The power of municipal Planning

metropolis green

merton

The "*Merton Rule*" – *does it work..??*

Delivering renewable energy

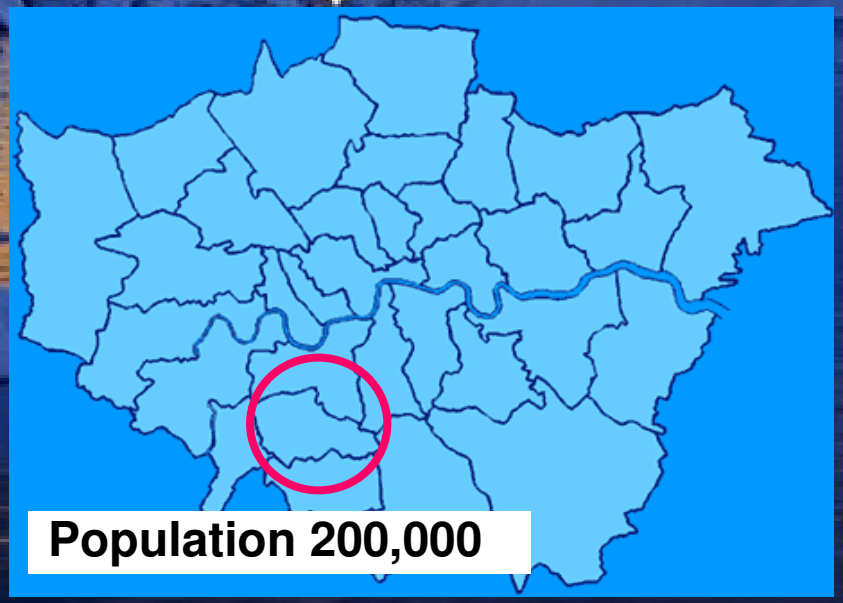
Mapping and monitoring renewable energy

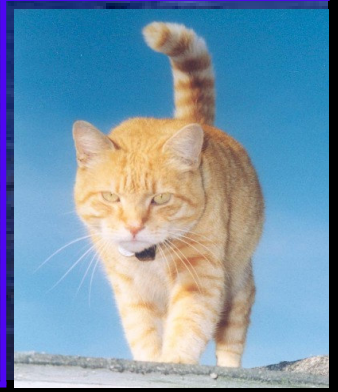
Lisboa e-nova

May 09

The Energy-DataGauge™

http://energence.co.uk





Adrian Hewitt *FRSA*
Metropolis Green
(London Borough of Merton)

Merton Climate Change Strategy - Cut CO_2 by 15% by 2015

How..? By dong the things that:

a) Cut the most CO_2
b) Do so fastest

} dependent on c & d

c) Have the most financial logic

d) We have the most control over

Buildings

- Planning
- Energy
- Waste
- Information

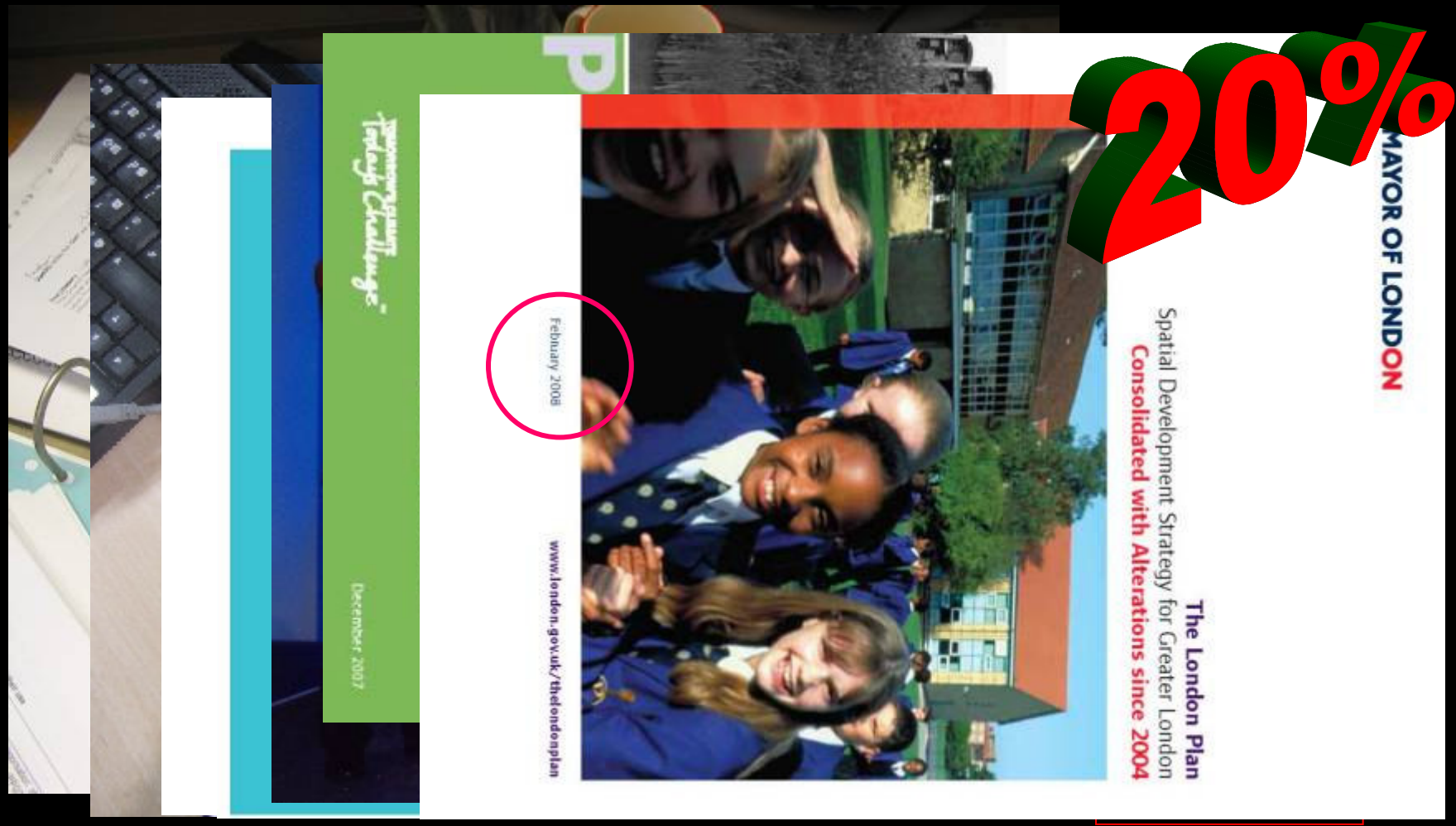
CO_2 reduction influence

Buildings	Local	✓
Energy	Local	✓
Waste	Local and sub-regional	✓
Transport	National, Regional, Behavioural	
Food / Lifestyles	Global, Commercial, Behavioural	
Industry	National, Global and Commercial	

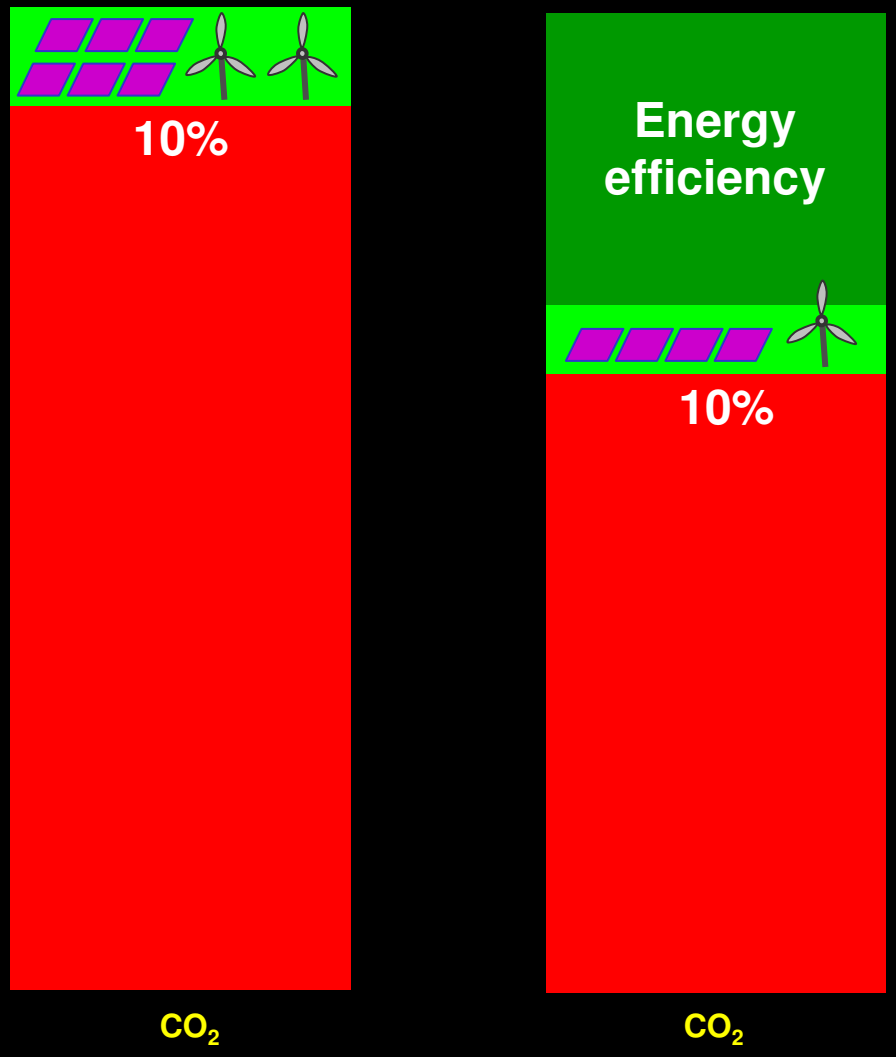
- Ownership & Operation
- Regulation
- Incentive/Disincentive
- Education
- Rights
- Mitigation/Compensation

The definition of a "Merton Rule"

"We will not give you planning permission unless you use renewable energy to cut CO_2 emissions by 10%"



Basic principal: Energy efficiency and the *Merton Rule*



How do developers react?

"First they ignore you, then they laugh at you, then they fight you, then you win"… Mohandas Mahatma Gandhi

"Costs too much, costs too much"

Cost is not the real problem

'Knowing how to do it' is the problem

If we help them, they are (usually) happy

***Finally* - Some improve business! (Some don't)**

Targets and local initiatives = *innovation*

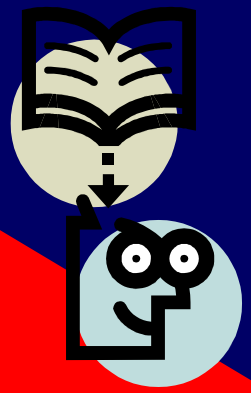
Local planning & initiatives

Public & political pressure

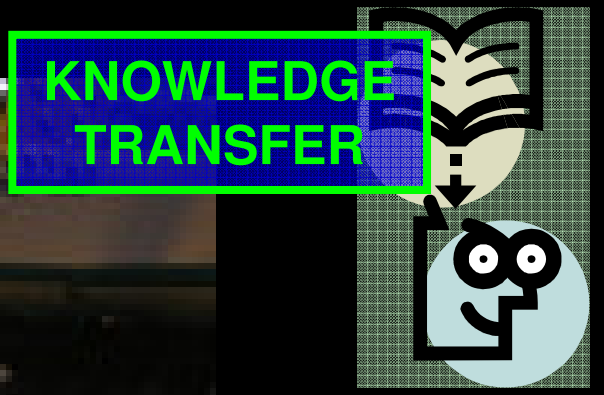
Energy security

International, national and municipal targets

Oil "topping point"



