



Darren Williams

Managing Director

Tuesday 15th November 2016

# Background

- **Swalec**  
Graduate Trainee (1990)  
Joined generation business in 1993  
Wind, small hydro, biomass
- **Energy Power Resources – 2006**  
Biomass and Waste to Energy  
Ely Straw fired station project manager  
Largest biomass generator in UK (180MW)  
Waste to Energy (130MW)
- **Founding Director of ECO2 – 2002**



# ECO2 Background

- Formed in 2002 as a subsidiary of an independent supply business.
- Three Executive Directors with a track record in renewables
- Initial business plan – 20MW of wind assets under ownership within three years
- Became a separate business in 2005
- Biomass strategy formed in 2006  
- purely development



# Company Background

- Companies in ECO2 group  
ECO2 Limited  
ECO2 Asset Management Limited
- 50 people employed across the businesses:



**6 staff**  
in development

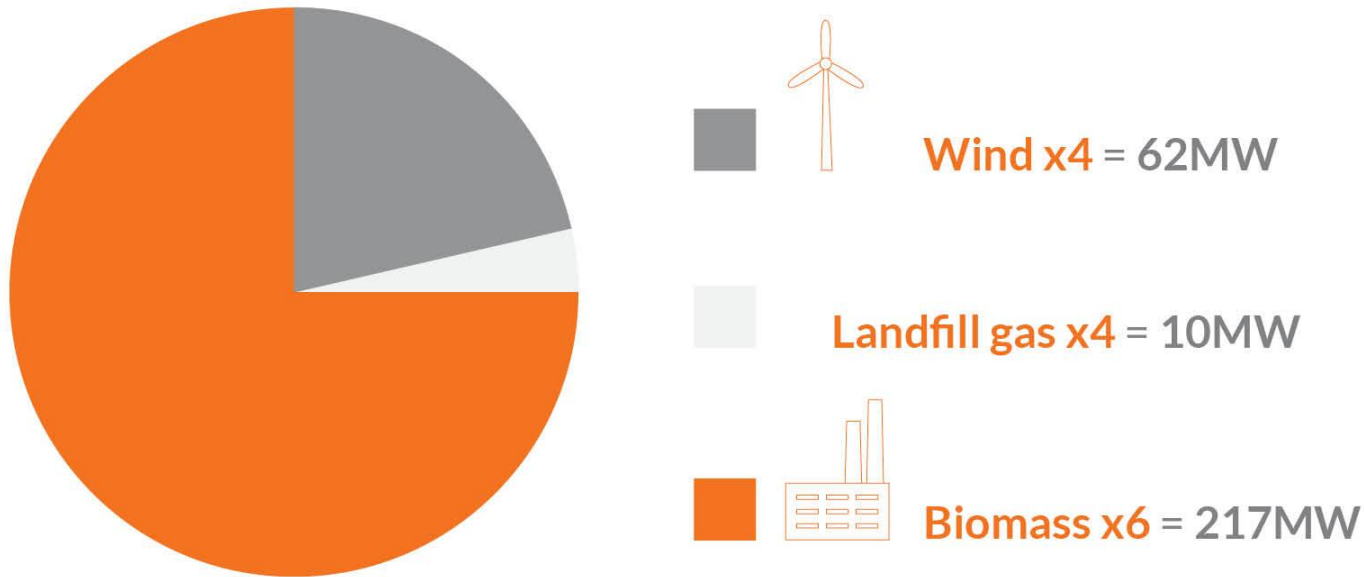


**34 staff**  
in asset management



**10 staff**  
in finance & admin

# What have we done to date?



**1.03 billion**  
investment raised



**594,000**  
homes supplied



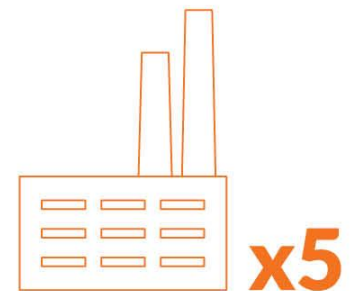
**750,000**  
tonnes saved per annum



**1,195**  
jobs created

# ECO2 Asset Management Ltd

- “Owner for hire” - Asset Management
- Wind (14), Solar (2) and Biomass (5)
- Responsible for financial, project, health and safety and sustainability management and reporting
- Responsible for 220 MW under management
- 1.4 million tonnes of biomass under management
- Circa £3 million turnover



