COAL

REQUIREMENT vis-à-vis PROCUREMENT

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Growing Legacies

CESC LIMITED

Calculation for Coal Requirement

We have to answer two questions to calculate how much coal we will need to generate our target units.

- Question 1:
How much heat energy (Kcal) will be required to generate one Unit of Electricity (Kwh) ?

- Question 2:
How much heat energy (Kcal) will be available from Receivable coal (kg) ?

REQUIREMENT OF COAL

Calculation for actual requirement of coal for each station is based on:

1. Generation Plan
2. Individual Heat Rate
3. Heat Values of Coal to be received as envisaged.
4. Mix of Hi-Coal and Lo-Coal.

Requirement of Coal at BBGS

Case Study (For a 3 X 250 MW i.e. 750 MW Plant)

- At 100% PLF, TPP generates (750*24) = 18 MU/day
- Plant Heat Rate being 2400 Kcal/Kwh, for a day's target generation of 18 MU, heat required to produce it, would be =(18x10^6x2400) Kcal.
- Average Heat Value of coal usually consumed in the plant is around 4020 Kcal/Kg.
- So, the day's requirement will be around,
  =(18x10^6x2400) / (4020 x 1000) Te
  =10746 Te
- We arrive at a Coal figure now, for the plant, which is (10746x1000)/(18x10^6) i.e. 0. 60 kg/kwh.

PRICING OF COAL

- Coal Pricing is notified by Coal India Limited.

- Notified Pricing is done on grades of coal.

  Grades are based on GCV bands.

- Last Revision of Prices were done on 01.01.2012 with further amendment on 28.05.2013.

GRADES OF COAL

GRADES	Gross Calorific Value (Kcal/Kg) Band
G1	7001 and above
G2	6701 - 7000
G3	6401 - 6700
G4	6101 - 6400
G5	5801 - 6100
G6	5501 - 5800
G7	5201 - 5500
G8	4901 - 5200
G9	4601 - 4900
G10	4301 - 4600
G11	4001 - 4300
G12	3701 - 4000
G13	3401 - 3700
G14	3101 - 3400
G15	2801 - 3100
G16	2501 - 2800
G17	2200 - 2500

Basic cost of Coal including taxes (Approx)

ECL

Grade	Cost (Rs/Te)
G2	5850
G3	5664
G4	5225
G5	3862
G12	883
G13	910

BCCL

Grade	Cost (Rs/Te)
G5	3862
G6	2171
W III	2438
W IV	2046

MCL

Grade	Cost (Rs/Te)
G12	883

SAMPLE RESULTS OF PROXIMATE ANALYSIS AND GCV TEST

	% of Total weight			Kcal/Kg
	IM	VM	ASH	GCV
UG	7.4	29.2	20.7	5562
OCP	6.1	24.4	37.1	4221
INDONESIA	15.2	41.4	4.2	5507
SOUTH AFRICA	3.8	28.2	15.9	6302

GCV is the measure of actual heat in coal tested in Lab

PROCUREMENT OF COAL

PROCEDURE FOR PROCUREMENT OF COAL

COAL FROM CIL

- CEA (Central Electricity Authority) reviews the source-wise annual requirement of coal from all power utilities and fixes the allocation from its subsidiaries. The ACQ (Annual Contracted quantity) is allocated through FSA (Fuel Supply Agreement) with ECL and BCCL and MCL.