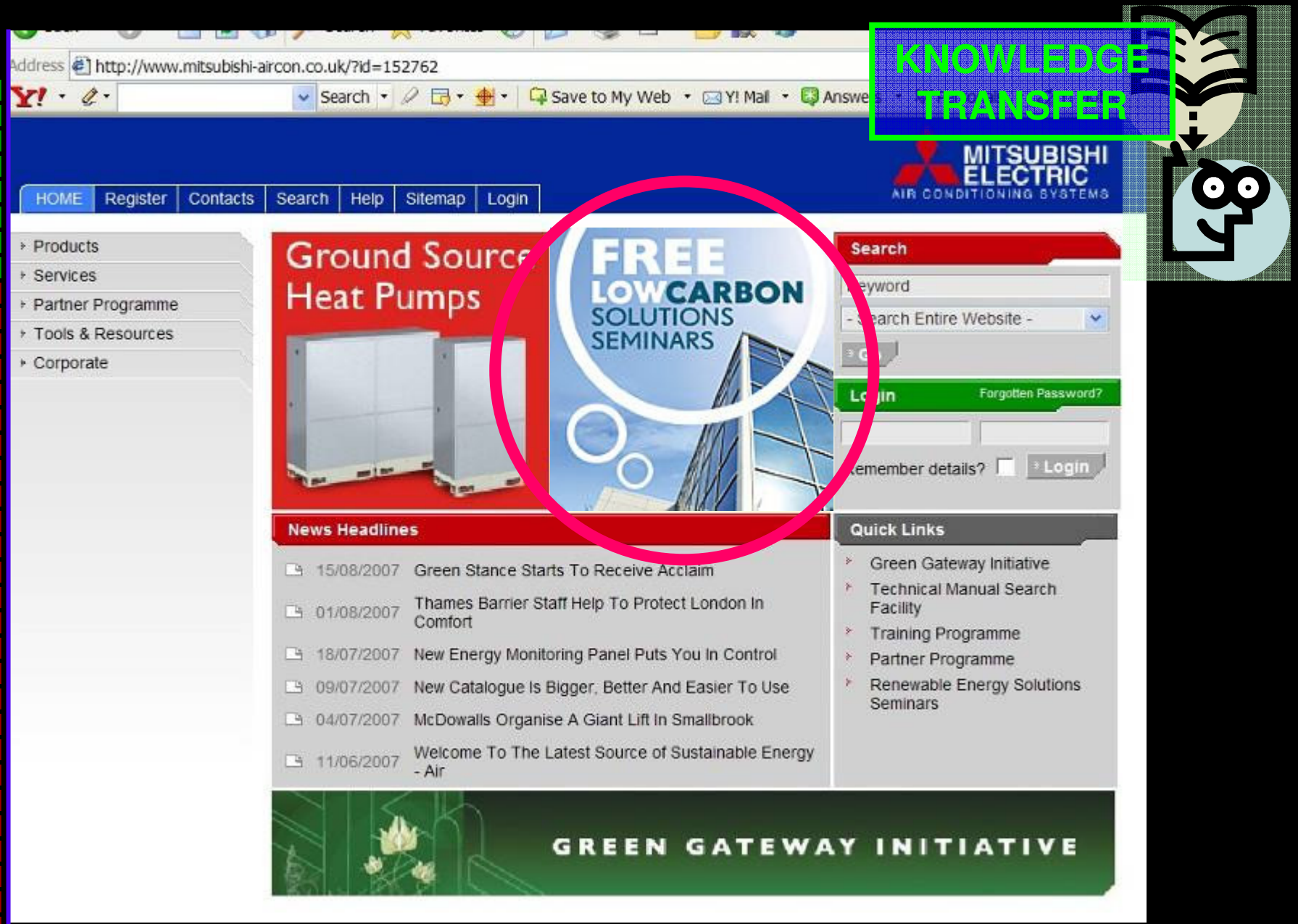
Innovation is essential to develop the methods and techniques needed to cut CO_2 emissions from buildings



"National Federation for Roofing Contractors Solar Training proves a huge success!" 28-Aug-07

