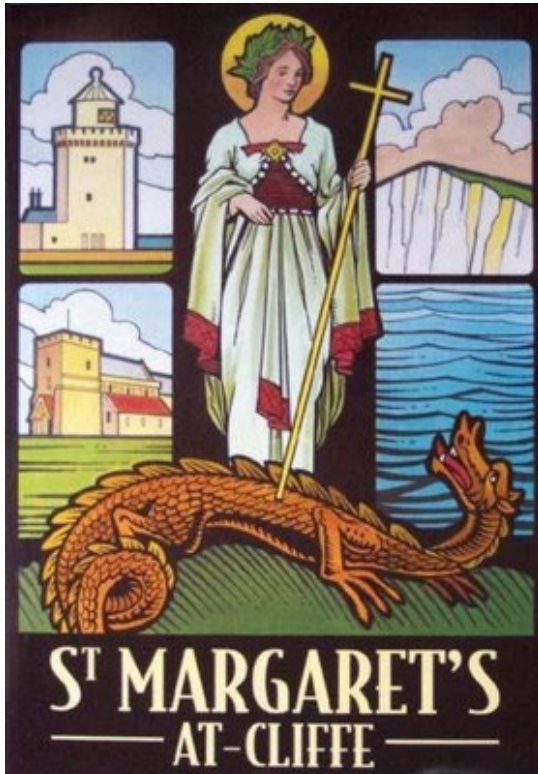


# **St Margaret's at Cliffe Energy Strategy**

*Jae Mather  
Director of Sustainability  
Carbon Free Group*



## St Margaret's at Cliffe Parish Council

Commissioned an energy strategy for the entire community to establish what options are available for generating at least as much electricity as the community currently requires.

The study includes all households, businesses and estimations about the local farms.

It was funded by the Parish Council in association with Kent County Council and through a local members grant.

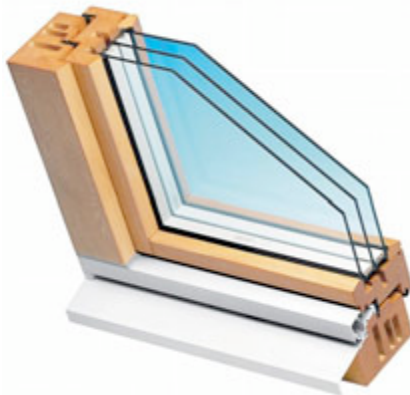
## Overview of St Margaret's at Cliffe

- St Margaret's is a seaside village set on the White Cliffs of Dover in Kent; it is located 3 miles from the city of Dover.
- It is the closest part of England to the European mainland and only 21 miles separates it from France.
- The parish includes St Margaret's at Cliffe, the inland settlement, and St Margaret's Bay, which reaches down to the sea.
- The village has approximately 3000 permanent residents with around 1370 households .
- In addition there are a number of local farms, 3 hotels, 3 Bed and Breakfasts, 3 pubs, 2 hairdressers, 1 doctor, 2 estate agents, a post office, a village shop, a stationary store and 3 churches, a school, an accountant, 2 tea rooms, a community hall, the Pines Calyx conference centre with its adjoining cafe and a large Holiday Park.
- The estimated total electricity consumption for the St Margaret's Bay community is **8,300,000 kWh/yr.**

**82% of the electricity consumption is from households**  
**15% of the electricity consumption is from businesses**  
**3% of the electricity consumption is from agriculture**

## Reduce the need

- Good Housekeeping
- “A” rated appliances
- Replacing conventional light bulbs
- Increase Loft Insulation, Install Cavity Wall Insulation
- Upgrade windows



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# Large Scale Wind

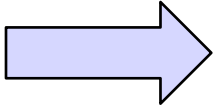


**4 E48 800 KW turbines mounted on 50 meter masts:**

- Total cost £4 million
- Annual Revenue £710,000
- Payback Period 5.7 years
- Return on Investment 17.5%

