Editorial

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Naphtha-based fertiliser units

Worst off in hydrocarbon sector

Noting that naphtha-based plants are seriously handicapped *vis-a-vis* gas-based units, **Uttam Gupta** comments that their closure may be an over-simplistic view. Together, the old plants contribute about 5.5 million tonnes of urea, and it may be tough to make up the loss of output. The focus should instead be on reducing their energy consumption; or encouraging them to switch over to gas.

RECENT increases in the prices of various hydrocarbon feedstock have had varying impact on fertiliser plants, depending on the feedstock used in production. While the price of gas has gone up by 15-20 per cent, the increase in the prices of naphtha, fuel oil and LSHS is up by a whopping 57.5 per cent, 40.8 per cent and 64 per cent, respectively.

Consequent to the hike, the ex-refinery price of naphtha is Rs. 7,624 per tonne and that of fuel oil Rs. 5,508 per tonne. The basic price of natural gas at land fall point/onshore 6is Rs. 2,150 per thousand cubic metres. The plants along HBJ pay an additional Rs. 1,150 per thousand cubic metres towards transport charges — against the earlier Rs. 850 per thousand cubic metres.

The cost of feedstock delivered at plant site, that is, after including freight, and various taxes and duties, works out to about Rs. 9,000 per tonne for naphtha, about Rs. 7,000 per tonne for fuel oil and about Rs. 2,400 per thousand cubic metres for natural gas — for plants located at landfall point — and about Rs. 3,400 per thousand cubic metres for plants located along the HBJ pipeline.

Taking 10 million kcal (kilo calories) of energy in a tonne of naphtha and fuel oil each, and 9 million kcal in one thousand cubic metres of gas to plants at landfall point (1 cubic metre = 9,000 kcal) and 8.5 million kcal in one thousand cubic metres to plants along the HBJ (1 cubic metre = 8,500 kcal), the costs, expressed in Rs./million kcal, are: Naphtha: 900; fuel oil: 700; gas at landfall point: 267; and gas along the HBJ: 400.

Let us now consider a typical naphtha-based plant — where naptha is used as process feed and fuel oil in offsite facilities, for instance, in captive power and steam generation. Taking the total energy use of about 8 million kcal and a break- up of 75:25 — 6 million kcal through naphtha and 2 million kcal through fuel oil — the energy cost alone for producing a tonne of urea works out to about Rs. 6,800.

In contrast, for a typical gas-based plant using gas in the main process and naphtha for offsite facilities; and taking the total energy use of about 6.0 million kcal in the ratio of 75:25 — 4.5 million kcal through gas and 1.5 million kcal through naphtha — the energy cost is about Rs. 2,550 per tonne for plants located at landfall point and Rs. 3,150 per tonne for plants along the HBJ.

Almost all naphtha-based plants were set up more than 15 years ago and, hence, are fully depreciated (under the RPS, depreciation is allowed on 15 years life of plant and machinery). Their capital related charges (CRC) are low, say, about Rs. 500 per tonne on an average.

The fixed cost, other than CRC, is however higher, mainly in view of the substantial expenditure on repairs and maintenance (R&M), overheads and so on, say, about Rs. 1,000 per tonne. Together with the energy cost, and bagging costs of about Rs. 300 per tonne, a reasonable production cost is about Rs. 8,600 per tonne.

Almost all gas-based plants located onshore/landfall point (except Nagarjuna Fertilisers set up in 1992), were set up more than 12 years ago. Hence, these are also more or less fully depreciated. Their loan obligations, too, would have been fully met. For these, the CRC and the fixed cost may, thus, be taken as about Rs. 1,500 per tonne. Together with energy and bagging, a reasonable production cost works out to about Rs. 4,350 per tonne.

Plants along the HBJ commissioned in the late 1980s — for instance, IFFCO, Aonla, NFL, Vijaipur, Indo Gulf, Jagdishpur — are yet to recover depreciation fully. However, having already completed almost 10 years, their liability on account of servicing the loans would have come down drastically. For these, the fixed cost including CRC may be taken as about Rs. 2,000 per tonne. All put together, this adds up to a reasonable production cost of about Rs. 5,450 per tonne.

The newly commissioned plants along the HBJ — Chambal Fertilisers, Gadepan; Tata Chemicals, Babrala; and Oswal Chemicals, Shahjahanpur are saddled with high investment costs in the range of about Rs. 1,200-1,400 crores. For these, the fixed cost including CRC is at least about Rs. 5,000 per tonne. Add energy and bagging, and this gives a reasonable production cost of about Rs. 8,450 per tonne.