http://www.nfrc.co.uk/NewsDesk.aspx?id=240

Joint installation training courses run by Solarcentury and the NFRC


KNOWLEDGE TRANSFER
http://www.mitsubishi-aircon.co.uk/?id=152762
Search
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Y! Mail
MITSUBISHI ELECTRIC
AIR CONDITIONING SYSTEMS
HOME
Register
Contacts
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Help
Sitemap
Login
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Services
Partner Programme
Tools & Resources
Corporate
Ground Source Heat Pumps
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15/08/2007 Green Stance Starts To Receive Acclaim
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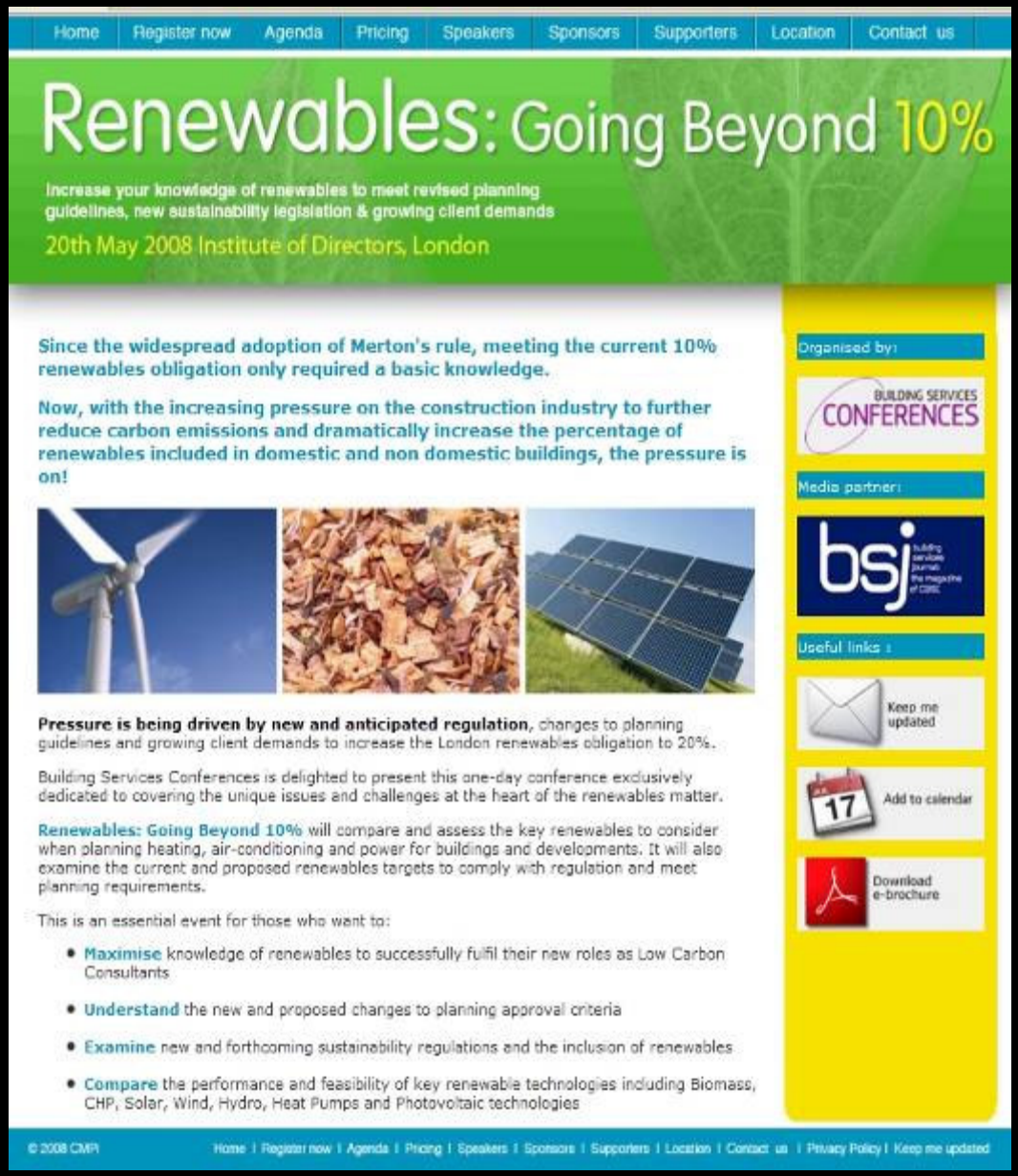
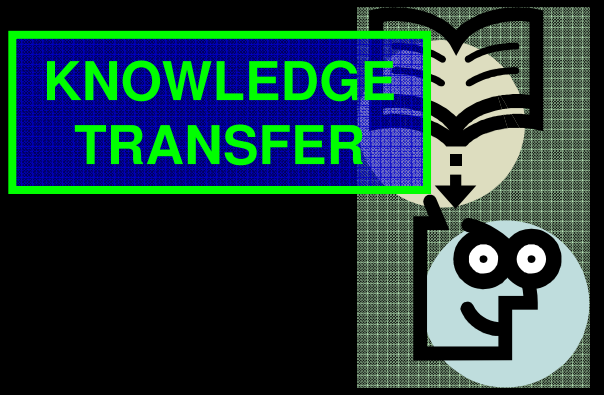
11/06/2007 Welcome To The Latest Source of Sustainable Energy - Air
Quick Links
Green Gateway Initiative
Technical Manual Search Facility
Training Programme
Partner Programme
Renewable Energy Solutions Seminars
GREEN GATEWAY INITIATIVE





Chartered Institute of Building Services Engineers seminar:

"Getting to 10%"

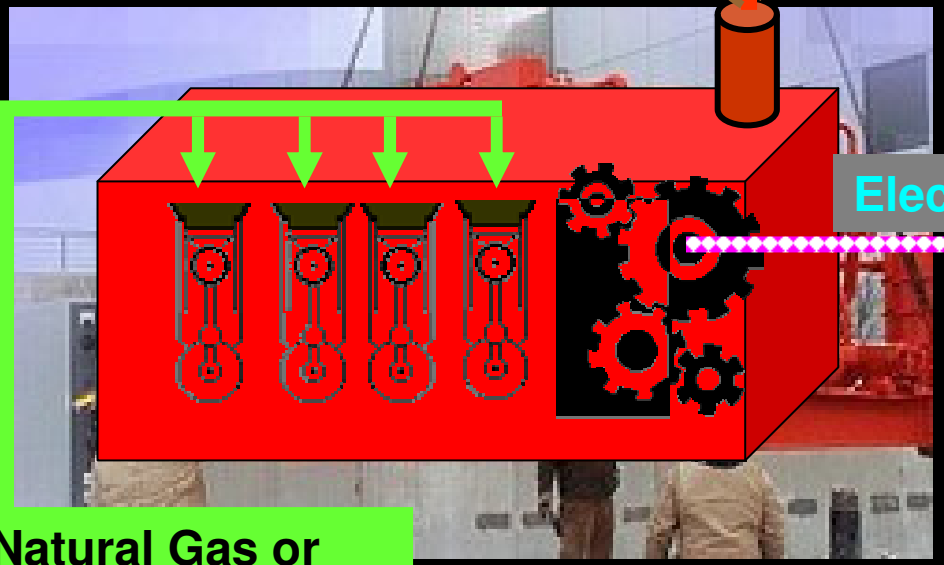
"Going Beyond 10%"

RENEWABLE ENERGY TECHNOLOGIES

As determined by the Building Research Establishment & the GLA

- **Photovoltaic (PV)**
- **Wind**
- **Micro-hydro**
- **Solar Thermal water heating**
- **Biomass heating and Biomass CHP**
- **Ground Source Heat and Cooling**
- **Air Source Heat pumps *(kind-of…!!!)***
- **Geothermal**
- **Biogas from pyrolysis and anaerobic digestion**
- **Fuel cell (using hydrogen from renewable sources)**

Combined Heat & Power engines (CHP)