NCDP – New coal Distribution Policy

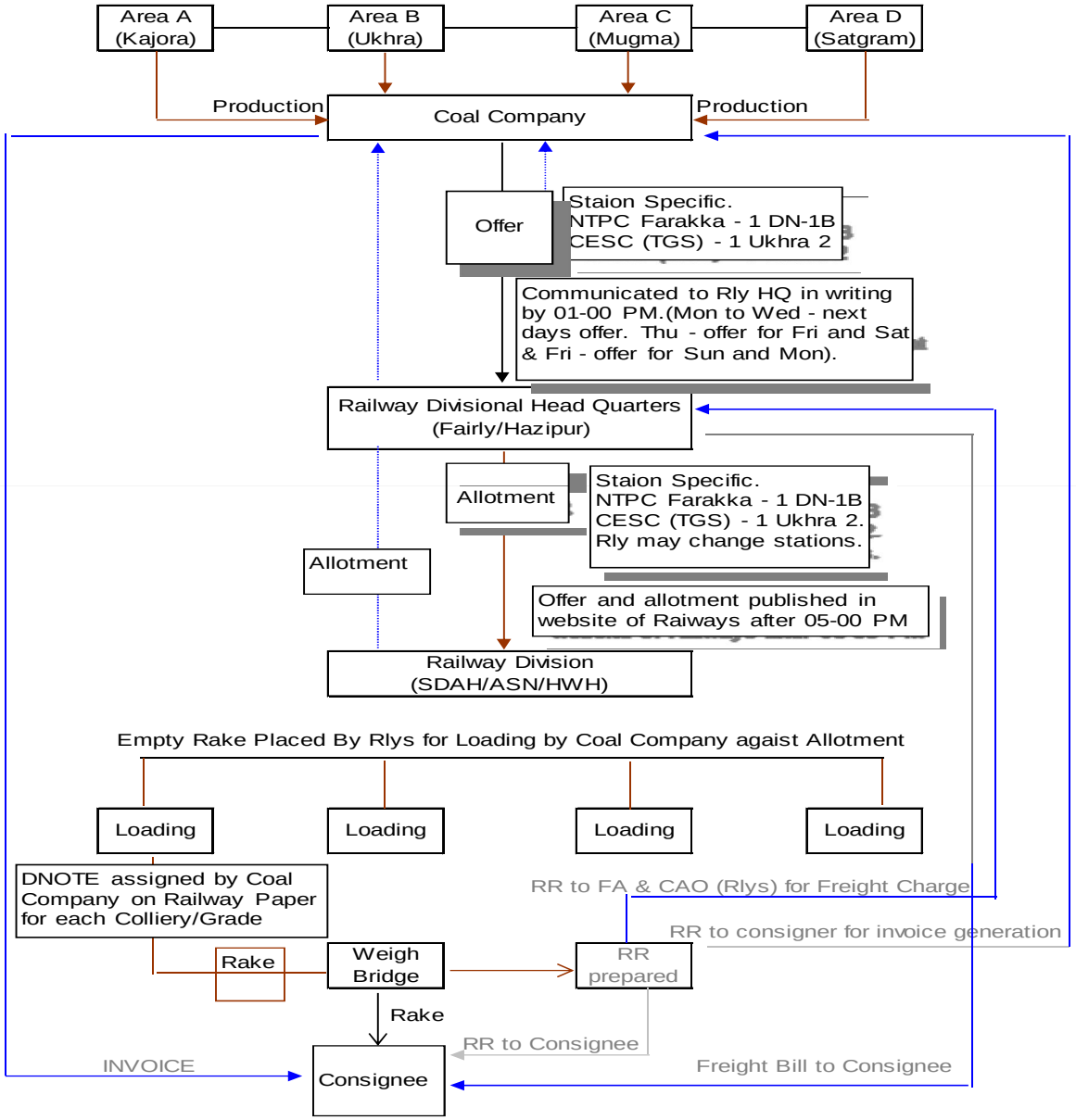
PROCEDURE FOR PROCUREMENT OF COAL

- Monthly Programme is submitted in advance to all coal companies for issuance of consent to supply coal for that month. The programme contains details of number of coal rakes to be supplied to each of the generating stations.

- The consented programmes are then submitted to the Railways for issuance of sponsored movement sanctions.

- Coal supply on daily basis from CIL subsidiaries is done on 'Offer' and 'Allotment' basis. 'Offer' of loading is done by Coal Companies and 'Allotment' of Coal Rakes are done by concerned divisional Headquarters of Railways

FLOW DIAGRAM OF OFFER / ALLOTMENT / LOADING OF COAL RAKES



COAL TRANSPORTATION

- Coal is delivered to Generating Stations by Rail. A typical coal rake contains 59 wagons carrying about 65 tons of coal in each wagon. Hence we receive around 3600 tons of coal per rake.
- Coal is received by BOX N rakes (unloaded through Wagon Tipplers in all the stations) and by BOBR rakes (unloaded in the Track Hopper) at BBGS only

BOX N RAKE

BOB RAKE

PROCEDURE FOR PROCUREMENT OF COAL

- Daily liaisons are then started with the coal companies for requirement of next one or two days coal of the Power Stations. Follow-up is done with ECL, Asansol /BCCL, Dhanbad / MCL, Sambalpur & Talcher etc and their offices at Kolkata as well as concerned divisions of Railways for allotment of rakes.
- On receipt of daily offer from Coal Companies, Railway gives allotment of rakes for stations. Any change or rescheduling, if required is taken up with Coordinating Agent / Coal Companies and Railways
- Service provider for coordination activities and loading supervision keeps in constant touch to track proceedings.
- Diversion or suspension of supply, if needed due to urgent requirement from any Station at any hour of the day, is taken up with Coordinating agent and the Railways.

JOINT SAMPLING

- Coal is sampled at Loading end (Collieries) by coal companies in presence of TPP representatives with role as observers to arrive at the grade for commercial settlements.

- A rake often contains coal from multiple collieries and multiple grades and is sampled accordingly.

- In case of a grade slippage from the declared grade, payment is made for the lower grade as found out from the Joint Sampling.

- A final reconciliation meeting with coal companies is held periodically for payment adjustment.

Thank You !