

Executive Summary

For

“Expansion of Coal Based Co-Gen (Captive) Thermal Power Plant from 4.6 MW to 14.6 MW with additional installation of 1 x 10 MW”

At

S.F. No. 491, Plot No. B-25, SIPCOT Industrial growth centre

Villages:Oragadam

Taluk:Sriperumbudur

District:Kancheepuram

State:Tamil Nadu

By

Apollo Tyres Limited



[Project Sector – 4, Schedule 1(d), Category-B, thermal power plants (< 500 mw coal based); located inside notified industrial area viz. Oragadam SIPCOT Industrial growth center] as per EIA Notification 2006 and its subsequent amendment

ToR Issued vide SEIAA-TN/F.No.7412/SEAC/1(d)/ToR – 1298/2022 dated 26.10.2022

Baseline Period: January 2023 to March 2023

EIA Consultant & Laboratory



M/s. Hubert Enviro Care Systems (P) Ltd, Chennai

(NABET Certificate Number & Validity: NABET/EIA/24-27/RA 0335 & Valid up to 31.03.2027

NABL Certificate Number: TC-12310 dated 25.09.2023 valid till 24.09.2025)

January 2025

EXECUTIVE SUMMARY

1. Project Description

The tyre manufacturing facility at Oragadam, Sriperumbudur, Kancheepuram has R & D plant along with 4.6MW of coal based Co-generation plant in it which is operating with the valid CTO. Due to the need increased in the power requirement, ATL is proposed to set up a “Expansion of Coal Based Co-Gen (Captive) Thermal Power Plant from 4.6 MW to 14.6 MW with additional installation of 1 x 10 MW”. The Components of existing Co-generation plant has the AFBC boilers of capacity 35TPH and 60TPH, 4.6MW turbine and compressors.

In addition to the above, turbine of capacity 10MW with suitable Air Cooled Condenser will be installed within the existing facility for the proposed project. The installed capacity of existing thermal power plant is 7.5 MW; however, TNPCB restricted the thermal power plant to generate only 4.6 MW and issued CTO for the same.

The Terms of Reference application was submitted in the PARIVESH portal vide proposal no. SIA/TN/THE/50607/2020 dated 03.02.2020. This report is in accordance to the Terms of Reference (TORs) given for Environmental Clearance by the State Expert Appraisal Committee of the Ministry of Environment and Forestry, Climate Change as vide SEIAA-TN/F.No. 7412/SEAC/1(d)/ToR – 1298/2022 dated 26 October, 2022 and thus explores the scope of environmental impacts of the above plant (enclosed as **Annexure – 1**).

As per the issued ToR, baseline monitoring is performed from March to May 2024 and Draft EIA report has been prepared and submitted to TNPCB for public hearing meeting. After completion of public hearing, action plan along with PH Compliance will be addressed in Final EIA Report and to be submitted in parivesh portal for seeking Environmental Clearance.

Salient Features of the Proposed Project

S.No.	Particulars	Details
1.	Name of the project	Expansion of Coal Based Co-Gen (Captive) Thermal Power Plant from 4.6 MW to 14.6 MW with additional installation of 1 x 10 MW”
2.	Project Proponent	M/s. Apollo Tyres Limited
3.	Location	S.F No.491, Plot No.B-25,SIPCOT Industrial Growth Center, Oragadam, Sriperumbudur, Kancheepuram - 602105
4.	Site Coordinates	12°51'27.25"N and 79°56'40.59"E (Centroid).
5.	Project Category	The proposed project falls under Schedule 1(d) – Thermal Power Plant, Category – ‘B’.

