

**TRANSFORMING WASTE  
BIOMASS MATERIAL  
INTO **NEXT GENERATION**  
BIOMASS FUELS**

**Sept 2022**

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- **Active Energy** is a London quoted AIM listed renewable energy company
- **Active Energy** is focused on the production and development of a next generation biomass pellet: **CoalSwitch®**
- **Active Energy's** industrial process has been proven to transform low value residual biomass material into high-value renewable biomass fuel
- **Active Energy** owns existing intellectual property for the manufacture of **CoalSwitch®** and all associated trademarks
- **Active Energy** is led by an experienced Board and Management team with operations in the UK and US



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**Interim Results  
Six Months Ending  
30<sup>th</sup> June 2022**

	June 2022 Unaudited US\$	December 2021 Audited US\$	June 2021 Unaudited US\$
Non-current assets	14,462,245	18,094,252	20,481,868
<b>Current assets</b>	<b>5,035,224</b>	<b>3,597,080</b>	<b>2,312,983</b>
<b>Cash and cash equivalents</b>	<b>4,097,214</b>	<b>1,940,871</b>	<b>1,987,529</b>
Trade and other receivables	938,010	1,628,959	84,107
Other	-	27,250	241,347
<b>Total Assets</b>	<b>19,497,469</b>	<b>21,691,332</b>	<b>22,794,851</b>
Current liabilities	964,377	1,236,043	2,576,204
Non-current liabilities	141,032	291,280	148,744
<b>Total Liabilities</b>	<b>1,105,409</b>	<b>1,527,323</b>	<b>2,724,948</b>
<b>Net assets</b>	<b>18,392,060</b>	<b>20,164,009</b>	<b>20,069,903</b>

	June 2022 Unaudited US\$	December 2021 Audited US\$	June 2021 Unaudited US\$
<b>Continuing operations</b>			
<b>Gross profit/(loss)</b>	-	(517,238)	-
Other operating income	-	361,237	364,631
Impairment of assets	-	(2,000,000)	-
Administrative expenses	(1,324,274)	(3,191,554)	(1,407,387)
<b>Operating loss</b>	<b>(1,324,274)</b>	<b>(5,347,555)</b>	<b>(1,042,756)</b>
Net finance gains/(costs)	3,151,471	382,208	(443,731)
Taxation	-	2,790	1,395
<b>Profit/(Loss) - continuing operations</b>	<b>1,827,197</b>	<b>(4,962,557)</b>	<b>(1,485,092)</b>
Loss from discontinued operations	(1,292)	(919,211)	(554,224)
<b>Profit/(loss) for the period</b>	<b>1,825,905</b>	<b>(5,881,768)</b>	<b>(2,039,316)</b>

- **The successful sale of AEG's Lumberton property to Phoenix Investors LLC was completed by 31 June 2022 with:**
  - Gross consideration of US\$4.65 million
  - Net cash proceeds of US\$3.92 million
- **Additional equipment sales from the Lumberton site generated an additional US\$100k**
- **Post period, CoalSwitch® production equipment was transferred from Lumberton to the Ashland Facility**



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## **Business Update**



- **Biomass has a key role in future renewable energy supply and energy security**
  - COP 26 provided declarations on sustainable bio-energy with targets set to 2050  
...but white pellet is an old technology and is falling short on environmental targets
- **CoalSwitch® has substantial advantages over existing biomass fuels:**
  - Exclusively uses waste biomass residuals as feedstock
  - Pellets can be produced to all industry standard sizes
  - Meets all standard hydrophobic testing
  - Ensures increased heating and bulk density vs existing white pellet
  - Ability to be co-fired with coal

**AEG has proven the industrial process,  
created a proven product and is accelerating customer interest worldwide**

**INITIAL CONCLUSIONS:**

**CURRENT PROVEN RESULTS:**

- Feedstock focused on wood residuals



- Initial production at Ashland from local waste residuals completed

- Proven higher heating value than white pellets and on a par with coal



- Latest test burns show a coal / **CoalSwitch®** calorific value of 10,072 Btu/lb and a 12.9% heating value improvement over white pellet

