

# Overview of indian oil corporation ltd engineering essay



**ASSIGN  
BUSTER**

Indian Oil Corporation Ltd. (IOCL) is the flagship national oil company in the downstream sector. The Indian Oil Group of companies owns and operates 10 of India's 19 refineries with a combined refining capacity of 1.2 million barrels per day. These include two refineries of subsidiary Chennai Petroleum Corporation Ltd. (CPCL) and one of Bongaigaon Refinery and Petrochemicals Limited (BRPL). The 10 refineries are located at Guwahati, Barauni, Koyali, Haldia, Mathura, Digboi, Panipat, Chennai, Narimanam, and Bongaigaon. Indian Oil's cross-country crude oil and product pipelines network span over 9,300 km. It operates the largest and the widest network of petrol & diesel stations in the country, numbering around 16,455.

Indian Oil Corporation Ltd. (Indian Oil) was formed in 1964 through the merger of Indian Oil Company Ltd and Indian Refineries Ltd. Indian Refineries Ltd was formed in 1958, with Feroze Gandhi as Chairman and Indian Oil Company Ltd. was established on 30th June 1959 with Mr S. Nijalingappa as the first Chairman.

In 1964, Indian Oil commissioned Barauni Refinery and the first petroleum product pipeline from Guwahati. In 1965, Gujarat Refinery was inaugurated. In 1967, Haldia Baraurii Pipeline (HBPL) was commissioned. In 1972, Indian Oil launched SERVO, the first indigenous lubricant. In 1974, Indian Oil Blending Ltd. (IOBL) became the wholly owned subsidiary of Indian Oil. In 1975, Haldia Refinery was commissioned. In 1981, Digboi Refinery and Assam Oil Company's (AOC) marketing operations came under the control of Indian Oil. In 1982, Mathura Refinery and Mathura-Jalandhar Pipeline (MJPL) were commissioned. In 1994, India's First Hydrocracker Unit was commissioned at Gujarat Refinery. In 1995, 1,443 km. long Kandla-Bhatinda

<https://assignbuster.com/overview-of-indian-oil-corporation-ltd-engineering-essay/>

Pipeline (KBPL) was commissioned at Sanganer. In 1998, Panipat Refinery was commissioned. In the same year, Haldia, Barauni Crude Oil Pipeline (HBCPL) was completed.

In 2000, Indian Oil crossed the turnover of Rs 1, 00, 000 crore and became the first Corporate in India to do so. In the same year Indian Oil entered into Exploration & Production (E&P) with the award of two exploration blocks to Indian Oil and ONGC consortium under NELP-I. In 2003, Lanka IOC Pvt. Ltd. (LIOC) was launched in Sri Lanka. In 2005, Indian Oil's Mathura Refinery became the first refinery in India to attain the capability of producing entire quantity of Euro-III compliant diesel.

## **Major Achievements of Indian Oil Corporation**

Currently India's largest company by sales.

Highest ranked Indian company in the prestigious Fortune ' Global 500' listing, at 135th position.

20th largest petroleum company in the world.

Indian Oil Corporation Limited (IOCL) is one of the largest oil companies in India. It is principally engaged in petroleum refining, crude oil and petroleum products pipelines, marketing of petroleum products, and research and development. In addition, it is also involved in the exploration of oil and gas and the sale of petroleum products, and imported crude oil and gas. IOCL mainly operates in India, but has operations in certain Asian and African countries. The company is headquartered in New Delhi, India. The company

controls 10 of India's 20 refineries. IOCL operates a pipeline network of 10,329 km with a capacity of 71.60 million metric tons per annum.

## **Recent Developments**

Dec 22, 2009: NPCIL Estimates INR1,000 Billion In Investment For 10,000 MW Capacity By 2020

Dec 22, 2009: ONGC Replaces RIL With Repsol, PETRONAS To Bid For Oil Blocks In Venezuela

Dec 18, 2009: IOC To Complete Paradeep Refinery Project By March 2012

## **Objectives & Obligations**

### **Objectives**

To serve the national interests in oil and related sectors in accordance and consistent with Government policies.