# Why Biomass?

- Provides constant baseload, distributed generation and heat
- Reliable and proven technology
- High availability (>8000 hours per year)
- Up to 300 jobs in construction
- Up to 40 jobs at the site
- Local jobs in fuel supply and transport
- Re-invests in the local economy through fuel procurement and site services (£10 million each year)

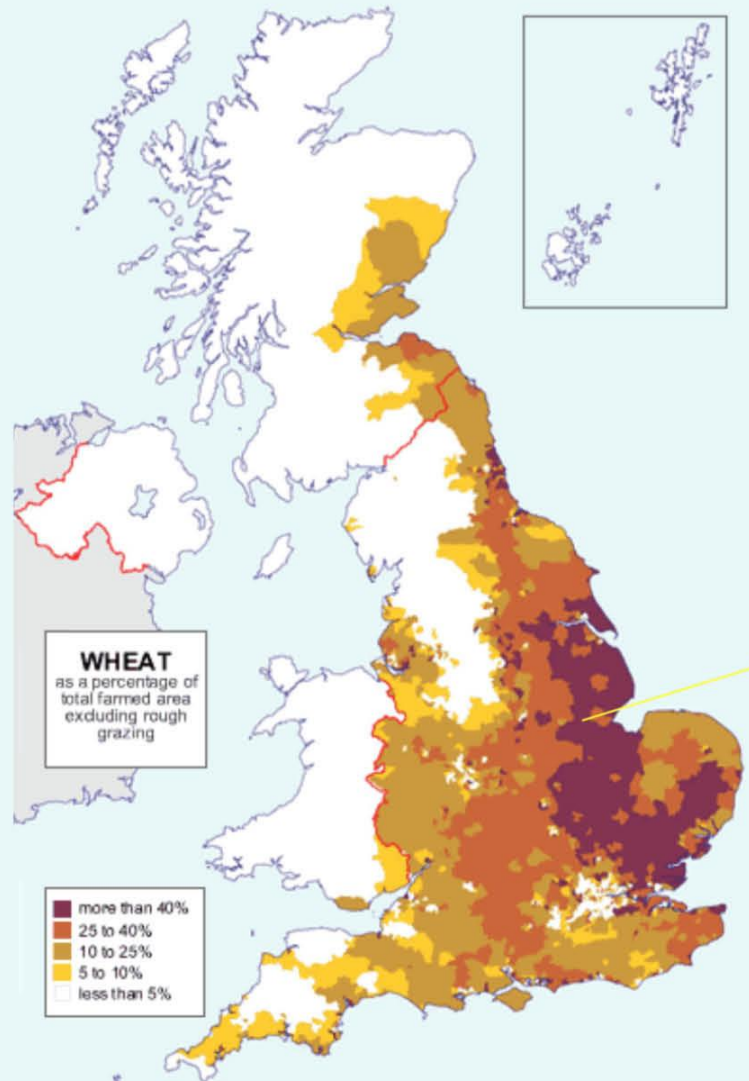
# UK Legislation

- The Renewables Obligation 2002
  - Ends on 31 March 2017
- Grandfathering
- Auctions
- Cost of energy debate
  - Public perception
  - Treasury

