



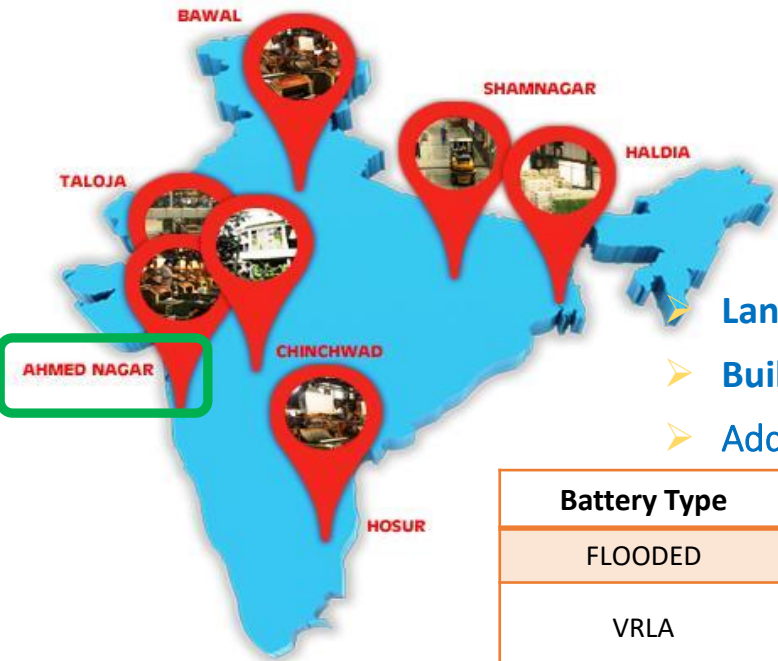
EXIDE INDUSTRIES LIMITED,
AHMEDNAGAR

CII National Award for Excellence in Energy Management 2021

Sumit Pachghare – Assistant Manager (Electrical)

Manoj Bhandarkar – Deputy Manager (Electrical)

Rakesh Ambekar – Assistant Manager (Production)



Land : 20 acres (79,713 sq.m.)

➤ Built Up Area : Approx. 44,848 sq.m.

➤ Address: E-5 & E-6, MIDC, A'nagar

Battery Type	Product Range
FLOODED	2.5 Ah, 5Ah, 7Ah, 9Ah & 14Ah
VRLA	3 Ah (Non Cranking & Cranking), 4 Ah, 6 Ah & 9 Ah ,12Ah, 14Ah
EPOXY SEALED VRLA	4Ah , 5Ah, 7Ah



Customers



Impact of Covid-19

- Annual production volume achieved lowered by 26%
- Negligible production in Q-1 FY'20-21, critical processes were running to maintain quality of finished & unfinished products, resulting increased SEEC- kWh/MAH
- Loss of trained labor left due to pandemic
- Govt. restrictions for operating plant

Counter-measures taken

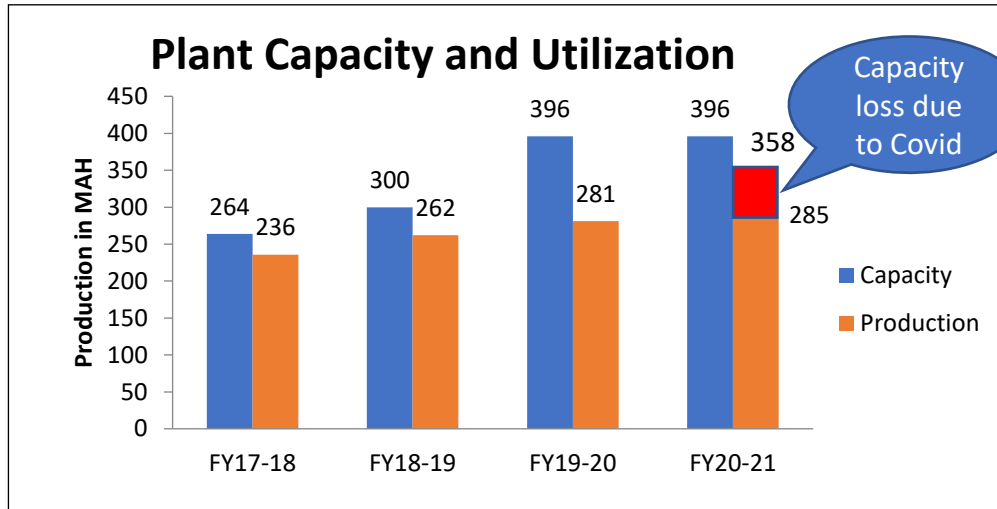
- Capacity utilization improved in later quarters
- Initiatives undertaken to improve energy performance of Utility areas
- Recruitment & training of new CL manpower
- Various measures taken to prevent COVID 19 in factory as per Govt. Guide-lines



