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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 : Fertilzer company

Full Address :

Contact Person :

Email address :

Telephone/ Fax numbers :

Plant Address :

A. Power and Fuel Consumption	2004-2005
1. Electricity	
(a) Purchased	
Contract demand	NIL kW
Connected load	_____ kW
Annual consumption	_____ kWh
Total cost	_____ Rs. Lakhs
(b) Own Generation	
(i) Through diesel generator	
Annual generation	0.056 lakh kWh
Annual diesel consumption	44.79 kilo liters
Total fuel costs	9.69 Rs. Lakhs
(ii) Through steam turbine/generator	
Annual generation	NIL kWh
Fuel used ¹	_____
(iii) Through Gas Turbine	
Annual generation	1084.22 lakh kWh
2. Coal quality (Gross calorific value)	_NIL_____ kCal/kg
Annual consumption	_____ Tonnes
Total coal costs	_____ Rs. Lakhs
3. Oil	
(i) Furnace oil	
Annual consumption	_NIL_____ kilo liters
Annual costs	_____ Rs. Lakhs

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. **(Type of Fuel Electricity is not required; Spelling of saved to be corrected as used)**

- (ii) Low Sulphur Heavy Stock (LSHS)
 - Annual consumption NIL_____ Tonnes
 - Annual costs _____ Rs. Lakhs
- (iii) Hot Heavy Stock (HHS)
 - Annual consumption NIL_____ Tonnes
 - Annual costs _____ Rs. Lakhs
- (iv) Naptha
 - Annual consumption 121411 kL
 - Annual costs 17676 Rs. Lakhs

4. Diesel Oil

- (i) High Speed Diesel (HSD)
 - Annual consumption 44.79 kilo liters
 - Annual costs 9.69 Rs. Lakhs
- (ii) Light Diesel Oil (LDO)
 - Annual consumption NIL_____ kilo liters
 - Annual costs _____ Rs. Lakhs

5. Gas

- (i) Compressed Natural Gas (CNG)
 - Gross calorific value NIL_____ kCal/NM³
 - Annual consumption _____ NM³
 - Annual costs _____ Rs. Lakhs
- (ii) Liquefied Petroleum Gases (LPG)
 - Gross calorific value NIL_____ kCal/kg
 - Annual consumption NIL_____ Tonnes
 - Annual costs _____ Rs. Lakhs
- (iii) Piped Natural Gas (PNG)
 - Gross calorific value 8159.10 kCal/SM³
 - Annual consumption 5435 Lakh SM³
 - Annual costs 2103 Rs. Lakhs

6. Biomass

- Average moisture content, as fired _____ %
- Average Gross calorific value, as fired _____ kCal/kg
- Annual consumption _____ MT
- Annual biomass costs _____ Rs. Lakhs

B. Product mix specifications²

- Product name 1: ___UREA 926400 MT
- 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

Sl. No.	Description of measure	Category ¹	Investment (Rupees)	Verified savings ² (Rupees)	Verified energy savings	Units ³	Fuel ⁴
1	Import of Process Air in Ammonia-I from Ammonia-II	6	4,00,000	1,98,00,000	9,264	GCal	Naptha
2	Installation of Additional Trays in Urea reactor of both the streams of Urea-I Plant	13	1,15,00,000	3,96,50,000	18,528	Gcal	Naptha
3	Installation of Purge Gas Heater in Ammonia-I	8	8,00,000	19,82,000	926	Gcal	Naptha
4	Replacement of 40 W FTL with high lumen 36W FTL – 500 Nos	3	Addl Investment –NIL	17,520.00	8160	KWh	E
5	Replacement of conventional ballast with electronic ballast for 40/36 W FTL – 350 Nos	3	75,000	50,000.00	26100	KWh	E

Note: Calculation for return for electricity saved done @ Rs 2.00 per Unit.

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.

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	gas	coal	electricity	Other (Naptha)	oil	gas	coal	electricity	other	
1.	Better house keeping measures												
2.	Installation of improved process monitoring and control instrumentation, or software												
3.	Measures in the area of lighting	0.75				34260 kWhr					0.66		1.14
4.	Sizing, changing and controlling electric motors including variable speed drives												
5.	Retrofitting, modification or sizing of fans, blowers, pumps, including duct systems												
6.	Performance improvement of compressors and compressed air distribution system	4.00					1232.8 KL				198.25		0.02
7.	Improved insulation against heat or cold losses												
8.	Recovery of waste heat for process heat or power generation	8.00					123.2 KL				19.82		0.4
9.	Loss reduction in transformers and power distribution within firm												
10.	Fuel switching measures from fossil to fossil or fossil to renewable energy												

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 (Naphtha)	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	115					2465.59 kL					396.5	0.29

Name of the company : Fertilzer Company

Full Address :

Contact Person : A K Shandilya

Email address :

Telephone/ Fax numbers :

Plant Address :