

VEDANTA LIMITED

Smelter Plant 1, Jharsuguda (Odisha)

Unit Profile

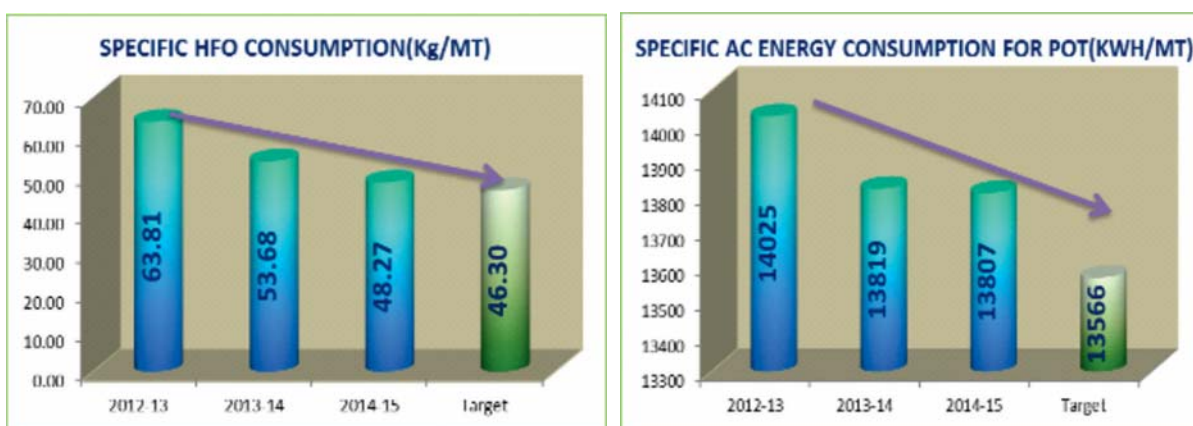
Vedanta Ltd. Jharsuguda is an associate company of the London Stock Exchange listed, FTSE 100 diversified resources group Vedanta Resources Plc. Originally incorporated in 2001. Company is a leading producer of metallurgical grade alumina and other aluminium products, which cater to a wide spectrum of industries.

Vedanta Aluminium Jharsuguda, Odisha has carved out a niche for itself in the aluminium industry with its superior product quality based on energy efficient state-of-the-art technology. The firm operates a 0.5 MTPA Aluminium Smelter and 1215 MW Captive Power Plant supported by highly modern infrastructure at Jharsuguda, Odisha. In addition to this, commissioning of 1.25 Million TPA Aluminium Smelter plant at Jharsuguda has commenced. Jharsuguda is also the site of the 2400 MW Independent Power Plant (IPP) to meet the growing demand for power from both urban and rural consumers.



Energy Consumption

DESCRIPTION	UNIT	2013-14	2014-15
Annual production	MT	542496	540962
Total electrical energy consumption/annumMkWh	7870	7832	
Specific energy consumption (electrical)	kWh/MT	13819	13807
Total thermal energy consumption	MKcal	162469	148521
Specific energy consumption (fuel)MKcal/MT	0.30	0.28	



Energy consumption trend

Energy Conservation

- Plant is the 1st Aluminium Smelter in Asia and second in world to be certified with ISO:50001 for Energy Management System since 2013.
- A dedicated energy cell is there to have focused approach on energy conservation activities.
- More than 100 nos. energy saving projects have been implemented till now generating saving of more than 1200 kWh/MT in a span of 4 years.
- Vedanta Limited (VL), Smelter-1 is a trend setter to adopt reverse osmosis (RO) for de-fluoridation of waste water with evaporation of RO rejects in solar ponds. This is unique & first of its kind in any Aluminium Plant to go for renewable energy in ETP in a RO plant.
- VL has a well-defined sustainability framework having 8 policies, 14 management standards and 22 technical standards in place. This also includes a dedicated policy for Energy & Carbon for the group.

- VL has successfully completed carbon foot print study by First Climate.
- People involvement in internal audit and sharing best practices between internal and external units.
- Incorporation of Business Excellence models such as Six Sigma, QC, Asset Optimization etc
- Internal & external benchmarking and energy auditing.
- Involvement of stakeholders, suppliers and contract partners.
- Procurement of energy efficient products in all relevant requirements.

Energy Conservation: Details of few innovative projects implemented last year

1. Improvement in conversion efficiency

Rectifier transformers and diode cubicles convert AC to DC and supply DC power for aluminum smelting and electrolysis process. In the process there is a huge conversion loss in transformers and diodes to the tune of 2-3%. Team looked for opportunity to reduce the losses and save energy.

Brainstorming sessions were organized to invite ideas. Discussion held with other Aluminium smelters and OEMs also studied to find out technical difference. Few of the major initiatives

Initiatives taken :-

1. Eco-contact has been provided in joints to reduce contact drop.
2. Transductor control current optimized.
3. Cooling of transformer and diodes improved.
4. AC bus bar tightness checked.
5. Hotspot reduced in capacitor bank.

2. Reduction of HFO consumption in Anode Baking Furnace

In Bake Oven area anode is getting baked in furnaces by burning HFO. With aging of baking furnaces, different type of defects like flue wall bending, cracks, uneven degassing, gaps etc. are developed. These problems in furnaces severely increase the false cold air ingress from atmosphere and hence increase HFO consumption. A six sigma project was taken up by operation team to work on this. After many brainstorming sessions and field audit the following initiatives were taken.

Other EnCon Initiative taken in 2014-15

- CVD Reduction in pots (by increase of graphite content in cathode and collector bar modification by increase in collector width to reduce resistance and voltage drop).
- FTP ID fan energy reduction by process optimization and leakage arrest.
- Reduction in Homogenizing furnace # 3 electrical energy consumption by

- renovating insulation and revamping of furnace.
- Specific Energy consumption reduction in Rodding induction furnace by improved lining performance.
 - Reduction in HFO consumption in anode baking furnace through various process improvements.
 - Installation of transparent sheets in Cast House to stop the use of lights during day time.
 - Interlocking of lube oil stop during belt change of wire rod mills.
 - VFD installation in G grp ID Fan in GAP and other pump motors.
 - In MCC rooms, replacement of all 61 No of 2*36w CFL lamp by 45 No of 36w tube light.
 - Replacement of CFL with LED lights in PMO. Automation of unmanned MCC rooms to control lighting.
 - Optimization of LP compressor Operation.
 - Stopping of heating ramp motors during burner ramp shutdown.
 - Reduction of idle run of slot cleaner in Bake Oven.

Energy Policy



Date - 11.05.2015

Energy Policy

The Aluminium Smelter Plant-1 of Sesa Sterlite Limited-Jharsuguda ,a leading player in its sector, strives to build world class capabilities in every facet of its buisness operations and affirms its commitment to:

- ❖ Continual improvement in energy performance by providing necessary resources and information required to achieve energy management objectives and targets.
- ❖ Ensure compliance of all necessary and applicable legal and other requirements related to organization's energy use, consumption and efficiency.
- ❖ Incorporate energy efficient designs, equipment and process in all the future projects.
- ❖ Create awareness towards energy conservation in the organization.

Abhijit Pati
President & CEO-Aluminium Buisness
Vedanta Limited