To ensure maintenance of continuous and smooth supplies of petroleum products by way of crude oil refining, transportation and marketing activities and to provide appropriate assistance to consumers to conserve and use petroleum products efficiently.

To enhance the country's self-sufficiency in crude oil refining and build expertise in laying of crude oil and petroleum product pipelines.

To further enhance marketing infrastructure and reseller network for providing assured service to customers throughout the country.

To optimize utilization of refining capacity and maximize distillate yield and gross refining margin.

To maximize utilization of the existing facilities for improving efficiency and increasing productivity.

To minimize fuel consumption and hydrocarbon loss in refineries and stock loss in marketing operations to effect energy conservation.

To earn a reasonable rate of return on investment.

To avail of all viable opportunities, both national and global, arising out of the Government of India's policy of liberalization and reforms.

To inculcate strong 'core values' among the employees and continuously update skill sets for full exploitation of the new business opportunities.

To develop operational synergies with subsidiaries and joint ventures and continuously engage across the hydrocarbon value chain for the benefit of society at large.

### **Financial Objectives:**

To ensure adequate return on the capital employed and maintain a reasonable annual dividend on equity capital.

To ensure maximum economy in expenditure.

To manage and operate all facilities in an efficient manner so as to generate adequate internal resources to meet revenue cost and requirements for project investment, without budgetary support.

To develop long-term corporate plans to provide for adequate growth of the Corporation's business.

To reduce the cost of production of petroleum products by means of systematic cost control measures and thereby sustain market leadership through cost competitiveness.

To complete all planned projects within the scheduled time and approved cost.

### **Obligations:**

#### **Towards customers and dealers:-**

To provide prompt, courteous and efficient service and quality products at competitive prices.

#### **Towards suppliers:-**

To ensure prompt dealings with integrity, impartiality and courtesy and help promote ancillary industries.

#### **Towards employees:-**

To develop their capabilities and facilitate their advancement through appropriate training and career planning. To have fair dealings with recognized representatives of employees in pursuance of healthy industrial relations practices and sound personnel policies.

**Towards community:-**

To develop techno-economically viable and environment-friendly products.

To maintain the highest standards in respect of safety, environment protection and occupational health at all production units.

**Towards Defence Services:-**

To maintain adequate supplies to Defense and other Para-military services during normal as well as emergency situations.

**Indian Oil Corporation Haldia Refinery****UNIT PROFILE**

Haldia Refinery is the fourth in the chain of seven refineries owned and operated by Indian Oil Corporation, the largest commercial enterprise in the country and the only Public Sector Company in the “ Fortune Global 500” listing of the world’s largest corporation.

Haldia Refinery was commissioned in January 1975 with an initial crude processing capacity of 2. 5 Million Tonnes per Annum (MMTPA); the capacity was progressively increased to a level of 3. 6 MMTPA through low-cost debottlenecking and innovative technology. A new crude distillation unit with a capacity of 1. 0 MMTPA was installed and commissioned in March, 1997 for processing of low Sulphur imported crude to generated low sulphur internal fuel oil for burning in our process furnaces/ TPS boilers to bring down the SO<sub>2</sub> emission. Thus, the total installed capacity of the refinery is currently 4. 6 MMTPA. Apart from normal fuel distillates like, LPG, MS, ATF, SKO, HSD etc. Haldia Refinery also produces the high valued Russian Turbine fuel (RTF) for use in fighter plane (MIG) & Lube oil base stock (LOBS).

