

Annexure - V

Report on Energy Conservation, Technology Absorption and Foreign Exchange Earning as per the provisions of the Companies Act 2013 and rules notified thereunder.

(A) Conservation of Energy:

a. The steps taken or impact on Conservation of Energy:

During 2024-25, 104 Energy Conservation Schemes were implemented across Refineries which resulted in energy savings of 3,57,788 SRFT/year, equivalent to a monetary savings of ₹1,521 Crore/year and equivalent CO₂ reduction of ~1.14 MMTPA. Some of the major schemes implemented during 2024-25 are as under:

| S. No. | Scheme description | Envisaged Savings (SRFT/yr) | Expenditure Incurred (in ₹ Lakhs) |
|--------|---|-----------------------------|-----------------------------------|
| 1 | Overhauling of GT 1(CIBI) & use of NG to improve the operating Heat Rate at Barauni Refinery | 4692 | 7870 |
| 2 | Overhauling of GT 2 (M&I) & Using RLNG to improve the operating Heat Rate at Barauni Refinery | 3153 | |
| 3 | High emissivity coating for CDU-1 (Main & Trim furnaces), CDU-2 (Main), VDU-2, DCU & CGOT at Haldia Refinery | 6500 | 225 |
| 4 | Refinery HP/MP steam load reduction by 20 TPH (400 to 380 TPH) at CPP generation end at Haldia Refinery | 11852 | 54 |
| 5 | Pre-heat improvement in CDU-1, CDU-2 & VDU-1 furnaces Post M&I at Haldia Refinery | 4435 | 199 |
| 6 | ROG compressor taken in line at Haldia Refinery | 3300 | 35 |
| 7 | Installation of LRVP in place of Tertiary Ejectors in AVU-2 at Panipat Refinery | 4850 | 1631 |
| 8 | 132 kV grid power maximization up to 8 MW at Bongaigaon Refinery | 7640 | 345 |
| 9 | FG firing in HRSG at Bongaigaon Refinery | 4400 | 160 |
| 10 | GT-3 operation with NG at Paradip Refinery | 4028 | 4220 |
| 11 | Steam reduction in deaerator by 45 tph by reducing deaerator pressure (3.3 to 1.9 Kg/cm2g) at Paradip Refinery | 23884 | 0 |
| 12 | GT-2 operation with NG (Efficiency improvement) at Paradip Refinery | 4027 | 4250 |
| 13 | 41 TPH of kero upgradation to diesel through KHDS instead of DHDT at Paradip Refinery | 8799 | 0 |
| 14 | Grid Import (20 MVA/18 MW): Scope-1 emission reduction (NHR difference of Grid Power minus CPP) at Paradip Refinery | 3658 | 1284 |
| 15 | GT-1 operation with NG (Efficiency improvement or stack temp. reduction) at Paradip Refinery | 4027 | 4230 |
| 16 | Installation of advance gas path(AGP) in GT-1 for efficiency improvement at Paradip Refinery | 3328 | 10600 |
| 17 | RLNG maximization in GT from HSD to RLNG at Paradip Refinery | 3584 | 130 |
| 18 | Stoppage of Quench Oil pump resulting in reduction of LP steam venting by 20 tph at Panipat Naphtha cracker | 6295 | 0 |

SRFT: Standard Refinery Fuel Equivalent Tones

(b) Steps taken by the company for utilizing alternative sources of energy:

- IndianOil has a portfolio of 252.1 MW of Renewable Energy including 167.60 MW of wind capacity and 84.5 MW of solar photo voltaic capacity (On-Grid solar- 26.35 MW, Off Grid- 58.15 MW). 5.15 MW Solar PV capacity was added during 2024-25. The total electricity generation from these projects during 2024-25 was 365.72 GWh, which resulted in emission mitigation of 276.85 TMT of CO₂ equivalent. Additionally, cumulative installed Solar power capacity at Retail Outlets (35,874 Nos.) is ~ 175.7 MW, which generated ~ 224.42 GWh during 2024-25.
- The Company has replaced fluorescent tube lights & incandescent lamps with 100% LED lighting in all the refineries.
- The Company has 28.75 MWp of solar panels across various refineries with a total annual generation capacity of 20.52 GWh of electricity.

(B) Efforts made towards Technology Absorption, Adaptation and Innovation:

As a continuous effort towards improvement of product pattern, product quality, improvement of energy efficiency as well as to meet the dynamic environmental emission norms and to improve profit margin, your Company has adopted most modern technologies in line with the latest worldwide developments in the field of petroleum refining and petrochemicals production.

Major technologies adopted by the Company are as follows:

i) Indigenous Technology (adopted during the year 2024-25)

- **indDSK® Technology:** indDSK® is low severity hydrotreating technology jointly licensed by R&D Centre of IndianOil and EIL for production of ultra-low sulfur PCK. One grassroots unit of 300 kTA capacity at Paradip refinery unit was successfully commissioned in June 2024 under BS-VI projects.

The benefits derived like product improvement, cost reduction, product development or import substitution: Reduction of Sulphur content impurity in Superior Kerosene Oil

ii) Imported technology (imported during the last three years reckoned from the beginning of the financial year)

- **Poly Butadiene Rubber Project, Panipat:** Technology from Goodyear Tire and Rubber Corporation, USA

The year of import: 2021-22

Whether the technology been fully absorbed: The project is in implementation stage - Expected commissioning by 2026-27.

iii) Expenditure incurred on Research & Development:

By R&D Center

- (a) Capital: ₹502.40 Crore
- (b) Recurring: ₹310.01 Crore
- (c) Total: ₹812.41 Crore

Besides R&D centre expenditure, the total expenditure on R&D and major innovation initiatives across the Company was ₹1,067 Crore.

(C) Foreign Exchange Earning and Outgo

The total foreign exchange earned and outgo during the year is as under :

- Foreign Exchange earned: ₹36,085.88 Crore
- Foreign Exchange outgo: ₹4,31,575.45 Crore



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*The claims are made in comparison to normal diesel and based on data verified from tests conducted in controlled situation.