

# Woking: **Driving Sustainable Innovation**

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John Thorp MBA CBiol MIBiol FEI FRSA  
Managing Director  
Energy Centre for Sustainable Communities



2005-2006  
*Sustainable Energy*

# Key Components of Woking's Success

- Sustained Innovation
- Corporate Commitment
- Cross Political Party agreement and coordination
- Corporate Energy Efficiency Strategy
- Energy Centre for Sustainable Communities – long term relationship
- Innovative financial structures
- Queen's Award for Enterprise 2001
- Climate Change Strategy adopted December 2002
- Beacon Council 2005- 2006 – Sustainable Energy



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# Corporate Commitment

- **Cross party working since the early 1990's**
- **Ambitious targets for energy efficiency**

## **Council buildings**

- **reduction in energy consumption** 51%
- **reduction in CO<sub>2</sub> emissions** 82%

## **Borough Wide**

- **Energy efficiency improvement of residential property** 33%
- **CO<sub>2</sub> emission reductions** 21%
- **Number of energy conservation grants** 4,489

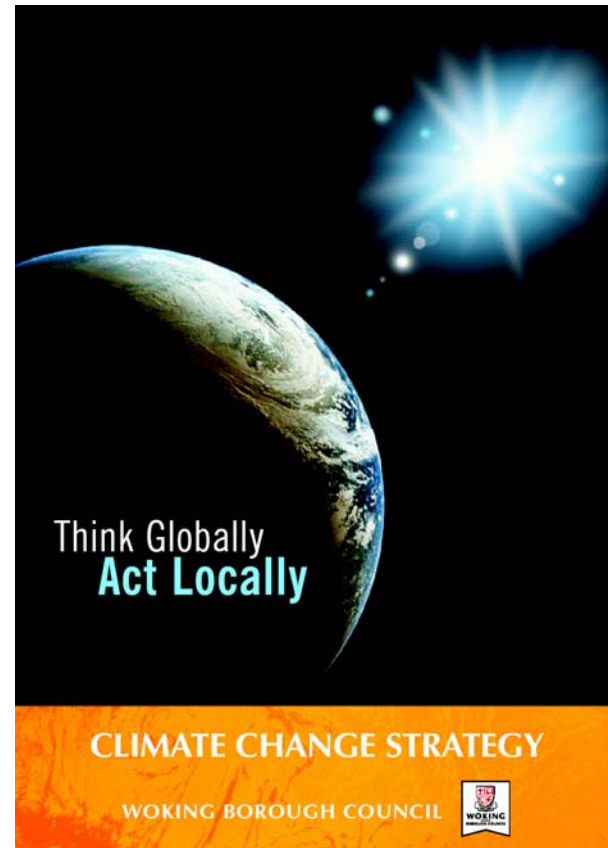
- **Formulation of Special Purpose Vehicles to further Energy and Environmental Objectives from 1999**
  - **Thameswey Ltd and Thameswey Energy Ltd**



# Climate Change Strategy

## Three Overarching Aims

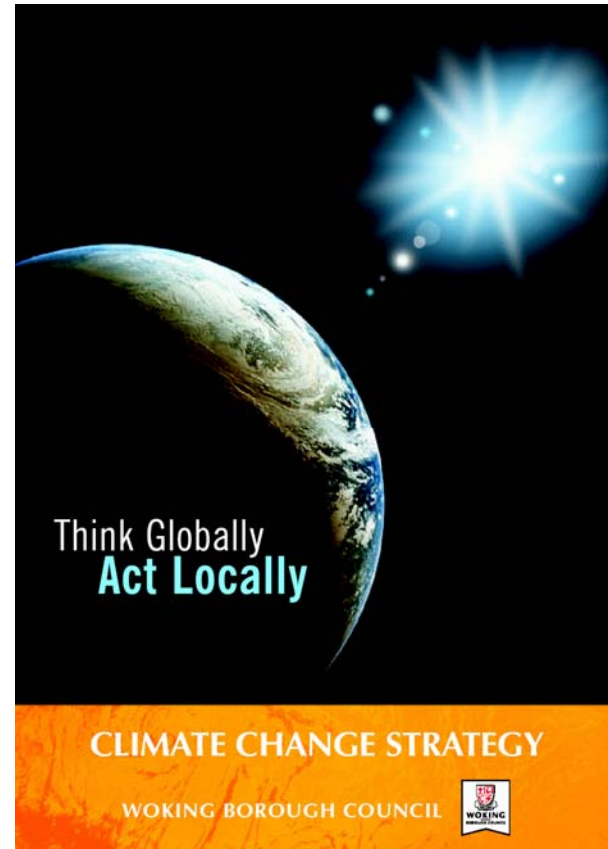
1. Reduction of CO2 equivalent emissions
2. Adaptation to climate change
3. Promotion of sustainable development