**-Cost per household: £2920**  
**-Annual Income per household: £519**

E48 800 kW turbine mounted on 76 Meter mast



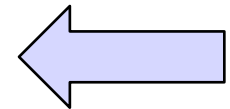
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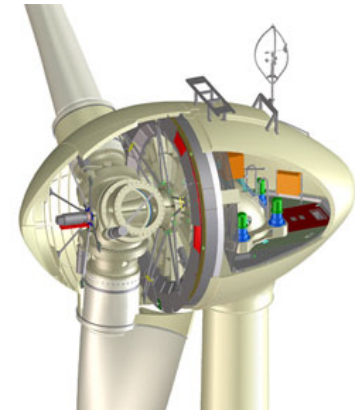
**2 E70 2.3 MW turbines mounted on 64 meter masts:**

- Total cost £4.6 million
- Annual Revenue £982,000
- Payback Period 4.7 years
- Return on Investment 21%

**-Cost per household: £3358**  
**-Annual Income per household: £717**



E 70 2.3 MW Turbine mounted on 113 meter mast



## Bio-Mass



### 1 MW Bio-Mass system

- Total cost £4 million
- Annual Revenue £1,046,000
- Payback Period 3.8 years
- Return on Investment 26%
  
- Cost per household: £2919
- Annual Income per household: £764



### 4 MW Bio-Mass system

- Total cost £10 million
- Annual Revenue £4,592,000
- Payback Period 2.2 years
- Return on Investment 46%
  
- Cost per household: £7299
- Annual Income per household: £3352



# Anaerobic Digestion (AD)

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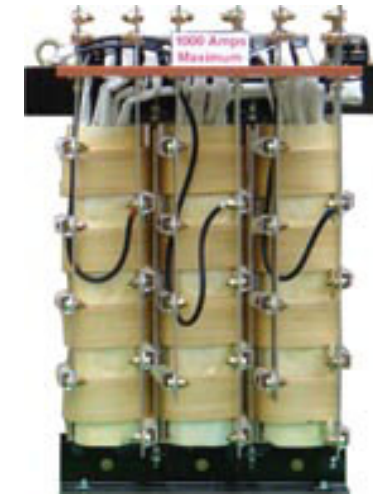
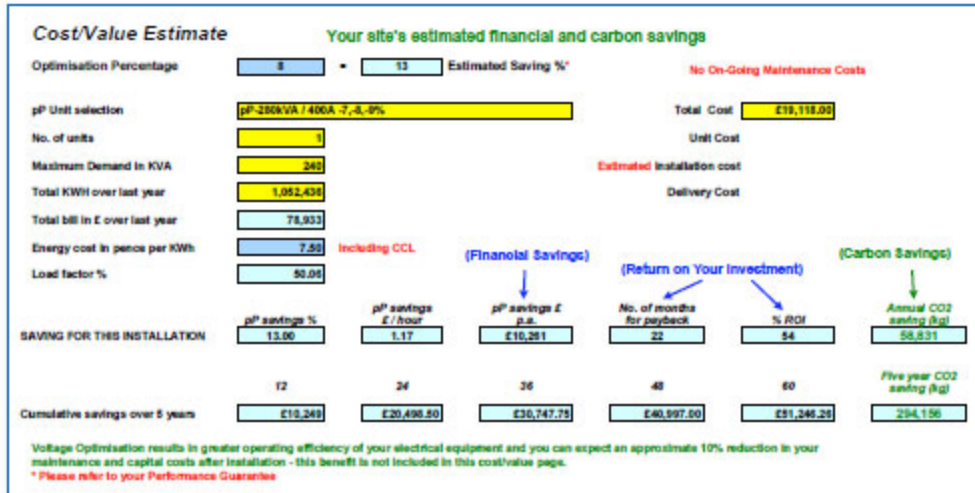


## 100 KW AD System

- Total cost £540,000
  - Annual Revenue £83,450
  - Payback Period 6.5 years
  - Return on Investment 15.5%
- 
- Cost per household: £395
  - Annual Income per household: £61

