

Issue No. 24

Comments from :

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Form-1

Contact person

Should the name of unit head be written or the name of the Energy manager. It is not clear. Name of the Energy manager has been provided with Registration No.

Point 1A – Contract Demand

Have not faced problem but many may have contract demand in kVA and this option should also be provided.

Although do not have any own generation at present but from previous experience it can be stated that no problem is foreseen in filling the data as desired. Same with coal quantity.

Point 5 – Gas consumption

The unit uses coal gas and is not listed in the given format. Hence the need to include another option as “other”. The same has been included.

No other problem is foreseen in filling the format.

Form-2

Format Title – “Format for reporting status of implementation of energy conservation measures based on business plan of the company”

The word status suggests whether a particular proposal has been implemented or not. However it appears that the purpose of Form-2 is to capture details of implemented projects. Hence appropriate title could be as follows:

“ Details of Energy conservation measures implemented.....”

“Business plan” → For the unit there is a capital expenditure plan and a plan for energy saving. Again only major energy saving proposals may be available in the business plan. It is not clear to what micro level the form intends data.

It is not clear for which period the details are to be provided.

In case of any measure of category 10, i.e energy substitution. One may save energy in one form but may use in another form. This cannot be provided. (e.g Item 3 → Could not account for the gas used instead of electricity. Although while calculating savings the same could be accounted for.)

Form 3

Title of Form is not clear.

- (i) Does this mean the list of projects and savings as indicated in last Energy Audit.
- (ii) What if some of the projects have already been implemented. Still should it be shown as potential.
- (iii) What about opportunities identified by the unit itself. Should it also be listed.
- (iv) The time frame for implementation is absent.

According to me the potential should have two sections: (I) identified through external audit (ii) Self Audit

It is not clear whether projects that may be implemented after 3 years should also in the list or not. While filling up the form, the same has not been added. Only the ones for 2005-06 have been added.

In case of any measure of category 10, i.e energy substitution. One may save energy in one form but may use in another form. While filling up the form one may show the energy saved data is +ve while the energy used as -ve. This needs to be clarified. Similarly in case of projecting savings in Rs.

Category 1 - Better house keeping measures

It is not clear what kind of projects are to be listed under this category. Does this intend to capture details like energy saved with arresting of say air leakage etc. According to me this is not a project but a regular maintenance activity. Neither can such type of initiative give any assured savings.

Category 11 – Improvement in Productivity

According to me productivity has a major impact on energy consumption. Therefore should appear as one of the category. Reduction in idle time etc should also fall under this category

Category – 12 – Improvement in Yield/recovery of product

Material yield/recovery or reduction in rejection should also reflect as one of the category

Category – 13 – Savings due to reduction in water use

Reduction in water consumption may have a big impact on energy cost because of less pumping/processing cost and should appear as one of the category

Contact person → It is not clear as to whose name should be added. The name of Energy manager has been added here

Form - 1
Format for Information regarding Total Energy Consumption and Energy Consumption per Unit of Production

| | | |
|---|---|---|
| Name of the company | : | Hindalco Industries Limited |
| Full Address | : | 39, G.T. Road Belurmatah, Howrah Pin – 711 202 |
| Contact Person | : | Debasish Ghosh |
| Designation | : | DGM – Energy & Environment (Energy Manager/Auditor EA-1176) |
| Email address | : | debasishg@adityabirla.com |
| Telephone/ Fax numbers | : | (033) 26100 851 (o) (033) 26547208 (fax) |
| Mobile | : | 9831100109 |
| Plant Address | : | 39, G.T. Road Belurmatah, Howrah Pin – 711 202 |
| A. Power and Fuel Consumption | | 2004/ 2005 |
| 1. Electricity | | |
| (a) Purchased | | |
| Contract demand | | 8500 kW ____kVA |
| Connected load | | 24500 kW |
| Annual consumption | | 33.9 M kWh |
| Total cost | | 1526 Rs. Lakhs |
| (b) Own Generation | | |
| (i) Through diesel generator | | |
| Annual generation | | 0 kWh |
| Annual diesel consumption | | 0 kilo liters |
| Total fuel costs | | 0 Rs. Lakhs |
| (ii) Through steam turbine/generator | | |
| Annual generation | | 0 kWh |
| Fuel used ¹ | | _____ |
| (iii) Through Gas Turbine | | |
| Annual generation | | 0 kWh |
| 2. Coal quality (Gross calorific value) | | _____ kCal/kg |
| Annual consumption | | 0 Tonnes |
| Total coal costs | | 0 Rs. Lakhs |
| 3. Oil | | |

¹ State which type of fuel or energy was used (C = coal, B = biomass, O = oil, G = gas, E = electricity). If coal was saved state which grade i.e. C/I = imported, or C/F coal of grade F.