- Reduction in emissions in burning when co-firing with coal



- Significant reduction in Ash (↓77%) CO2 (↓98%), SOx and Nox

- Fuel can be co-fired in existing power and industrial plants with no significant capital expenditure



- 2021 STEP program proved the ease of grindability of **CoalSwitch®** when co-fired with coal



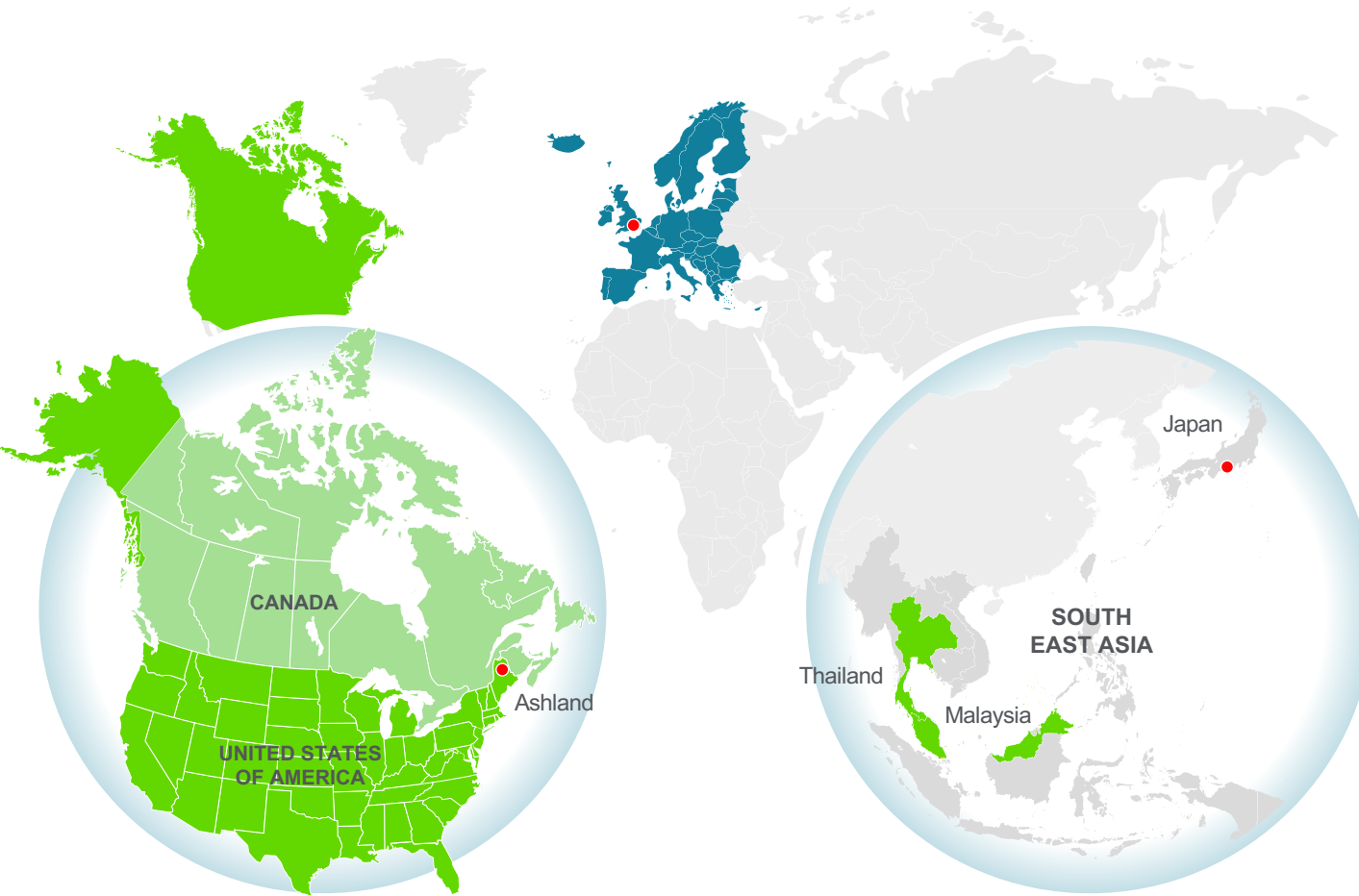
*CoalSwitch® Fuel*



*Lumberton plant 2021*

**STEP Program Partners:**





● Patents awarded for **CoalSwitch®**

● Patents pending for **CoalSwitch®**

● AEG centre

## SUMMARY:

- International Opportunities for production beyond the US
- Current prospective markets include:
  - Malaysia
- Future customers require:
  - A review of an operational Production plant; and
  - Production data
- AEG expects long lead times for international production opportunities

## PRODUCTION PATENTS CURRENTLY AWARDED IN:

- USA
- Canada
- Malaysia



## CONTINUING PRODUCT TESTING AND ENVIRONMENTAL CERTIFICATIONS

- Focus on **CoalSwitch®** pellet properties and improving manufacturing process
- Test program established in US, Canada and Europe
- Test program advancing in Japan
- Award of Chain of Custody controlled wood certificate by FSC® May 2022
- Lifecycle Cycle Associates Report on Greenhouse Gas Emissions - June 2022



The mark of  
responsible forestry



## ACCELERATING INTEREST ACROSS INDUSTRIES AND GEOGRAPHIES

- Marketing focus on heavy industrial coal users not only power utilities
- Customer interest accelerating due to:
  - forthcoming environmental regulation concerns
  - coal supply constraints
  - seeking alternate fuels to white pellet supplies
- Renewed interest in next generation black pellets in Japan and Europe



March 2022: Utah testing unit



## FOCUSING ON FUTURE CONSTRUCTION AND PRODUCTION

- Prime focus on completion of first industrial scale **CoalSwitch®** production plant – **Ashland provides the immediate platform**
- Engineering and design processes for **CoalSwitch®** production complete
- Establishes first operational facility which can be replicated



**CoalSwitch®** production at Ashland July 2021

*Key partners in Maine:*

- Site is already an operational production facility for wood products with existing permits:
  - land, site use, waste disposal and emissions
- Additional permitting for **CoalSwitch®** in progress
- PDI is constructing the facility and dealing with all permit issues
- Site has the key infrastructure to create the production platform