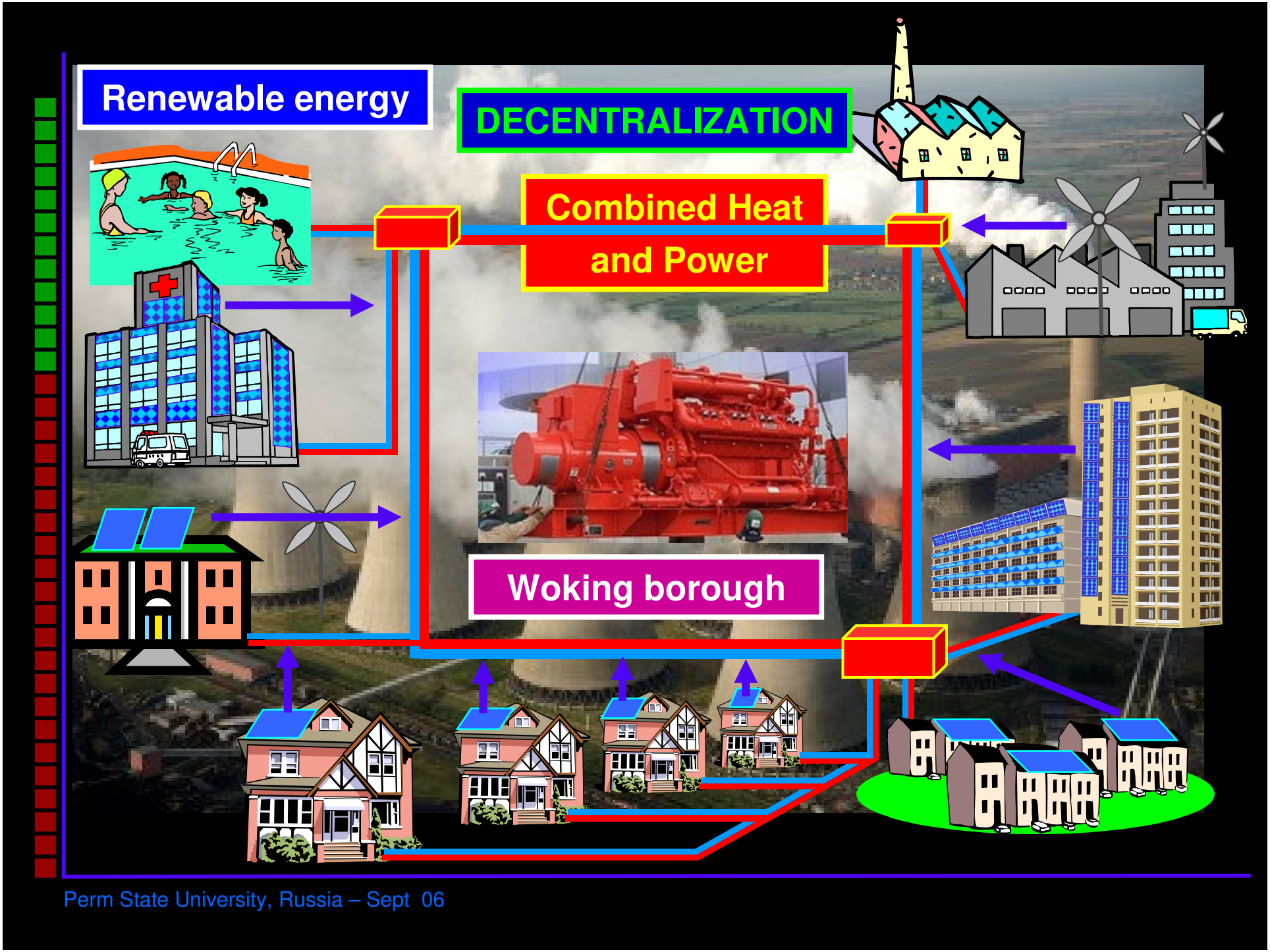
Water

Electricity

Absorption chiller

Natural Gas or Methane CH_4 Biogas

Heat or cooling for local homes


Renewable energy
DECENTRALIZATION
Combined Heat and Power
Woking borough

Growth in the Renewable Energy industry

Average equipment needed in each borough annually

Every borough has a Merton Rule

x 350 LPA

8kW-15kW **Turbines**	**15**	x 350	**5,250**	£30,000	**£157,500,000**
kWp **Photovoltiac**	**100**	x 350	**35,000**	£5,500	**£192,500,000**
CHP/Bio/GSH/Solar **= m2 Solar thermal**	**1,000**	x 350	**350,000**	£1,500	**£525,000,000**
					£875,500,000

1. Creates security for manufacturers and installers to invest in research and development and in establishing companies

2. Creates the economies of scale that will reduce costs and bring equipment within reach of homeowners

IT'S OUT THERE…..