| | | |
|-------|---|----------------------------|
| (i) | Furnace oil | |
| | Annual consumption | 2742 kilo liters |
| | Annual costs | 332.4 Rs. Lakhs |
| (ii) | Low Sulphur Heavy Stock (LSHS) | |
| | Annual consumption | 0 Tonnes |
| | Annual costs | 0 Rs. Lakhs |
| (iii) | Hot Heavy Stock (HHS) | |
| | Annual consumption | 0 Tonnes |
| | Annual costs | 0 Rs. Lakhs |
| 4. | Diesel Oil | |
| (i) | High Speed Diesel (HSD) | |
| | Annual consumption | 0 kilo liters |
| | Annual costs | 0 Rs. Lakhs |
| (ii) | Light Diesel Oil (LDO) | |
| | Annual consumption | 0 kilo liters |
| | Annual costs | 0 Rs. Lakhs |
| 5. | Gas | |
| (i) | Compressed Natural Gas (CNG) | |
| | Gross calorific value | _____ kCal/NM ³ |
| | Annual consumption | _____ NM ³ |
| | Annual costs | _____ Rs. Lakhs |
| (ii) | Liquefied Petroleum Gases (LPG) | |
| | Gross calorific value | _____ kCal/kg |
| | Annual consumption | _____ Tonnes |
| | Annual costs | _____ Rs. Lakhs |
| (iii) | Piped Natural Gas (PNG) | |
| | Gross calorific value | _____ kCal/NM ³ |
| | Annual consumption | _____ NM ³ |
| | Annual costs | _____ Rs. Lakhs |
| (iv) | Other Gas (pl specify) | |
| | Piped Coal Gas | |
| | Gross calorific value | 3950 kCal/NM ³ |
| | Annual consumption | 57.1 Lakh NM ³ |
| | Annual costs | 212.1 Rs. Lakhs |
| 6. | Biomass | |
| | Average moisture content, as fired | _____ % |
| | Average Gross calorific value, as fired | _____ kCal/kg |
| | Annual consumption | 0 MT |
| | Annual biomass costs | 0 Rs. Lakhs |

B. Product mix specifications²

| | | |
|-----------------|---------------------------------|--------------------|
| Product name 1: | <u>Aluminium Rolled product</u> | 46453 Tons (units) |
| Product name 2: | _____ | _____ (units) |
| Product name 3: | _____ | _____ (units) |
| Product name 4: | _____ | _____ (units) |

² For example if you are a cement manufacturing unit producing different grades of cement, you may like to say under product name 1: OPC grade – XXX Tonnes and under product name 2: Portland slag cement– XXX Tonnes and so on.

Form - 2

Format for reporting status of implementation of energy conservation measures based on business plan of the company

Year 2004-05

Annualised savings

| Sl. No. | Description of measure | Category ¹ | Investment (Rupees Lakhs) | Verified savings ² (Rupees Lakhs) | Verified energy savings | Units ³ | Fuel ⁴ |
|---------|--|-----------------------|---------------------------|--|-------------------------|--------------------|-------------------|
| 1 | Replacement of Drive from MG set to DC Drive (1150 KW, 450 KW) & elimination of associated Cooling Fans (2 x 15 HP) at Bliss Cold Rolling Mill. | 4 | 110.00 | 23.0 | 0.540 | Million kWh | E |
| 2 | Installation of 1500 KVAR Capacitor Bank at various location. | 9 | 20.00 | 0.0 | 0.0 | Million kWh | E |
| 3 | Coal Gas Conversion of Preheating Furnace No. 3. | 10 | 25.00 | 154.41 | 4.725 | Million kWh | E |
| 4 | Replacement of Batch Annealing Furnace No. 7 Door with improved design. (1600 KW). | 7 | 2.50 | 1.70 | 0.040 | Million kWh | E |
| 5 | Replacement of Pump - Motor Set for Water Recirculation Circuit. (Old Service Pump). | 5 | 0.50 | 2.56 | 0.060 | Million kWh | E |
| 6 | Replacement of Preheater Recirculation Fan Motors at Preheater No. 1. (15 HP x 6 Nos.). | 4 | 2.00 | 1.70 | 0.040 | Million kWh | E |
| 7 | Replacement of Preheater Recirculation Fan Motors at Preheater No. 2. (15 HP x 6 Nos.). | 4 | 2.00 | 1.70 | 0.040 | Million kWh | E |
| 8 | Replacement of Drive for Preheater No 1 Recirculation Fans.(15 HP x 6 Nos.) | 4 | 2.50 | 0.51 | 0.012 | Million kWh | E |
| 9 | Replacement of Bliss Fume Exhaust Blower motor. (22 KW). | 4 | 1.50 | 0.43 | 0.010 | Million kWh | E |

¹ Use "C" number of form 3 as reference

² First year

³ Use conventional energy, volume or mass units with proper prefix k = 10³, M = 10⁶, G = 10⁹