<https://assignbuster.com/overview-of-indian-oil-corporation-ltd-engineering-essay/>

## **Energy Consumption in Haldia Refinery:**

The Energy Scenario of Haldia Refinery in the past three years is given below:

### **DESCRIPTION**

### **UNIT**

**2001-02**

**2002-03**

**2003 – 04**

Annual Product Processing Rate

MT

3618842

4060976

4067040

Total Electrical Energy Consumption / annum

Lakhs KWh

1939

2321

2460

Specific Energy Consumption – Electrical



KWh/Tonne

53. 58

57. 13

59. 75

Total Thermal Energy Consumption / annum

MMKcal

3385914

3556162

3315534

Specific Energy Consumption – Thermal

MMKcal/ Tonne

0. 94

0. 88

0. 82

Total Manufacturing Cost

Rs. in Lakhs

409259. 00

535083. 00

543061. 00

Total Energy Cost

Rs. in Lakhs

35201. 27

41930. 52

39045. 62

Energy Cost as %age of Total Manufacturing Cost.

**%**

8. 60

7. 83

7. 19

### **Measures taken by Haldia Refinery to control Pollution ( Total Quality Management)**

WWTP (Effluent Treatment Plant) – Augmented Capacity up to 790 M3/hr and modernized.

Treated water reused as Make up in Cooling tower, Process area and as Fire Water make up.

5 nos. ambient air-monitoring stations and one continuous ambient air monitoring station are installed.

HDPE lined pit for storing of residual sludge to prevent water & soil pollution. In addition to that an Incinerator has been installed.

Development of Green belt in and around refinery and Township.

To develop Green Belt, 1112 nos. of tree had been planted in 2002-2003 and 2375 nos. of saplings were distributed to local locality.

The Four Star Rating awarded by the British Safety Council in May 2000 was a feather in the cap of Haldia Refinery in Safety Management System. Haldia Refinery also scored an impressive Level 6 rating under the International Safety Rating System during the assessment audit conducted by M/S DNV during August - 2001.

Haldia Refinery has also adopted the international standard on Occupational Health and Safety Assessment Series (OHSAS) in accordance with OHSAS-18001 and received the certification from M/s Det Norske Veritas, Netherland.

### **IOCL – Oil Refining Process:**

A refinery consists of a wide variety of processing units. Some employ physical separation processes whereas others are based on chemical transformation processes. Before the crude oil enters a refinery it is first unloaded and stored in a crude oil tank farm. Subsequently, the crude oil is treated to remove salt, minerals, grit and water.

## **1. Separation Processes:**

Crude oil consists of a mixture of hydrocarbon compounds including paraffinic, naphthenic and aromatic hydrocarbons with a small amount of impurities such as sulphur, nitrogen, oxygen and metals. Refinery separation processes separate these crude oil components into common boiling-point fractions: liquefied petroleum gas (LPG), naphtha, atmospheric middle distillates, vacuum distillates and residual fuels. In other words, in the first phase of refining operations crude oil is separated into its major compounds using three physical separation processes: atmospheric distillation, vacuum distillation and light-ends recovery (gas processing).

## **2. Conversion Processes**

There are three different types of conversion processes:

Cracking, coking and visbreaking processes are used to break large petroleum molecules into smaller ones. These processes convert the heavier products – for which there is generally a lower market demand – into lighter products, such as diesel and gasoline. Dependent on the composition of the streams entering the units and the type of processes employed, the resultant product streams can contain large quantities of gasoline, middle distillates or other valuable products.

Processes, such as alkylation, are used to combine small molecules into larger ones that are suitable components for gasoline or diesel blending.

Isomerization and reforming processes are used to rearrange the structure of petroleum molecules to produce higher-value molecules of a similar size.

These new molecules could have a higher octane number than the original ones and are therefore a more valuable gasoline blending component.

### **3. Purification (Treating Processes for Products and Product Handling):**

The hydrogen sulfide gas which was extracted from the refinery gas in Step 1 is converted to sulfur, which is sold in liquid form to fertiliser manufacturers.

Treating processes stabilize and upgrade petroleum products by separating them from less desirable products and by removing undesirable elements such as sulphur. For this purpose, processes like hydrodesulphurization, hydro treating, chemical sweetening, and acid gas removal are utilized.