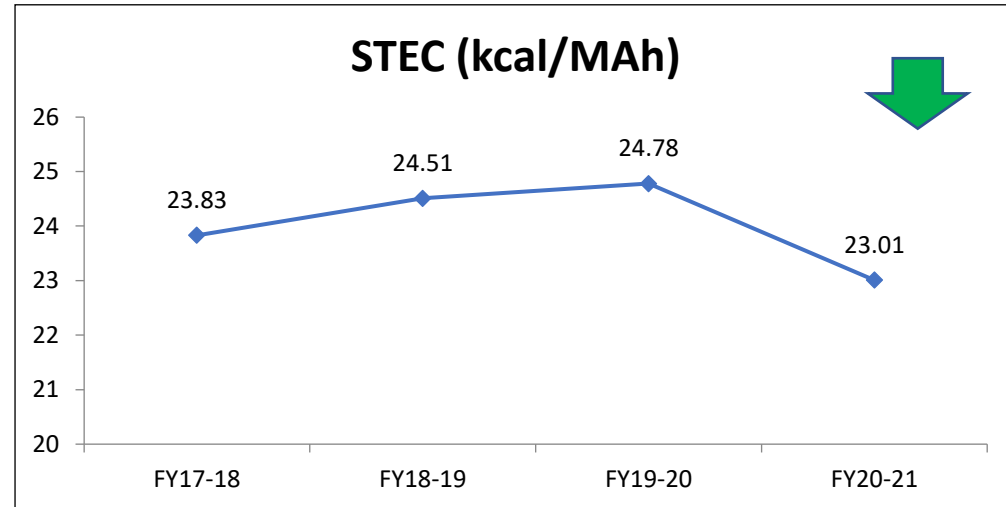
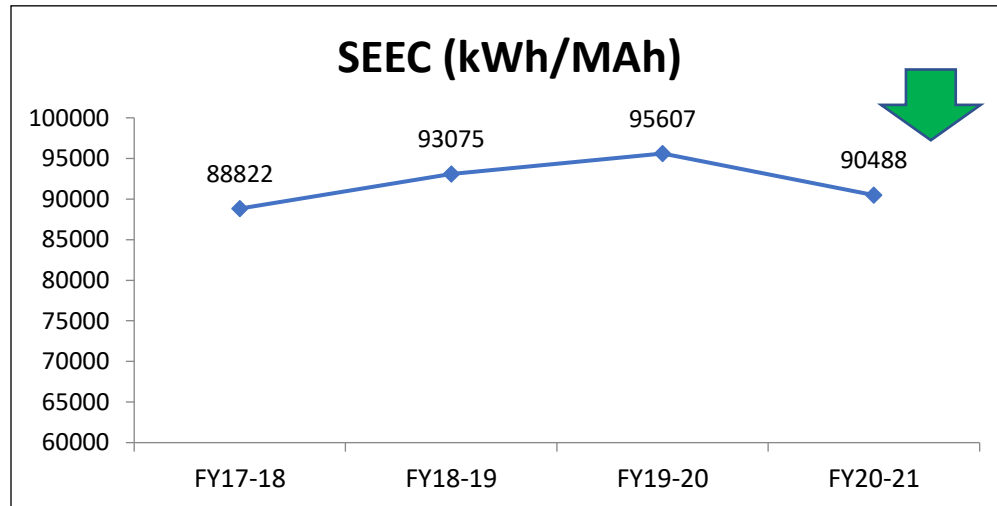
Measures-Human aspect

