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 2016, GS Yuasa has continued to internally monitor energy usage; we now have full confidence in the readings we are obtaining and our partner energy monitoring company has assisted in reinforcing our shut-down procedures and suggesting new ideas in ways to reduce energy use further. In 2017 we are looking at the feasibility of installing a wind turbine on our site. It is proving more difficult to gain large savings as we have already introduced the easier projects, however, we are confident that we can still improve.
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, we continue to remain exempt from CRC. At the end of 2015 we submitted our ESOS report in line with our legal obligation.

The two lists below indicate some of the projects which were undertaken in 2016, as well as proposed further actions for 2017. These projects were identified in order to further drive down costs and improve environmental management and monitoring.

Improvements completed in 2016:

- Aligned our compressor sequencing to ensure the most efficient machines were run at certain times of the week.
- Uprated and maintained our power factors to ensure >0.95, this is a continuous job

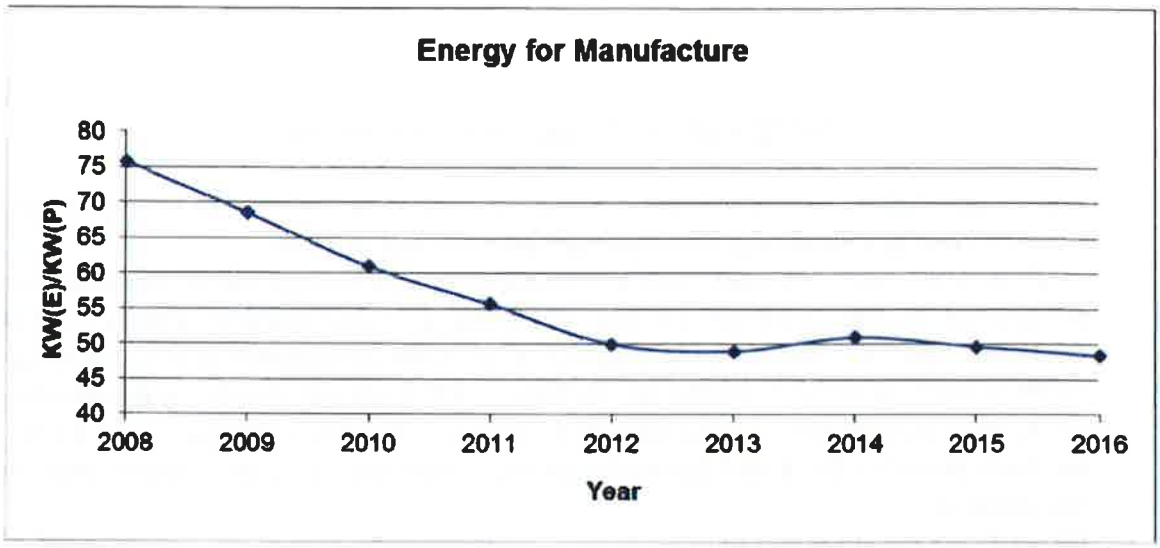
We obviously continue to repair any compressed air leaks in a timely manner and monitor our shut down procedures continuously.

In addition, the following is planned in 2017:

- Investigate the installation of LED lighting in offices and at low level working areas.
- Feasibility study into the installation of a wind turbine on site.

The graph shows the reduction in KWh of energy used to manufacture KWh of production (Battery capacity measurement) over the last 8 years, it shows 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.



2016 Environmental Objectives and Targets	
Item No.	**Environmental Objective**
1	*To better by 2% the KWh of energy per KWh of production against that of 2015 results. 2016 target = 48.7KW energy per KWh of production.* *The result for Q4 was 55.5KW/KW and the result for the year was 48.4KWh per KWh of production, therefore the target for 2016 has been met.*
2	*Reduce the scrap level from the 2015 figure of 0.55% to 0.48% in 2016.* *The result for Q4 was 0.58% and the result for 2016 was 0.5% therefore the target was missed but the result is still an improvement on 2015, and is the best result to date.*
3	*Maintain total waste at around the same level as that of 2015, therefore, the target for 2016 will be a performance indicator of <0.074520 0 (taking into consideration the likely increase in returnable packaging which will be subject to waste carrier notes)* *In 2016, the performance indicator for total waste was 0.0742724 therefore the target has been met.*
4	*Reduce the total trade effluent discharge by 5% against 2015 to a maximum of 41,814 m^3 or a performance indicator of around 2.4935752 as the volume of trade effluent significantly affects the mass of Lead and COD.* *In 2016, the volume of trade effluent discharged was 20,577 m^3 with a performance indicator of 1.1972267 therefore the target has been met.* *It will be continue to be monitored throughout 2017.*
Item No.	**Environmental Tracking Items**
1	*Reduce the 2015 total water per unit output by 2% from 72,814 m^3 or a performance indicator of 4.3422321 in 2015 to 71,358 m^3 or a performance indicator of 4.2553875 by the end of 2016.* *The total water per unit output in 2016 amounted to 86,768 m3 or a performance indicator of 5.0484031 therefore the target has not been met.* *It will be targeted for improvement again in 2017.*
2	*Reduce the mass Lead in effluent by 5% from 175.3191 kgs in 2015 or a performance indicator of 0.0104550 to 166.553kgs or a performance indicator of 0.0099323 by the end of 2016.* *The mass Lead in trade effluent was 71.13372 kgs or a performance indicator of 0.0041387 therefore the target has been met.*

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.*
2	*Reduce the scrap level from the 2016 figure of 0.52% to 0.38% in 2017.*
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.*
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.*
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.*