In addition, a refinery configuration can contain further processes for the separation of special petroleum streams such as de-asphalting. For example asphalt blowing is used for polymerizing and stabilizing asphalt to improve its weather resistant characteristics, which is important for specific applications like roofing.

Finally, the refinery products are blended according to pre-defined specification, loaded and ready for the distribution and commercial stage.

**IOCL also follows the above mentioned 3 steps in its oil refineries and these are discussed as follows:**

#### **Indian Oil Corporation Refining Plant**

It is composed of oil refining vessel, bleaching drying vessel, de-odorizing vessel, soap-stock vessel, crystallizing tank, filter, thermal oil boiler, vacuum

system and freezing machine., Grade 1-4 oil can be produced from the crude oil through degumming, deacidification, bleaching, dewaxing and deodorization.

There are three types of the equipment, discontinuous type (less than 50t/d), semi-continuous type(20-80t/d)and full continuous type (more than 30 t/d).

The technology and equipment can be selected as required by the production scale of the customer and the oil material.

## **Technology**

The technology is classified into Physical Refining & Chemical Refining according to different technology. Features of these two technologies:

### **Physical Refining**

Remove gums in oil with special degumming method. FFA in oil is removed by steam. Features:

High oil refining rate, less oil loss

No waste water discharged;

More FFA distilled out;

Especially suitable for oils of high acid value, and low gum content;

### **Chemical Refining**

Neutralize FFA in the oil with alkali. The gum and soap produced are centrifuges. Features:

Less requirements to crude oils;

The finished oil is more consistent in quality;

Less bleaching earth used compared with physical refining.

### **Bleaching:**

Add bleaching earth into the degummed oil. Under the vacuum state, the oil is continuously mixed with bleaching earth in the continuous Bleacher, where main part of color bodies as well as oxidizing materials in the oil are absorbed by the bleaching earth. After continuous Bleacher, the oil/clay mixture is passed through Leaf Filters where the spent earth is removed together with the precipitated materials from degumming. The oil then passes through one of two alternatively working safety filters before entering the next section.

### **Deodorization:**

Oil deodorization is the process which makes use of the different volatility between the odor substances and the triglycerides in the oils and fats to remove the odor substance by means of the steam distillation under the condition of high temperature and fine vacuum. Oil deodorized can not only remove the odor substances, increase the smoke point of oils and fats, and improve the flavor of edible oil, but also can enhance the stability, color and quality of oils and fats to some extent.

### **Dewaxing:**

De-waxing system plays an important role in improving palatability, transparency and brightness of oils. The wax content is different in various oils. For maize oil, rice bran oil, sunflower seed oil, cottonseed oil etc., de-

waxing is very important. The de-waxing methods are freezing, surface active agents, cold polymerizer, electrostatic, and winterizing etc. Currently winterizing method is most popular. The crystallizing temperature, crystallizing velocity, and crystal maturing time and filtering mode vary with oils.

### **Refined oil:**

After the performance of all the above mentioned processes, the refined oil is obtained.

### **Auxiliary Facilities**

Every refinery will use additional units and processes which are not directly involved in the refining of crude oil, but are vital to the operation of a refinery. Examples of these are steam boilers, waste water treatment facilities, hydrogen plants, cooling towers and sulphur recovery units. Products from auxiliary facilities (clean water, steam, electricity and process heat) are required by most process units throughout the refinery.

### **End Products:**

**Most refineries produce a wide range of products. These generally include:**

Gases such as LPG (liquefied petroleum gas) which can be used as feedstock for chemical processes, as fuel for heating and cooking or as transportation fuel.