- Hand sanitization and thermal screening at gate
- Regular sanitization of office and shop-floor
- Maintain discipline and social distancing in canteen, shopfloor
- Covid Antigen test camp in plant
- Vaccination drive arranged in plant

Specific Energy Consumption(FY 18-21)

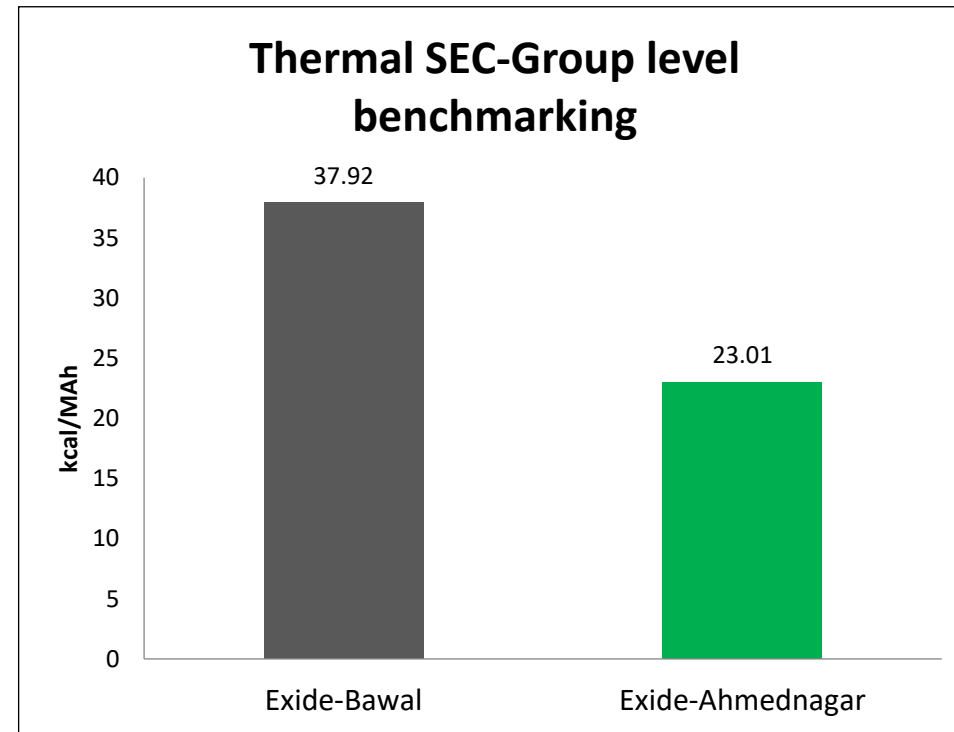
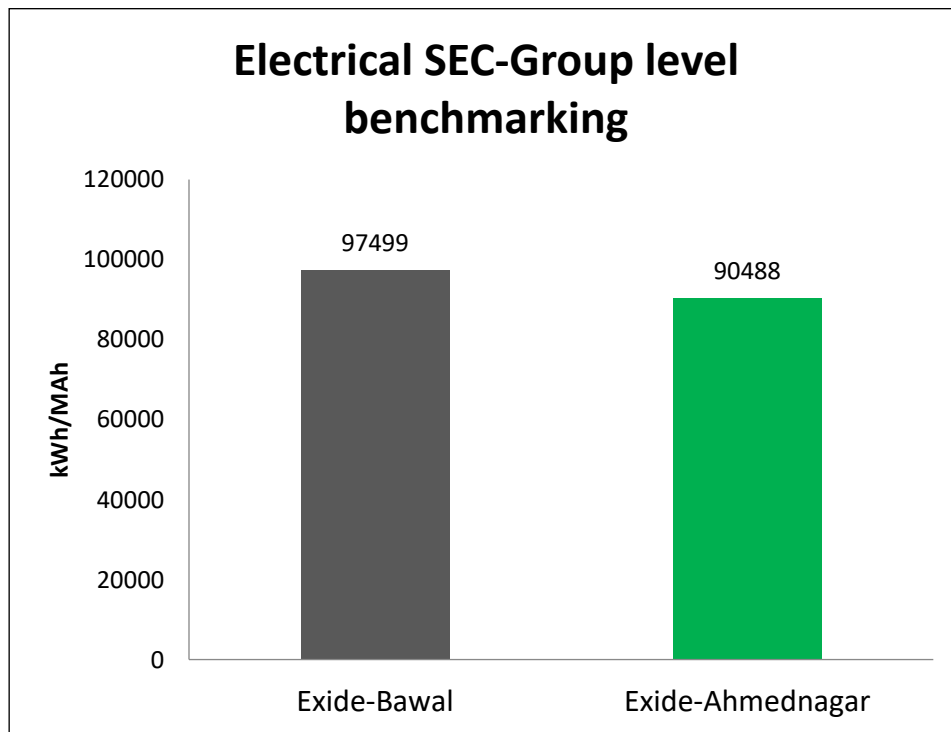


