



CoalSwitch® :

THE NATURAL EVOLUTION

FOR BIOMASS

11th July 2023

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2022

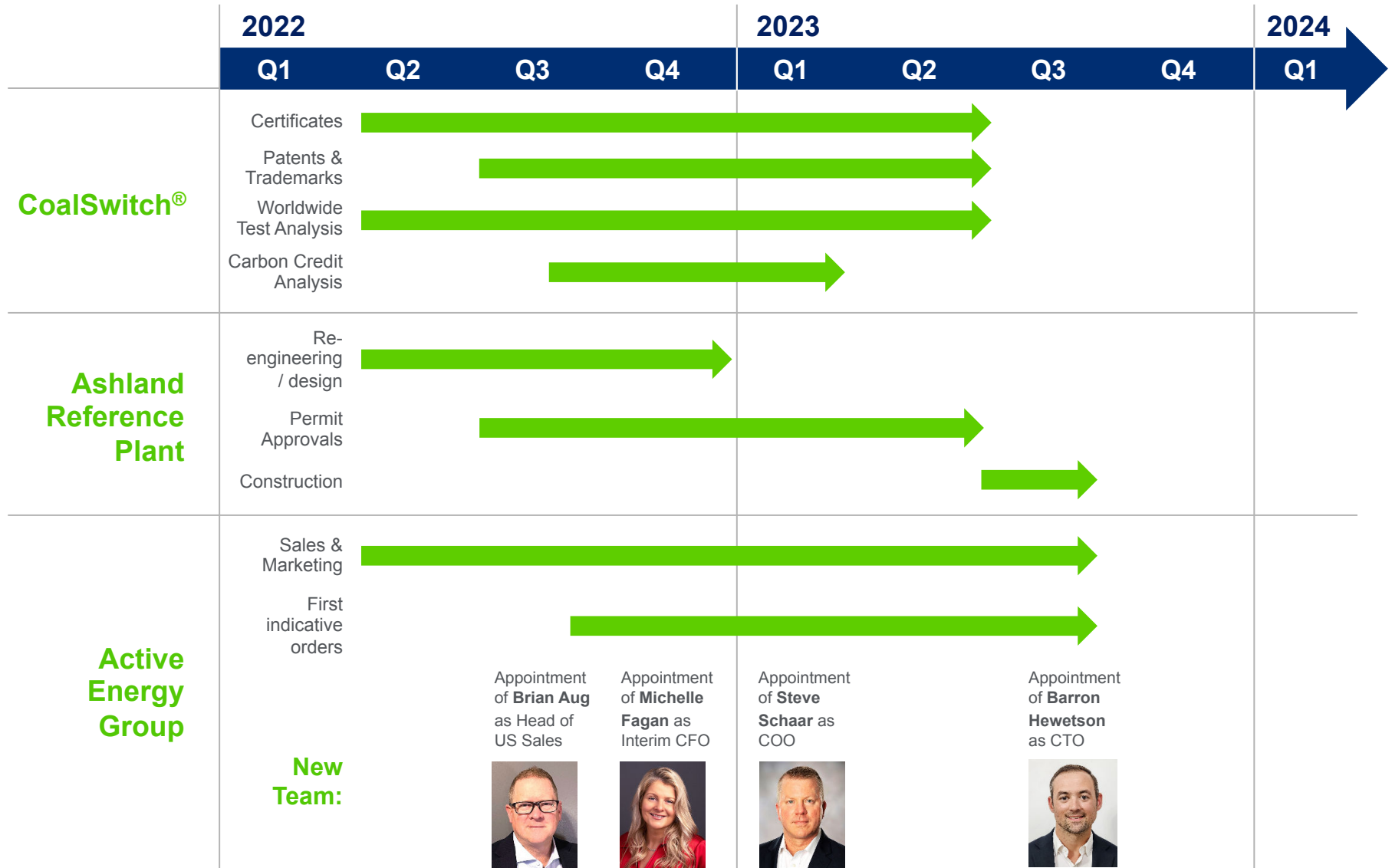
- AEG commences strategic plan to differentiate from existing competition
- AEG focuses on Sales and Marketing
- AEG partners with PDI to create technology for first production volumes

2023

- Ashland Reference Plant - Permit / Construction
- Full **CoalSwitch**[®] fuel deliveries
- Developing production technologies for **CoalSwitch**[®]

2024

- Expand U.S. Operations and Joint Ventures
- Execute **CoalSwitch**[®] tertiary revenue streams
- Evolve **CoalSwitch**[®] pyrolysis methodologies & secure I.P.