S.No.	Particulars	Details																						
6.	Product details	<p>The existing and proposed product details are as follows;</p> <table border="1"> <thead> <tr> <th>S. No</th> <th>Product</th> <th>Existing (MW)</th> <th>Proposed (MW)</th> <th>After expansion (MW)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Co Gen power generation through Captive power plants</td> <td>1 x 4.6</td> <td>1 x 10</td> <td>1 x 4.6 1 x 10</td> </tr> </tbody> </table> <p>Note:</p> <ol style="list-style-type: none"> The valid Consent to Operate (Air & Water) is obtained for the existing 4.6 MW power plant and the same is enclosed as Annexure – 2a. The valid Consent to Operate (Air & Water) is obtained for the whole plant is enclosed as Annexure – 2b. 	S. No	Product	Existing (MW)	Proposed (MW)	After expansion (MW)	1	Co Gen power generation through Captive power plants	1 x 4.6	1 x 10	1 x 4.6 1 x 10												
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7.	Land Area	<p>The total area and built area of the whole plant are 50.72 Ha (125.35 acres) and 27.304 Ha (67.469 acres) respectively for the full tyre plant. The proposed project details are as below;</p> <table border="1"> <thead> <tr> <th rowspan="2">S. No</th> <th rowspan="2">Details</th> <th colspan="2">Existing</th> <th colspan="2">Proposed</th> <th colspan="2">After expansion</th> </tr> <tr> <th>Ha.</th> <th>Acres</th> <th>Ha.</th> <th>Acres</th> <th>Ha.</th> <th>Acres</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Built up area</td> <td>0.882</td> <td>2.179</td> <td>0.0357</td> <td>0.0882</td> <td>0.9177</td> <td>2.2672</td> </tr> </tbody> </table> <p>The layout of the project is enclosed as Annexure – 3.</p> <p>Greenbelt development:</p> <ol style="list-style-type: none"> The greenbelt was developed in the existing premises over an extent of 12.51 Ha (30.913 acres), i.e., 24.66%. Furthermore, SIPCOT – Oragadam has allocated OSR maintenance of greenery parcel at survey no. 6 of 6.70 Ha (16.55 acres) which is adjacent to the site. Including the SIPCOT OSR land, the overall greenbelt percentage will be 37.87%. In this greenery parcel, total of 8,312 no of plants has been planted and being maintained by the ATL. The allocation letter from the SIPCOT is enclosed as the Annexure – 4. <p>The land document of the whole plant is enclosed as Annexure – 5.</p>	S. No	Details	Existing		Proposed		After expansion		Ha.	Acres	Ha.	Acres	Ha.	Acres	1	Built up area	0.882	2.179	0.0357	0.0882	0.9177	2.2672
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8.	Water Requirement	<p>The detailed total water requirement of the project is as follows;</p> <table border="1"> <thead> <tr> <th>S. No</th> <th>Details</th> <th>Existing (KLD)</th> <th>Proposed (KLD)</th> <th>After expansion (KLD)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Process</td> <td>338.00</td> <td>302.00</td> <td>640.00</td> </tr> <tr> <td>2</td> <td>Domestic</td> <td>7.00</td> <td>0.75</td> <td>7.75</td> </tr> <tr> <td colspan="2">Total</td> <td>345.00</td> <td>302.75</td> <td>647.75</td> </tr> </tbody> </table> <p>Source:</p> <ul style="list-style-type: none"> The freshwater of 7 KLD is utilized for domestic purposes and TTRO water of 338 KLD is utilized for processes. The freshwater and TTRO water is being sourced from SIPCOT – Oragadam and the same will be followed after the expansion also. 	S. No	Details	Existing (KLD)	Proposed (KLD)	After expansion (KLD)	1	Process	338.00	302.00	640.00	2	Domestic	7.00	0.75	7.75	Total		345.00	302.75	647.75		