In view of the above, despite being fully depreciated, naphtha-based plants are seriously handicapped *vis-a-vis* all gas-based units, except newly commissioned plants along the HBJ and Nagarjuna Fertilisers located onshore. Over a period of time, even new gas-based plants — assuming the RPS and its proper implementation continues — would have fully serviced the loans, resulting in a corresponding reduction in the production cost.

When compared to manufacturers abroad getting gas at throwaway prices of less than $1 per million btu — against 1.73 per million btu for landfall point/onshore plants and $2.6 per million btu to HBJ plants - the gas-based units are undoubtedly at a disadvantage. However, it is expected that in the eventual decontrol regime, the Government would have a suitable policy to give protection at least to those plants which are low-cost by domestic standards.

In the event of decontrol coming earlier than expected — much will depend on the recommendation of the high-powered Hanumantha Rao Committee — there could be a threat to the newly commissioned gas-based plants as well. These might draw some sympathy from the Government by way of a one-time capital subsidy to offset their high investment cost. However, high cost naphtha/fuel oil-based plants will be left in the lurch.

An immediate reaction may be to question why these plants, having already reached the virtual end of their economic life, should not be dumped? This is an over-simplistic view. Together, the old naphtha/fuel oil-based plants contribute about 5.5 million tonnes of urea. Their closure would entail that much loss of output, which has to be made up either by imports or by setting up new capacities.

Setting up a new plant from the grassroots entails high investment costs. Moreover, with no more gas available, it too will have to be based on high-cost naphtha. In fact, taking the current investment cost, the reasonable production cost from such a plant will be a minimum of about Rs. 12,000 per tonne rendering it unviable from the word go. The alternative — of making up the shortfall through imports — will upset the global demand-supply balance leading to high prices of imported urea and resultant exploitation in the world market, an avoidable increase in foreign exchange outgo and a much higher subsidy payment.

It is also significant to note that, barring a few plants in the public sector which are sick, the rest are doing well in terms of high capacity utilisation — some are operating even at 100 per cent and above. Even energy consumption levels are reasonable despite constraints of vintage/inferior feedstock. In view of this, and considering that the country is deficit in indigenous availability, the national interest lies in ensuring continued production from these plants at an optimum level.

The high energy cost being the sole handicap, in the short-run, the focus should be on reducing the energy consumption. For instance, these plants could aim at achieving 7.0 million kcal. This should be possible with some investment and adoption of effective management and maintenance practices. The resultant savings would be about Rs. 900 per tonne urea or Rs. 30-45 crores on an annual production of 330/500 thousand tonnes depending on the plant capacity.

This will not, however, make much of a dent on the overall substantial handicap of these plants, which is caused by the high feedstock price, on the one hand, and lower inherent conversion efficiency *vis-a-vis* gas on the other. This can be overcome only if either the naphtha/fuel oil cost is lowered to bring these at a par with the gas cost; or, alternatively, these plants switch over to the use of gas.

The first option looks unlikely; for, if the Government was really concerned, it would not have jacked up the naphtha/fuel oil prices so steeply in the first place. It may be mentioned that in 1992, while recommending a reduction in the gas price, the JPC wanted prices of other feedstocks to be frozen at the existing levels to maintain parity.

Contrary to the recommendations, the prices of naphtha, fuel oil and LSHS were increased by 36 per cent, 54 per cent and 54 per cent, respectively in September 1992; and again by 30 per cent each in July 1996, and now again in September 1997 by 57.5 per cent, 40.8 per cent and 64 per cent, respectively, thus seriously distorting the parity.

A possible option may be to hike the gas price to a level comparable to that of naphtha/fuel oil. But this is neither logical nor desirable. While this would be tantamount to giving gas companies unearned income/profit much above their reasonable margins, it would achieve parity at the cost of steeply raising the production cost of gas-based plants as well, making them unviable. Achieving parity in prices at the cost of turning the entire industry unviable is unacceptable.

The only viable and practical option, then, for the naphtha/fuel oil-based plants is to switch over to the use of gas. For this, two conditions have to be met. First, the Government should take necessary steps to make the required gas available to these plants at the prevailing price. Second, under the RPS, they should be enabled to generate adequate internal resources to support a revamp/modernisation and incorporate the much-needed modifications.

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