

**Explanatory Notes****I. FINANCE**

The following assumptions have been made in working out the financial parameters for MOU 2010-11.

Refinery

i) Planned Shutdown for commissioning of the Diesel Quality Upgradation Project (DQUP):	Refinery shutdown planned for 30 days during April, 2010 for commissioning of the DQUP. Adjustment shall be carried out at the time of evaluation in the event shutdown gets extended / re-adjusted for reasons beyond control of NRL.
ii) Crude Throughput:	Excellent Target: 2520 TMT, Very Good Target: 2400 TMT.
iii) Sales:	Entire production quantity.
iv) Crude Price:	Crude Price has been considered based on the average price of NRL Benchmark Crude for Dec'09 @ \$74.28/BBL. RBI Reference Rate = Rs.46.63 per USD. Sales Tax and pipeline transportation charges on crude considered.
v) Product Prices:	Product Prices for LPG, MS, SKO, ATF, HSD and Naptha have been considered based on FOB Quotes for Dec'09 with adjustment for freight differential for Haldia. Average of Sulphur, RPC & CPC price has also been considered for the same period.
vi) Adjustment for prices:	Crude oil price, product prices and retail selling prices have been incorporated in MOU 2010-11 at Dec'09 prices. Adjustment shall be carried out at the time of evaluation for any difference between the assumed (i.e. Dec'09 prices) and the actual prices.
vii) North East Adjustment (Excise Duty at 50%):	Effect of North East Adjustment for Excise Duty Exemption at 50% has been calculated only on non MODVAT items, i.e. MS, HSD and ATF.
viii) CST:	CST has been considered at 2% for all products.
ix) Marketing Terminal Charges :	Considered for LPG at Rs.313.12 per MT & Rs.66.40 per MT for MS, HSD, SKO & Rs.96.39 per MT for ATF.
x) Refining Cost/ Operating Cost:	Considered in line with the Revenue Budget for BE 2010-11.
x) Availability and utilization of Natural Gas.	During 2010-11, availability and utilization of 1,20,014 MT of Natural Gas has been envisaged. Financial as well as physical targets are based on the same. Natural Gas



	availability at Numaligarh Refinery is however dependent on two external agencies, namely M/s OIL (supplier of Natural Gas) and M/s DNP Ltd. (the Joint Venture company involved in transportation of Natural Gas from Duliajan to Numaligarh). In event of inadequate availability of Natural Gas at NRL, MOU performance results with regard to parameters like Profitability, Distillate Yield would have to be correspondingly adjusted.
xi) Planned shutdown cost	Operating cost includes planned shutdown cost of Rs 15 crores in Apr'2010.

II. TESTING OF SAMPLES FROM ENERGY STATIONS

As per MDG (Marketing Discipline Guidelines), 50% of Retail Outlets are required to be covered for product sampling per month. NRL's total number of Retail Outlet is 108 and the figure is likely to remain unchanged during 2010-11. The "Number of Sampling" from NRL ROs required during 2010-11 as per MDG is 648 (108 x 50% x 12). Although 648 is the Basic Target, the 'Very Good' target in MOU 2009-10 was kept at a higher level at 680. Considerable effort would be required to achieve this target during 2009-10. Accordingly, the 'Very Good' target in MOU 2010-11 was proposed at 680 and the 'Excellent' target was proposed by 5% over the 'Very Good' target to 714. The MOU Task Force advised to increase the Basic Target by 5% over the Basic Target in MOU 2009-10, which was 680. Therefore, the Very Good target in MOU 2010-11 has been set at 714 and the Excellent target at 749 (5% higher than the Very Good target). Other targets have been accordingly revised upward.