- Only 15 MAh production in Q1 against capacity of 99 MAh
- SEEC lowered by 5% & STEC lowered by 7% in FY20-21 wrt FY19-20
- SEC reduction achieved by improvement in capacity utilization.



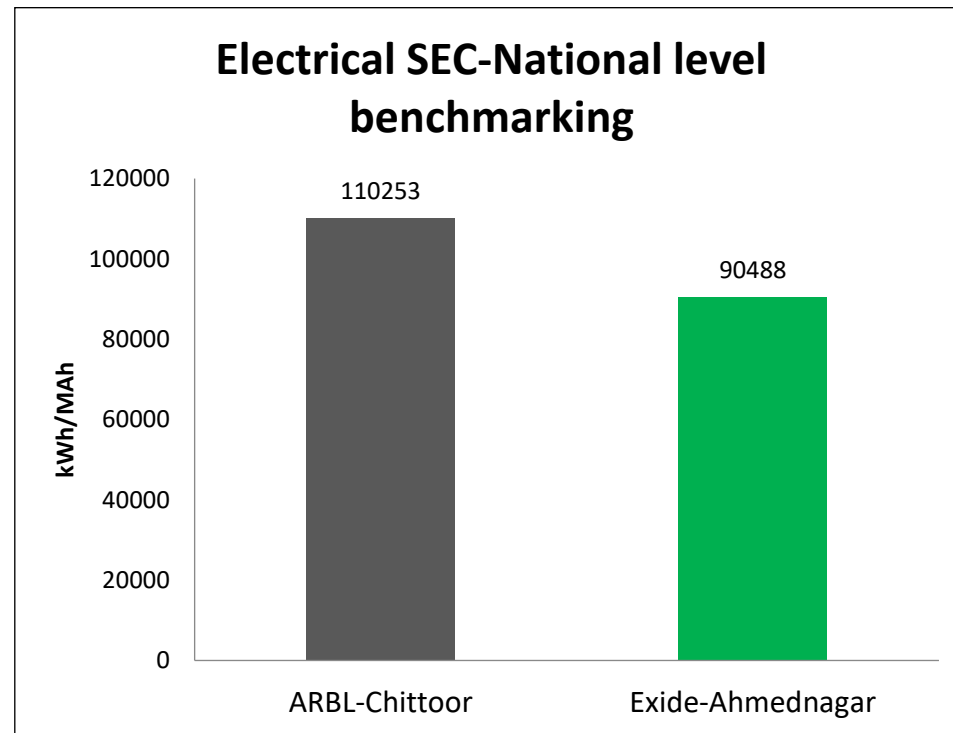
Benchmarking

- Company level benchmarking – Exide’s Bawal plant manufacturing similar range of products in two-wheeler battery segment



Benchmarking

- National level benchmarking – ARBL (Amara Raja Batteries Ltd.) Competitor in the same industry.



Source: CII presentation 2019

Energy saving projects implemented

Year	No. of Energy saving projects	Investments (INR Million)	Electrical savings (kWh)	Savings (INR Million)
FY 2018-19	11	12.9	583915	4.33
FY 2019-20	15	0.23	541212	4.55
FY 2020-21	11	0.20	437112	3.90

Innovative Project

Reduction of stack losses from PDO

Trigger for implementation :

Sometimes there were delays in cycle timings. That triggered thermal loss analysis with due measurements.

