

1.0 EXECUTIVE SUMMARY

IFFCO, Aonla Unit is one of the largest urea producing unit of Indian Farmers Fertiliser Co-operative Limited (IFFCO). IFFCO was registered as a multi unit co-operative society under the Co-operative Societies Act on 3rd November, 1967. IFFCO, a pioneer in the co-operative sector, has been making a steady progress in the field of fertilizer production, capacity utilization and rendering services to the farming community.

Presently IFFCO Aonla produces 1980000 MTPA of Urea and 1138500 MTPA of Ammonia. It was commission in the year 1988 with best available technology for production of ammonia and urea. IFFCO Aonla has acquired ISO 9001, ISO 14001, OHSAS 18001, ISO 50001 and ISO 26000 Certifications. IFFCO Aonla has bagged a number of appreciation and awards from a number of government and non-government agencies for its excellent performances in the field of environment and safety.

The Aonla fertilizer complex of IFFCO was setup in 1988 at Aonla near Bareilly Town of Uttar Pradesh, based on natural gas supplied through the HBJ Gas Pipeline. Aonla Unit consisted of a 1350 MTPD Ammonia Plant with twin-stream Urea Plants, each of 1100 MTPD capacity along with other associated facilities, built for a total investment of Rs.652 crores. Aonla Unit added another feather in its cap by undertaking an ambitious expansion project (Unit-II) consisting of a 1350 MTPD Ammonia plant and twin 1100 MTPD Urea Plants. This expansion project was completed in a record time of 36 months. The commercial production from this unit was started in Dec.' 1996. Capacity enhancement/ Debottlenecking of IFFCO Aonla Unit was done in year 2008 with the increased capacity of 3450 MTPD Ammonia & 6000 MTPD Urea production. Both the units are producing urea at their rated capacity with remarkable achievements in the field of energy conservation, environment protection, safety, etc.

IFFCO Aonla unit is inherently committed to use the energy in the most efficient way. "Energy Saving" is one of the major objectives of Aonla Unit. This effort has enabled to run the old Ammonia and Urea Plants with better performance level even after 27 years of operation. IFFCO Aonla has been continuously improving its performance by implementing several modifications and by adopting best operating philosophy under scientifically based emerging technology. IFFCO Aonla Unit is reluctantlessly striving to prove itself as one of the lowest energy consumer in the fertilizer industry. To achieve its

goal, a number of energy conservation schemes have been identified, planned and implemented in stages under various Energy Saving Projects (ESPs) implemented from time to time. IFFCO actively participates with “**India Low Carbon Strategy**” by adopting energy efficiency projects, automization of technology ad economical use of energy.

Production of Ammonia is an energy intensive process. Ammonia Production accounts about 80%-90% of total energy consumption in Ammonia - Urea complex. Energy is a major factor in the cost of Ammonia & Urea Production in any Nitrogenous fertilizer Plant. Hence there has always been a big scope for energy conservation efforts in Ammonia Plants. Modernization of our old Plants i.e. installation of new energy efficient equipments /modification of existing system, will certainly help to reduce the energy consumption in IFFCO Aonla Unit. Energy saving in ammonia manufacturing process has resulted in to reduction in steam & fuel consumption. Reduced fuel consumption means burning of lesser quantity of fossil fuel and corresponding reduction in CO₂ and SO₂ emission. Reduced steam consumption means reduced consumption of fresh water, regeneration chemicals i.e. Hydrochloric Acid and Sodium Hydroxide. This also reduces the quantity of regeneration effluent.

Since beginning IFFCO Aonla had been actively involved in development of the Unit. It has continuously participated in implementation of various schemes in the past, under Capacity Enhancement Project. Now, in pursuit of continuous growth and development, IFFCO has envisaged further reduction in specific energy consumption under Energy Saving Project.

IFFCO Management has appointed Projects & Development India Limited (PDIL) as consultant for preparation of Pre Feasibility Report (PFR), assistance in online Filling of Form-I, award of TOR and preparation of report for Environmental Clearance. PDIL is a QCI-NABET accredited EIA consultancy organization. The PFR has been prepared on the basis of site visit and data/ documents provided by IFFCO.

1.1 PROJECT LOCATION

IFFCO Aonla fertilizer complex is located under Aonla Tehsil in Bareilly District of Uttar Pradesh State. IFFCO Aonla Unit is spread over an area of about 1273 Acres of land owned by IFFCO Management. Aonla Unit is at a distance of about 7 kms from State Highway No. 33 (connecting Bareilly to Badayun) on Lucknow Delhi Highway Aonla, which is tehsil headquarter, is at a distance of about 11 km and Bareilly town is at a

distance of about 28 kms from Aonla fertilizer complex. Aonla railway station is at a distance of about 14 kms and Bareilly railway station is at a distance of about 27 km from Aonla fertilizer complex. Aonla Unit is at a distance of about 280 kms from State Capital Lucknow and 260 kms from National Capital New Delhi. Geographically Aonla fertilizer complex is located at Longitude 28° 13' 34.87" N and Latitude 79° 14' 50.63" E at an elevation of 165 m above mean sea level (MSL).

1.2 SCOPE OF ENERGY SAVING PROJECT

The scope of Feasibility Study has been aimed at to reduce the Urea specific energy consumption by about 0.358 Gcal per MT of Urea at Aonla-I and about 0.396 Gcal per MT of Urea at Aonla-II Fertiliser Complex. To achieve the target, the following high payback energy saving schemes have been considered. All the project activities are limited only in the existing fertilizer complex.