Naphtha, which is mostly used as chemical feedstock

Gasoline, a main source for transport fuels



Kerosene and jet fuel, predominantly used as fuel for commercial aircraft and military transport

### **Middle distillates consisting of:**

diesel fuel for transport (road and rail)

heating oil for domestic and commercial applications

marine diesel mostly for inland and coastal shipping

Heavy Fuel Oil for industrial installations (power generation and boilers)

Bunker Fuels for sea-going vessels

Specialty products including:

Lubricants and greases for automotive and industrial applications

Bitumen, mainly for road and roof surfacing

Coke for specialty applications like electrodes

Hydrocarbon solvents, predominantly used in specialty industrial applications

**The following diagram shows that how the crude oil is being converted into different products after following the whole procedure as mentioned above:**

### **REFINING CAPACITY AND CAPACITY UTILISATION:**

#### **Haldia Refinery – IOCL (WEST BENGAL):**

Haldia Refinery, one of the eight operating refineries of Indian Oil, was commissioned in January 1975. It is situated 136 km downstream of Kolkata

in the district of Purba Medinipur, West Bengal, near the confluence of river Hooghly and Haldi.

From an original crude oil processing capacity of 2.5 MMTPA, the refinery is now operating at a capacity of 5.8 MMTPA at present. Capacity of the refinery was increased to 2.75 MMTPA through de-bottlenecking in 1989-90, and to 3.75 MMTPA in 1997 with the installation/commissioning of the second Crude Distillation Unit of 1.0 MMTPA capacity. Petroleum products from this refinery are supplied mainly to eastern India through two product pipelines as well as through barges, tank wagons and tank trucks. Products like MS, HSD and Bitumen are exported from this refinery.

Haldia Refinery is currently the only coastal refinery of the corporation and the lone lube flagship, apart from being the sole producer of Jute Batching Oil. Diesel Hydro Desulphurization (DHDS) Unit was commissioned in 1999, for production of low Sulphur content (0.25% wt.) High Speed Diesel (HSD). With augmentation of this unit, the refinery is producing BS-II and Euro-III equivalent HSD (part quantity) at present. Resid Fluidized Catalytic Cracking Unit (RFCCU) was commissioned in 2001 in order to increase the distillate yield of the refinery as well as to meet the growing demand of LPG, MS and HSD. Refinery also produces eco-friendly Bitumen emulsion and Microcrystalline Wax. A Catalytic Dewaxing Unit (CIDWU) was installed and commissioned in the year 2003 for production of high quality Lube Oil Base Stocks (LOBS), meeting the API Gr-II standard of LOBS.

In order to meet the Euro-III fuel quality standards, the MS Quality Improvement Project has been commissioned in 2005 for production of Euro-

III equivalent MS. The refinery expansion to 7.5 MMTPA as well as a Hydrocracker project has been approved, commissioning of which shall enable Haldia Refinery to supply Euro-IV and Euro - III HSD to the eastern region of India.

To meet the growing demand of petroleum products, the refining capacity in the IOCL has been gradually increased over the years by expanding the refining capacity of the existing refineries. The total refining capacity in IOCL as on 1.7.2005 stands at 27.37 MMTPA.

**The refining capacity, actual crude throughput and capacity utilization during the five years between 2000 to 2005 are indicated below:**

**2000-01**

**2001-02**

**2002-03**

**2003-04**

**2004-05**

1.

Refining Capacity(As on 1st April)

14

14.6

16.96

27.37

<https://assignbuster.com/overview-of-indian-oil-corporation-ltd-engineering-essay/>

27. 37

2.

Actual Crude throughput (MMTPA)

3. 01

8. 5

10. 6

18. 7

24. 3

3.

Capacity Utilization (%)

91. 00

93. 00

95. 00

99. 00

---

## **Other Operations being performed in the Refinery:**

### **Refinery Inspection Services:**

Indian Oil has full-fledged Inspection Departments in all its refineries, comprising qualified mechanical/metallurgical engineers, to monitor the health of static equipment. Its R&D Centre also offers support in conducting detailed health assessment of units. The Centre has state-of-the-art facilities for carrying out health assessment and material failure analysis.

