



Bioenergy

ETI10 | TEN YEARS
OF INNOVATION
2007 — 2017

#ETI10



Introduction to the Bioenergy Programme

ETI Strategy Manager - Hannah Evans
ETI Programme Manager – Geraint Evans



Agenda



1. Introduction

- Bioenergy Team
- 2008-9 Reflection
- Value of bioenergy in the energy system
- Key questions

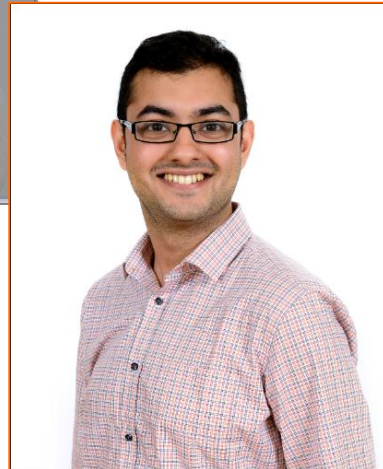
2. Reflections from Project Participants

- Ausilio Bauen, E4tech
- Jeanette Whitaker, Centre for Ecology and Hydrology
- Kamal Kalsi, Waste Gasification Project

3. Key programme achievements and future activities



The Team





2009 – Where were we?

Progress: biofuels

Progress: bioenergy

Progress: Wastes

Issues & concerns

Assumptions & gaps

Direction

System thinking



A route to meeting - 80% CO₂ for the UK

Power now, heat next, transport gradual – cost optimal

CCS commercialised, renewables & nuclear deployed

Heat (buildings) reducing as gas boilers swap to electric, H₂, District Heating

Negative emissions through bioenergy + CCS

Power almost zero carbon

Heat almost zero carbon, transport remains

-80% target
(net)

Bio credits, including
“negative emissions”

