Severn Wye Energy Agency

RE-DIRECT: Next Steps in integrating AD and thermochemical conversion routes to maximise outputs

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Interreg North-West Europe Re-Direct

European Regional Development Fund

The Project

Regional Development and Integration of unused biomass wastes as Resources for Circular products and economic Transformation (Re-Direct)

Background

There are 34 MT of residual biomass across the North West Europe partner regions involved.
At present this is either left to rot, burnt on site or transported for low value product.

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Aims

- Increase the resource efficiency by transforming residual biomass into a high-quality product;
- Develop regional-specific biomass portfolios and integrated biomass concepts;
- Conduct scientific investigations to underline the sustainability of the developed technology both in ecological and economical aspects;
- Establish the worlds first industrial IFBB plant incl. a pyrolysis and activation unit to produce activated carbon;
- Investigate opportunities for applying the technology decentrally in rural areas;
- Explore the effects on disadvantaged areas in terms of creating new green jobs.

Prograss

Integrated approach, conserving semi-natural grasslands whilst generating energy sustainably.

Characterised by a high proportion of lignocellulose and minerals.

Difficult to use in conventional systems like biogas production or hay combustion.

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Combine

Producing storable solid fuel with a highly energy-efficient process

Utilising biomass from extensively used grassland areas and landscape management, which can neither be used in animal feeding nor in conventional energetic conversion technologies

Increasing the efficiency of biomass supply chains, through the addition of a year-round heat sink in distributed biogas or AD plants and by new harvesting and conditioning techniques.

Creating new energy supply chains from biomasses in the project regions and beyond

Securing livelihood for small farmers and disadvantaged persons in retreated areas through the creation of new income sources and regional added values with renewable energy production

Contributing to reducing the conflict between bio-energy and food production by exploring and utilisation of new raw materials.

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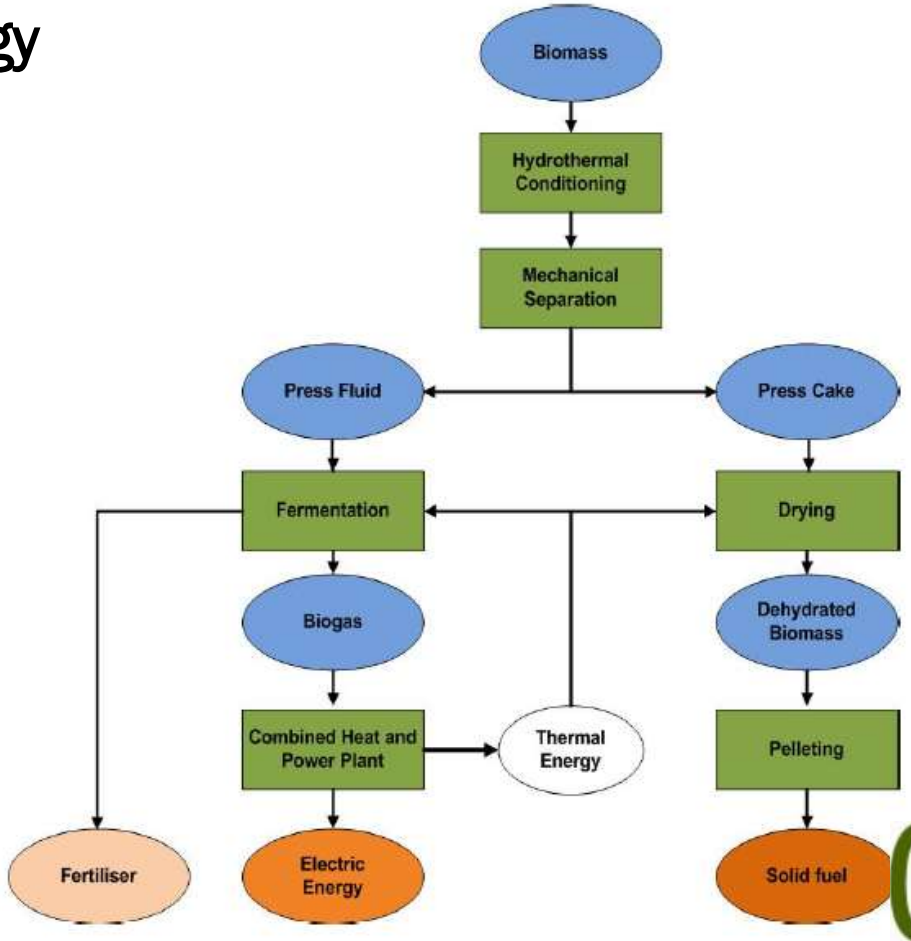
IFBB technology



