

Coal Washeries

Technologies adopted in the existing coking coal washeries can be broadly classified into the following three groups:

Group 1 - Crushing ROM coal to suitable size (80/20mm) and washing the same up to 0.5mm without beneficiation of fine coal. Apart from dewatering of fine coal to reduce process moisture to the extent possible, upgradation of fines was also done in certain washeries.

Group 2 - Same as above but before treatment of coal in washeries, pre-washing of coarse size coal to remove free dirt was adopted in certain washeries.

Group 3 - Here the floats from pre-washers were crushed for liberation of further clean coal and fine coal beneficiated in flotation cells.

However over a period of time, with the exhaustion of comparatively better quality coal the washeries are now being fed with inferior and more-difficult-to wash coals. This has resulted in:

- increased ash content of r.o.m. feed mix to the washeries.
- increased proportion of this fines below 0.5 mm in the feed production.
- operational/load imbalance problems in circuit and washing units.
- constraints in production and availability of Coal Preparation Plants.

India has 19 washeries, 15 with Coal India Ltd (CIL) and two each with Steel Authority of India Ltd (SAIL) & Tata Iron & Steel Co. (TISCO). The main cause of lower utilisation of washeries can be attributed to power interruption and raw coal shortage. Lack of preventive maintenance culture at washeries has also contributed to their sub-optimal operation.

By the introduction of modern washery circuits and advanced automation, there is the possibility of washing these coals to 16 - 17% ash. Though this remains the biggest challenge for any investor, it will be in the larger interest of the country. **At the same time, beneficiation technologies of the developed world cannot be applied immediately because of peculiar characteristics of Indian coal; therefore, Indian expertise is essential in this field.**

Foreign investor and/or the Indian private sector may be allowed to associate in the field of coal mining and beneficiation for the production of low ash coking coal.

Proposed flow sheet for future washeries

The low volatile coking coal reserve in India constitutes about 35 - 40% of total coal reserves. These coals have high rank, high ash and difficult washability characteristics. The future washeries should incorporate the following:

- (a) Raw coal be crushed to 75 mm top size and deshaled at 1.80 specific gravity to eliminate dirt.