**Permit received by PDI – May 2023.
Construction underway / Key components arriving on site.**


Partners:

Ashland Owner:



pdi
PLAYER DESIGN, INC.

Current Operations:



MAINE FLAME

Site:



Ashland factory facility - 2022

Equipment:

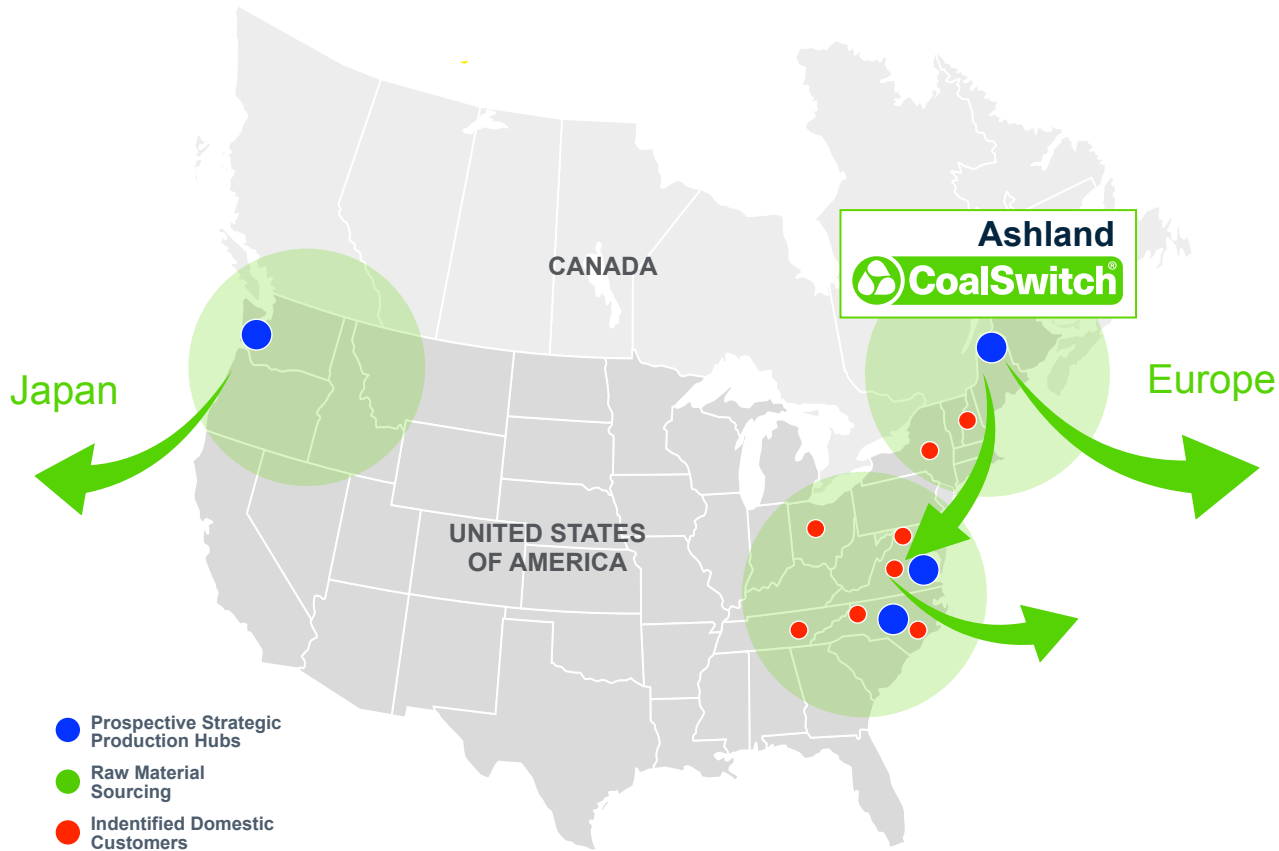


Ashland factory facility equipment – July 2023

Location:



PDI confirms first production volumes scheduled for Q3 2023



- Establish **CoalSwitch®** as the international standard for 'black pellets'
- Actively in discussions on joint venture production opportunities
- Continue to develop customer-driven tailored technologies through evolution of the **CoalSwitch®** product and production process

Providing a superior coal replacement targeted for speciality commercial use through domestic and international partnerships



About CoalSwitch®

- Fuel
- Economic Opportunity
- Product Opportunity

- **It is a better pellet**
 - Higher heating value than current white pellet production
 - Proven hydrophobic qualities
 - Handles and burns like coal, but with 90% fewer net emissions
- **Exclusive use of low value waste feedstock**
 - Beneficial re-use of waste reduces net lifecycle emissions of finished fuels
 - **CoalSwitch®** pellet fuel meets established sustainability standards
 - Identified multiple waste resources for flexibility & scale
- **Extensive Testing Program shows consistent burn test results**
 - **CoalSwitch®** has been tested for its proprietary qualities as a biomass fuel and for its co-firing performance with coal.
 - Prospective customers own testing confirms reduced emissions levels.