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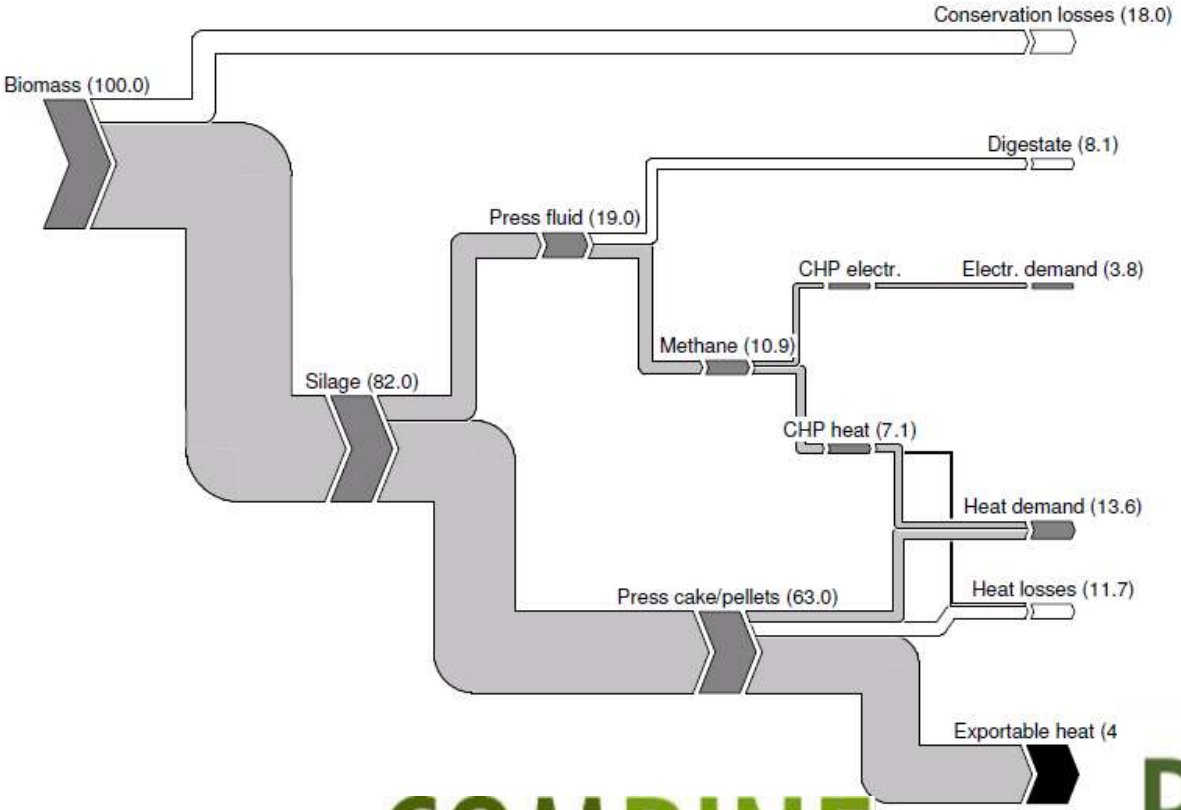
Conclusions:



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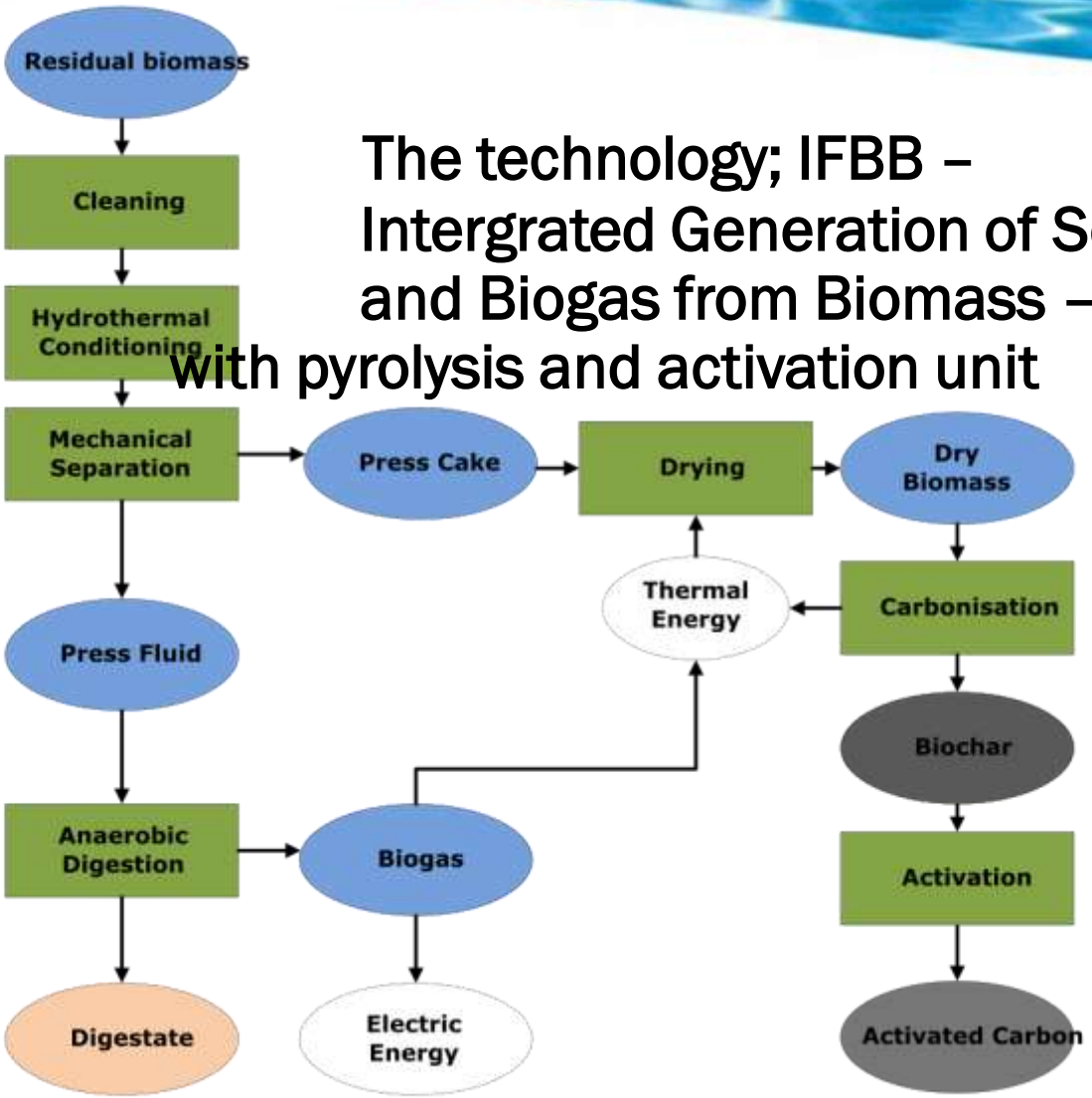
Conclusions cont.

Both environmental and economic benefits

Concerns over technologies implementation in the UK due to:

- Waste regulations
- Water requirements of IFBB
- Accreditation of fuel and boilers

The technology; IFBB – Intergrated Generation of Solid Fuel and Biogas from Biomass – extended with pyrolysis and activation unit



The Re-Direct system

- Washing of the samples
- Hydrothermal conditioning
- Mechanical dewatering
- Sample preparation
- Slow pyrolysis
- Activation

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What does that mean in practice?

- An on farm IFBB pilot plant in Wales.
- A replicable sustainable model for the production of added value carbon products from waste biomass.
- Environmental benefits
- Economic benefits

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Challenges & Barriers

- New technology
- Upfront costs
- Sustainability of feedstock
- Additional land management
- Industry stability

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What's next?

- Development of the pilot on farm IFBB plant
- Identify sustainable feedstock
- Identify product chains
- Identify new regions and partners interested in the technology
- Develop a realistic & sustainable model for Wales

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Thank you for listening

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