Data Collection :

Below data collected

- Energy consumption data of few cycles
- Mass of active material

Thermal audit Analysis:

It was found that about 73% of heat is wasted, so there was scope identified for energy saving

Innovative Project

Reduction of stack losses from PDO

Action taken:

The reduction in high stack loss was achieved by providing VFD in exhaust blowers of Post Dying Oven

Benefits:

- Loss reduction to 42% achieved
- Annual Energy saving of 9.95Lakh INR from investment of 0.6Lakh INR
- Reduction in SEEC by 421 kWh/MAh

The idea was innovative because it was one of its first kind developed in our plant.

Utilization of renewable energy sources

- Installed **1MWp rooftop solar panels on-site** for which generation started from April 2019
- Long term contract with M/s Cleantech for **6.87MWp ground mounted solar panels off-site** for which generation started from July 2020

Year	Type of Energy	Onsite/ Offsite	Installed capacity (MW)	Generation (Million kWh)	% of overall electrical energy
FY 2019-20	Solar	Onsite	1.04 MWp	1.35 Mn kWh	5.02 %
FY 2020-21	Solar	Onsite	1.04 MWp	1.12 Mn kWh	4.35 %
FY 2020-21	Solar	Offsite	6.87 MWp	6.37 Mn kWh	24.74 %