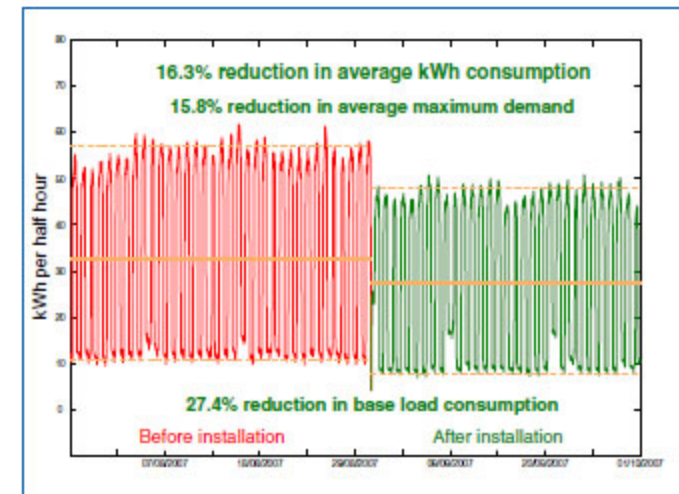
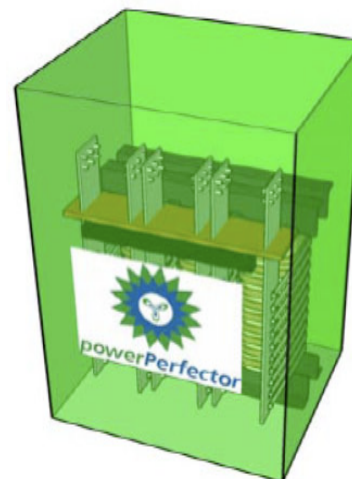
# Voltage Optimisation

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## Voltage Optimisation

- Total cost £365,000
- Annual Savings £93,000
- Payback Period 4 years
- Return on Investment 25%
  
