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COMMENTS OF THE FORMATS – ISSUE #24

The following draft forms have been developed by BEE for reporting the status of the energy consumption at end of every financial year, by every designated consumer to the designated agency and the Bureau of Energy Efficiency.

Form 1:	Format for information regarding Total Energy Consumption and Energy Consumption per Unit of Production.
Form 2:	Format for reporting status of implementation of energy conservation measures based on business plan of the company.
Form 3:	Executive Summary of appraised Energy Conservation potential as identified in energy auditor report.

I have tried to fill these forms and found to be very useful and comprehensive. The best part is that these forms are same, irrespective of the type of the industries. With due regards, I would like to submit my comments, regarding these forms, which, if you find suitable may be incorporated.

Form 1: Format for information regarding Total Energy Consumption and Energy Consumption per Unit of Production.

- 1) Column for calculating the Energy Consumption per Unit of Production seems to be missing and with the data filled in the form-1, it is also not possible to derive this figure.
- 2) The vintage of these plants is also required, because the specific energy consumption of the various production units is dependent on the available process at the time of installation of the plant.
- 3) Column for period or financial year may be provided in the header of the form.
- 4) Columns for details of all types of energy i.e Purchased power, fuel energy, steam energy or any other form of energy source imported for the production of the plant may be provided. Details shall include, quantity, heat value & cost of the energy, so that total cost and the total heat value of the energy input during the reporting year can be mentioned in the format.
- 5) Clarification regarding the costing of energy may also be given in details i.e whether it includes, transportation cost, excise, cess and all the duties paid for the procurement.

- 6) The energy input for the power generated in the Captive Power Plant is covered in the total energy inputs. Hence there is no need for separate details of the electrical units produced by the CPP to derive the specific energy consumption. However since electricity is an important type of energy, so for mentioning purpose column may be provided.
- 7) In the footnote '1' the fuel 'Naphtha' may also be included. For generation of power type of energy – Electricity may be deleted. There is a typographical error in the sentence “If coal is saved, state” The word “saved” may be substituted with “used”.
- 8) There may be some plants, which may be exporting surplus power or steam. Hence provision for mentioning these surplus energy may also be included in the Product Mix Specifications. A footnote in this regard can be included.
- 9) A final column for mentioning the total energy inputs on same base (Gcal or some other unit) may be included, so that Energy consumption per unit of production can be calculated.
- 10) In the column 'B' for Product Mix specifications, space for submitting details of annual production may be provided alongwith the designed capacity.
- 11) Column for mentioning the proportion of energy used for the production of specific product, in case of product mix may also be provided, so that specific energy for various products can be determined separately.
- 12) A revised format of FORM-1 after incorporating some of the suggestions mentioned above is attached for your kind consideration please.

Form 2: Format for reporting status of implementation of energy conservation measures based on business plan of the company.

- 1) Basis of calculation of rate for determining verified savings shall be mentioned by the company
- 2) Sometimes it is difficult to fit the energy conservation measures in the categories defined in the Form-3. Some more elaborate guidelines may be given.
- 3) The unit for the data in Verified energy savings may be mentioned, so that it will be easy to compare the results of the other companies.
- 4) The savings in electricity for the companies having CPP may be asked to be given in the terms of energy fuel used for generation, instead of in electrical energy units. The saving in electrical units shall only be mentioned, when the power is being purchased from outside.

Form 3: Executive Summary of appraised Energy Conservation potential as identified in energy auditor report.

- 1) In Form 3, the provision for type of fuel & cost of fuel is given. Provision for heat value may also be given. A final row for calculating the total energy may also be given.

- 2) The column heading of Life cycle years may be substituted with simple payback period.
 - 3) An additional Form for comparison of the previous year energy data and to indicate the impact of the energy saving measures taken during the reporting year as per Form2 and Form3 on the Energy consumption per unit of production may also be included.
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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 Belurmata, 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 Belurmata, 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												

Name of the company : Hindalco Industries Limited

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

Contact Person : Debasish Ghosh
Energy Auditor/Manager (Regn. No. EA - 1176)

Email address : debasishg@adityabirla.com

Telephone/ Fax numbers : (033) 26100851 Fax – (033) 26547208 Mobile - 9831100109

Plant Address : As Above