HINDUSTAN TIMES

NEW DELHI, MONDAY NOVEMBER 9, 1998

Reckoning cost of captive power plants under retention price scheme

By Uttam Gupta

REPORTEDLY, the fertiliser industry coordination committee has sought the advice of the Central Electricity Authority (CEA) regarding relative merit of sourcing power from grid vis-a-vis captive power plant (CPP). While this may be for public consumption, the real issue pertains to evolving a basis for determining cost of captive power — apart from steam — for fixing retention price (RP) for newly commissioned plants.

Specifically, the question relates to how much investment and corresponding to what capacity, should be reckoned for pricing? In this context, some of the contemplated moves are (i) disallowing cost of a spare/standby gas turbine generator (GTG), (ii) reckoning cost of inline GTG on the basis of theoretical capacity which is lower than actual, (iii) reducing cost of GTG in proportion to allocated cost of power plant resulting in disproportionately higher disallowance.

The performance of ammonia/urea plants is critically dependent on sustained and reliable operation of offsite facilities in particular, captive power and steam generation plants. These, in turn, must have adequate capacity for meeting the requirement under varying operating conditions including start-ups and shutdowns. In fact, these should be so designed as to ensure 100 per cent availability as against best norm of about 75 per cent in power sector as per a study by CEA. This is an essential safety requirement.

The power requirement of standard ammonia/urea plant of 1350/2200 tonnes per day (tpd) capacity varies between 12 MW to 17 MW depending on which of drives of machines are in line as per their availability. It is high particularly at time of plant startup or after a major trip. Logically, therefore, capacity of GTG has to take care of requirement at the outer limit.

The other important factor is availability. The power GTGs are available in standard sizes i.e. frame size 5 for a site rating of about 18 MW or frame size 3 with rating of about 7 MW. Procurement of generator in standard sizes also helps in effective international competition under ICB, thus facilitating supplies at reasonable prices. This also gives equal opportunity to indigenous manufacturers like BHEL thereby giving a boost to the domestic capital goods industry.

Consequently, all new gas based projects except the Nagarjuna Fertilisers (NFCL) plant at Kakinada — which is of lower capacity, i.e. 900/1500 tpd ammonia/urea — have installed GTG of frame size '5' with rated capacity 18 MW. In all fairness, reasonable actual cost incurred on this should be recognised. However, the Government's view appears to be to take investment corresponding to 13 MW only which is generally the power needed when plant runs at optimum load.

This is illogical. Recognising 13 MW only implies that the plant need not have to go through the stage of startup or there will be no tripout! This is not practical. And yet, if you insist on GTG of 13 MW, then, the only way to run the plant is to instal two such GTGs which will only lead to infructuous expenditure.

The inline GTG cannot be expected to be available on a continuous basis; indeed, no machine can be 100 per cent reliable. Moreover, even though, initially, CPPs were run on gas, since early 1994, consequent to denial of gas supply for captive power and steam generation — under Government directive — plants along the HBJ have been forced to use alternate fuels such as naphtha, etc.

These being inferior fuels vis-a-vis gas, critical items of machinery in GTG require frequent maintenance. For instance, burner nozzles have to be cleaned frequently i.e., almost on a monthly basis. While, longest period after which a cleanup is required, may be three months, at other end, it may even have to be done after 15 days.

Clearly, there is need for suitable back up to ensure uninterrupted operation of plant. Power supply from the grid is erratic and unreliable. Moreover, poor quality of such power can affect machines. Consequently, backup from grid cannot be relied upon. In fact, having installed CPP — under directive from the Government — to immunise plant operations, it makes no sense to go back to the grid for back up.

The back up GTG too has to be of commensurate size, i.e., 18 MW. Opting for lower size will neither meet operational requirement nor, be cost effective. This being 12 MW at bare minimum, and if you go in for GTG of 7 MW (next lower size available), two of these will have to be in use on a continuous basis, besides having one as standby to meet peak requirement. This means 3 GTGs of 7 MW each.

While investment on this configuration would definitely not be lower than on having 2 GTGs of 18 MW each, operationally, the former will have problems. For instance, when, all the three GTGs are inline — to meet peak requirements — and any one of them konks off, there is no option but, to keep the plant shut.

Thus, the move to disallow cost of stand by GTG is unwarranted and unjustified. The further move to disallow a part of cost even on in line GTG on the basis that power requirement is only 13 MW is also not logical. The plant is, in fact, designed for 18 MW

Ironically, disallowance is sought to be done on the basis of allocated cost of power plant which is significantly higher than basic cost of GTG. The former includes imputed cost of other associated upstream facilities. This results in disproportionately higher disallowance.

For instance, let us take cost of GTG to be Rs 30 crore out of total allocated cost of power plants of Rs 100 crore. Allowing cost in ratio of 13/18, i.e., 72 per cent of Rs 100 crore, would lead to a disallowance of Rs 28 crore. Thus, a huge about 93 per cent of cost of GTG would have been disallowed.

As in the case of a CPP, capacity of boilers in steam generation plant has to psovide for process requirements under different operating conditions. For instance, if plant needs about 90-100 tonne per hour steam while fully operational, after a trip out, it would require much higher about 180-200 tonne per hour for ensuring smooth startup and safety of plant.

The requirement during startup or after a tripout is high because ammonia plant while running is, in itself, a major producer of steam which source is not available at time of startup.

Very often than not, due to gas limitation, plant has to be operated at partial load necessitating higher consumption of steam. For instance, at 75 per cent load of ammonia plant, this can go up to 140-150 tonne per hour. The capacity has also to take into account the ageing factor and end of run conditions when consumption of steam in turbines increases.

It is, therefore, essential to instal boilers with capacity of upto 180-200 tonne per hour to ensure uninterrupted plant operations, safety and prevent damage to equipment. Any move to disallow reasonable actual investment on this — by assuming lower capacity — will lead to an unwarranted and unjustified loss.

The Government would do well to recognise the reasonable cost actually incurred on setting up of the captive power and steam generation plants in all newly commissioned units to ensure plant operations at optimum level and prevent any unjustified erosion in profit margins.

(The author is chief economist at the Fertilisers Association of India)