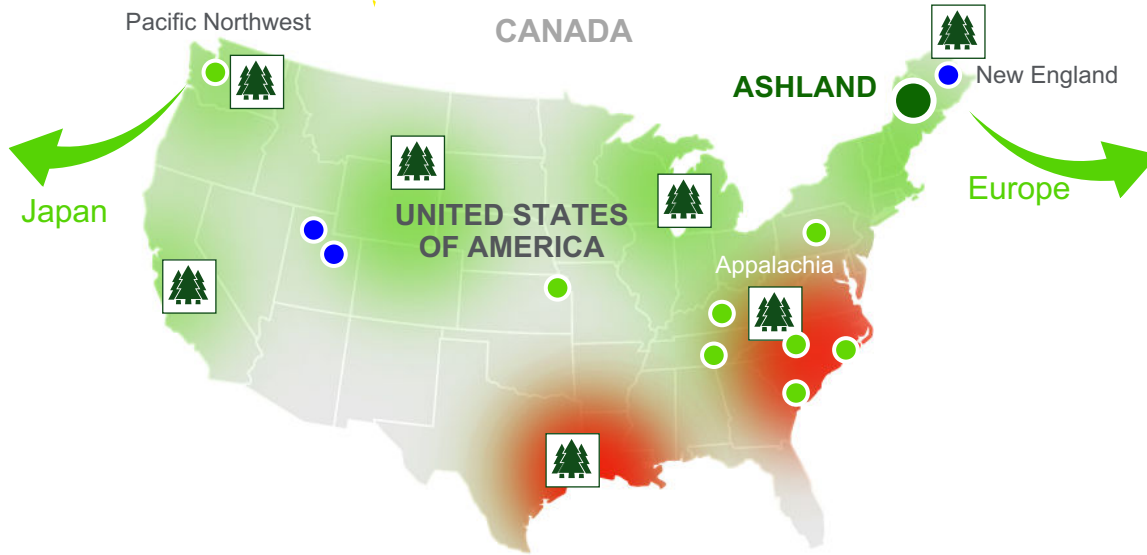
Ashland Factory facility


**CoalSwitch®** Reference plant – Sept 2022

Ashland Facility , 2022

**First production volume scheduled for Q1 2023**


## Immediate Sales Opportunities ...in the US and Canada




 = Available Timberstock

**Feedstock Regions, \$60/ton, product density > 50 tons/square mile**

Source US Department of Energy March 2022

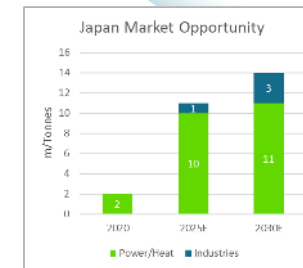
 University testing partners in US and Canada

 Commercial testing **CoalSwitch®** partners

 Current production centres for biomass

**- Recruited sales and marketing personnel in US**  
**- Team has extensive experience in biomass, utility and coal industries**

## Japan – Regulatory and market momentum for biomass



*Likely to represent circa 20% of global biomass demand by 2030*

- AEG has accelerated sales activity through 2022
- Discussions underway on long-term supply contracts for 2023/2024
- Future customers include Industrial Companies, Trading Houses, Finance Institutions and power companies

### Current Legislation:

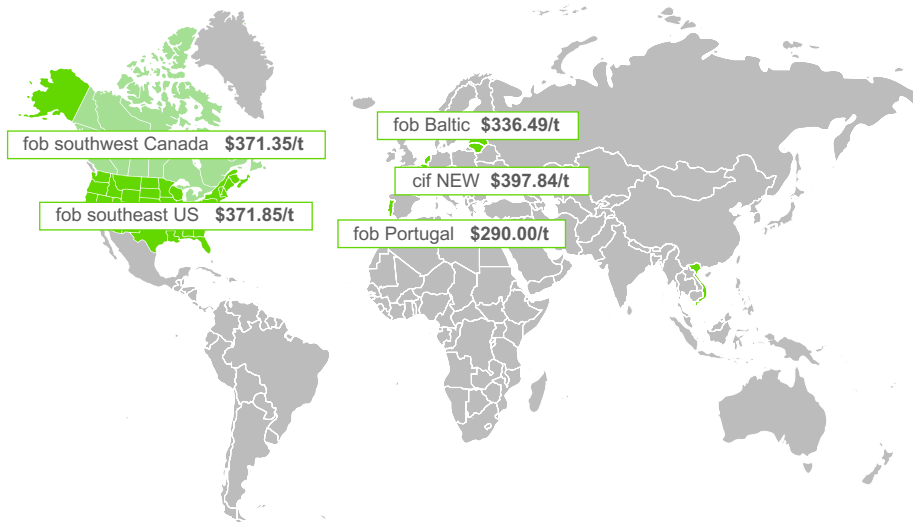
- It created clean energy jobs
- To make the tax code fairer
- Lower health care costs
- Revitalised American manufacturing
- Build America's clean energy supply chains incentivising domestic production in clean energy technologies
- Strengthen America's manufacturing base
- The provision of clean energy tax credits