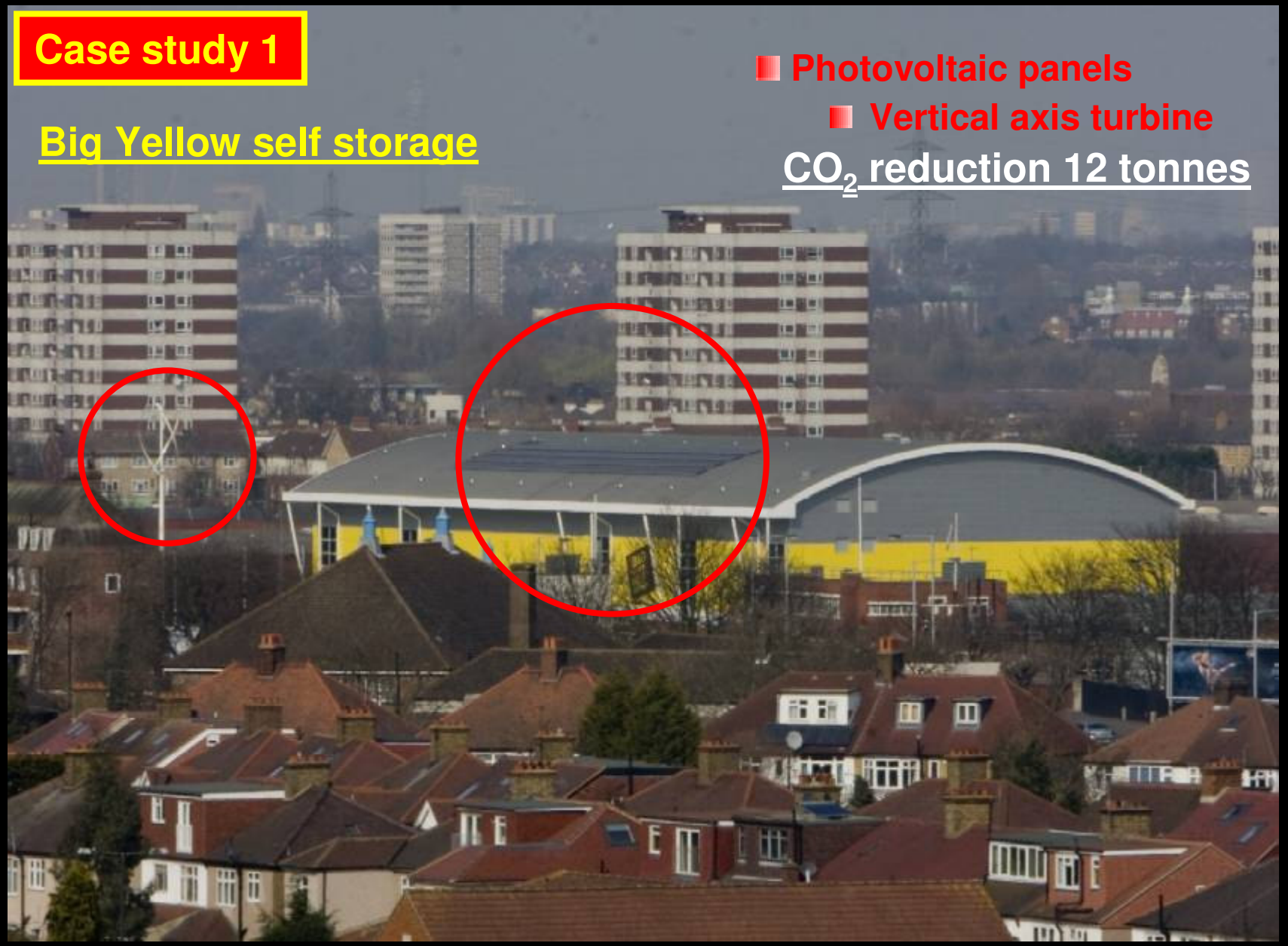


Case study 1

Big Yellow self storage

- Photovoltaic panels
- Vertical axis turbine

CO_2 reduction 12 tonnes



Case study 2

Kings College, Wimbledon

New Science Department and Labs

Size 660 m2

10% target = 6.1 tonnes CO_2

Case study 3

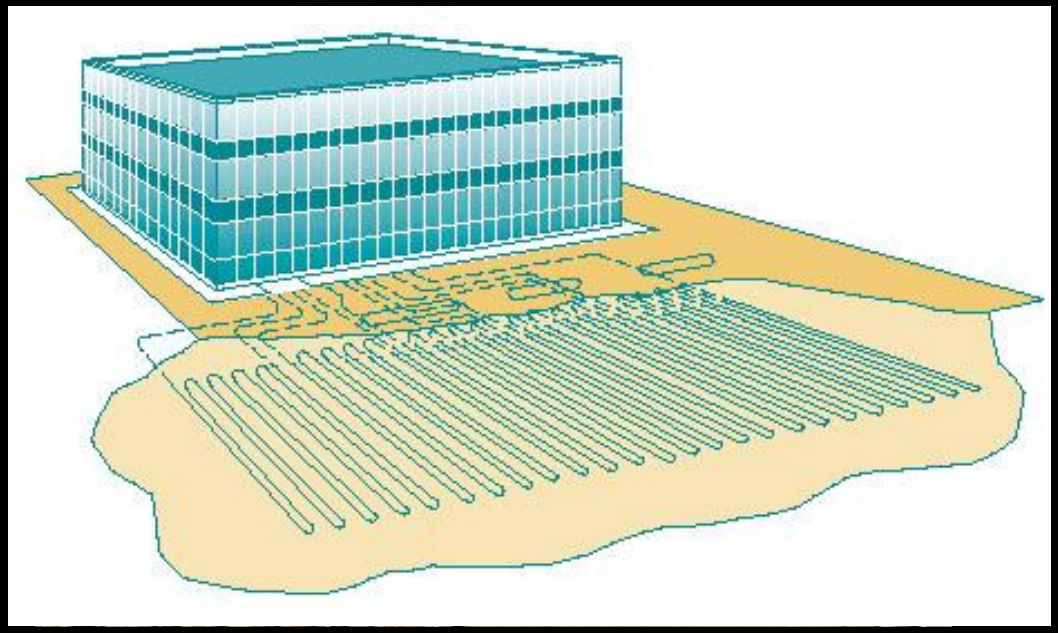
Lidl supermarket

3,000 m²

Ground Source Heat & Cooling system – under the car park

Total CO_2 reduction 92 tonnes = 35% of Green House Gas

- **Pre-warming for store in winter.**
- **Pre-cooling for refrigeration – CFC gas saving**



