



ENERGY MONITORING AND TARGETING

GS Yuasa Battery Manufacturing UK Ltd has improved its energy efficiency by 57% since its energy monitoring and improvements started in 2004.

In 2017, GS Yuasa has continued to internally monitor energy usage and has full confidence in the readings obtained.

Our partner energy monitoring company has assisted in reinforcing our shut-down procedures and by suggesting new ideas and ways to reduce energy use further.

In 2018 we are looking at the feasibility of installing a photo voltaic system on the roof of our site, possibly in conjunction with a battery storage system and a wind turbine, and, if results from the study are acceptable, the project would aim to commence in 2019, following approval of the necessary capital expenditure.

We still continue to strive to push energy costs even lower through improved efficiency procedures and more controlled management. The company's main objectives are to raise awareness, improve efficiency levels and reduce costs.

At the beginning of 2015, we received confirmation that our site would become exempt from the Climate Change Levy as we are classified as metal smelters, and we continue to remain exempt from CRC. At the end of 2015, we submitted our ESOS report in line with our legal obligation and, during 2018, we will start preparations for the ESOS2 report.

During 2017, we were accepted into the RO & FIT compensation scheme through the Department for Business, Energy & Industrial Strategy, and we continue to report our energy usage to them on a quarterly basis.

The two lists below indicate some of the projects which were undertaken in 2016, as well as proposed further actions for 2018. These projects were identified in order to further drive down costs and improve environmental management and monitoring.

Improvements completed in 2017:

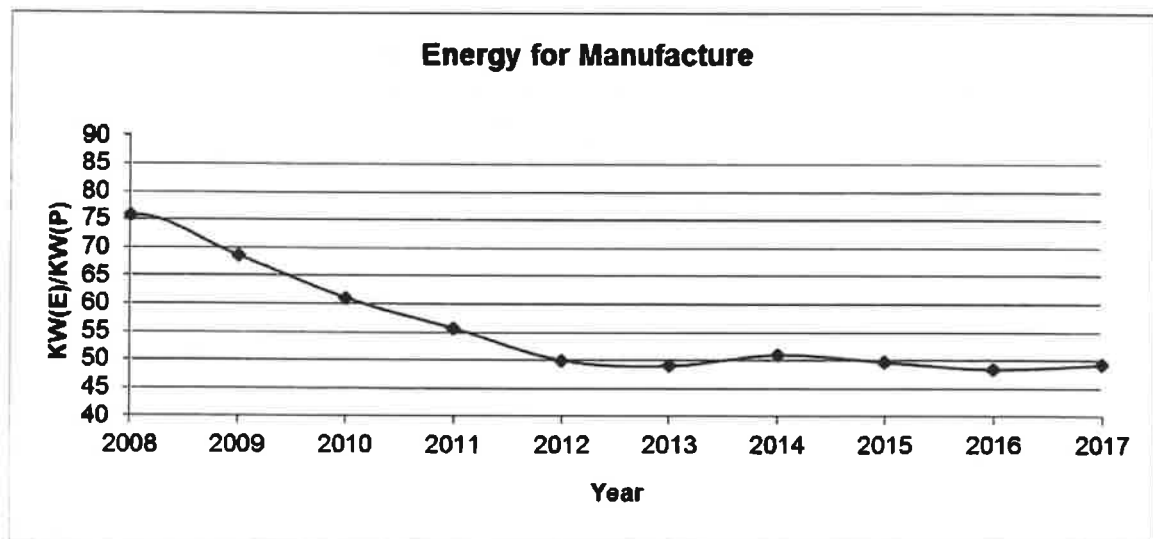
- Aligned our compressor sequencing to ensure the most efficient machines were run at certain times of the week.
- Up-rated and maintained our power factors to ensure >0.95, this is continuous job.
- Installation of a new efficient electrical transformer to replace an old one. (the data from this will assist us to determine the benefits of replacing other time expired transformers)

We obviously continue to repair any compressed air leaks in a timely manner and monitor our shut down procedures continuously.

In addition, the following is planned in 2018:

- Installation of LED lighting in offices, reception and at low level working areas following a grant application to Blaenau Gwent CBC.
- Feasibility study into the installation of a PV system ready for 2019.
- Installation of more metering on lighting and equipment to ensure efficient shutdowns.

The graph below shows the reduction in KWh of energy used to manufacture a KWh of production (Battery capacity measurement) over the last 10 years and a reduction of 35% in the energy required to manufacture 1KW of battery power. In 2016 we improved our efficiency to better the lowest level previously achieved in 2013, in 2017 we maintained our consumption but did not show an improvement.



2017 Environmental Objectives and Targets	
Item No.	Environmental Objective
1	To better by 2 % the KWh of energy per KWh of production against that of 2016 results. 2017 target = 47.4KW energy per KWh of production. The end-of-year result is 49.2 KW energy per KWh of production, therefore, it is just above the target set and will be re-targeted for improvement in 2018.
2	Reduce the scrap level from the 2016 figure of 0.52% to 0.38% in 2017. The end-of-year scrap level was 0.59%, therefore, the target has not been met. It will be re-targeted for improvement in 2018.
3	Reduce the 2016 performance indicator for total water per unit output by 2 % from a performance indicator of 5.0484031 to 4.9474350 by the end of 2017. The performance indicator for total water usage between 1st January and 31st December 2017 amounts to 97,980m³ or a performance indicator of 5.5428841, therefore, the target has not been met and will continue to be monitored throughout 2018.
Item No.	Environmental Tracking Items
1	Maintain total waste at around the same level as that of 2016, therefore, the target for 2017 will be a performance indicator of <0.0742724. The performance indicator for total waste between 1st January and 31st December 2017 is 0.0930663, therefore, the target has not been met. It will continue to be targeted for improvement in 2018 but was greatly affected by some Lead waste materials which couldn't be recycled due to the volume in stock.
2	Maintain the 2016 total trade effluent discharge performance indicator of 1.1972267 by the end of 2017 as the volume of trade effluent significantly affects the mass of Lead and COD. The performance indicator for trade effluent discharge between 1st January and 31st December 2017 is performance indicator of 1.6164765, therefore, the target has not been met. It will be targeted again for improvement in 2018.

2018 Environmental Objectives and Targets	
Item No.	Environmental Objective
1	<i>To better by 2 % the KWh of energy per KWh of production against that of 2017 results. 2018 target = 48.2KW energy per KWh of production.</i>
2	<i>Reduce the scrap level from the 2017 figure of 0.59% to 0.27% in 2018.</i>
3	<i>Reduce the 2017 performance indicator for total water per unit output by 2 % from a performance indicator of 5.5428841 to 5.4320264 by the end of 2018.</i>
4	<i>Reduce the 2017 performance indicator for total waste by 5% from a performance indicator of 0.0930663 to 0.0884130 by the end of 2018.</i>
5	<i>Reduce the 2017 performance indicator for total trade effluent discharge by 2% from a performance indicator of 1.6164765 by the end of 2018 as the volume of trade effluent significantly affects the mass of Lead and COD. The new target is 1.5841470</i>
6	<i>Maintain weekly Lead levels in ground/surface waters at the end of the site at below the 2020 BAT-AEL of 0.5 mg/l, throughout 2018.</i>