III. CUSTOMER SERVICE

a) Inspection of Energy Stations

As per MDG, Field Officers are required to inspect each Retail Outlet once in a quarter. Officers in Grade-C and above from Regional Offices are required to inspect each RO once in a year and Random Inspections are required to be carried out by officers in Grade-C and above (other than Field Officers) for 10% of the ROs once in a year. NRL's total number of Retail Outlets in 2010-11 is expected to remain at 108. With this as the basis, total number of inspections works out to 550 as per following details:

i) Inspection by Field Officers	:	432 (108 x 4)
ii) Inspection by Grade-C & above	:	108
iii) Random Inspection	:	10 (10% of 108)

Total	:	550

Although 550 is the Basic Target, the 'Very Good' target in MOU 2009-10 was kept at a higher level at 585. In MOU 2010-11 in line with advice from MOU Task Force, the 'Very Good' target has been set at 614 (5% higher than that in MOU 2009-10). The



'Excellent' target in MOU 2010-11 has been set at 645 (5% higher than the 'Very Good' target).

b) Sales through Q&Q certified Retail Outlets

M/s DNV has been engaged by NRL for third party certification of Company's Retail Outlets. An exhaustive Q&Q (Quality and Quantity) protocol has been developed for inspection of the ROs against around 100 different evaluation parameters. M/s DNV also interacts with customers directly to access quality of services offered at NRL Retail Outlets and besides collecting random product samples for testing at NABL accredited laboratories. As on 31.12.2009, 70 ROs of NRL have been certified by M/s DNV. In MOU 2009-10, achieving 80% retail sales volume against this parameter through certified ROs was set as the 'Very Good' target. The target in MOU 2009-10 is already very stringent and considerable effort would be required to achieve this target during 2009-10. Therefore, the 'Very Good' target in MOU 2010-11 was proposed at 80%. The 'Excellent' target was proposed at 84% (5% higher than the 'Very Good' target). The MOU Task Force advised to increase the Basic Target by 5% over the Basic Target in MOU 2009-10, which was 80%. Therefore, the Very Good target in MOU 2010-11 has been revised upward to 84% and the Excellent target to 88% (5% higher than the Very Good target). Other targets have been accordingly revised upward.

c) Implementation of vehicle tracking system for Tank Trucks

NRL has started tracking of vehicles carrying products from Numaligarh Refinery Marketing Terminal (NRMT) to its Retail Outlets using Global Positioning System (GPS) technology. The 'Very Good' target for this parameter in MOU 2009-10 was set at 90%. Since it is required to keep on adding new vehicles to meet supply requirements to the ROs, achieving the target of 90% during 2009-10 is going to be very difficult. In 2010-11, apart from NRMT, vehicles carrying products from NRL's Siliguri Marketing Terminal to ROs are also planned to be covered by the tracking system. Considering such practical constraints, the 'Very Good' target in MOU 2010-11 was proposed to be retained at 90%. The 'Excellent' target was proposed to be retained at 94% (5% higher than the 'Very Good' target). The MOU Task Force advised to increase the Basic Target by 5% over the Basic Target in MOU 2009-10, which was 90%. Therefore, the Very Good target in MOU 2010-11 has been revised upward to 94% and the Excellent target to 98%. Other targets have been accordingly revised upward.

IV. DEVELOPMENTAL TRAINING TO EMPLOYEES

In MOU 2009-10, the 'Very Good' target for imparting training to employees was kept at 25% of total employees. In MOU 2010-11, the 'Very Good' target has been considered at 28% which is 10% higher than the 'Very Good' target of MOU 2009-10. The 'Excellent' target in MOU 2010-11 has been kept at 29% which is 5% higher than the 'Very Good' target. Developmental training would include various in-house technical refresher / functional programmes as well as external training programmes for management as well as non-management staff.



The other parameter on developmental training that has been retained in MOU 2010-11 is 'Imparting training to senior management staff in Grade-D and above'. In MOU 2009-10, the 'Very Good' target for the subject parameter was 33. In MOU 2010-11, the 'Very Good' target has been increased to 36 which is 10% higher than the 'Very Good' target in MOU 2009-10. The 'Excellent' target in MOU 2010-11 has been kept at 38 which is 5% higher than the 'Very Good' target.