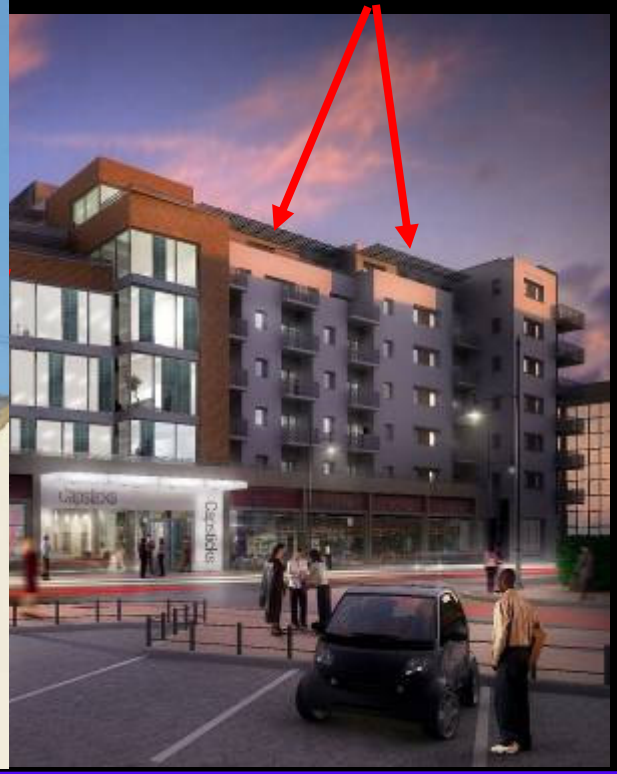
Case study 4

Broadway House :

70 apartments - 6,000 m² office

20 tonnes CO_2 cut:
Photovoltaic & Solar Thermal

Solar Thermal : 7 tonnes CO_2 cut



Case study 5 Fairview Homes Croydon 350 apartments

Case study 6

B&Q New Malden: 10,000 m^2 + 50 homes

Ground Source Heat

Vertical Axis turbine

Solar Thermal

Photovoltaic

Rowan Road: Merton

- 220 homes, doctors surgery and community centre
- Site wide district heat and power network – *pipes & cables*
- CHP units to run on renewable energy biogas from pyrolysis plant
- 200 m2 of photovoltaic panels – *urban eco-chic*

Total CO

Total CO_2 reduction 85%

Mapping and Monitoring the Merton Rule

What ? Where ? When ? *Working ?*

Does it work ?

Is it suitable ?

Where does it go ?

Is it being used ?

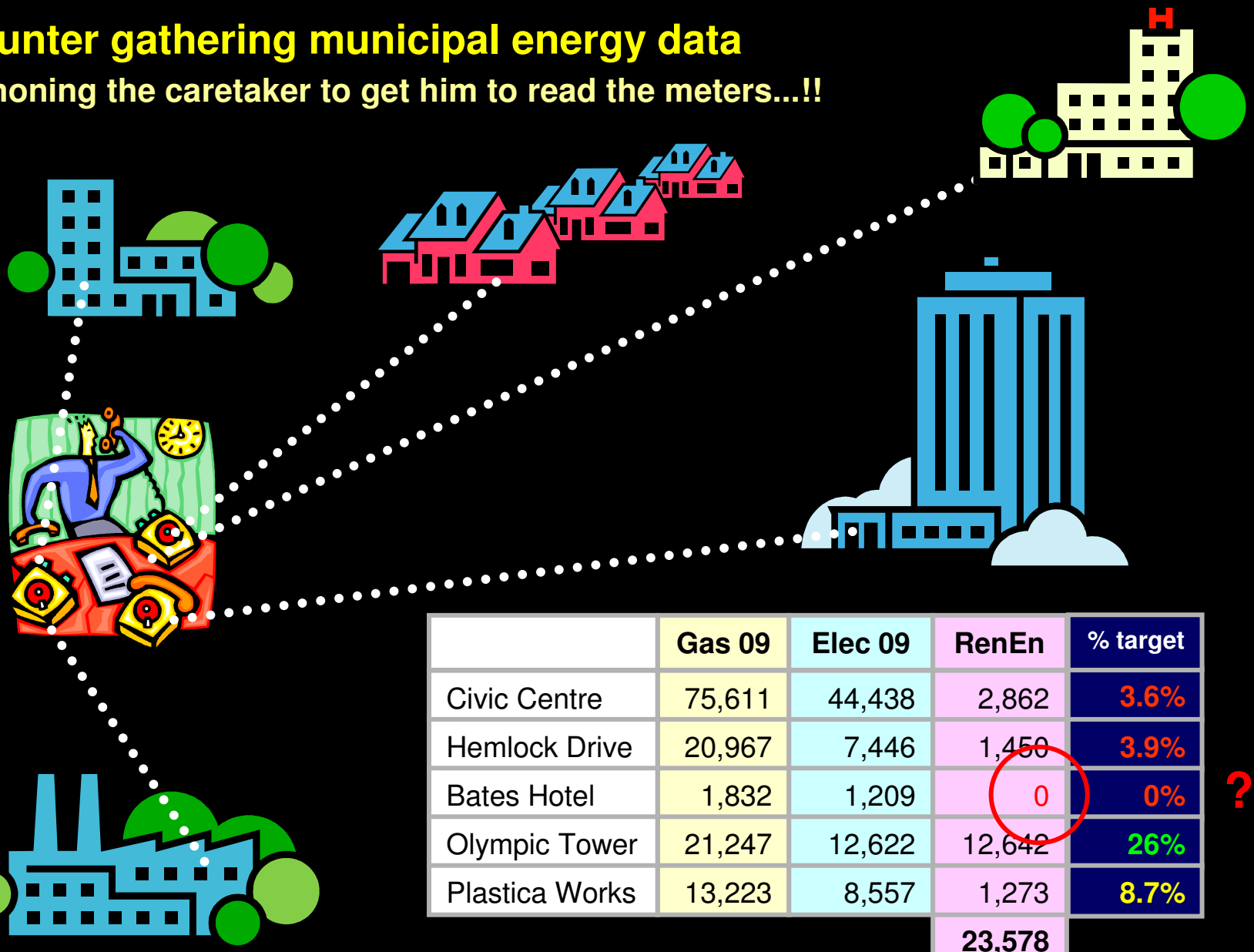
Is it financially viable ?

Is it renewable ?

Am I getting 10% ?

Hunter gathering municipal energy data

Phoning the caretaker to get him to read the meters...!!