# Climate Change Strategy

## Underlying Principles

- Generate locally what we need
- Clear up locally the waste we create
- Conserve what we have
- Adapt current practices and landscapes to cope with Climate Change



# Climate Change Strategy

## 8 Key Themes

1. Planning and Regulation
2. Energy Services
3. Waste
4. Transport
5. Procurement
6. Education and Promotion
7. Management of Natural Habitats
8. Adapting to a Changing Climate



### Key theme 3 Waste

Waste is a growing problem, and its appropriate disposal is a central plank of the work to reduce the effects of climate change because of the impact it has on the production of greenhouse gases. Landfill sites are fast filling up and combined with the resulting CO<sub>2</sub> they create (in the form of methane from biodegradable wastes), the way we treat waste needs to be re-evaluated.

Woking alone produces some 77,000 tonnes of waste each year including some 20,000 tonnes of biodegradable household waste and 30,000 tonnes of biodegradable commercial/industrial waste. After taking account of recycling or prescribed waste some 65,000 tonnes still remain.

In order to reduce the amount of waste sent to landfill sites, the Council has adopted pilot plans for a Borough wide **Zero Waste Strategy**. This will also tackle the other main waste issue of recycling. **Plans include:**

- Action to prevent and reduce waste levels to stem the annual increase.
- An active programme of education and information to prevent the creation of waste.
- A Borough wide two bin waste collection system splitting domestic waste into dry goods and organic goods.
- Recycling non organic materials such as glass, cans and plastic where commercial outlets exist.
- Recycling organic materials for compost through anaerobic digestion.
- Reducing remaining waste volume via gasification.
- Recovering energy from the gasification process via renewable energy CHP stations.

Reducing the Borough's landfill requirements to less than 10% of its original weight. For example, based on a current 77,000 tonnes annual waste, less than 7,700 tonnes of the residual waste would need to go to landfill.

The proposed Zero Waste Strategy will cover two important Government waste targets namely a 36% recycling target by 2005/6 and a reduction in the amount of biodegradable waste going to landfill by 65% in 2020 compared to 1995 levels. If Woking's waste was diverted from landfill this could equate to a reduction of 100,000 tonnes of CO<sub>2</sub>.




Action	Timescale
Promoting the prevention of waste e.g. purchasing loose fresh produce rather than packaged, buying locally, as recommended by the Waste Prevention task group and supported by the Environmental Overview and Scrutiny Committee.	1-3 years
Investigating the integration of waste minimisation strategies, material reclamation facilities, anaerobic digestion and gasification technologies, combined with Combined Heat and Power (CHP), with a view to reducing the need for landfill of Woking's waste to at least 90% of its 2000/01 level by 2010/11.	5-10 years

# Climate Neutral Development Guidance

- Guidance to applicants for Planning Permission
- Believed to be first of its kind in the UK
- Promotes Good Practice
- Aims to achieve 80% reduction in CO2 emissions

**Location and Transport**

**Good Practice**

- New development should be located close to local travel destinations (such as the town centre) or where there is good access to public transport
- New development should be located away from areas liable to flooding, and should not be dependent on transport links (roads, footpaths etc) liable to flooding
- New development should include facilities to support the use of low/zero carbon fuelled vehicles, such as the charging of electric vehicles from green electricity sources and measures to reduce private car use

**Background**

**Location of new development, the need to travel and climate change**

Average car use generates over 3 tonnes of CO<sub>2</sub> emissions a year, equivalent to approximately a third of the household generated CO<sub>2</sub>. Nearly half of all households in the Borough have two or more cars.