Utilization of renewable energy sources

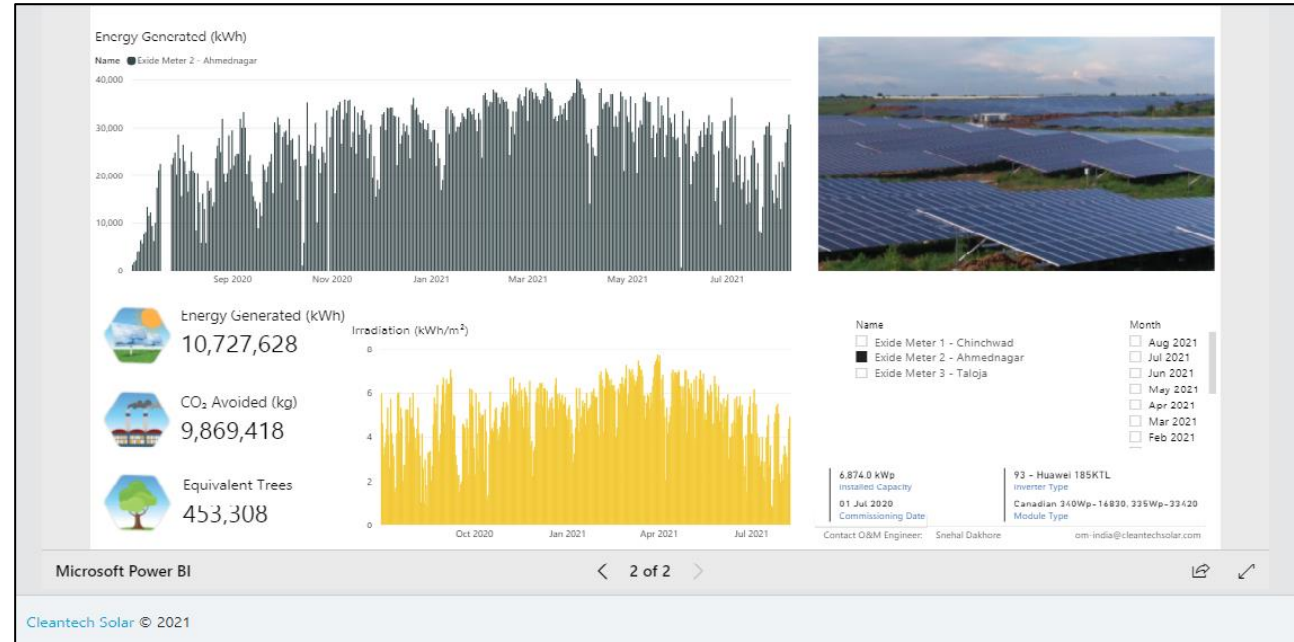


Samsung
Shot with m



Samsung Triple Camera
Shot with my Galaxy M21

↑ Onsite rooftop-mounted solar generation at Exide-Ahmednagar plant



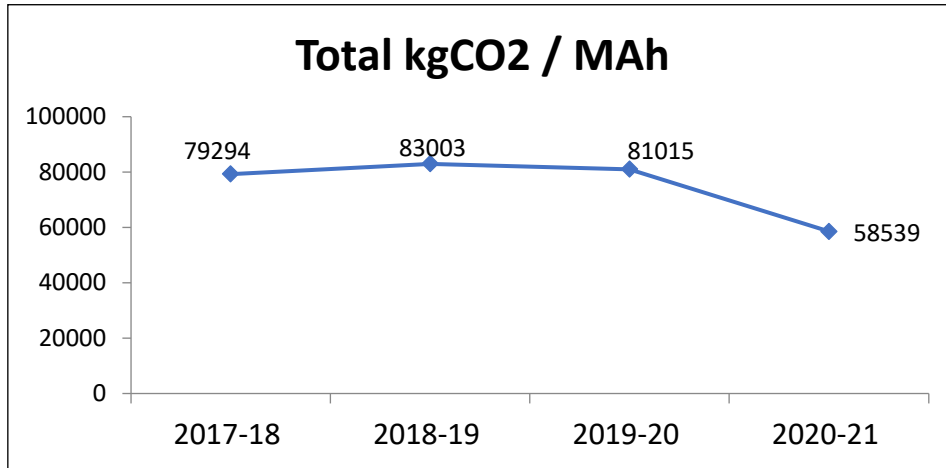
↑ Dashboard for offsite ground-mounted solar generation at Tuljapur-Maharashtra

Waste Utilization and Management

- Commissioned Zero Liquid Discharge (ZLD) plant in Jan'21
 - 100% reuse of industrial effluent after installation of RO & MEE to achieve ZLD
 - Recycled water used back in process
 - 3000 litres of water getting recycled every month.
- Taken actions to reduce ETP sludge, which reduces processing cost, disposal cost. ETP sludge is sent to CHWTSDF authorized disposer. Achieved 43% reduction in ETP sludge in FY20-21 wrt FY19-20.



GHG Inventorisation



Share of renewable energy in electrical energy consumption rose to 29% in 2020-21.




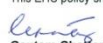
Offsite ground mounted solar plant

- Target (short term/ long term) for CO2 emission reduction by 30% w.r.t. FY'17-18 emission intensity value Kg CO2/MAh prod.
- Action plans to reduce the emission:
 - By using more renewable energy and
 - By implementing Energy Efficiency & Energy Conservation projects

Year	kgCO2 / MAH
2017-18	79294
2018-19	83003
2019-20	81015
2020-21	58539

Green Supply Chain Management

- The *Sustainability Policy* guides us **"to work towards lowering waste and carbon footprint by judicious and efficient use of resources."**
- The *Environment, Health and Safety Policy* guides us to **"Check and prevent pollution through waste minimization at source; recovery/ treatment of emissions and releases and conservation of energy. Thereby progressively improving occupational health and our overall carbon footprint"**