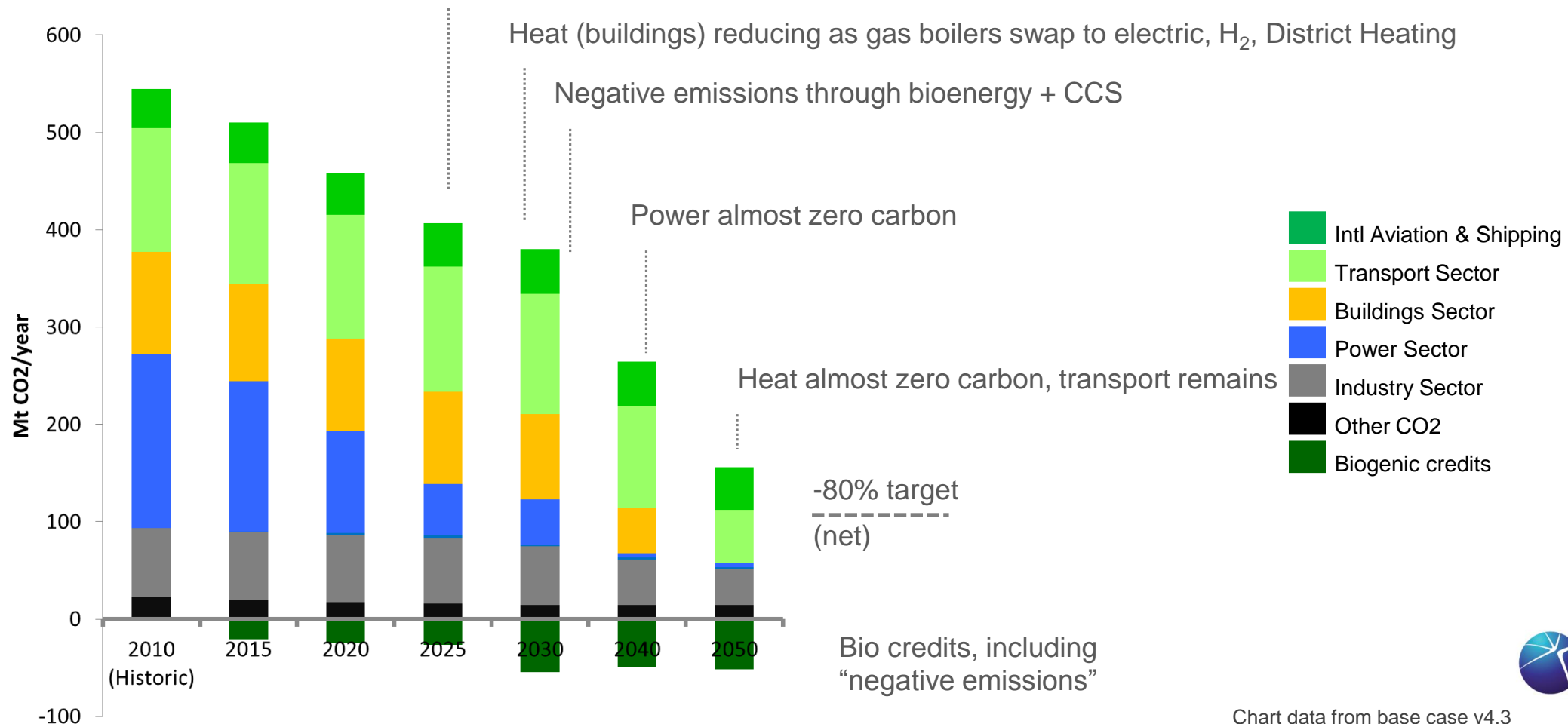


Chart data from base case v4.3



ETI's 'ESME' model indicates an important role for bioenergy and CCS in the UK

Additional cost of delivering 