V. PROJECT IMPLEMENTATION

a) Overall progress of Diesel Quality Upgradation Project

The Diesel Quality Upgradation project is being implemented by NRL to meet requirements of the Auto Fuel Policy from 01.04.2010 with regard to production of Euro-III and Euro-IV grade HSD. The project is targeted for completion by April 2010. This being the primary Plan project under implementation by NRL, achievement of 97% overall progress by 30th April, 2010 is considered as the Basic Target under 'Very Good' category and 98% under 'Excellent' category.

b) Wax Project

NRL has identified the Wax project for production of paraffin and micro-crystalline wax utilizing inherent properties of Assam crude. The Wax project is one of NRL's Plan project. Presently, the Wax project is under feasibility study stage and implementation is expected to start in 2010 after obtaining necessary approvals. With above in consideration, award of contract for Engineering Procurement and Contract consultant has been incorporated as a parameter in MOU 2010-11 with 31st October, 2010 as the date under 'Very Good' category and 30th September, 2010 under 'Excellent' category.

c) Overall progress of Naphtha Splitter project (as on 31.03.2011)

NRL has committed to supply around 160 TMTPA of petrochemical grade Naphtha to the Assam Gas Cracker project, currently under implementation at Lepatkata in Dibrugarh district of Assam. The Gas Cracker project is being implemented by a Joint Venture company M/s Brahmaputra Cracker and Polymer Ltd. where NRL has 10% equity participation. The project is scheduled for completion by 2012. In order to supply required grade of Naphtha, a Naphtha Splitter unit is being constructed by NRL within CDU/VDU premises. The project is targeted for completion by 3rd quarter of 2011-12. As per project implementation schedule, overall progress due on 31.03.2011 is 36%, which is considered as the 'Very Good' target. The 'Excellent' target is considered as 40% which is 5% higher than the Basic Target.

VI. REFINING

a) Crude Throughput

Following basis / assumptions have been considered while setting the targets for crude throughput:

Receipt and Processing of Crude during the last 5 years:

(Figs. in TMT)

Year	Crude Receipt	Crude Throughput
2004-05	1988	2042
2005-06	2124	2133
2006-07	2543	2504
2007-08	2542	2568
2008-09	2308	2251
2009-2010(Apr'09-Dec'09)	2004	2063

The crude throughput target for MOU 2010-11 under 'Very Good' category is considered at 2400 TMT with following basis:

- i) During financial year 2010-11, Numaligarh Refinery would be under planned shutdown for 30 days in April 2010 for execution of the Diesel Quality Upgradation Project (DQUP).
- ii) In May 2010, maximum crude throughput is projected at 150 TMT due to restarting and stabilization of process units post implementation of DQUP.
- iii) For the remaining 10 months of the year 2010-11 starting June 2010, crude processing is projected at 2250 TMT, which means an average monthly throughput of 225 TMT.
- iv) Crude supply to NRL has been in the range of 225 TMT per month. In view of crude storage limitations both at suppliers' and refinery end, it will not be possible to make up for shortfall in supplies during April and May 2010 in subsequent months of the financial year 2010-11.
- v) The Basic Target for crude throughput during 2010-11 thus works out 2400 TMT which is considered as the 'Very Good' target. The target under 'Excellent' category is considered at 5% higher than the 'Very Good' target, which works out to 2520 TMT.

b) Distillate Yield

The Distillate Yield target under 'Excellent' category in MOU 2010-11 has been derived at 90.04% with following basis:

(% on crude)

Gross Fuel And Loss during 2010-11	10.85
Production of Heavy Ends as % of throughput	4.00
MTBE as % of crude throughput	-0.30
CCU fuel + Power consumed in CCU	0.30
Sub Total	14.85



