Company Note

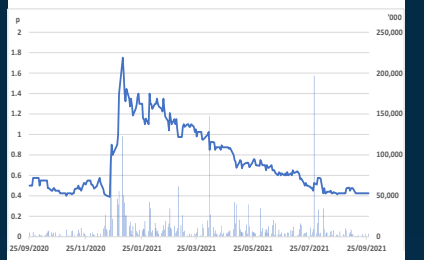
Interims

28 September 2021

Corporate

Current price	**0.425p**
Sector	**Alernative Energy**
Code	**AEG.L**
AIM	**AIM**

Share Performance



	1m	3m	12m
— AEG.L	0%	-31%	-18%

Source: Thomson Reuters, Allenby Capital

Share Data		
Market Cap (£m)		**16.6**
Shares in issue (m)		**3,902.1**
52 weeks	High	Low
	1.75p	**0.40p**
Financial year end		**December**

Source: Company Data, Allenby Capital

Key Shareholders	
Gravendonck Prvt Foundation	18.34%
Lombard Odier AM (Europe)	12.30%
Premier Fund Managers	10.20%
AXA Investment Managers UK	4.61%

Source: Company Data, Allenby Capital

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Active Energy Group plc (AEG.L)

CoalSwitch™ - important milestones achieved in H1

Active Energy Group (AEG) ended the first half with a successful initial testing result for its next generation CoalSwitch™ biomass fuel pellet. Independent analysis of the fuel produced at Ashland confirmed its superior qualities to the white pellet and its suitability for co-firing with coal. Having transitioned from a conceptual technology to biomass fuel production, AEG now needs to move quickly on the market opportunity. The next step will be the construction of an industrial scale facility. The design and build of a 70,000 tonne per year CoalSwitch™ production plant in Ashland will require additional funding but if successfully financed could be commissioned and generating revenue in 2022.

- **Interim results largely historic** – Revenue in the first half of $628k was generated from the lumber activities at Lumberton, North Carolina. These loss-making saw log and sawmill activities were closed during the half year as the Board focused its efforts and resources on the more important opportunity residing in the further development and commercialisation of CoalSwitch™.
- **Significant progress achieved in H1** – Much was achieved in the first half including a capital reorganisation and elimination of the CLN burden and a £7m equity fund raise which helped fund the Lumberton and Ashland CoalSwitch™ reference plants and initiate sales & marketing efforts. The Company has also been able to deliver CoalSwitch™ from the Ashland plant to independent third parties and to prospective customers for testing.
- **Some headwinds encountered** – However, for all the positive progress, AEG did encounter some challenging headwinds. First was the halt in the completion of the Lumberton reference plant due to the necessity to apply for an amendment to the existing air quality and construction permits issued in 2020. Secondly, production of CoalSwitch™ at the Ashland facility was suspended in early August when a monitoring component failed, causing both reactor vessels to become inoperable. Nevertheless, as noted above sufficient fuel was delivered to confirm, in an independent test analysis, that CoalSwitch™ enjoyed superior qualities to white pellets as well as its suitability as a sustainable substitute for carbon emitting fuels.
- **Further funding required** – At the end of June, net cash stood at $1.1m. In our view, the Board's next step is to move quickly to take advantage of the current market opportunities and to secure funding to design and subsequently build an industrial scale CoalSwitch™ production plant at Ashland, assuming the relevant permits are received. To date, CoalSwitch™ has been produced and supplied to twelve prospective customers for independent analysis within North America and globally - feedback has been positive.
- **CoalSwitch™ well placed to help reduce emissions from coal-fired power plants** – The world is facing an increasing demand for power and it is clear that coal, while not an environmentally friendly fuel, still has an important role to play in electricity production before renewable energy can accommodate 100% of power demand. CoalSwitch™, co-fired with coal, has been proven to provide comparable bulk density and heating values to coal but with far lower harmful emissions, thus enabling coal-fired power stations an increase in their economic life but with an improved environmental footprint.
- **An exciting future** - There is no question in our minds that the demand for a sustainable coal substitute is acute and the sooner the first commercial CoalSwitch™ plant can be constructed the better. The Group believes that it will be awarded offtake agreements as soon as it can supply product in commercial quantities, ultimately leading to the generation of significant revenues. Investors should keep the faith.

Source: Active Energy Group plc; Allenby Capital. Allenby Capital act as Nomad and joint broker to Active Energy Group plc.

Information on CoalSwitch™

What is CoalSwitch™ and where does it sit in the market?
CoalSwitch™ is a drop-in 2nd generation pelletised biomass fuel which transforms waste biomass material into high-value renewable fuels. It is a renewable fuel that can be co-fired with coal or replace existing biomass feedstock resources without requiring significant plant modifications.

As well as CoalSwitch™, the development of alternative biomass fuels is ongoing utilising various feedstocks resulting in new novel fuels with specific properties. These developments are being conducted both within the Company's ongoing internal product research and development runway and also in direct response to customer requests. This could lead to additions to the Group's already extensive IP portfolio.