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		<ul style="list-style-type: none"> The water agreement between SIPCOT – Oragadam and ATL is enclosed as Annexure –6. <p>Water Balance Diagram for the existing and after expansion project is enclosed as Annexure – 7.</p>																																														
9.	Wastewater Generation and Disposal method	<p>Effluent Management:</p> <table border="1"> <thead> <tr> <th>S. No</th> <th>Details</th> <th>Existing (KLD)</th> <th>Proposed (KLD)</th> <th>After expansion (KLD)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>RO Reject</td> <td>67.5</td> <td>12.5</td> <td>80.0</td> </tr> <tr> <td>2</td> <td>DM Plant regeneration</td> <td>20.5</td> <td>-12.5</td> <td>8.0</td> </tr> <tr> <td>3</td> <td>Auxiliary Cooling Blow Down</td> <td>24.0</td> <td>2.0</td> <td>26.0</td> </tr> <tr> <td>4</td> <td>Boiler Blow Down</td> <td>34.5</td> <td>10.5</td> <td>45.0</td> </tr> <tr> <td colspan="2">Total</td> <td>146.5</td> <td>12.5</td> <td>159.0</td> </tr> </tbody> </table> <p>Disposal method: The generated effluent is being treated in RO followed by MEE of existing combined ETP capacity of 1100 KLD (300KLD X3; 200 KLD X 1) and the same will be followed after the expansion. In addition, ZLD is being followed, and the same will be followed after expansion as well.</p> <p>Sewage Management:</p> <table border="1"> <thead> <tr> <th>S. No</th> <th>Details</th> <th>Sewage (KLD)</th> <th>Treatment Unit capacity (KLD)</th> <th>Disposal Method</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Existing</td> <td>7</td> <td rowspan="3">350 (1X150 and 2X100)</td> <td rowspan="3">The generated sewage is being treated in existing combined STP of capacity 350 KLD and the same will be followed after expansion. The treated water is being used greenbelt development.</td> </tr> <tr> <td>2</td> <td>Proposed</td> <td>0.75</td> </tr> <tr> <td>3</td> <td>After expansion</td> <td>7.75</td> </tr> </tbody> </table>	S. No	Details	Existing (KLD)	Proposed (KLD)	After expansion (KLD)	1	RO Reject	67.5	12.5	80.0	2	DM Plant regeneration	20.5	-12.5	8.0	3	Auxiliary Cooling Blow Down	24.0	2.0	26.0	4	Boiler Blow Down	34.5	10.5	45.0	Total		146.5	12.5	159.0	S. No	Details	Sewage (KLD)	Treatment Unit capacity (KLD)	Disposal Method	1	Existing	7	350 (1X150 and 2X100)	The generated sewage is being treated in existing combined STP of capacity 350 KLD and the same will be followed after expansion. The treated water is being used greenbelt development.	2	Proposed	0.75	3	After expansion	7.75
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10.	Power requirement	<p>Construction phase: 50KVA from DG sets and fuel consumption is 100 liters per day.</p> <p>Operation Phase:</p> <table border="1"> <thead> <tr> <th>S. No</th> <th>Details</th> <th>Existing (MW)</th> <th>Proposed (MW)</th> <th>After expansion (MW)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Power requirement</td> <td>4.6</td> <td>10</td> <td>14.6</td> </tr> </tbody> </table> <p>Source: The power requirement is being met through the existing power plant and the same will be followed after expansion.</p>	S. No	Details	Existing (MW)	Proposed (MW)	After expansion (MW)	1	Power requirement	4.6	10	14.6																																				
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S.No.	Particulars	Details				
11.	Manpower requirement	Construction phase: 100 nos				
		Operation phase:				
		S. No	Details	Existing (Nos)	Proposed (Nos)	After expansion (Nos)
		1	Manpower	45	5	50
12.	Project Cost	INR. 40crores				