100 - 14.85	85.15
Benefits from NG utilisation	4.89
Net distillate yield	90.04

The very high distillate yield target has been calculated on the basis of projected availability of Natural Gas from June 2010 totaling 1,20,014 MT for the whole year 2010-11. Month-wise projected availability of Natural Gas at Numaligarh Refinery is as follows: June'10: 7599 MT; July'10: 9558 MT; Aug'10: 9558 MT; Sept'10: 9097 MT; Oct'10: 12,273 MT; Nov'10: 14,199 MT; Dec'10: 14,988 MT; Jan'11: 14,988 MT; Feb'11: 12,723 MT; Mar'11: 15,033 MT.

c) Specific Energy Consumption (SEC)

The 'Very Good' target for SEC in MOU 2009-10 was kept at 72.0 MBN. The actual SEC recorded during April-Dec'09 has been 68.4 MBN. For the next financial year 2010-11, considering planned 30 days shutdown for DQUP implementation as well as subsequent start up and stabilization, fuel & losses would significantly increase leading to higher SEC than currently recorded. Notwithstanding above, the 'Very Good and 'Excellent' targets for SEC in MOU 2010-11 have been retained at 72.0 MBN and 70.0 MBN respectively.

d) Production of Euro –IV HSD

From April 2010, in line with requirements of the Auto Fuel Policy, there would be the need for production of Euro-IV HSD. In MOU 2010-11, based on optimistic market demand and production capabilities, a stretched target of 280 TMT has been considered under 'Very Good' category. The 'Excellent' target has been considered at 300 TMT, which is over 5% higher than the 'Very Good' target.

e) Production of Euro–III / IV MS

In 2007, NRL commissioned the MS Plant as a Value Added Project which has since been producing BS-II MS and limited quantities of Euro-III MS based on market requirements.

The rated capacity of the MS Plant is 185 TMTPA. Pro-rata for 11 months works out to 170 TMT. The Basic Target (V.G.) in MOU 2010-11 for total MS production (E-III+E-IV) has been kept at 187 TMT, which is 110% capacity utilisation of the Plant.

Based on market requirement, V.G. target for production of E-IV MS has been kept at 87 TMT and the balance 140 TMT has been kept as the V.G. target for E-III MS.

VII. MARKETING

Sale of RPC and CPC

NRL is expected to have a very low inventory of RPC/CPC by the 2009-10 year end. Further, in order to constitute a rake load for despatch, stock of 2.5 to 3.0 TMT is required to be maintained both for RPC & CPC. In MOU 2009-10, the 'Very Good' and 'Excellent' targets were kept at 90% and 95% respectively. Due to expected lower opening inventory during 2010-11 vis-a-vis 2009-10, achieving such targets would be difficult during 2010-11. Notwithstanding above, the targets of MOU 2009-10 were proposed to be retained in MOU 2010-11. However, The MOU Task Force advised to increase the Basic Target by 5% over the Basic Target in MOU 2009-10, which was 90%. Therefore, the Very Good target in MOU 2010-11 has been revised upward to 95% and the Excellent target to 100%. Other targets have been accordingly revised upwards.

VIII. ENVIRONMENT

a) Compliance of revised MOEF Notification w.r.t. Liquid Effluent:

The new emission and effluent standards for petroleum refineries was published in the Gazette of India on March 18, 2008 and came into force from the date of publication of the Gazette notification. As per new MOE&F Notification, 21 parameters of liquid effluent are required to be analysed out of which 8 parameters are required to be tested on daily basis and remaining 13 parameters on monthly basis. NRL's QC Lab is equipped to test 15 parameters. For remaining 6 parameters testing is being outsourced. In spite of stated limitations, achievement of 100% compliance with regard to standards on liquid effluents was kept as the 'Excellent' target in MOU 2009-10. The same target is proposed to be retained in MOU 2010-11.

b) Environmental Clearance of Naphtha Splitter Project:

As stated earlier, NRL has committed to supply around 160 TMTPA of petrochemical grade Naphtha to the Assam Gas Cracker project which is scheduled to be commissioned in 2012. In order to produce petrochemical grade Naphtha, a Naphtha Splitter Unit is being installed within the CDU/VDU premises of the refinery. The Basic Engineering and Design Package (BEDP) for the project has been prepared. Application for Terms of Reference (TOR) was submitted to the Ministry of Environment & Forests based on which, the finalised TOR has been received in Nov'09. As per the finalised TOR, required information / data has to be collected, compiled and submitted to MOE&F for necessary environmental clearance. With above in consideration, the Basic (Very Good) target in MOU 2010-11 for obtaining environmental clearance for the Naphtha Splitter project is proposed as 16th February, 2011. The 'Excellent' target is proposed as 1st February, 2011.

