quantity (Kg)		
	2020-21	2021-22	Remarks
a) From Process			
5.1 - Used Oil	22.08 MT	48 MT	Generated Quantity
5.2 - Waste Oil	17.7 MT	30 MT	
33.1 - Empty Containers	9 MT	7 MT	
b) From pollution control facilities			

PART E**Solid Wastes**

Solid Wastes (Domestic solid waste)	Total Quantity (Kg)	
	2020-21	2021-22
a) From process	178850	178850
b) From pollution control facilities		
(1) Quality recycled or reutilized within the unit	175200	175200
(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 up to 2020 was given to Shrivi Green Energy, Kurnool district who is authorized by Andhra Pradesh Pollution Control Board for production of Furnace oil from waste plastics. 280 Kg of accumulated waste plastics was given to M/s Ramky recycling in April 2022. 200 kg biogas plant at plant canteen was installed in April 2022 and works are in progress at township.



Fig 1: Installation of Biogas plant for canteen food waste at NTECL Plant

PART G

Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production

Complete Sea water based plant

NTECL meets all its purposes entirely through sea water thereby preserving the scarce fresh water/ground water resource. Everyday 12,150 m³/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 named as ‘Surya Neer.’



Fig 2: Solar Desalination Plant installed at NTECL

4.5 Km long closed pipe conveyor

Coal is transported inside NTECL plant from Ennore port through closed pipe conveyor of length 4.5 Km thereby preventing any accidental spillage on Ennore creek.



Fig 3: Pipe conveyor for Coal at NTECL

Entire NTECL plant area was leveled by filling pond ash from neighbouring power plant

During the construction stage of NTECL, entire plant area was leveled using 30 lakhs m³ of ash from the ash ponds of neighbouring thermal plant NCTPS thus conserving natural soil.

Replacement of conventional lighting with LED lighting

Replacement of conventional lighting with LED lights in 2019-20 – Saving 2.56 MU of Electricity / Rs. 98 lakhs per annum.

Rain water harvesting Ponds

Construction of 2 Rain Water Harvesting system with 2 Ponds of total capacity 75,250 m³ as per the recommendation of CMWSSB (Chennai Metropolitan Water Supply and Sewerage Board) and designed by WAPCOS Limited is implemented at NTECL.



Fig 4: Rain water harvesting ponds at NTECL

Drain Separation works at NTECL

Drain Segregation works are in progress at NTECL. Debris Filter backwash outlet line separate drain was constructed in 2020-21 and the water is now sent to Cooling Water Bay and recycled.



Fig 5: Main Drain separation construction completed in 2021-22

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/Nm³. Stacks for height 275 m are provided for wide dispersion of emissions into the atmosphere.



Fig 6 : Electro Static Precipitator at NTECL

FGD construction and NOx 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 Construction of FGD stacks in all Units completed



Fig 7: 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. NOx standards are achieved at NTECL.

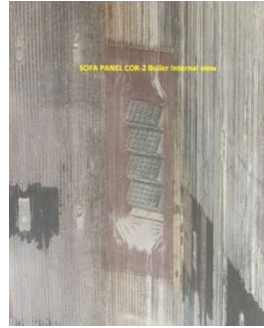


Fig 8: NOx reduction – combustion modification works in boiler

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. For the year 21-22 till Sept'21 the ash utilization is 99.95% (It was 78.41% for 2021-22 due to Ministry of Power's direction dt 22.09.2021)

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

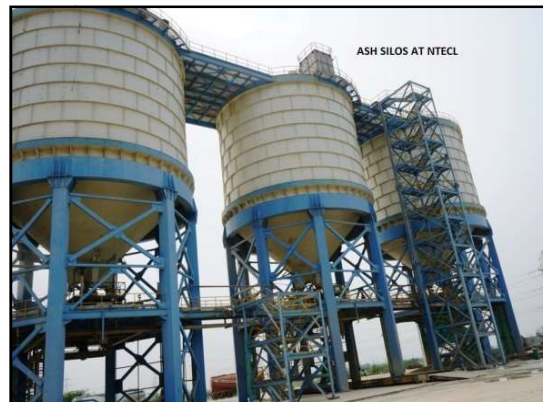


Fig 9: 3 No of Dry ash silos at NTECL

Total dry Fly Ash utilization 11.19 Lakh metric ton in 2021-22 against previous best of 8.2 lakh MT in 2019-20.

Sewage Treatment Plants

NTECL has 2 sewage treatment plants of capacities 80 KLD and 1.2 MLD for plant and township areas. Treated water is being monitored and used for horticulture purposes inside the plant premises. Treated water reuse pipeline is increased to newly constructed stadium area in 2021-22.

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. In addition to that, ground water and surface water samples around NTECL are periodically tested and the results are within prescribed limits.



Fig 10: 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 11: 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.

Dust Extraction System at coal handling plant is in progress. Installation work got delayed due to covid-19 and dry trial run taken in April 2022. Minor adjustments are in progress.



Fig 12: Dust extraction sytem at Coal crusher house

Green belt development

Till March'22 NTECL has planted 20,260 trees inside and 24,000 trees outside its premises through Tamilnadu Forest Department. A contract for 10,000 number of trees plantation is awarded to TN Forest department in April 2022.

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





Fig 13: Green belt development at NTECL

NTECL is trying an innovative way of tree plantation - Bio Seed Roll saplings. Bio Seed is made up of fly ash and manure. Seed/sapling is kept inside the roll and planted. This will increase survival rate of trees. 1000 number saplings plantation started in August 2022 and is in progress at NTECL.



Fig 14: Bio seed Roll plantation at NTECL

SCRAP RECYCLING

Degraded scrap (mix of Metallic, non metallic, plastic, wood etc.) which was accumulated from erection stage was successfully auctioned in the month of February 2022 and lifted by recyclers. 582 MT of Metallic, non metallic scrap was sold to recyclers in the Month of March 2022.

E-waste, Used Batteries, Hazardous wastes were sold to recyclers as per statutory guidelines. NTECL earned good amount of money by selling scrap to recyclers.

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 15: Increasing Environmental awareness at NTECL on World Environment Day 2022

World Water Day 2022

NTECL conducted Water conservation awareness to the public of Athipattu village on World Water Day 22 March 2022. Women were educated on Using Waste Water for growing Kitchen garden. Distribution of vegetable seeds for growing kitchen garden was done to the public.



Fig 16: World water Day 2022

Environmental Awards to NTECL in 2021-22

- 'WINNER' in "**Implementation of New Environmental Norms - Existing Thermal Power Plants**" during SO_x NO_x 2021 conference organized by Mission Energy Foundation, Mumbai in august 2021.
- Runner up award in the prestigious "**TERI-IWA-UNDP Water Sustainability Awards 2021-22**" under the category 'Innovation in Water Technology.'
- Winner, **Greentech Environment Award** under the category 'Innovations in Environment Technology' in November 2021.



Fig17: NTECL Winner of various environmental awards 2021-22.