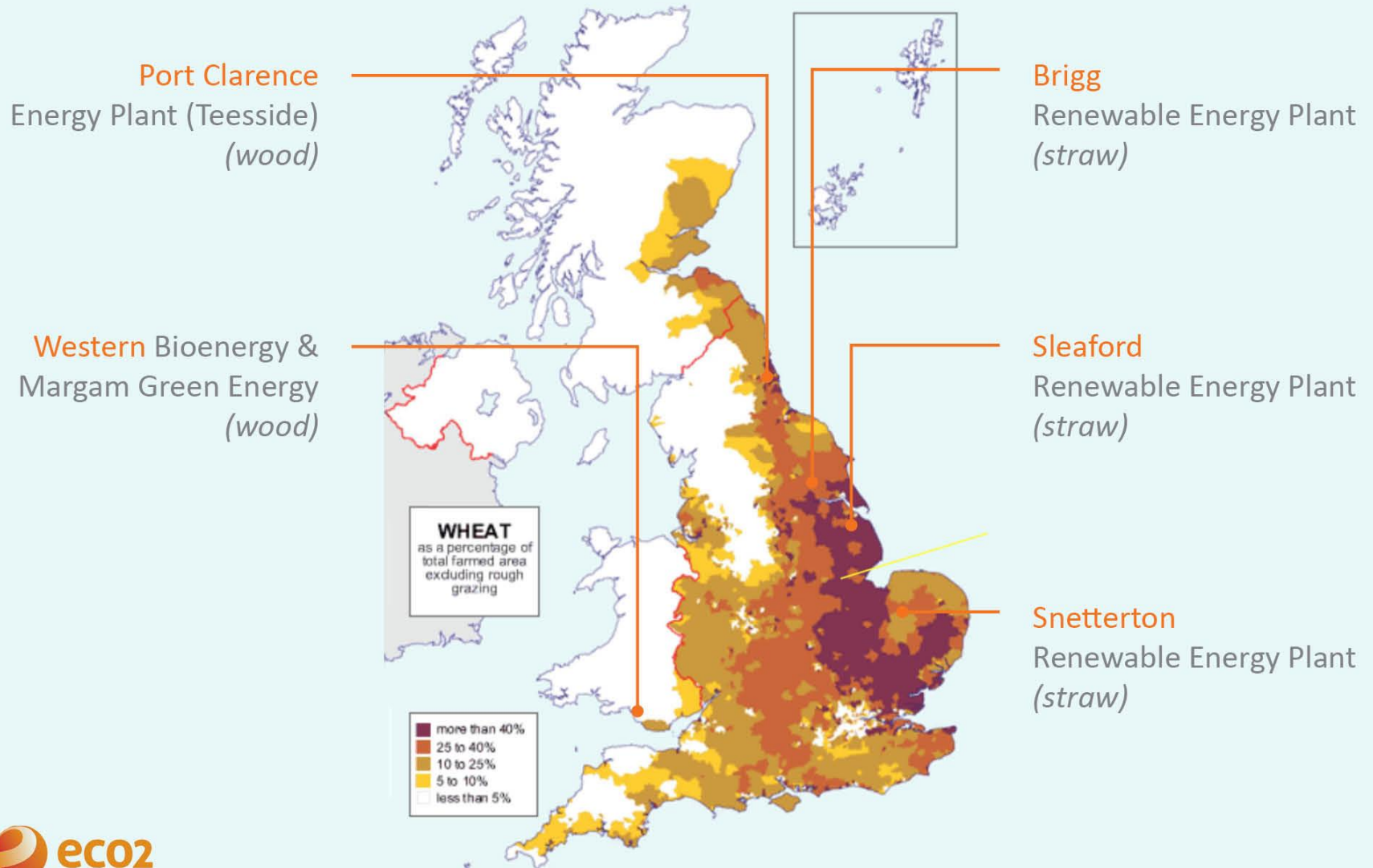




# The UK Wheat Map



# Biomass Project Locations



# Eco2 Biomass Projects

| Name                              | Capacity (MW) |
|-----------------------------------|---------------|
| Western Bioenergy Plant           | 14.0          |
| Sleaford Renewable Energy Plant   | 38.5          |
| Brigg Renewable Energy Plant      | 40.0          |
| Snetterton Renewable Energy Plant | 44.0          |
| Margam Green Energy Plant         | 40.0          |
| Port Clarence Energy Project      | 40.0          |
| <b>Total Developed</b>            | <b>216.5</b>  |

# Western Bioenergy Plant

14MW untreated wood project



# Western Bioenergy Plant

- 14MW untreated wood project
- Project initiated by Western Logs Group in 2002
- ECO2 entered into JV in 2004
  - Changed EPC Contractor
  - Fuel supply strategy and contracts - Forestry Commission Wales 60%
  - All connections
- Financial Close in September 2006
- Project investment £60 million
  - £12 million capital grant
  - £8 million equity
  - £40 million non-recourse debt funding
- ECO2 retained as asset manager
- Project operational in 2008 - first 6 years at 96% load factor.

