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 2019, the company continued with its programme of internal monitoring of energy usage; and has full confidence in the readings being obtained and our partner energy monitoring company has assisted in reinforcing our shut-down procedures and suggesting new ideas to reduce energy use even further.

In 2020, it is very likely the company will use up to 15% of its energy from a solar installation which is planned to be installed on the roof of our largest factory No.2, and also from a wind turbine which will be sited on land nearby.
Both projects will be funded by a WEFO grant and the supply will be via a third party.

The company continues 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 & reduce costs.

At the beginning of 2015 the company received confirmation that the site would become exempt from the Climate Change Levy as it is now classified as a metal smelter, and we continue to remain exempt from CRC.

At the end of 2015 the first ESOS report was submitted in line with our legal obligation which was followed with an ESOS2 report in 2019.

During 2017 we were accepted into the Intensive Users scheme through the Department for Business, Energy & Industrial Strategy, and received confirmation in January 2020 that this will continue for another 12 months.

The two lists below indicate some of the projects which were undertaken in 2019, as well as proposed further actions for 2020. These projects were identified in order to further drive down costs and improve environmental management and monitoring.

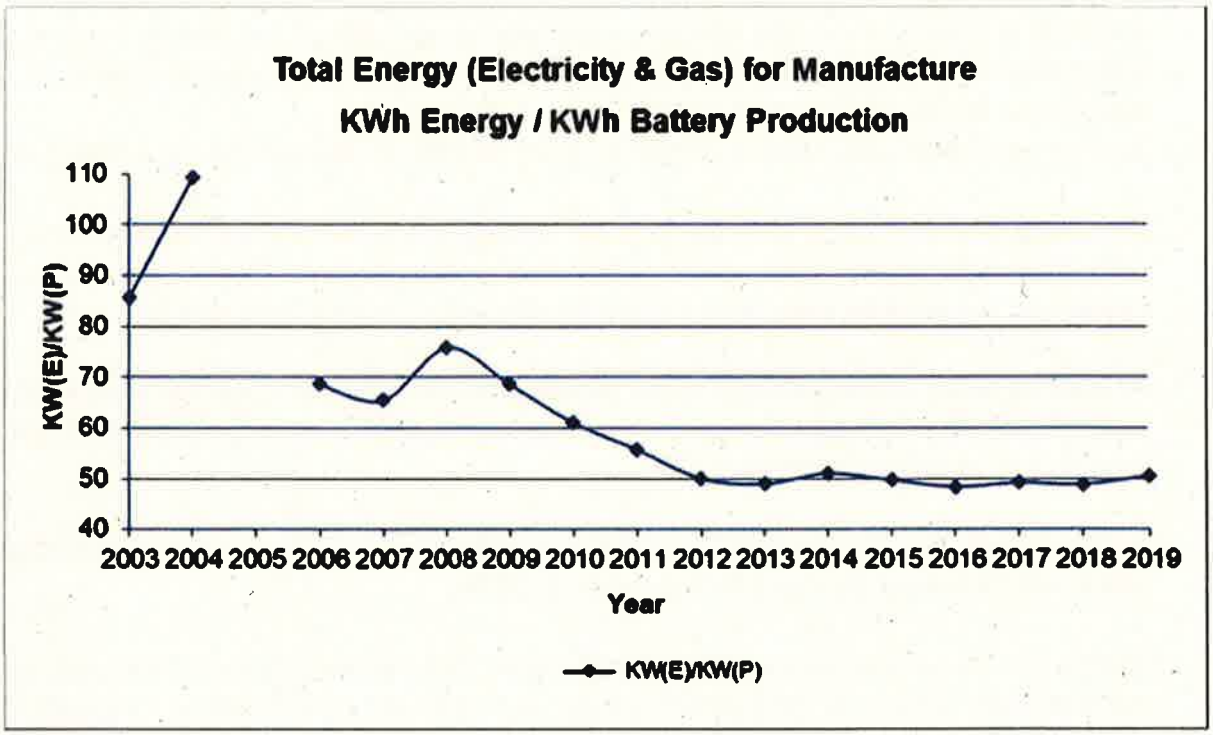
Improvements completed in 2019:

- Continuation of LED retro fitting on the shop floor
- Feasibility study into the installation of a PV system ready for 2019.
- Installation of more metering on lighting and equipment to ensure efficient shutdowns, this includes the resin curing ovens and Lead melting furnaces.

In addition, the following is planned in 2020:

- Continuation of LED retro fitting on the shop floor
- Installation of more metering on lighting and equipment to ensure efficient shutdowns.
- Complete installation and commence use of solar and wind turbine power.

The graph below shows the reduction in KWh of energy used to manufacture a KWh of production (Battery capacity measurement). Over the last 15 years, it shows a reduction of 50% in the energy required to manufacture 1KW of battery power.
In 2019 our efficiency was not as good as in previous years, initially our gas use was very high and this related to the gas engineer setting the burners to run with low emissions, however, this ultimately caused a large spike in use and was reversed.
In the later part of the year, our usage was similar to that in 2018.



2019 Environmental Objectives and Targets	
Item No.	Environmental Objective
1	*Repeat the 2018 KWh of energy per KWh of production in 2019.* *2019 target = 48.0KW energy per KWh of production.* *The end-of-year result was 50.6KWh which is the least efficient result since 2014. The year started badly due to high gas use but we also ran less efficiently with a lot of overtime.* *It will be targeted for improvement in 2020.*
2	*Reduce the scrap level from the 2018 figure of 0.47% to 0.44% in 2019.* *The end-of-year result was 0.59% and was affected by a manufacturing problem in Q4.* *It has now been resolved and will be targeted for improvement in 2020.*
3	*Repeat the 2018 performance indicator for total trade effluent discharge, this is a 2% reduction from 2018 figure 1.6164765 as the volume of trade effluent significantly affects the mass of Lead and COD.* *The 2019 target is 1.5841470m³/T prod* *The performance indicator at the end of Q4, 2019 is 2.0074239, therefore the target has not been met.* *The item was originally listed as the volume of discharge can affect the mass Lead and COD results, both of which have improved performance indicators in 2019.* *Effluent volume is also difficult to manage given that the site captures a significant amount of rainfall for processing through the trade effluent plant as part of its Lead reduction to surface water strategy.*
4	*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 2019.* *All surface water results taken in the period 1st January to 31st December 2019 are below the BAT-AEL of 0.5 mg/l, therefore, the target for 2019 has been met.*
Item No.	2019 Environmental Tracking Items
1	*Maintain the 2018 performance indicator of 4.8598272 m³/T prod for total water per unit output by the end of 2019.* *The performance indicator at the end of Q4, 2019 is 4.1400265, therefore, the target has been met.* *It will continue to be monitored in 2020.*
2	*Maintain the 2018 performance indicator of 0.0751587 T waste/T prod.* *The performance indicator at the end of Q4, 2019 is 0.0731259, therefore, the target has been met.* *It will continue to be monitored in 2020.*

2020 Environmental Objectives and Targets	
Item No.	Environmental Objective
1	*Repeat the 2019 KWh of energy per KWh of production in 2020.* *2020 target = 48.0KW energy per KWh of production.*
2	*Reduce the scrap level from the 2019 figure of 0.59% to 0.40% in 2020.*
3	*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 2020.*
Item No.	2020 Environmental Tracking Items
1	*In 2020, maintain the 2019 performance indicator of 4.1400265 m^3/T prod for total water per unit output by the end of 2020.*
2	*In 2020, maintain the 2019 performance indicator of 0.0731259 T waste/T prod.*