The first premium pellet that can be blended with coal



Samples March 2023
Source: Active Energy



SAN RAFAEL
Energy Research Center



Source: BYU



Source: BYU

Test Parameters

- Testing performed at a test furnace designed to mimic a utility scale pulverized coal boiler
- Successfully tested with bituminous coal at 5 different blend ratios
- No measured mill or boiler modifications necessary
- No issues with flame stability during combustion

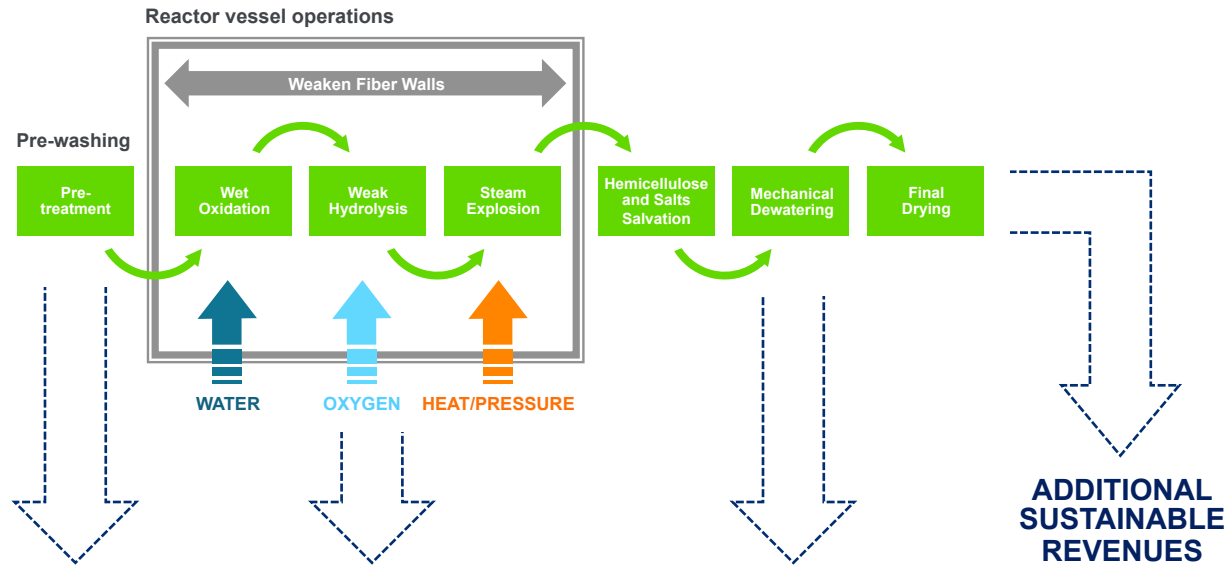


Test Results

Reduction in ash deposits the greater the ratio of **CoalSwitch® used:**

- Less heat transfer resistance = greater efficiency
- Less restriction of the flow of flue gas
- Less removal of ash = reduced operating cost and process downtime
- Less slagging and fouling = less damage to furnace boiler tubes

CoalSwitch® 1.0 : Indicative production process



Active Energy Revenue Opportunities:



Compliance programs

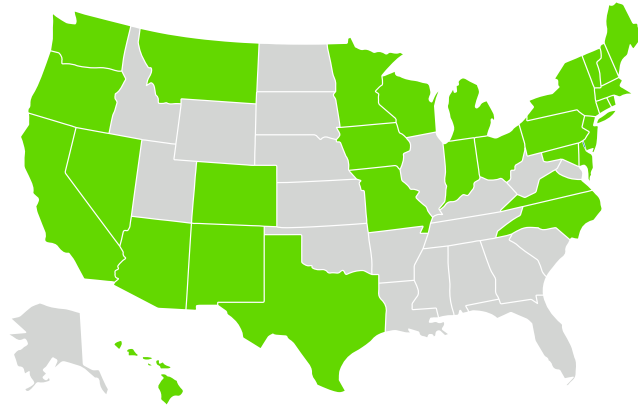
Renewable Portfolio Standard (RPS) Programs