<p style="text-align: right;">SUSTAINABILITY PO</p> <p>We at Exide Industries Ltd., in the pursuit of our Core Responsible Corporate Citizenship, are committed to These shall be followed and practiced throughout the o</p> <p>It is the policy of the company to:</p> <ul style="list-style-type: none"> • Conduct business in a sustainable manner, trans reality, delivering sustainability performance on standards. • Formulate and implement strategies, mitigate a standards of ethics, transparency and corporate g • To work towards lowering waste and carbon footp resources. • Embody principles of product stewardship by enl and social impacts of products and services across • Strive to be neighbors of choice in the communit to their equitable and inclusive development. • To promote and achieve diversity, gender equali resource capital. • Provide employees and business associates a fa environment and engage them for sustainable pr • Comply with legal, statutory and regulatory requir • Continually improve the sustainability model of th and relevant with changing requirements of our bu <p>This Sustainability Policy shall be made available to all</p> <p> Gautam Chatterjee MD & CEO 5th October 2016</p>	<p style="text-align: right;">EXIDE</p> <p style="text-align: center;">ENVIRONMENT, HEALTH & SAFETY POLICY</p> <p>We at Exide Industries Ltd., in the pursuit of our Core Value of Striving for Excellence and Responsible Corporate Citizenship, are committed to the issues addressed in this policy. These shall be followed and practiced throughout the organization.</p> <p>It is the policy of the company to:</p> <ul style="list-style-type: none"> • Utilize natural and man-made resources in an optimal and responsible manner and ensure the sustainability of resources by reducing, reusing, recycling and managing waste. • Check and prevent pollution through waste minimization at the source; recovery / treatment of emissions and releases and conservation of energy. Thereby progressively improving occupational health and our overall carbon footprint. • Minimise the adverse impact of our activities, products and services by implementing and maintaining an internationally recognized Environment, Health and Safety (EHS) and put in place contingency plans and processes that help in preventing, mitigating and controlling any possible environmental damage and any injury or ill health which may be caused due to operations. • Continually improve our safety, occupational health and environmental performance by adopting cleaner and safer production methods, promoting environment friendly and safe technologies and through setting and reviewing relevant objectives and targets and their periodic evaluation. • To ensure safe handling, use and disposal of all substances and materials which are classified as hazard to environment, health and safety. • Comply with applicable legal, statutory, regulatory, customer specific and other requirements related to our environmental aspects, occupational health and safety. • Communicate our safety, health and environmental performance to all the stakeholders in a fair and transparent manner as appropriate. • Promote EHS awareness to all stakeholders and motivate them to fulfill our commitments. • Proactively persuade and support the entire value chain to adopt this principle. • Integrate EHS into overall business strategy. <p>This EHS policy shall be made available to all stakeholders and interested parties.</p> <p> Gautam Chatterjee MD & CEO 10th September 2016</p> <p>Exide Industries Limited, Exide House, 59E Chowringhee Road, Kolkata-700 020 Ph : (033) 2283-2120/3/36/50/51/71/2238/39, Fax : (033) 2283-2642/37 e-mail : exideindustriallimited@exide.co.in, www.exideindustries.com CIN : L31402WB1947PLC014919</p>
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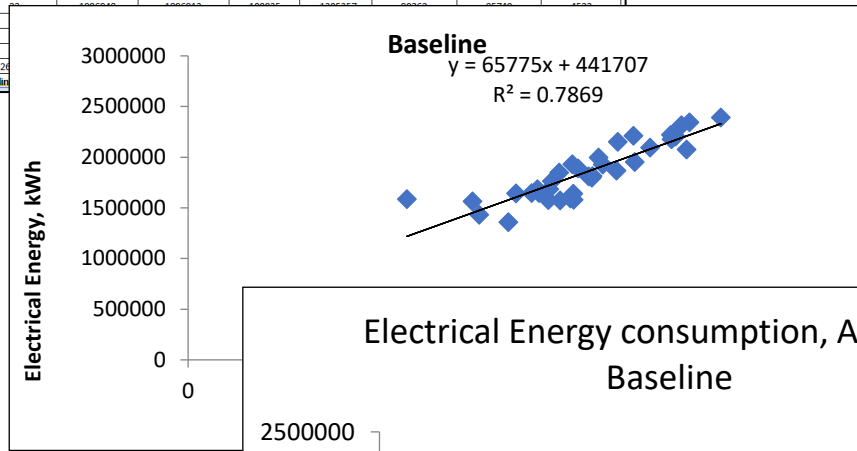
Actions to support “Green Supply Chain” activities

- There have been efforts taken to *reduce acid wastage* and to reduce ETP load.
- Also reduce carbon footprints, we have installed *solar rooftop panels & ground-mounted solar panels* at onsite & off-site of our manufacturing facility.
- Use of BOPTs in place of Diesel forklifts for internal material handling.
- Vehicle utilization of outbound logistics improved from 90% (in FY18-19) to 94% (in FY20-21).
- Future action-plan
 - Use of LED fittings for new building, life-cycle costing methodology
 - Use of IE3/IE4 motors in all new installations
 - Create awareness on EnCon to suppliers
 - Adoption of JF route in place of DC plates is planned which will eliminate process of Forming & Plate Drying