2050 -80% CO₂ energy system

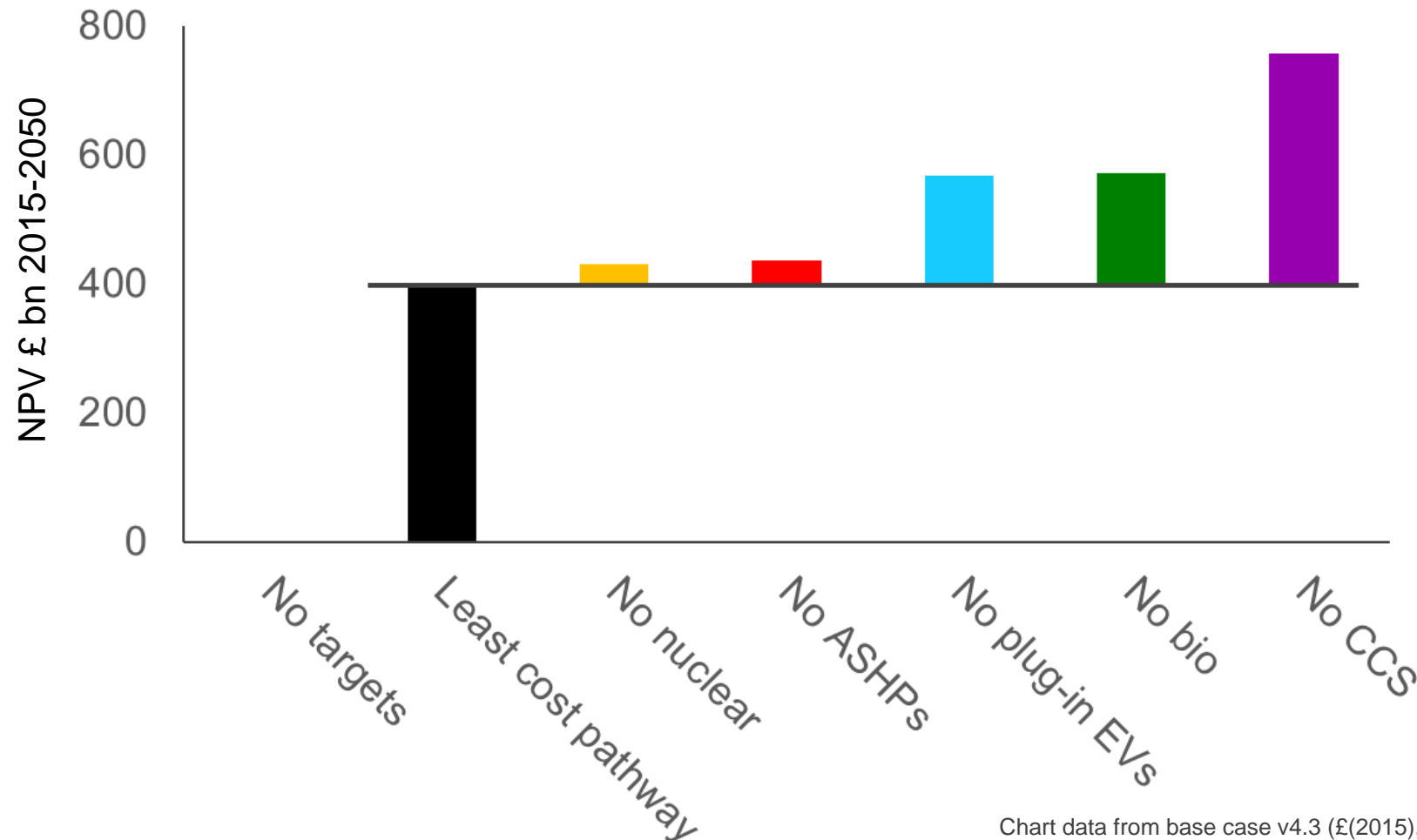


Chart data from base case v4.3 (£(2015), DR: 3.5%)



Bioenergy Programme – key questions