2. Description of the Environment

i. Air Environment

The ambient air quality has been monitored at 8 locations as per NAAQS, 2009 within the study area. The results obtained are summarised as below:

- The average baseline levels of PM₁₀ vary from 55.00 to 69.91 µg/m³.
- The average baseline levels of PM_{2.5} vary from 31.90 µg/m³ to 41.95 µg/m³.
- The average baseline levels of SO₂ vary from 9.70 µg/m³ to 13.44 µg/m³.
- 1. The average baseline levels of NO₂ vary from 19.18 µg/m³ to 26.88 µg/m³.

ii. Noise Environment

It is observed that the day equivalent and night equivalent noise levels at all locations are within prescribed CPCB standards

- In Industrial area (Project site, vaipur, Panayur, Panrutti, VallamKandigai), day time noise level was about 63.8 dB (A) to 68.8 dB (A) and 57.6 dB (A) 60.1 dB(A) during night time, which is within prescribed limit by CPCB for Industrial area (75 dB(A) Day time & 70 dB(A)Night time).
- In Residential area (Mattur, Umaiyaparanacheri, Sirumangadu) day time noise levels varied from 53.1 dB (A) to 54.9 dB (A) and night time noise levels varied from 43.2 dB (A) to 44.8 dB (A) across the sampling stations. The field observations during the study period indicate that the ambient noise levels in Residential area are within the limit prescribed by CPCB for Residential area (55 dB (A) Day time & 45 dB (A) Night time).

iii. Surface water Quality

Surface water sample results are discussed below:

- Water sampling results are compared with Surface water standards IS 2296:1992.
- pH in the collected surface water samples varies between 6.75 to 8.23 which is within the limit of IS 2296:1992.
- The Total Dissolved Solids (TDS) value of collected surface water sample ranges from 300 mg/l to 787 mg/l

- The Total hardness value of the collected surface water sample ranges between 130 mg/l to 395 mg/l
- BOD value of surface water varies from 2 mg/l to 4 mg/l
- COD value of surface water varies from 12 mg/l to 32 mg/l

iv. Ground water Quality

A summary of analytical results are presented below:

- The ground water results of the study area indicate that the pH range varies between 6.81 and 7.41. It is observed that the pH range is within the permissible limit of IS 10500:2012.
- The Total Dissolved Solids range of the collected ground water sample is varied between 328 mg/l – 732 mg/l.
- The acceptable limit of the chloride content is 250mg/l and permissible limit is 1000 mg/l. The chloride content in the collected ground water samples in the study area ranges between 73.52 mg/l – 219.30 mg/l.
- The acceptable limit of the sulphate content is 200mg/l and permissible limit is 400mg/l. the sulphate content in the collected ground water samples in the study area is varied between 29.4 mg/l – 88.9 mg/l. It is observed that all the samples are meeting the acceptable limit of the IS 10500: 2012.
- The Total hardness ranges is between 170 mg/l – 395 mg/l for ground water samples. It is observed that all the samples are within the permissible limit of the IS 10500: 2012.

v. Soil Environment

Summary of analytical results

- The pH of the soil samples ranged from 6.22 to 7.24, indicating that the soils are slightly acidic to moderately alkaline in nature.
- Conductivity of the soil samples ranged from 95 µmhos/cm to 365 µmhos/cm.
- Nitrogen content in the collected soil samples ranged from 84.30 mg/kg to 142.60 mg/kg.
- Phosphorous content ranged from 9.00 mg/kg to 15.30 mg/kg.
- Potassium content ranges from 45.20 mg/kg to 76.40 mg/kg.

vi. Biological Environment

The project site is found in non-forest area. Therefore, management plan is not required. The proposed project will not have any impact of terrestrial ecology of the area. However, the project area has greenbelt by planting native species to maintain the good environment.

vii. Socio-economic Environment

A socio-economic study was undertaken in assessing aspects which are dealing with social and cultural conditions, and economic status in the study area. The study provides information such as

demographic structure, population dynamics, infrastructure resources, and the status of human health and economic attributes like employment, per-capita income, agriculture, trade, and industrial development in the study area. The study of these characteristic helps in identification, prediction and evaluation of impacts on socio-economic and parameters of human interest due to proposed project developments.