A thorough inspection of all equipment, along with specific, elaborate inspection of critical equipment, can also be carried out using visual and non-destructive techniques such as thermography and radiography. If required, the Applied Metallurgy Group of the R&D Centre conducts micro-structural analysis to assess the health of equipment. The facilities available include microscopic examination, chemical analysis by alloy analyzer, scanning electron microscopy, in situ metallography, micro-hardness testing, etc. Based on the inspection studies, recommendations are made for short-term and long-term remedial actions.

Indian Oil's inspection teams have a deep understanding of the complexities of all the process units of modern refineries and can offer comprehensive inspection services of a highly professional nature.

### **Refinery Turnaround Maintenance Management:**

Indian Oil is equipped to provide world-class technical support for refinery turnaround management system (TAMs). With a systematic approach to TAMs, it has developed expertise in execution of shutdowns based on its <https://assignbuster.com/overview-of-indian-oil-corporation-ltd-engineering-essay/>

experience of successfully carrying out TAMs for over 180 process units in its different refineries for over four decades.

Indian Oil is the only organization in India that has an exclusive experience of undertaking TAM of the entire refinery at one go, including all the process units, utilities, off-sites, etc., all at the same time. Such an exercise requires large resources in terms of manpower, material & equipment, along with a scientific way of execution, utilizing advanced tools, user-friendly software packages in multi-user environment, effective communication facilities among the coordinators, stringent safety standards, etc.

Software like MS Project, Primavera, etc., are used extensively for planning, scheduling, monitoring and control. Daily status report and exception reports are generated based on a number of criteria like activities due for start, activities due for finish, effect of delay in completion of critical and non-critical activities on shutdown completion schedule, etc. In the event of a delays or unanticipated work, catch-up plans are drawn up to meet the overall schedule.

## **Operations and Maintenance**

### **Pipeline's Operation & Maintenance:**

Indian Oil's Pipelines Division provides services for operations and maintenance. The clientele includes the existing pipelines companies and companies venturing into pipelines business.

### **The services provided for Operations and Management are:**

Cross country crude and multi-product pipelines

Mainline engines, pumps and motors

Station facilities, crude oil and petroleum product tanks

Automation and advanced control systems

Single Point Mooring (SPM) Systems, submarine pipelines

Development of maintenance procedures, formats, schedules, manuals

Corrosion monitoring and control

Technical audits for better performance of energy consumption, quality, safety and environment protection

Onsite and offsite disaster management plans

Selection, testing and evaluation of Chemical Drag Reducers and corrosion inhibitors

## **Refinery's Operation & Maintenance:**

Indian Oil has over four decades' experience in operation & maintenance (O&M) of over 180 process units at its seven refineries. Its reservoir of experienced technical teams has been providing world-class technical support to leading petroleum companies around the world.

Having absorbed state-of-the-art technologies of leading process licensors like UOP, Chevron, IFP, Stone & Webster, Mobil, Haldor Topsoe, KTI/Technip, Linde, CD-Tech, Stork Comprimo, etc., Indian Oil in an excellent position to offer O&M services for latest technologies such as distillate FCCUs, Resid

FCCUs, hydrocrackers, reformers (both semi-regenerative and continuous catalytic regeneration types), lube processing units, catalytic de-waxing units, cokers, coke calciners, visbreakers, merox, hydro-treaters for kero and gasoil streams, etc. Indian Oil refineries also have units for producing specialty products such as bitumen, LPG, MTBE, Butene-1, Propylene, Xylenes, Di-Methyl Terephthalate (DMT), polyester staple fiber (PSF) and other petrochemicals like Linear Alkyl Benzene, Paraxylene (PX), Purified Terephthalic Acid (PTA), etc.

Indian Oil's technical team is committed to continuous improvement in O&M practices to achieve the highest standards of efficiency & reliability in pursuit of run-length improvement for maximization of on-stream days. Special attention is given to safety, health & environment protection practices.

All Indian Oil refineries are ISO certified, with the related documentation and manuals updated on a regular basis. A number of Indian Oil clients have benefited from these exhaustive manuals prepared in-house. The ISO management & documentation is tailor-made to suit the requirements of individual refineries, taking into consideration the design details of the licensors.