1.3 RAW MATERIAL AND UTILITIES

Basic purpose of implementation of energy saving schemes at each unit is to conserve the raw materials i.e. natural gas and water. There will be over all saving of natural gas of 279,000 Sm³/day and 500 m³/day water in Aonla Unit.

1.4 PROJECT IMPLEMENTATION PLAN & TIME SCHEDULE

The ESP will be implemented in two Phases. Energy savings schemes which required short lead time will be implemented during year 2016 turnaround and energy savings schemes which required long lead time will be implemented during year 2017 turnaround.

1.5 ESTIMATED PROJECT CAPITAL COST

The estimated capital cost of proposed Energy Saving Project is as under (Rs. Crore):

**Table-1.5
Estimated Cost**

Sr. No	Units	Equipment Cost (including 3% Contingency)	BEDP	DEDP	Total
1.	Aonla-I	373	16	4	393
2.	Aonla-II	345	16	4	365
3.	TOTAL	718	32	8	758

BEDP : Basic Engineering Design Package

DEDP : Detailed Engineering Design Package

1.6 FINANCIAL ANALYSIS OF PROJECT

The overall saving in Urea specific energy at each Unit and the financial analysis is as under:

**Table-1.6
Financial Analysis**

ESP	UNIT	Aonla-I	Aonla-II
Urea Plant Capacity	MTPD	3000	3000
Energy Saving	Gcal/MT	0.358	0.396
Estimated Investment	Rs. Crore	393	365
Monetary Savings /Year	Rs Crore	90	99
Payback	Years	4.4	3.7

1.7 RAW MATERIAL

1.7.1 Raw Materials Consumption

The present raw material consumption in both Aonla-I & Aonla-II units are as under:

**Table-1.7
Raw Material Consumption**

Particulars	Unit	Aonla-I	Aonla-II
Urea Production	MTPD	3000	3000
Feed NG to Ammonia plant	Sm ³ /day	1056529	1052734
Fuel NG to Ammonia plant	Sm ³ /day	430340	673059
Fuel to SG	Sm ³ /day	108791	
Fuel to CPP-I + CPP-II	Sm ³ /day	463469	
Purchased power	MW	0.65	
Ammonia energy	Gcal/MT ammonia	7.859	7.575
Urea energy	Gcal/MT urea	5.529	5.527

1.7.2 Raw Materials Saving

After implementation of proposed ESP, Savings of raw material such as natural gas and water after ESP shall be as under:

**Table-1.8
Savings on Raw Material**

Particulars	UNIT	Aonla Complex
Natural Gas @ LCV of 8772.6 kcal/sm ³	MMSCMD	0.279
Water	m ³ /day	500

The water requirement of IFFCO Aonla is met by existing sources i.e. from deep bore well. The present requirement of water is about 34200 m³/day. Fresh water consumption will reduce by about 500m³/day after the project completion and operating the modified unit.

1.7.3 NEED & JUSTIFICATION

The need and justification of the proposed project is summarized as under:

- It will reduce overall energy consumption leading to a substantial reduction in pollution load.
- ***It will reduce the consumption of natural resources viz. water (approx. 500 m³/d) & NG (279,000 Sm³/day)) which in turn will have positive impact on environment***
- ***It will reduce the subsidy burden of Government of India (GOI).***
- It will maintain the profitability of IFFCO.
- It will maintain stability in indigenous / domestic market for Urea.
- It will check the import possibility of fertilizers to some extent and yield national savings
- There will be temporary employment generation during construction period.
- It will ease the availability of chemical fertilizers to farmers.
- Adoption of proven long lasting emerging technology will produce the intangible effect to reduce the present stress of environment.
- It will fulfill the aims and objective of EIA related to continual improvement in the field of Energy Saving by adopting emerging technology.

- The reduction of green house gas emissions from the stack will contribute to INTENDED NATIONALLY DETERMINED CONTRIBUTION (INDC) under UNEPCCC.
- ESP is a complement to “**India Low Carbon Strategy**” to meet the target of carbon reduction equivalent to 20-25% of GDP by 2020 against the base of 2005.

1.8 Conclusion

As energy cost is increasing with passage of time, it is prudent to take the measures to save the energy at each location of IFFCO Plants. It is always the endeavour of IFFCO's top management to adopt the latest available and proven technology for improving the productivity of the Society. With the efforts taken by IFFCO management in the past, the IFFCO Plants are running at comparable energy consumption with global benchmarks. The proposed Energy Saving Project (ESP) will further reduce the energy consumption at all the nitrogenous fertiliser units. With implementation of the proposed Energy Saving Project (ESP) at IFFCO Aonla Unit, the overall urea specific energy will be reduced by about 0.358 Gcal per MT of Urea with payback of 4.4 Years at Aonla-I and about 0.396 Gcal per MT of Urea with payback of 3.7 Years at Aonla-II. Thus, there will be reduction in the emission levels from IFFCO Aonla Unit with implementation of Energy saving project due to reduction in consumption of natural gas and water.

The ESP is simply a change-over scheme without any change in production rate. For this type of project, EIA Notification 2006 is also silent on preparation of EIA report and issuance of EC. **Further, it would not be out of place to mention here that the area around IFFCO Aonla Unit has never been identified as “CRITICALLY POLLUTED AREA / ZONE” by CPCB.** Further, the ESP fulfills the IFFCO policy related to protection & safe guard of environment and measures for energy conservation. It also fulfills the aims & objective of EIA.

Considering the above facts, it requires a critical review with due diligence regarding exemption of Public Hearing and preparation of EIA report in generic form for grant of EC on priority basis.