- Cost per household: £266
- Annual Income per household: £66



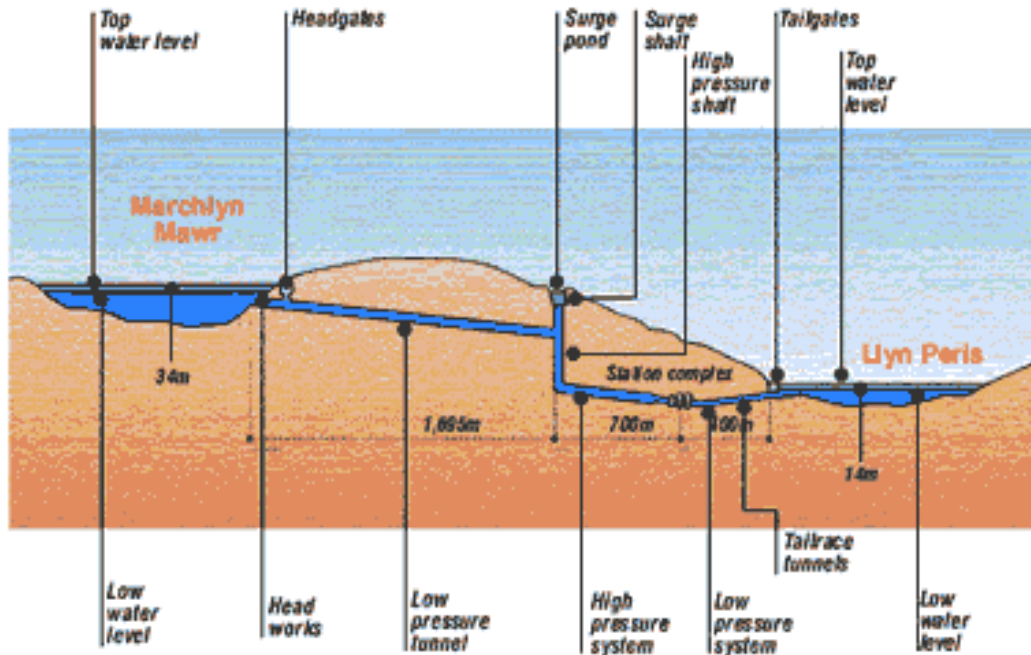
# Micro Generation

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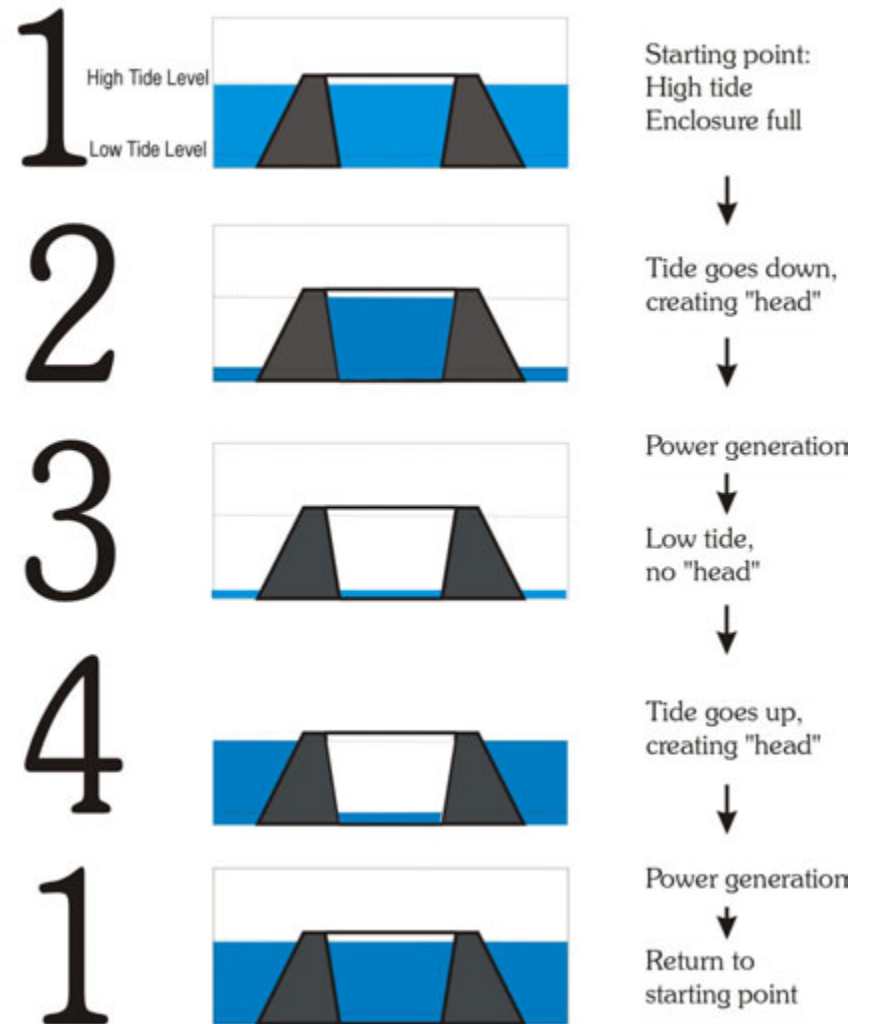


# Tidal Lagoon

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## Power Generation Cycle



# Financing Models and Structures of Ownership

## Finance Models

- Asset Financing
- Mortgage Finance
- Grants
- Private Financers/  
Parish Council/Trust

## Ownership Models

- Energy Services  
Company (ESCO)
- Multi Utility Services  
Company (MuSCo)
- Local Parish Council,  
trust or charity
- Community Interest  
Company (CIC)
- Private Company

## Summary

- Potential for entire electricity needs to be met from within the community
- Local ownership
- Offsetting of carbon emissions
- Local employment
- Short payback period
- Potential to become a carbon neutral community
- Establishing stronger links within the local community
- Self reliance and stability
- Profitable

### 4 MW Bio-Mass system

- Total cost £10 million
- Annual Revenue  
£4,592,000
- Payback Period 2.2 years
- Return on Investment 46%
  
- Cost per household:  
£7299
- Annual Income per  
household: £3352

Thank you

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