How much negative emissions could be realised through bioenergy deployment in the UK?

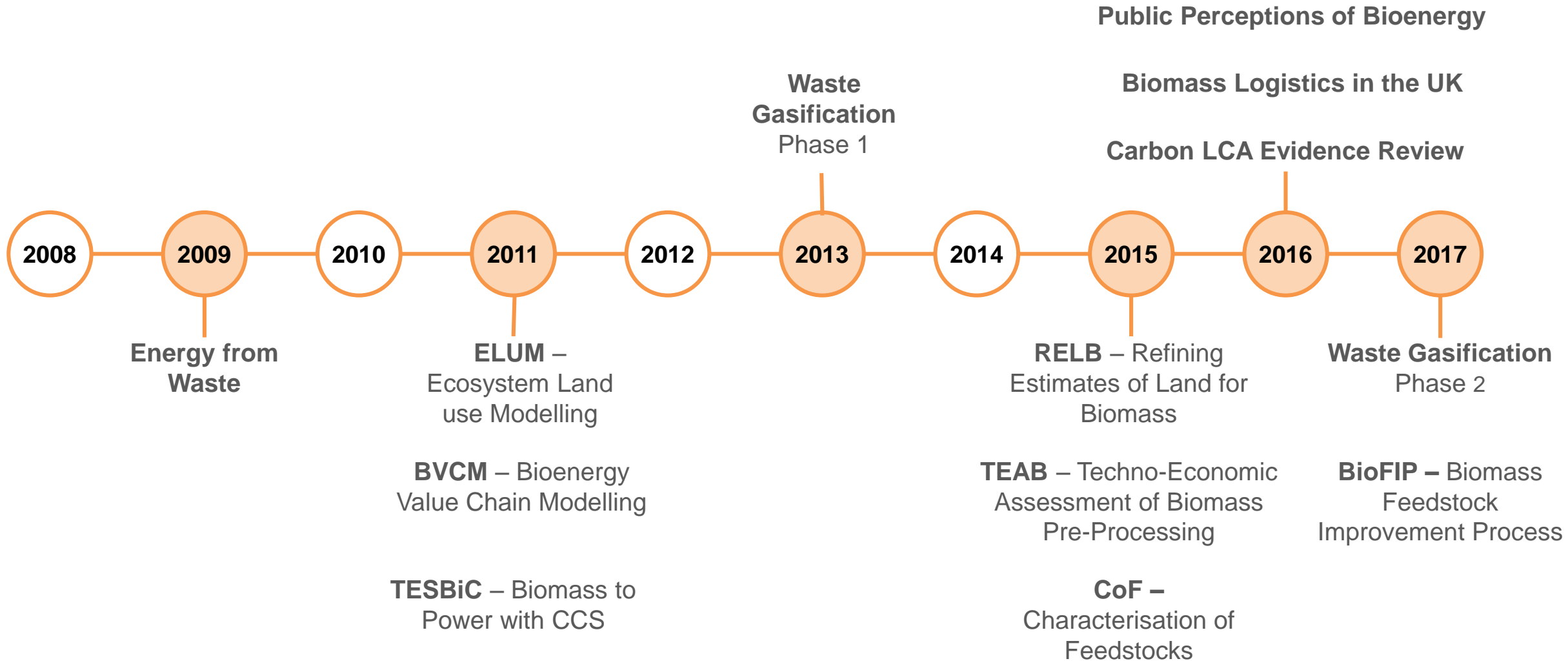
What would be the best ways to use this bioenergy in the future UK energy system?