3. Anticipated Environmental Impacts and Mitigation Measures

- **Air environment:** Electrostatic Precipitator is provided with adequate stack height of 75m from ground level.
- The fly ash generated from the process is being collected in the storage silo and disposed to the authorised brick manufacturer by truck covered in tarpaulin and the same is proposed to follow after expansion.
- Fugitive emissions from the coal crusher and coal transportation is being prevented using bag filter and enclosed system / belt transfer system respectively. These control measures will be carried out after expansion as well.
- **Water Environment:** The sewage of 7.75 KLD is being routed to the existing combined STP (capacity: 150KLD X 1, 100KLD X 2) which is common to R&D plant, power plant and main tyre plant.
- The generated effluent of 146.5KLD is being treated in the existing combined ETP (capacity: 300KLD X 3 & 200KLD & 1) which is common to R&D plant, power plant and main tyre plant. After expansion, 159 KLD of effluent will be treated in the same existing combined ETP facility and will maintain the ZLD process.
- If contaminated, proper expertise will be brought to schematize the various recharge mechanism to reduce or nullify the impact effects.
- **Solid and Hazardous waste:** The wastes generated will be stored in temporary storage facility and transferred to nearby Treatment, Storage and Disposal Facility (TSDF) and also to the approved vendors of State Pollution Control Board (SPCB) landfill and Co-processing.
- These waste will be segregated & stored and will be disposed off by giving it to the TNPCB authorized dealers/recyclers/TSDF within a stipulated period of time (90 days).
- Hazardous waste will be disposed to TNPCB authorized TSDF/recyclers as applicable.
- **Greenbelt Development:** The project site is surrounded by the existing greenbelt of 24.66%. Additionally, 8,312 no of trees were developed as proposed greenbelt in 16.55 acres, adjacent to the site. Including the SIPCOT OSR land, the overall greenbelt percentage will be 37.87%.

4. Environmental Monitoring Programme

Monitoring of environmental samples will be done as per the guidelines provide by MoEF&CC/CPCB/TN-PCB. The methods conducted or applied are approved or sanctioned by the any recognized body or authority i.e. MoEF&CC/CPCB/TNPCB.

5. Additional Studies

Public Hearing: Draft EIA has been prepared and submitted to TNPCB to conduct public hearing for the above said project.

Hazard Identification and Risk Assessment (HIRA): It is carried for identification of undesirable events that can lead to a hazard, the analysis of hazard of this undesirable event, that could occur and usually the estimation of its extent, magnitude and likelihood of harmful effects. It is widely accepted within industry in general that the various techniques of risk assessment contribute greatly toward improvements in the safety of complex operations and equipment.

Rehabilitation and Resettlement (R&R): As the proposed project will be carried out in the existing premises, the project does not involve in the Resettlement and Rehabilitation issue.

6. Project Benefits

- i) By providing captive power plant, there would be decreased load on the state electricity grid.
- ii) Socio-economic benefit to the locals as it would provide employment during construction and in operation phase
- iii) The project site shall require no displacement of habitation and away from the habitation area, as it is located inside the SIPCOT industrial area.
- iv) The infrastructure of Mathur Govt High School and Chennakuppam Govt Adi Dravidar Welfare Hr Sec School will be developed under CER activity.

7. Environmental Management Plan

- i) **Greenbelt Development:** The total area of the site is 50.71 Ha (125.307 acres), out of which 12.51 Ha (30.913 acres) of land is earmarked to develop greenbelt of 24.66% in the site premises. Currently, total of 3,314 no of trees were developed in the allocated area for greenbelt.

Additionally, SIPCOT – Oragadam has allocated OSR maintenance of greenery parcel at sy. no. 6 to an extent of 16.55 acres (6.70 Ha) which is adjacent to the site. Hence, the additional land allocated by SIPCOT for the development of greenbelt is considered as the proposed greenbelt development for this project. In this greenery parcel, total of 8,312 no of plants has been planted and being maintained by the ATL. Including the SIPCOT OSR land, the overall greenbelt percentage will be 37.87%.

- ii) **Corporate Environmental Responsibility:**The Company is aware of the obligations towards the Environment and to fulfil the social obligations. As per OM F. No: 22-65/2017-IA.III dated

1st May 2018 M/s. Apollo Tyres Limited will allocate 1.0% of the project cost (40 Crore) towards CER, i.e., 1.0% of 40 Crores = 40 lakh.

iii) **Environmental Management Plan:** The cost estimate for the Environmental Management Plan is provided in the following table;

Budget estimation for EMP

S. No.	Description	Capital Cost (Rs. In Lakhs)	Operating cost(Rs. In Lakhs)
1.	Landscaping & Gardening	5.0	1.0
2.	Solid waste Management (Organic waste converter)	10.0	2.5
3.	Rainwater harvesting	8.0	0.5
4.	Air pollution Control measures	3.5	1.0
5.	Energy Conservation (Solar Panel)	15.0	1.5
6.	Miscellaneous	8.5	4.0
Total Cost		50.0	10.5