IX. CARBON CREDIT INITIATIVE



The MOU Task Force advised NRL to incorporate a parameter on Carbon Credit Initiative. NRL has successfully registered a project involving generation of 12 Mega Watt power through a Steam Turbine Generator utilizing surplus steam in the refinery as a Clean Development Mechanism (CDM) project under UNFCCC. Another potential CDM project pertains to utilisation of Natural Gas in lieu of Naphtha as fuel and feed in the refinery. Application for Host Country approval for the said project has been submitted and obtaining the approval has been taken as a MOU parameter. The Very Good target for obtaining Host Country approval has been set as 28th February, 2011 and the Excellent target set as 15th February, 2011.

X. SAFETY

a) Number of Loss Time Accident per Million Man-hours worked.

Reportable Loss Accident (LTA) is defined as a work place accident which causes any bodily injury by reason of which the person injured is prevented from working for a period of 48 hours or more immediately following the accident. Period of absence for such reportable accident is based on Factories Act. Million man-hours is calculated based on actual working hours of the employees which also includes overtime hours.

The target has been arrived at considering the frequency rate of Lost Time Accidents (LTA) to employees of the Company while discharging their duties within the refinery location.

The frequency rate will be calculated as follows:

$$\text{Frequency} = \frac{\text{No. of LTA hours} \times 1,000,000}{\text{Total Man-hour worked}}$$

Presently the estimated total man-hours in Numaligarh Refinery during one year is only 20,90,355. Considering only one LTA hour during the year, the frequency works out to 0.48 (1/2.09). Hence 0.48 has been considered as the 'Very Good' target in MOU 2009-10 and 'zero' as the 'Excellent' target.

b) Implementation of Planned Safety Audit Recommendation

In order to comply with safety norms/standards and improvement in safety management, safety audits are carried out periodically at NRL by in-house audit teams as well as by external agencies. NRL is committed to comply with all safety audit recommendations. During 2010-11, the Internal Safety Audit (ISA) – 2010 is scheduled in June/July'10. A target for 100% compliance to all identified safety audit recommendations has been proposed in 'Excellent' category in MOU 2010-11.

c) Training / Awareness Camps on Safety

NRL lays great emphasis on enhancing safety awareness amongst employees and neighbouring public through upgradation of skills covering all spheres of safety. As a step in this direction, training courses / awareness camps are organized on various safety-related subjects by in-house as well as through external agencies. As incorporated in MOU 2009-

10, following three parameters on safety training have been retained in MOU 2010-11. These are as follows:

- (i) **Safety training to employees CISF and POL drivers:** In MOU 2009-10, the 'Very Good' and 'Excellent' targets were 700 and 750 respectively. In MOU 2010-11, the 'Very Good' target has been increased to 775 which is over 10% higher than that in MOU 2009-10. The 'Excellent' target in MOU 2010-11 has been considered at 814 which is 5% higher than the 'Very Good' target.
- (ii) **Safety training to workers engaged by contractors:** In MOU 2009-10, the 'Very Good' and 'Excellent' targets were 90% and 95% respectively. In MOU 2010-11, the 'Very Good' and 'Excellent' targets have been considered at 93% and 98% respectively.
- (iii) **Organising safety awareness camps for educating public in the neighbourhood of the refinery:** In MOU 2009-10, the 'Very Good' and 'Excellent' targets were 5 and 6 safety camps respectively and same have been retained in MOU 2010-11.