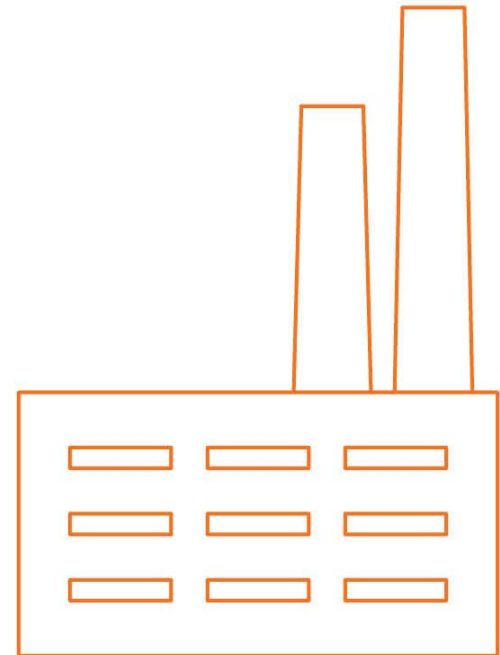
# Sleaford Renewable Energy Plant

38.5MW straw fired power station



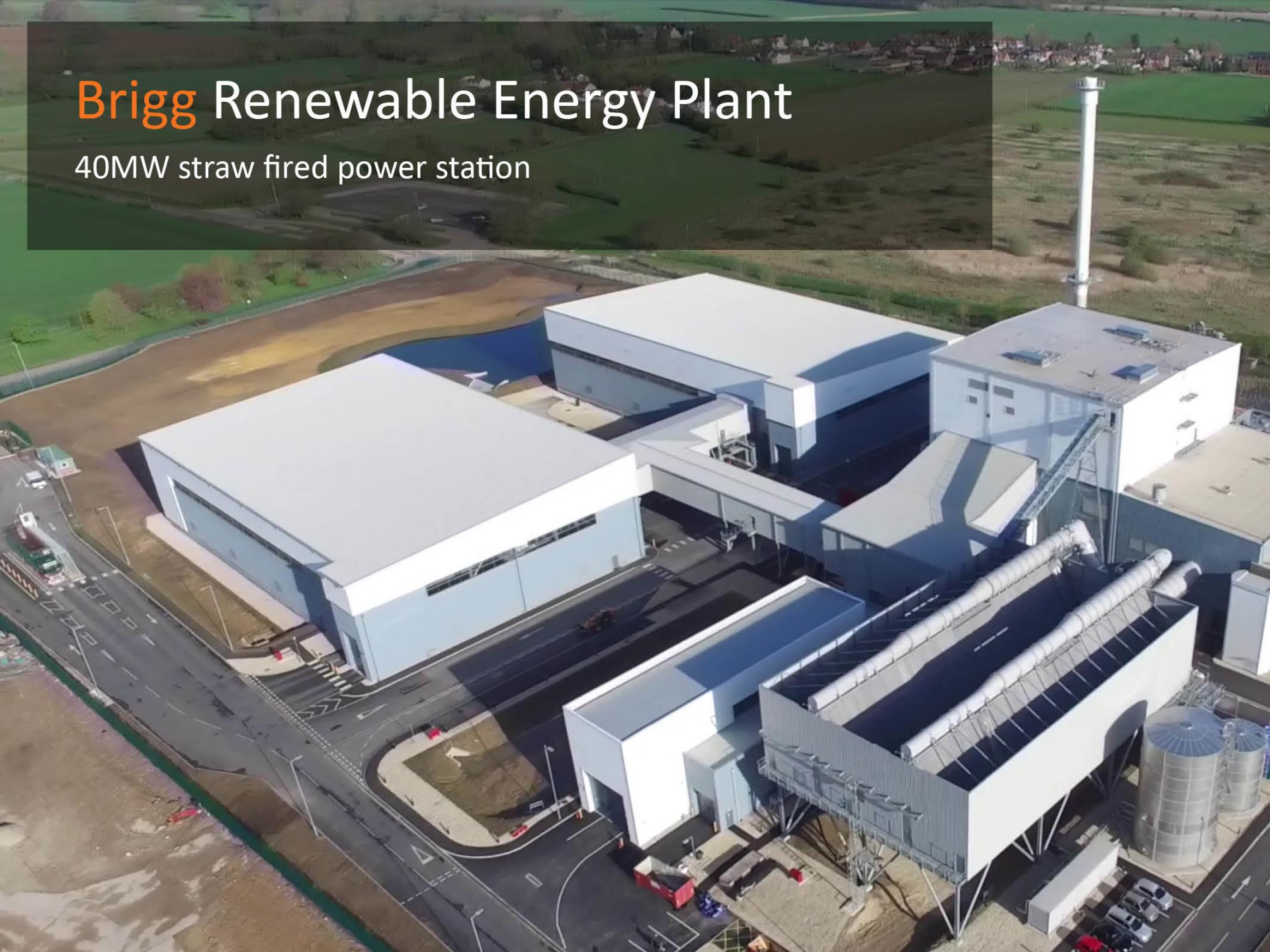
# Sleaford Renewable Energy Plant

- 38.5MW straw fired power station with heat supply
- Project initiated by ECO2 in 2005
- Planning permission in October 2007
- Financial Close in December 2011
- Project investment £170 million
- £110 million debt – non recourse – 4 bank club
- £60 million equity investment