What are the right combinations of feedstock, pre-processing, and conversion technologies?

Enabling policy, regulatory and market frameworks.
Understanding public perceptions



Bioenergy Programme



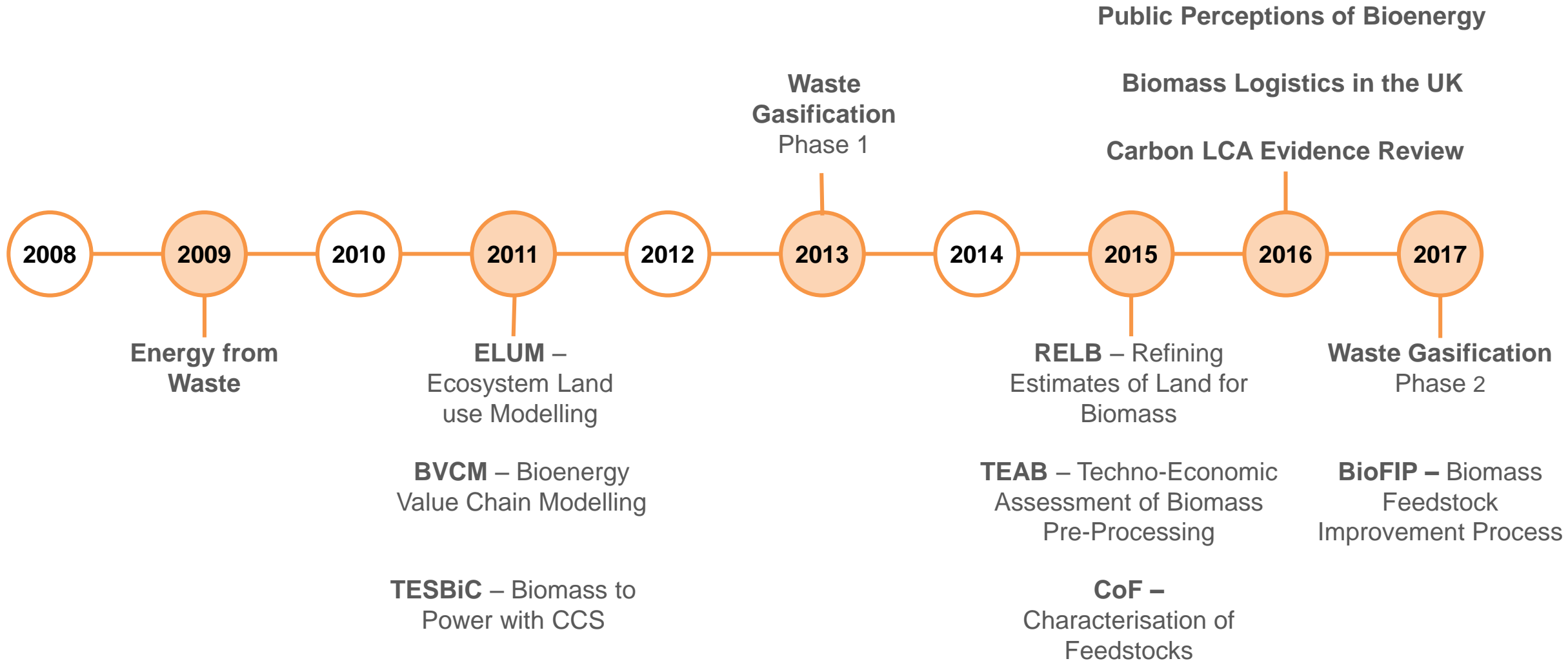


Key Programme Achievements

ETI Strategy Manager - Hannah Evans
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Bioenergy Programme