EXHIBIT 3: COALSWITCH™ PRODUTION PHOTOS (w/c 7 June 2021)

Source: AEG

There are still around 12,753 coal-fuelled power stations worldwide producing 37 billion tonnes of CO2 emissions each year[1]. Therefore, governments and industry are continuously seeking more effective, environmentally safe, carbon neutral fuels to replace fossil fuels and biomass has been an obvious alternative.

To date the most common biomass replacement for existing coal-fired plants has been the white pellet. Some utilities, like DRAX in the UK, have invested billions of dollars to retrofit their coal fired power plants to accommodate white pellets, however, the cost of retrofitting coal plants has been substantial.

The cost of white pellets is also quite high, given that they must be produced from the highest quality wood to meet the very strict fuel specifications imposed by the utilities. There are also further drawbacks in using these products as compared to coal, in essence:

[1] FutureMetrics

- These pellets are typically expensive to transport long distances because of much lower bulk density.
- They typically have a substantially lower calorific value than coal (i.e. lower energy density).
- They contain salts and minerals that can damage power plant furnaces.
- Coal plant fuel handling systems and furnaces can require major, costly retrofits to accommodate white-pellet fuels.
- They can require special storage and transportation facilities to protect them from the elements and high humidity.

Despite these obvious drawbacks, some utilities such as Drax have made huge financial commitments to switching to biomass-derived fuels. Millions of tonnes of white pellets are shipped primarily from the east coast of the US annually to Drax. Similarly, other utilities world-wide have either made the switch to wood pellets (all or in part), or plan to do so over the next several years. We note that aside from several European countries, Japan and South Korea are becoming increasingly large users of biomass-derived fuels and it is believed that the US will also become an increasingly significant market over the next five years as sustainability regulatory frameworks develop.

Coal plant owners can continue to invest in new controls equipment to satisfy increasingly stringent emissions requirements, but no practical technology exists that will allow coal plants to reduce their carbon footprints. Switching from coal to a typical biomass-derived fuel (all or in part) will allow the plant operator to reduce the plant's carbon footprint, but not without incurring huge capital costs and maintenance challenges.

Conversely, CoalSwitch™ is not a typical biomass-derived fuel. In fact, CoalSwitch™ is unlike any other biomass-derived fuel on the market. Independent analysis of the CoalSwitch™ pellets produced at the Ashland facility in June 2021 was conducted by the Wood Science and Technology Centre at the University of New Brunswick. The results of this first analysis confirm that CoalSwitch™ has superior qualities to white pellets as well as its suitability as a sustainable substitute for carbon emitting fuels.

The CoalSwitch™ pellets were produced from waste wood located in the vicinity of Ashland, Maine. The pellets were analysed for their proprietary qualities, namely the quality of the pellet produced from the Ashland facility, its heating value and organic elemental analysis in a laboratory environment.

The results from the first analysis are as follows:

CoalSwitch™ pellets were produced to industry standard size and met the initial hydrophobic tests set by the Pellet Fuels Institute;

CoalSwitch™ pellets produced from Ashland had a bulk density of 42.17 lb/ft3 (or 672 kg/m3) - a substantial premium to existing white pellets;

CoalSwitch™ pellets when burned produced less ash (circa 3% inorganic ash) - a significant reduction to customary ash content for coal at circa 11% ash content;

CoalSwitch™ pellets in the elemental analysis contained circa 55% carbon and less than 0.5% sulphur content - a significant improvement from white pellet; and

CoalSwitch™ pellets had an increased heating value over white pellet, namely 10,042 btu/lb (with the potential for even greater heating value yields by reducing the moisture content which was attained during first production).

In summary, CoalSwitch™ is the leading drop-in renewable fuel that can be co-fired with coal and offers superior thermal properties compared to white pellet.

Coal

Calorific Value:	**23.6 MJ/Kg**
ASH %:	8.5%
Quantum of Feedstock required	-
Bulk Density:	>800 kg/m³

White Pellets

Calorific Value:	**17 MJ/Kg**
ASH %:	~ 3%
Quantum of Feedstock required	-
Bulk Density:	500 kg/m³
Feedstock:	**High quality timber required**

Source: AEG & University of Utah

CoalSwitch™ Pellets

Calorific Value:	**23 MJ/Kg**
ASH %:	>1%
Quantum of Feedstock required/kg fuel	2.1kg
Bulk Density:	>700 kg/m³
Feedstock:	**Feedstock agnostic: waste wood - all types & qualities**

THE BENEFITS - COALSWITCH™:

- ✓ removes essentially all soluble minerals from the feedstock
- ✓ is an essentially a sulfur-free, carbon neutral alternative
- ✓ is hydrophobic - does not require any special storage facilities
- ✓ can be blended with coal at the conveyor or supplant coal entirely – without significant retro fitting for existing coal fired power stations

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