Compliance Carbon Programs

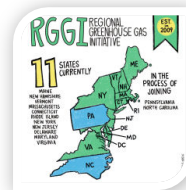
Voluntary Carbon Programs

Voluntary REC Programs

US States with active RPS programs and targets

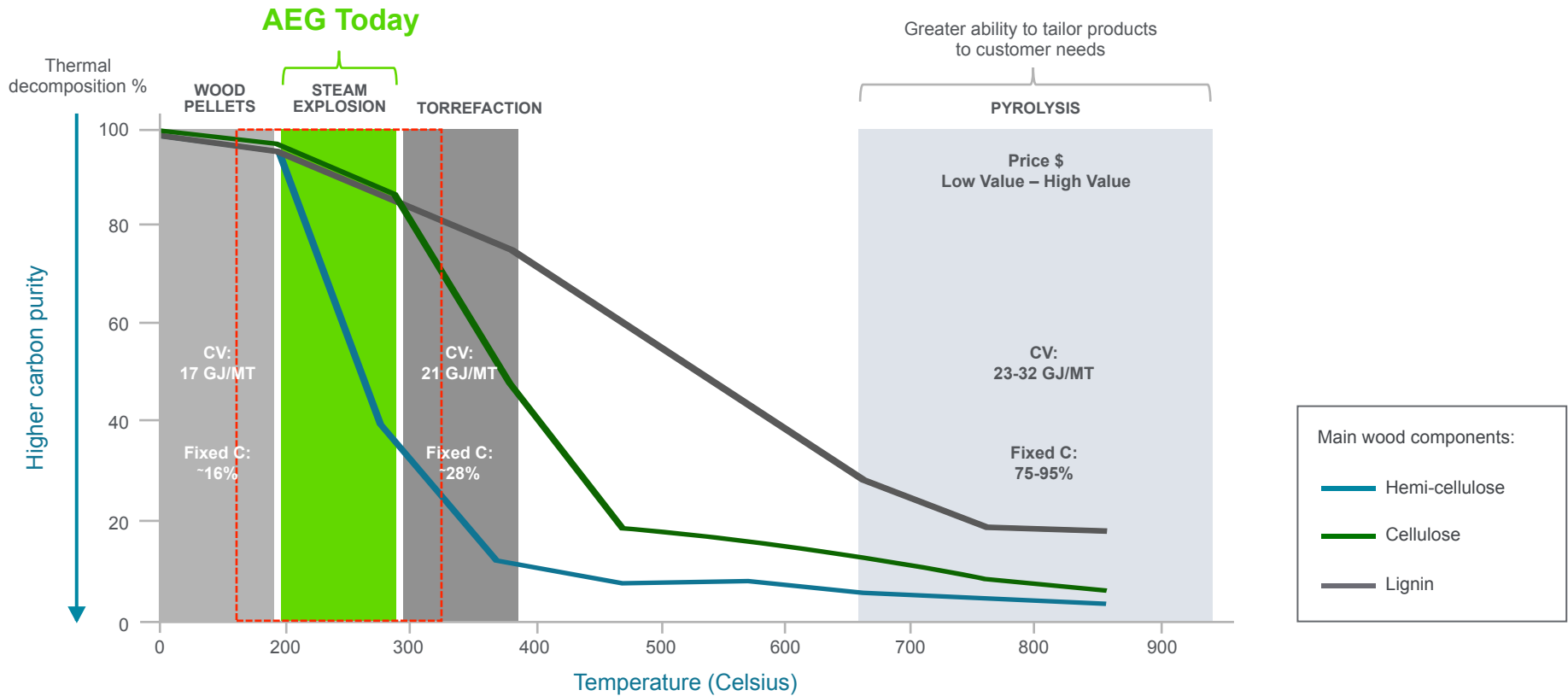


Source: Berkeley Lab, Karbone



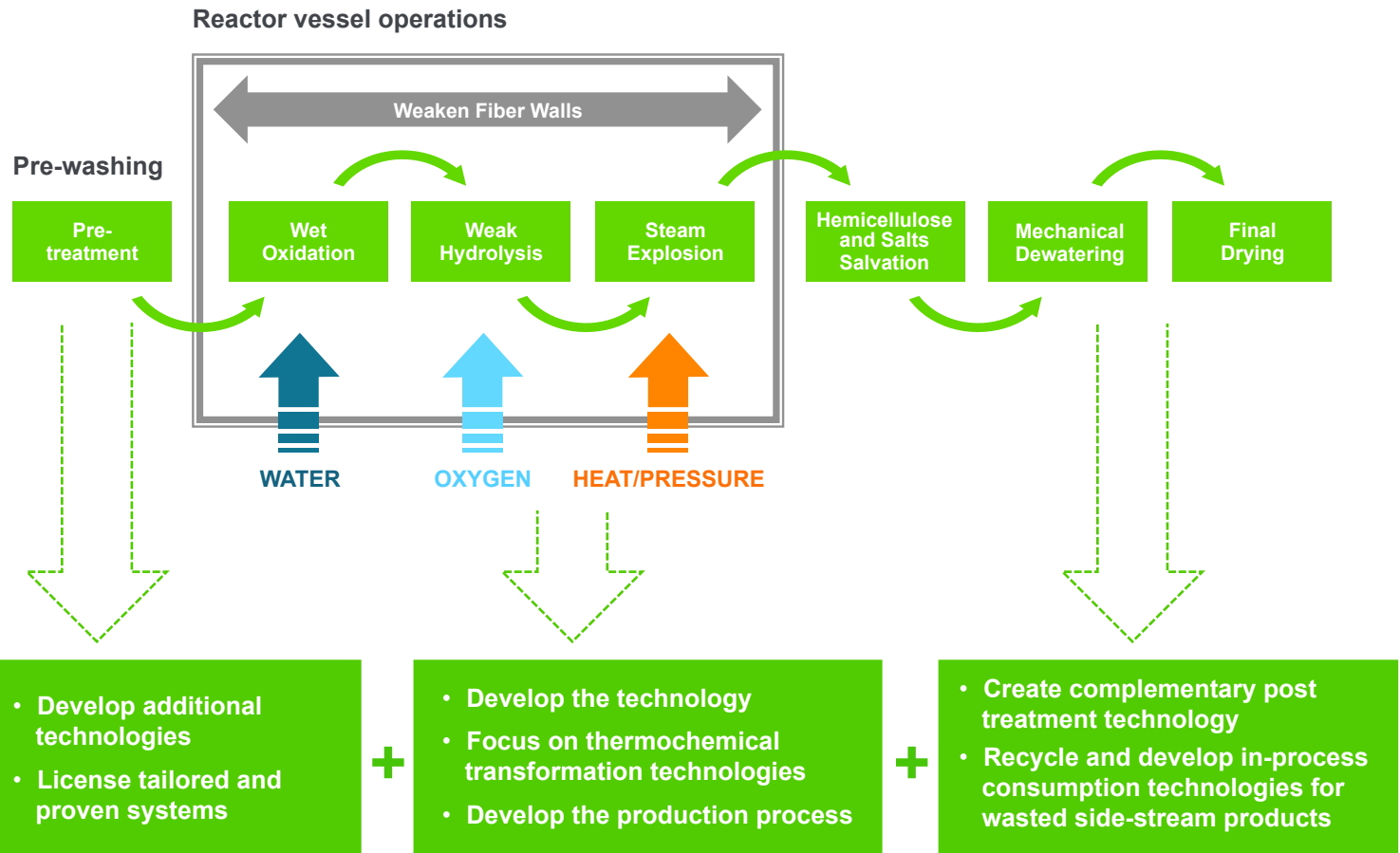
- Utilities and power providers that substitute **CoalSwitch®** for coal can both meet requirements for emissions reduction AND qualify for Renewable Energy Credits.
- Hard to decarbonize industries that substitute **CoalSwitch®** for coal can reduce emissions to meet requirements as well as reduce spending on costly offset credits on markets like the VCM or RGGI.
- **CoalSwitch®** can turn a pure cost (feedstock) into either a cost-neutral or profitable proposition **while also achieving a customer's ESG corporate goals.**

Eligibility for Credit Programs – Important Components



Transforming wood toward higher value fixed carbon products

CoalSwitch® 1.0



- **Technology Opportunity.** Addition of COO and CTO accelerates need to further innovate and improve core technology to produce more fuel, more efficiently and more sustainably.
- **Leverage Inflation Reduction Act.** Change of regulations by U.S. government has created significant funding or grant opportunities.
- **Worldwide Product Opportunity.** Churn within white pellet space leading to increased interest in black pellet. We must develop market share fast to establish **CoalSwitch®** as a market standard.
- **Corporate Opportunity.** Active Energy's rising profile leading to increasing opportunities for joint venture acquisitions or other collaborations. We must be in a position to take advantage.



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