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Bioenergy Programme Impact

Systems Thinking –
Best use of
Bioenergy

Land Use

Land Use Change

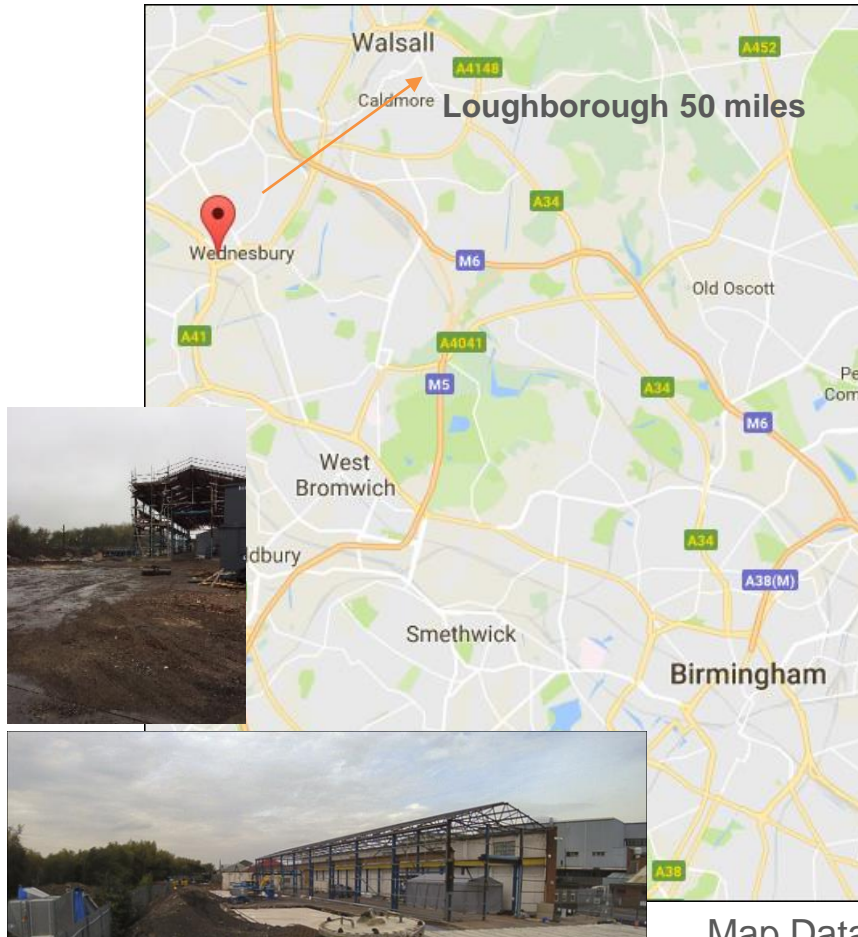
Biomass Feedstocks
and Pre-Processing

Identifying resilient
technologies:
Gasification

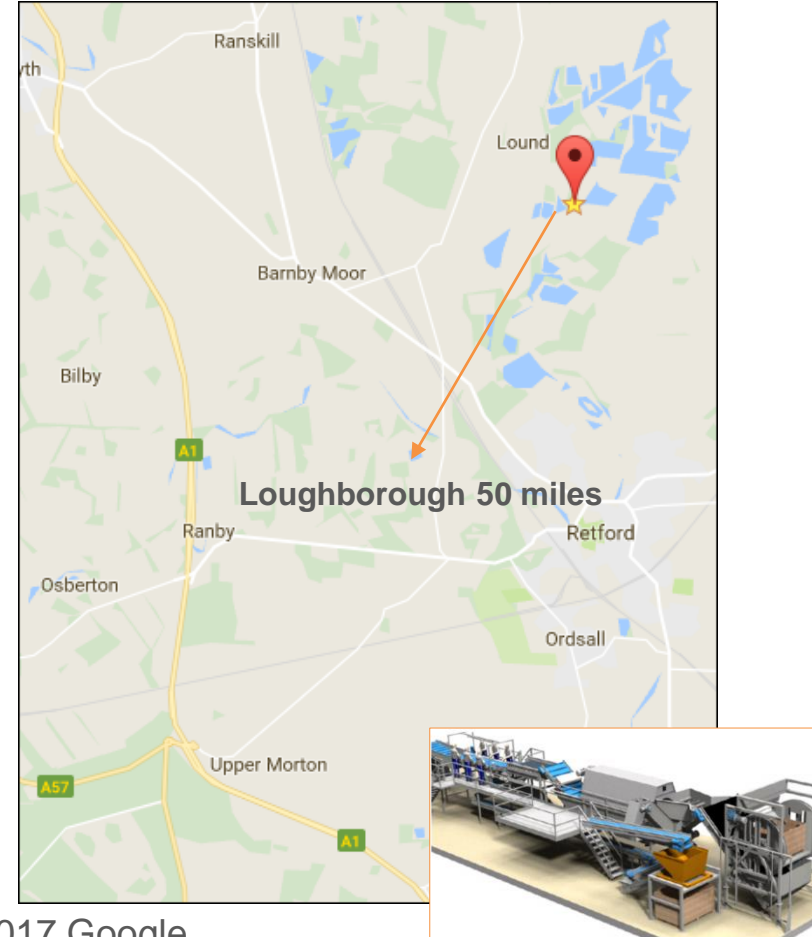


ETI bioenergy – where next?

Waste Gasification Demonstration



Biomass Pre-treatment Demonstration



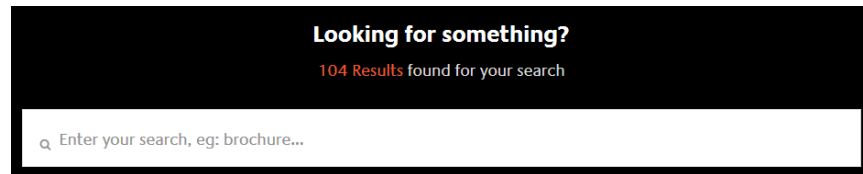
Map Data @2017 Google



Thank you for listening

ETI Knowledge Zone

<http://www.eti.co.uk/programmes/bioenergy>

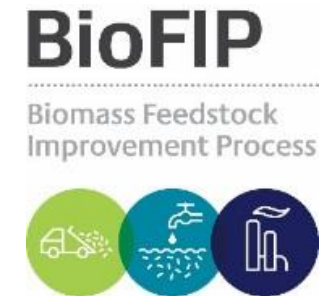


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ETI Demonstration Projects



...new home for ETI's Strategy
and Modelling function

CATAPULT
Energy Systems



Thank You

Speak to our specialists in the Bioenergy
exhibition area for more details