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VEDANTA'S STRIDES IN ELECTRICAL INDUSTRY

Being cheaper and lighter, aluminium has major applications for electrical industry. Vedanta ranks among the biggest producers of aluminium wire rods in the world. In an interview with **Subhajit Roy**, Ajay Kapur, CEO, Aluminium & Power Business, Vedanta Ltd. informs that his company is gearing up for newer applications and opportunities by developing new alloys for the electrical market.

> With the vision of being aligned to India's growth curve in the electrical industry, Vedanta has already taken major steps.
> **Ajay Kapur,**
> CEO, Aluminium & Power Business, Vedanta Ltd.

Could you discuss the impact of aluminium in today's electrical industry?

Aluminium is the most abundant metal on earth's crust. Due to its superior properties and versatile applications it has found usages in many critical applications across diverse sectors. One of the major aluminium consuming sectors is the electrical transmission and distribution segment.

For years, aluminium has been used effectively and safely in electrical applications. With a superior weight to conductivity ratio as compared to copper and cheaper cost, aluminium is the most preferred material for electricity transmission and distribution.

In 1882, during the laying down of first electrical transmission network, aluminium was considered a precious metal and more valuable than both gold and silver. Hence, copper which was already being used by mankind was a practical choice. However, today, aluminium is the material of choice as well as a LEED-favoured material for construction and operation of high-performance green buildings. Moreover, its properties of infinite recyclability at minimal energy and ability to retain all properties after recycling, catapulted it to the most favoured metal for electrical usages.

About 9 million tonnes of aluminium wire rods are being consumed worldwide for producing about 4.3 million tonnes of wire and cables, fulfilling the electricity needs of the world population.

Why is aluminium preferred for electricity transmission?

With an undeniable advantage of being cheaper and lighter, aluminium has major applications for electrical industry.

Aluminium has a conductance of 61 per cent as that of other good conductors but is two times lighter for the same current carrying capacity. Due to this, aluminium finds favour in large size cables and cables for overhead power distribution for high voltage power lines over long distances.

Moreover, the comparably light weight of aluminium wires also reduces the load onto grid pylons and increases the distance of spans between

Trends that will drive aluminium consumption in power sector

- **Rapid urbanisation & industrialisation:** Increasing population is set to drive per capita consumption due to rising trends of using newer appliances, cooking with electricity as well as higher manufacturing activities of energy intensive industries.
- **Adequate last mile connectivity with 24x7 power supply:** Outages remain a frequent problem and with current supply being unreliable, rural electrification will translate to increased demand only by ensuring 100 per cent household electrification for 24 hours.
- **Rise of electric mobility:** EVs are expected to boost electricity demands in next 5-10 years exponential with consumer sentiment to reduce CO2 emissions.
- **Cross border grid interconnection:** With an opportunity to sell surplus power, the India-Sri Lanka HVDC Grid Interconnection is a proposed project to link the national grids of India and Sri Lanka. Similar projects expected to boost electricity demand.

them, thus, reducing expenses and shortening construction time. When current passes through aluminium wires, they heat up and their surface becomes covered with an oxide film. This film serves as an excellent insulator protecting the wires against external effects.

Additionally, it is highly ductile, non-magnetic with a life span of about 40 years.

Considering the aspect of 100 per cent electricity transmission across India, how do you see the opportunities for aluminium?

India being the 3rd largest producer and consumer of electricity in the world, we see an immense opportunity in the next few years for aluminium in the electrical segment. India is currently the largest consumer of aluminium based wires and cables ex-China with an annual consumption of 1.2 million tonnes of aluminium wire rods.

With our per capita consumption of aluminium in the electrical sector at 0.9 kgs, which is well below world average at 1.3 kgs or that of developed countries like USA and China at 2.5 kgs and 3.2 kgs respectively, we have multiple opportunities to tap the future growth in this segment.

Few trends that will increase electricity consumption and in turn require higher aluminium consumption are: Rapid urbanisation and industrialisation; adequate last mile connectivity with 24x7 power supply; rise of electric mobility; and cross border grid interconnection.

Also, the current government is highly focussed on achieving 100 per cent household electrification along with the vision to be aligned to one of the sustainable development goals as "ensure access to affordable, reliable, sustainable and modern energy for all". Even though this has been majorly accomplished through two flagship programs by the government i.e. Saubhagya Scheme and Deendayal Upadhyaya Gram Jyoti Yojana, we are still to cover some distance to achieve 100 per cent household electrification for 24 hours. Last mile connectivity with regular power supply is expected to increase adoption of electricity by manifold in the country.

Another ambitious programme, the Integrated Power Development Scheme (IPDS), was rolled out to overhaul power supply systems at the city level.

What are your plans for the aluminium business?

Vedanta Ltd. is the largest producer of aluminium wire

rods in the world with a capacity of 620 kilo tonnes. With current supplies of EC (electrical conductor) grade wire rod to majority of the Indian electrical segment players, we are also focussing on development of alloy rods for niche segments and are well poised to meet the needs of our domestic and global customers.

Vedanta currently is the largest wire rod supplier in India and has an international presence for its wire rod supplies in Asia and North America.

We are the largest producers of primary aluminium at 1.9 million tonnes per annum as on FY19. Our world-class R&D facility continually explores newer applications of aluminium through new alloys and innovations in value-added products. Some of these alloys, such as the primary foundry alloy, we launched earlier this year are being produced for the first time in India.

Talking about the growth of power sector, according to you, what's on the cards for India's power sector in 2020?

Power is the most crucial component propelling a nation's growth and development. With a convenient mix of conventional and renewable sources of energy, India has a surplus power generation capacity. Moreover, 6 per cent of the capacity is through renewable power plants, which though is at a nascent stage now, is set to rapidly grow to about 30 per cent by 2030 and is crucial for our otherwise thermal power dependent nation.

The major focus areas will be to decrease energy deficit, improve transmission of power and focus on adoption of renewable energy sources.

Where will the growth come from?

Major growth propellers for power sector will be by increasing and improving the raw material supply base through coal linkages, allocation of coal blocks through e-auctions and high FDI inflows for renewable energy, increasing the power transmission network, improving last mile connectivity through power distribution reforms and strengthening of the system, policies to incentivise grid and non-grid connections respectively and adoption of emerging technologies in renewable and non-conventional energy.

How are you gearing up for the future opportunities and challenges?

With the vision of being aligned to India's growth curve in the electrical industry, Vedanta has already taken major steps. Raising of awareness among state electricity boards about importance of using primary aluminium for electric wires for better end-performance and reduced transmission losses remains to be our priority.

Our R&D facilities are gearing up for newer applications and opportunities by developing new alloys like T4 rods for the electrical market.

Moreover, we are also monitoring as well as working with government institutions to restrict imports of wire rods, particularly those of inferior quality, which can be domestically available at a superior quality to the industry. This will ensure that the industry gets high quality products economically and will boost the government's 'Make in India' initiative. EI