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Transformers form an integral part of the electrical industry. As they play a critical role in setting up power grids, transformers are indispensable for any country's electrical sector. Transformers have the ability of transmitting power at ultra-high levels (up to 1,200 kV) which can be used to provide power to even the remotest part of any country.

In a country like India, where the onus has been on providing "electricity for all", the importance of transformers is even more. Although the transformer industry has adopted a rather traditional approach so far, the growth of the power industry has made it almost mandatory for the transformer manufacturers to mature rapidly.

Experts feel that the growth of the transformer industry depends largely on planned capacity addition to power generation, distribution network and transmission in the country. The Indian government expects to add another

85,000 MW of power capacity during the Twelfth Five-Year Plan (2012-17) period. The demand for power transformers is also expected to go up as a direct consequence. Moreover, a large number of transformers currently installed have been serving for around 20-25 years, which makes them rather vulnerable and needs to be replaced with new ones.

The transformer market is currently operated by both organised and unorganised players. India being a steadily developing country, there is no dearth of latest technologies available in the domestic market. The 1200 kV single-phase transformers are widely manufactured and installed at the 1200 kV BINA Sub-Station, run by the Power Grid Corporation of India Limited. These transformers have been absorbed well by the industry.

However, in spite of all the developments and assurances, the Indian transformer industry still faces some

serious problems that are hindering its growth. The industry witnessed negative growth of 9.6 percent in the third quarter of financial year 2012-13, after a 16.05 percent negative growth recorded in the previous quarter. The trend has also been noticed in other spheres related to electrical equipment, such as power cables and capacitors, switchgear, transmission line towers, and energy metres, among others.

The electrical industry as a whole witnessed a 10.5 percent dip in revenue for the third successive quarter in the October-December period of FY-13 as compared to the same period of FY-12.

Problems listed by ITMA

The Indian Transformer Manufacturers Association (ITMA), the national association representing the fraternity of Indian transformer manufacturers, has listed a few elementary reasons behind



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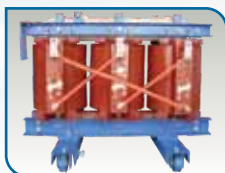


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the problems faced by the Indian transformer industry:

1. There are inconsistencies regarding government procurement policies and the tendering procedures of the government-sponsored power utilities, which are the biggest customers for transformer manufacturers.
2. The industry currently has tough guidelines for new entrants. Different power utilities set up different criteria of sales turnover for registering vendors. As a result, new entrants and players with limited capabilities are unable to cope up with the pressure, and therefore get disqualified. ITMA has started advocating flowing CVC guidelines uniformly in order to encourage new players by reserving 20 percent contact quantity in the favour of new entrants.
3. There have been many instances where once the transformers are dispatched, the procuring power utility carries out various tests almost one-sidedly. Reports of such fraud experiments are then sent to the manufacturers, who are debarred from completing future orders.
4. ITMA feels that power utilities have

a tendency of specifying even slightest changes if the transformer is of Bureau of Energy Efficiency (BEE)-star rating. This means that the manufacturing unit has to undergo the type-testing process again in order to receive the star-labelling. The process not only takes up additional time but also investment and resource, which makes operations difficult for smaller manufacturers. The steps specified by ITMA in order to cope with this problem is to follow a set of specifications certified by a competitive body like the BEE.

5. Sometimes manufacturers whose equipments fail to meet the requirements are blacklisted by utilities. ITMA feels that this practice should be stopped with immediate effect as it may lead to closing down of such units, ultimately hurting the sectoral growth.

6. It has often been seen that the utilities look to change the technical and commercial specifications after opening a tender. This causes a problem for the bidders and can impact the selected bidder. Such situations should ideally be avoided and even if they could not be, utilities should look to open up new short-term bids to attract manufacturers.

Key areas of concern

Availability of Electrical Silicon Steel or CRGO: Presently, there is serious shortage of Cold Rolled Grain Oriented laminated silicon steel (CRGO) because of strong demand for the material from African and other countries. This is hampering India's production of electrical transformers. Experts say that at present there seems to be no such institution in India that has mastered the technology of CRGO production. What adds to this prevailing problem is the unwillingness of countries like the US, France, Italy, Japan, Korea, Poland and Russia to transfer this technology. At present, India consumes almost 18 percent of the total CRGO production.