# Brigg Renewable Energy Plant

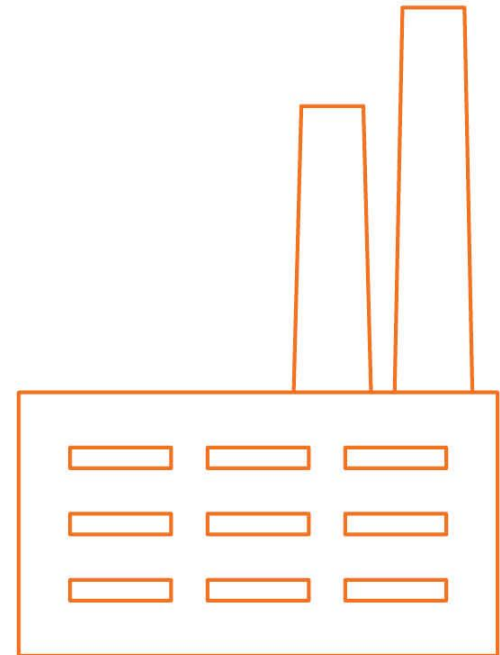
40MW straw fired power station





# Brigg Renewable Energy Plant

- 40MW straw fired power station
- Project initiated by ECO2 in 2007
- Planning permission in October 2011
- Financial Close in October 2013
- Project investment £170 million
- Direct pension fund investment (with contractor equity) 100% equity



# Snetterton Renewable Energy Plant

44MW straw fired power station



# Snetterton Renewable Energy Plant

- 44MW straw fired power station
- Project initiated by Icen Energy in 2011
- ECO2 entered into JV in 2013
  - Put EPC in place
  - Re-did the permitting
  - Fuel supply strategy and contracts
  - All connections
- Financial Close in September 2014
- Project investment £170 million
- Direct pension fund investment  
(with contractor equity) 100% equity

# Margam Green Energy Plant

40MW waste wood fired plant



# Margam Green Energy Plant

- 40MW waste wood fired plant
- Project Initiated by Western Logs Group
- Entered in the a JV in 2013
  - Put EPC in place
  - Re-did the permitting
  - Fuel supply strategy and contracts
  - All connections
- Financial Close in January 2015
- Project investment £170 million
- £110 million debt – non recourse – single bank
- £60 million equity investment

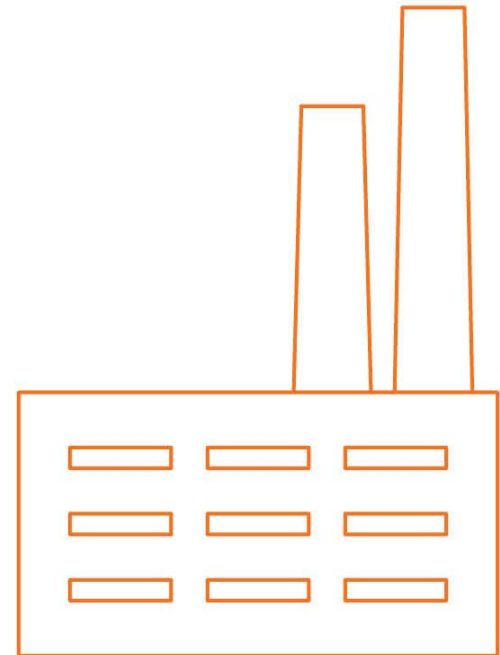
# Port Clarence Energy

40MW waste wood fired plant



# Port Clarence Energy

- 40MW waste wood fired plant
- Joint Venture with London based finance house
- Repeat of Margam fuel supply arrangements
- Repeat of Margam funding structure
- Financial close in October 2015



# The future

- **New Territories**

Development of our existing technology portfolio, primarily heat and electricity from biomass in strategic new markets.

These include:

- Canada
- Europe
- South Africa

- **New Technologies**

- Heat pumps & district heating
- Advanced Conversion i.e Gasification of waste
- Low carbon housing development





Thank you

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