### AEG's Opportunity:

- This will accelerate demand for **CoalSwitch®**
- Will unlock new funding opportunities for the sale of **CoalSwitch®** technology
- Accelerate project development for additional **CoalSwitch®** production sites in the US
- Financing opportunities include loan guarantees, tax incentives & grant funding

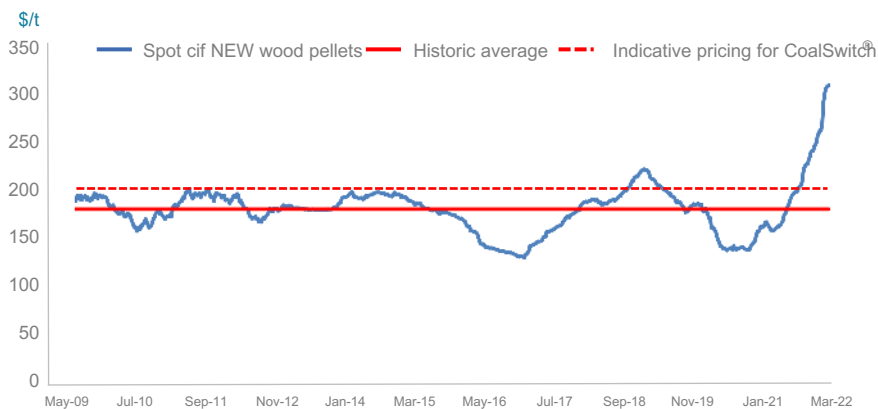
**Huge opportunity for AEG & CoalSwitch®**

## Industrial wood pellet spot prices at a glance

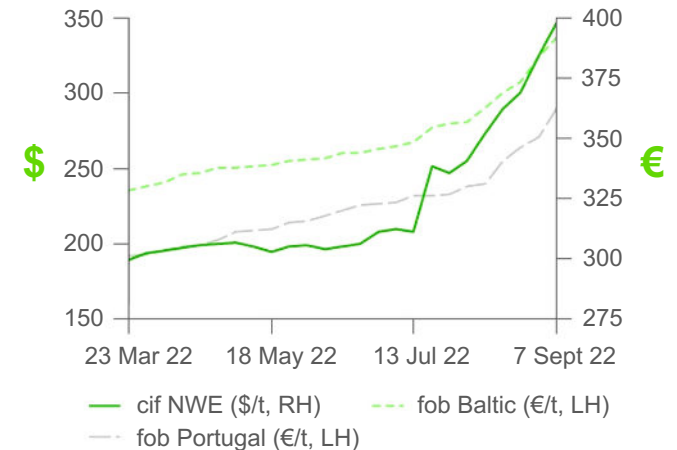


- **CoalSwitch®** should have a premium to current pellet pricing
- Pricing strengths for **CoalSwitch®**
  - More GJ per tonne
  - Less ash deposition in co-firing
  - Higher bulk density - lower transportation costs per tonne
  - Emissions benefits in co-firing

## Industrial CIF NEW spot index at historic heights



## Industrial wood pellet index





## Indicative production capacity growth plan for CoalSwitch®

up to  
**500,000  
tons**

Production capacity growth



**2024**

- Expand production capacity, in North America and Internationally
- Establish production joint ventures

**2023**

- First production facility in operation in US
- Expansion of the facility and/or commence construction of additional production facilities in North America

**2022**

- Additional independent and customer testing
- Finalise production process and reactor design
- Construction of first industrial production scale facility in Ashland, Maine by PDI commences

- ✓ **CoalSwitch®** has transitioned from a concept to a proven deliverable energy pellet
- ✓ AEG now has the manufacturing process know how to deliver **CoalSwitch®** in volume
- ✓ Market Interest for black pellets increasing from power generation and heavy industries
- ✓ **CoalSwitch®** production timetable confirmed and expansion planning has commenced
- ✓ Partnership with PDI



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