Even while importing CRGO there are problems regarding registration with the Bureau of Indian Standards (BIS) in order to get certification for supplying CRGO within the country, as this entire process is cumbersome and long drawn. There are several steps that begin with applying for CRGO through the prescribed BIS form and continue until the foreign supplier is allowed to open an office in the country.



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There have been several appeals from various quarters to speed up the certification process but nothing substantial has been done so far. Only four foreign firms have so far been certified by BIS in order to supply CRGO to transformer manufacturers within the country. These companies are JEF Steel, Japan; two units of Nippon Steel, both from Japan; and ThyssenKrupp, Germany. Among these four companies, the two units of Nippon Steel are yet to be fully certified for all the individual grades of CRGO.

High failure rate of distribution transformers: A distribution transformer is a type of step-down transformer that can be used to convert high-voltage power supply to low-voltage power supply to the end user. It has the ability of toning down electricity from the 33 kV level to 1.1 kV level. Industry reports reveal that every year distribution transformers worth nearly INR 200 crore fail to complete the task of power distribution. The average time before a new distribution is returned back to the manufacturing firm is around 3-4 years.

The basic reasons behind such failures are:

- Faults on low voltage lines resulting in short circuits
- Exposure to bad weather conditions (specifically lightning) in rural areas. Distribution transformers installed in low density rural areas providing support to low voltage lines are themselves prone to faults
- Distribution transformers can also be damaged if they are overloaded without taking into account their ability of taking up load. As a result, these transformers collapse when additional pressure is put on them.
- There is a direct interaction between air and oil in the distribution transformer. The moisture has the ability of weakening the dielectric strength of oil, forming a layer on the windings. The insulation of the windings can become so thickened that it may lead to failure of the distribution transformer.

The L1 procurement policy causing problems: The L1 Procurement policy introduced by the Government of India governs the procurements in government circles. Thanks to this policy, every

company in the field is trying to reduce prices and as a result compromising on the quality of the equipment. Utilities opting for transformers from vendors tend to place their orders on L1, even though they are fully aware of the fact that the price quoted by the lowest bidder is not always viable. As a result they are supplied with sub-standard material, which creates problems later.

The irony is that although the process of auctioning is a long-drawn one, it ultimately yields low-grade material and results in huge loss for the government exchequer.

Problems with testing of equipments: Experts feel that India as a country still needs a lot of investment for setting up testing facilities. The growth in the testing infrastructure has been unable to keep pace with the production, both qualitatively and quantitatively. There is need for more stress to be laid on demonstrating the presence of testing facilities in the country. Besides, the waiting period at the testing facilities needs to be reduced.

The existing testing facilities in the country are inadequate and transformers with capacity of 100MVA and above have to be sent out of the country to be tested in their labs before coming back to the country to be implemented. At present, India sends its transformers to KEMA Netherlands and CEDI, Italy. Not only is this process time-consuming and expensive, it also causes delay in commissioning the projects.

The high failure rate of distribution transformers is proof enough that the testing facilities in the country have not been performing satisfactorily. The failure rate of these transformers stands at 10-15 percent as against 1-2 percent in other developing countries.

The China factor: As is the case with various other industries, the Chinese threat has emerged as a determining factor in the transformer industry as well. Indian transformer manufacturers are finding it increasingly difficult to sustain this pressure. The most crucial aspect to note here is that China-made transformers are priced 30 percent lower, as a result of higher raw material prices in India. The

most popular type of power transformers used in the country today is within the range of 220 kV to 400 kV. With manufacturing capability being a problem area in India, Chinese manufacturers are looking to take advantage of it. Chinese firms are even setting up manufacturing units in India, which is likely to put more pressure on local manufacturers.

The positives

Along with the negatives, there are also some positives emerging in the Indian transformer industry. In the CRGO steel manufacturing segment, Bharat Heavy Electricals and Rashtriya Ispat Nigam have joined hands to set up a CRGO steel manufacturing unit. An outlay of INR 3,000 crore is expected to be in order in setting. Korean steel major POSCO has also set up a manufacturing plant in India in order to supply CRGO to local transformer manufacturers. Overall, the scenario with CRGO has improved over the last one year or so, which is certainly a silver lining for the industry.

While the L1 policy has been creating a lot of hassles for the industry, alternative methods are also being explored in order to cope with the problem. One such method could be allowing manufacturers to participate in the tender process with the electricity board approving the manufacturing facilities of the transformer suppliers. It is only initiatives like these that can help the transformer industry move towards the better ■



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