⁴ State which type of fuel or energy was saved (C = coal, B = biomass, O = oil, G = gas, E = electricity). If coal was saved state which grade i.e. C/I = imported, or C/F coal of grade F.

| | | | | | | | |
|----|---|---|------|------|-------|-------------------------|---|
| 10 | Purchase of portable Flue Gas Analyser. | 2 | 2.00 | - | - | | O |
| 11 | Improving Remelt melter combustion efficiency and maintaining Excess oxygen to 4.5% by Weekly Monitoring. | 1 | 0.00 | 12.5 | 104 | KL | O |
| 12 | Improving Remelt Holder Combustion Efficiency and maintaining Excess Oxygen to 4.5% by weekly monitoring. | 1 | 0.00 | 3.4 | 27 | KL | O |
| 13 | Modification of Combustion Logic in Remelt Melter Furnace to turn down burners during metal transfer. | 1 | 0.00 | 20.6 | 172 | KL | O |
| 14 | Supply of hot combustion air to holder at 350 Deg C. | 8 | 0.00 | 3.6 | 30 | KL | O |
| 15 | Improve Combustion Efficiency at Preheating Furnace through excess Air Control. | 1 | 0.00 | 5 | 0.13 | Million NM ³ | G |
| 16 | Replacement of Bliss Mill Blow off Air Drier from Heat less to regenerative type. | 6 | 2.00 | 8.52 | 0.200 | Million kWh | E |
| 17 | Installation of four Additional Power Meter. | 2 | 0.75 | - | - | | E |
| 18 | Rain water harvesting leading to reduction in use of ground water pump and the water Treatment plant | 1 | 2.00 | 3.60 | 0.080 | Million kWh | E |

Form - 3

Executive Summary of appraised Energy Conservation potential as identified in energy auditor report

| C. No. | Area of improvement and modification | Investment Lakh Rs. | First year energy ¹ savings | | | | | First year cost reduction ² , Lakh Rs. | | | | | Life cycle years ³ |
|--------|--|---------------------|--|-----------------------------|------|------------------|-------|---|-------|------|-------------|-------|-------------------------------|
| | | | Oil (KL) | Gas Million NM ³ | coal | Electricity (MU) | other | oil | gas | coal | electricity | other | |
| 1. | Better house keeping measures | | | | | | | | | | | | |
| 2. | Installation of improved process monitoring and control instrumentation, or software | 30 | 48 | 0.12 | | | | 6.25 | 4.66 | | | | 10 |
| 3. | Measures in the area of lighting | 0.24 | | | | 0.009 | | | | | 0.38 | | 2 |
| 4. | Sizing, changing and controlling electric motors including variable speed drives | 23.05 | | 0.18 | | 0.105 | | | 6.71 | | 4.43 | | 3 |
| 5. | Retrofitting, modification or sizing of fans, blowers, pumps, including duct systems | | 8 | 0.09 | | | | 0.98 | 3.46 | | | | 3 |
| 6. | Performance improvement of compressors and compressed air distribution system | 2 | | | | 0.06 | | | | | 2.52 | | 2 |
| 7. | Improved insulation against heat or cold losses | | | | | | | | | | | | |
| 8. | Recovery of waste heat for process heat or power generation | 20 | | 0.02 | | 0.202 | | | 0.93 | | 8.48 | | 5 |
| 9. | Loss reduction in transformers and power distribution within firm | 15 | | | | 0.286 | | | | | 12 | | 10 |
| 10. | Fuel switching measures from fossil to fossil or fossil to renewable energy | 55 | | -0.74 | | 1.7 | | | -29.0 | | 71.40 | | 10 |

¹ Use commercial units of litre, kg, tons, normal cubic meter, kWh or MWh and indicate the unit. Indicate the anticipated potential in energy savings.

² Anticipated cost savings in the first year based on anticipated fuel savings.

³ Estimate the predicted life of the measure, meaning the number of years the level of first year energy savings or even larger amounts will materialise.

| C. No. | Area of improvement and modification | Investment Lakh Rs. | First year energy savings | | | | | First year cost reduction, Lakh Rs. | | | | | Life cycle years |
|--------|---|---------------------|---------------------------|-----|------|-------------|-------|-------------------------------------|-----|------|-------------|-------|------------------|
| | | | oil | gas | coal | electricity | other | oil | gas | coal | electricity | other | |
| 11. | Improvement of prime mover performance such as gas, steam, water, turbines or internal combustion engines | | | | | | | | | | | | |
| 12. | Improvement of steam boilers and reduction of losses in steam distribution lines | | | | | | | | | | | | |
| 13. | Modernization measures with benefits of energy consumption reduction | | | | | | | | | | | | |

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Full Address : 39, G.T.Road
Belurmath, Howrah – 711 202
West Bengal

Contact Person : Debasish Ghosh
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Plant Address : As Above