Technical note: Lianhetech Energy Efficiency

1.1 Energy Efficiency

Lianhetech Seal Sands (LSS) has entered into a Climate Change Levy Agreement / EU Emissions Trading Scheme (GB-EA-ETCO2-1481) that commenced in 2013 and will run until 2025, and as such LSS are required to report on their electricity and gas consumption on an annual basis. The site regularly meets to update and discuss the on-going implementation of improvement measures as part of its Energy Plan.

The site has two key energy supplies, natural gas and electricity. The site also uses small quantities of diesel in order to operate machinery such as fork-lift trucks, although this is insignificant compared with the use of natural gas and electricity. The natural gas is used to generate heat for the boilers and is the primary fuel used on site. Electricity is used for motors on drives for various operations on site. The table below summarises the expected energy consumption of the site once the new process is operating. These figures will be confirmed within 2 years of operation following commissioning of the new process.

Table 1.1 Annual Energy Consumption (Estimated Figures for Installation once the new process is operating)

Energy Source	Delivered, MWh	Primary MWh	% Total Delivered Energy	Specific Energy Consumption (Sec) MWh/Tonne(1)	Environmental Emissions Te/Yr CO_2(3)
Electricity	14,900	35,760	14	2.48	5,936
Self Generated Electricity(2)	-	41,300	16	6.88	-
Gas	186,200	186,200	71	31.0	35,378
Fuel oil/diesel	500	500	<1	<1	130
Total	201,600	263,760	100	33.6	41,444

Note 1 – Based on a site output of 6,000 tonnes of product.
2 – Self generated Electricity included in gas usage
3 – Based on https://www.gov.uk/guidance/assess-the-impact-of-air-emissions-on-global-warming

The energy use in Table 1.1 is derived from the data in Table 1.2.

Table 1.2 Energy Capacities and Estimated Use - New Process Only

	Fuel	Installed Capacity kW	Annual Production / hours run	Annual use – Gas MWh	Annual Use – Electricity MWh
Process motors and drives	Electricity	4,900	1,500 tonnes	-	1,640
Boiler	Gas	7,900	8,000 hours	26,450	
	Electricity	100	8,000 hours	-	50
Total				26,450	1,690 (4,060 primary energy)

The specific energy consumption for the new installation will be 33.6 MWh/tonne of product.

The design and operation of the proposed LC900 process will seek to optimise the use and recovery of energy by primarily reusing waste heat in other processing steps and specifying high efficiency motors and drives, thus complying with the BAT requirements.

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