The location of new development, in respect of the need for people to travel to places of work, shops, schools and entertainment, can have a significant impact on CO<sub>2</sub> emissions. By locating new development near to public transport services, the need to travel by private carbon-fuelled vehicles can be reduced. Accessibility to public transport in the Borough has been modelled on the basis of Woking town centre as the primary destination. Reference to the Public Transport Accessibility Model (PTAM) provides a general indication of how dependent the occupiers of a new development may be on private transport.

*Woking Rail Station*

**CLIMATE NEUTRAL DEVELOPMENT**  
A good practice guide

WOKING BOROUGH COUNCIL  
Beacon Council  
2005-2006 Sustainable Energy

# Overcoming barriers to Innovation

- **Woking Borough Council first produced a report on climate change in 1990, 2 years before the Rio Earth Summit put global warming on the international agenda.**
- **Woking created a 'protected investment' fund**
  - **Money earmarked for projects is 'protected' and any money saved or generated is recycled back into the investment pool.**
- **The fund changed perceptions within the council. Rather than applying for one-off project funding on an annual basis, the council could agree to an energy efficiency program over 5 or more years.**
- **Woking was able to move ahead with its first project, an energy-efficient lighting system for municipal buildings in 1991.**



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# Sustainable and Renewable Energy

- Town Centre energy station
- Woking Park energy station
- 11 small scale CHP sites
- 9% of UK's installed capacity of PV
- Self generation of 82 % of the Council's own energy requirement (of which 11% renewable)
- Energy supplied to Council tenants
- Provision to private businesses, community centres and GP surgeries



# Town Centre CHP

(Gas fired 1.3 MW electrical, 1.6 MW heating; 1.2 MW absorption cooling, island generation)

- Thameswey Energy Limited Project
- Private Supply network
- Council Buildings & Car Parks
- Businesses
  - Holiday Inn
  - Big Apple



# CHP Energy Stations



Above – Absorption Cooler  
Left – Gas fired CHP Engine



# Woking Park

(Gas fired CHP 1.1MW electrical, Hydrogen Fuel Cell 0.2MW electrical, combined 1.6MW heating, absorption cooling 0.5MW, island generation)

- Self sufficient in thermal loads
- Exporter of electrical generation to other TW Energy customers



# Sustainable and Renewable Energy



Commitment  
To  
Environmental  
Agenda



Above - Sunnyside Residential  
Far left - Pool in the Park  
Left - Parking meters

# Sustainable and Renewable Energy



New build by Council Housing Company of six flats incorporating small scale CHP and Photovoltaic roof tiles in a private wire system



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# Renewable Options



Installing ground source heat pump



Off Grid combined photovoltaic and vertical wind turbine street lights. Ideal for remote locations

# Working in Partnership

- The Energy Care Network
- Fuel Cell project
- Thameswey Ltd
- Thameswey Energy Ltd
- Thameswey MK



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# Small things make a big difference

- Fuel Poverty – 98% of council dwellings have affordable warmth
- Over 4,000 homes provided with free insulation
- Energy Advice through SESEEAC



# Community Engagement and Consultation

- Borough Waste Management Strategy developed through research and Focus Groups
- Wind Energy Consultation through Focus Groups
- Planners workshop



# WBC & Thameswey Ltd

## Future Initiatives

- Waste to Energy using advanced thermal treatments
- Wind Energy in residential and green belt locations in the Borough
- Milton Keynes CHP
- Retail energy efficiency outlets



# Sustainable Innovation?

## Amazing Solutions



Thank you

[john.thorp@ecsc.org.uk](mailto:john.thorp@ecsc.org.uk)

020 7922 1660

[www.ecsc.org.uk](http://www.ecsc.org.uk)



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