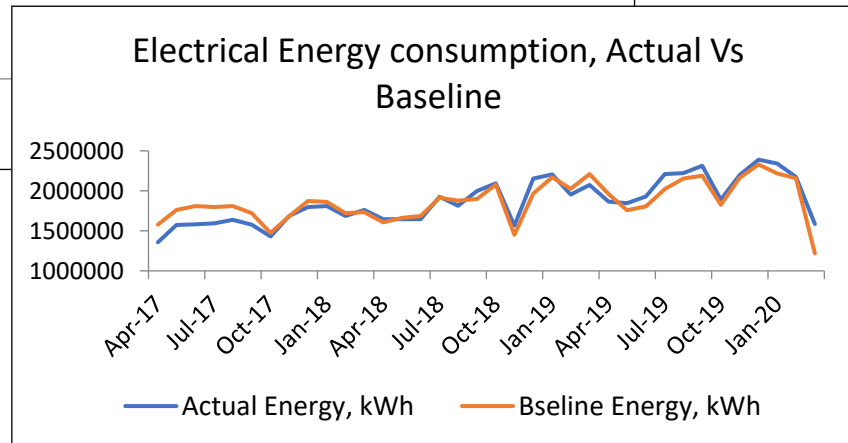
Implementation of ISO 50001

	A	B	C	D	E	F	G	H	I	J
			Production (Std Lead), MAH	Actual Energy, kWh	Baseline Energy, kWh	Diff. In kWh	CUSUM	SEEC, kWh/t - Actual (EnPI)	Baseline SEEC, kWh/t (EnPIa)	Diff in SEEC (R = EnPI - EnPIa)
1										
2		Apr-17	17.27	1356075	1577641	-221566	-221566	78522	91352	-12830
3		May-17	20.06	1573462	1761154	-187692	-409258	78438	87794	-9357
4		Jun-17	20.79	1579692	1809169	-229477	-638735	75983	87021	-11038
5		Jul-17	20.61	1592280	1797330	-205050	-843785	77258	87207	-9949
6		Aug-17	20.76	1637190	1807196	-170006	-1013791	78863	87052	-8189
7		Sep-17	19.42	1575023	1719058	-144035	-1157825	81103	88520	-7417
8		Oct-17	15.698	1428923	1474243	-45320	-1203145	91026	93913	-2887
9		Nov-17	18.84	1683697	1680908	2789	-1200356	89368	89220	148
10		Dec-17	21.76	1795950	1872971	-77021	-1277377	82534	86074	-3540
11		Jan-18	21.6	1808505	1862447	-53942	-1331319	83727	86234	-2497
12		Feb-18	19.473	1684125	1723544	-38419	-1369738	86485	88458	-1973
13		Mar-18	19.61	1762161	1731555	30606	-1339132	89860	88300	1561
14		Apr-18	18	1643145	1604017	39128	-1300004	92985	90771	2214
15		May-18	19	1645335	1660255	-14920	-1314923	88812	89618	-805
16		Jun-18	19	1644030	1686170	-42140	-1357063	86894	89121	-2227
17		Jul-18	22	1925948	1911449	14499	-1342565	86191	85543	649
18		Aug-18	22	1812446	1875273	-62827	-1405392	83159	86041	-2883
19		Sep-18								
20		Oct-18								
21		Nov-18								
22		Dec-18								
23		Jan-19								

- Data collection for baseline formation- sectionwise 3 yrs data for energy consumption & production collected



- Regression analysis is done and base-line equation is formulated



- Monitoring is done against baseline and monthly reviewed and analyzed for action plans

Learnings-Best Industry Practices

- Minimizing use of compressed air wherever possible
- Elimination of inappropriate usage of compressed air
- Scope for energy saving by replacing AOD pumps with electrically operated pumps
- Application of renewable energy & its benefit.

Compressed air system audit conducted in Mar'21. The proposal is taken for approval which has potential to reduce leakages by 290cfm

Thank you.!

Q&A

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