In addition, Indian Oil also offers the specialized services of its experts for commissioning/start-up assistance depending on the client's need. Its team is also well-equipped to prepare operation manuals with clear instructions for plant start-up, operation, shutdown, emergency handling, etc.



## **Energy Conservation Achievements:**

Haldia Refinery has incorporated and implemented number of major energy conservation measures based on in house studies. Some of the major energy conservation schemes implemented during the recent past by the refinery are given below:

Heat integration through state of art Pinch technology in Crude Distillation Unit through which substantial gain in preheat recovery was achieved.

Soaker technology in Visbreaker has yielded substantial savings of fuel in furnaces besides yield improvement.

Implementation of Pinch in Solvent Dewaxing unit.

High emissivity refractory coating in Crude Distillation Unit-II and Vacuum Distillation Unit-I furnace to reduce fuel consumption.

Residuum Oil Super Critical Extraction Process incorporated in existing Propane Deasphalting Unit, which uses a process of super critical extraction for separation of solvent with less energy than conventional resulting utility saving. This technology was adopted first time in the country.

Replacement of existing refractory with ceramic fiber in CDU-I furnace to reduce the thermal loss.

Conversion of motor driven to turbo driven pump in TPS Cooling Tower.

Installation of High efficiency furnace in Hydro finishing unit.

Provision of Calcium Silicate insulation in VM/VB steam header (Phase-II).

Installation of Gas Turbine (20MW) with HRSG (Heat Recovery Steam Generator) for improving overall thermal efficiency.

Reduction in Steam consumption of Main Air Blower in FCCU.

MP Steam Condensate recovery in FCCU (Naphtha Splitter Reboiler).

Condensate recovery from TG Condensate pump seal flushing lines.

Furnace Efficiency Improvement through in-house modification.

Installation of Balance pressure thermostatic traps in copper tube steam tracing line to reduce steam loss.

Control valves related to flare upgraded to higher Class valves to reduce flare loss.

Provision of fuel gas firing facility in Furfural Extraction unit furnace to improve Refinery Fuel Gas Balance.

Improvement of VDU-II furnace efficiency through in-house modification.

Sick wagon unloading facility.

Replacement of Motor driven pump with Turbo-driven pump to improve Refinery Steam -Power Balance.

### **Energy conservation Plan & Target:**

Refinery has time bound action plans to further bring down energy consumption and hydrocarbon loss from present level of operation. Some of the major schemes under implementation / planned are as under:

<https://assignbuster.com/overview-of-indian-oil-corporation-ltd-engineering-essay/>

Provision of Insulation for eight nos. of high temperature tanks in 700 tank farm (Intermittent Product storage tanks).

Replacement of old Reciprocating Air Compressor with High Efficiency Compressor.

Reduction of GT-HRSG Deareator Operating pressure from 2.4 kg/cm<sup>2</sup> to 1.0 kg/cm<sup>2</sup>.

Installation of Mechanical trap (Float type) in steam outlet line of Boiler IV Steam coil Air Preheater.

Pinch modification in the preheat circuit of Kerosene Hydro-Desulphurization Unit.

Calcium Silicate insulation in MP & LP Steam header – Phase-III & Phase-IV

Installation of flash vessel in 11E111 (CDU-I add. Naphtha Stabilizer reboiler) condensate line to recover MP Steam Condensate.

Pre-heat improvement in CDU-I by providing addition exchanger in Crude pre-heat chain.

Pre-heat improvement in CDU-II.

Heat recovery from Vacuum Distillation Unit -II tampered water system.

**Total investment planned & energy saving targets are given as under:**

**ENCON Projects**

**Investment in**

**(Lakhs)**

**Energy Savings in FO**

**MT/annum**

Under implementation &future Projection

787. 90

10230

**Quality management system:**

As an active partner of the Global Compact Programme of the United Nat