XI. CORPORATE SOCIAL RESPONSIBILITY (CSR)

After discussion with MOU Task Force, four CSR parameters have been incorporated in MOU 2010-11 with a total weightage of 5 marks. These are as follows:

i) Medical camps carried out during the year in villages within 5 KM radius of the Refinery:

The V.K. NRL hospital at Numaligarh organizes medical camps in villages surrounding the refinery providing free medical advice, health checkups and medicines. Organising such camps has been taken as an MOU parameter. An ambitious target of organizing 180 camps during the year 2010-11 has been considered as the Basic (Very Good) Target in MOU 2010-11. This translates to almost one camp every alternate day. The Excellent target has been kept at 189 camps (5% higher than the Very Good target).

ii) Demographic survey of villages within 5 KM radius of the Refinery:

The second CSR parameter pertains to conducting demographic survey of villages through VK NRL hospital. Keeping in view detailed nature of demographic studies and available resources, conducting 5 surveys has been set as the Very Good target and 6 surveys as the Excellent target.

iii) Incentives for girl students of schools within 10 km radius of the refinery (Scheme: "Prerana"):

One of NRL's popular CSR scheme titled "Prerana" relates to promotion of girl child education through various scholarships. A target of awarding 215 scholarships has been set as the Very Good target in MOU 2010-11 and 225 scholarships as the Excellent target (5% higher than the Very Good target).



iv) Providing sanitary latrines to B.P.L. families within 10 km radius of the refinery:

In pursuit of providing healthy and hygienic living condition for the people living in neighbourhood of the refinery, NRL has taken up a scheme of providing sanitary latrines to BPL families. For the year 2010-11, an optimistic plan has been drawn to provide 50 latrines to such BPL families. Same has been set as the Very Good target and the Excellent target has been kept at 53 (5% higher than the Very Good target).

XII. SUSTAINABILITY

In MOU 2010-11, under Sustainability, following two parameters have been proposed:

a) External Energy Audit

Last energy audit of Numaligarh Refinery was carried out in the year 2004 and majority of recommendations from the energy audit report have been implemented. This has resulted in significant improvement in overall energy performance of the refinery. During 2010-11 after a gap of 5 years it is proposed to conduct a detailed energy audit of refinery facilities through a external competent agency. In MOU 2010-11, completing the Energy Audit by 16th January, 2011 has been proposed as the Basic Target in 'Very Good' category and 1st January, 2011 as the 'Excellent' target.

b) Reuse of Treated Effluents

In the Company's continual effort to improve upon environmental parameters, 'Reuse of Treated Effluent' has been kept as one of the MOU parameters for 2010-11. In a major modification project at the Effluent Treatment Plant, high capacity water pumping with chlorine dosing for effluent treatment has been implemented in the refinery. The new system is an improvement from the earlier practice of providing make-up water to the fire water network using fresh river water. In pursuit of such efforts, effluent discharge from the refinery is targeted to be kept to the bare minimum, if not eliminated altogether. In MOU 2010-11, a target of 95% reuse of treated effluent is proposed under 'Very Good' category and 100% reuse under 'Excellent' category.

XIII. PRODUCTIVITY (Refining Cost per MT of throughput)

The Refinery Operating cost represents cost of converting crude oil to finished products like Motor Spirit (MS), High Speed Diesel (HSD), Superior Kerosene Oil (SKO), Liquefied Petroleum Gas (LPG) etc. Refinery Operating Cost comprises elements like cost of chemicals and stores, catalysts consumption, power and fuel, salaries and wages, repairs and maintenance, insurance, other operating and administrative expenses but excludes interest, depreciation, planned shutdown / RTA and marketing terminal and selling expenses. The Refining Cost per tonne is arrived at by dividing the Refinery Operating Cost as determined above by crude throughput. The Basic (Very Good) target for Refining Cost in MOU 2010-11 has been considered on the basis of Revenue Budget 2010-11 (BE). The 'Excellent' target has been calculated with the same basis after accounting for increase in variable cost corresponding to increase in crude throughput from 2400 TMT (Very Good) to 2520 TMT (Excellent).