	Gas 09	Elec 09	RenEn	% target
Civic Centre	75,611	44,438	2,862	3.6%
Hemlock Drive	20,967	7,446	1,450	3.9%
Bates Hotel	1,832	1,209	0	0%
Olympic Tower	21,247	12,622	12,642	26%
Plastica Works	13,223	8,557	1,273	8.7%
			23,578	

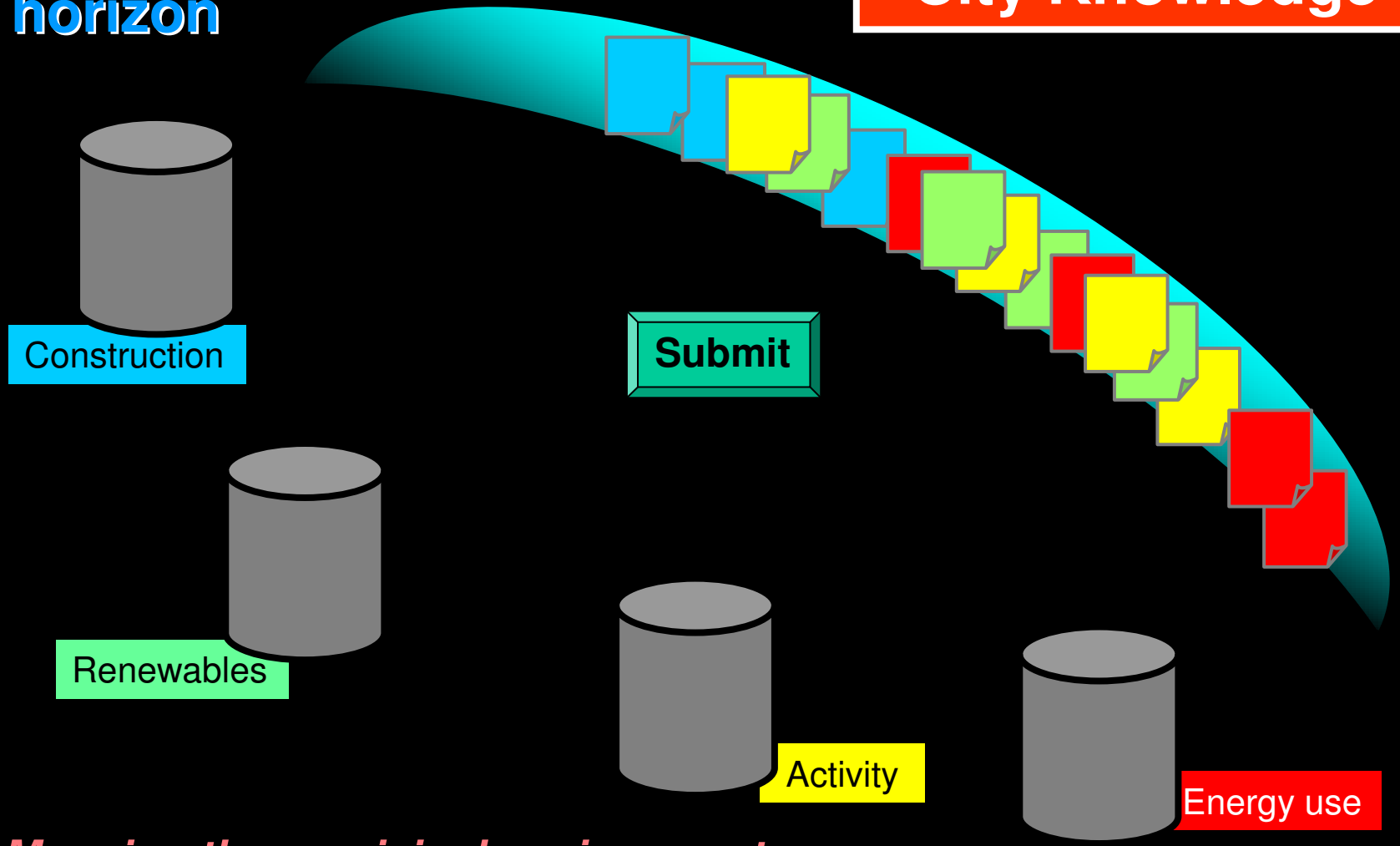
?

Calculating national and regional targets

Current system for collating renewable energy generation

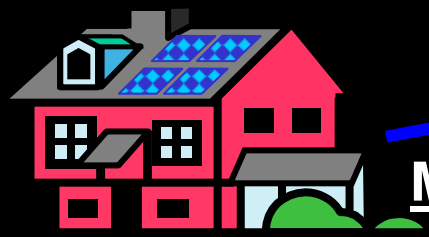
The knowledge horizon

"City Knowledge"™



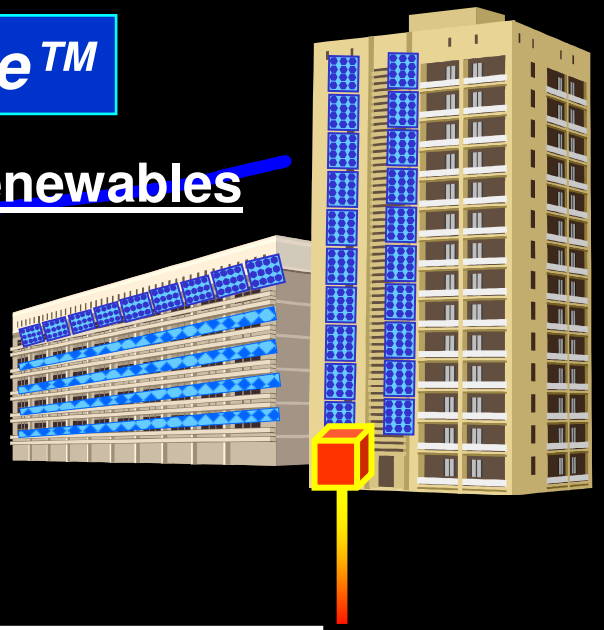
Mapping the municipal environment

From hunter-gatherers to farmers of information

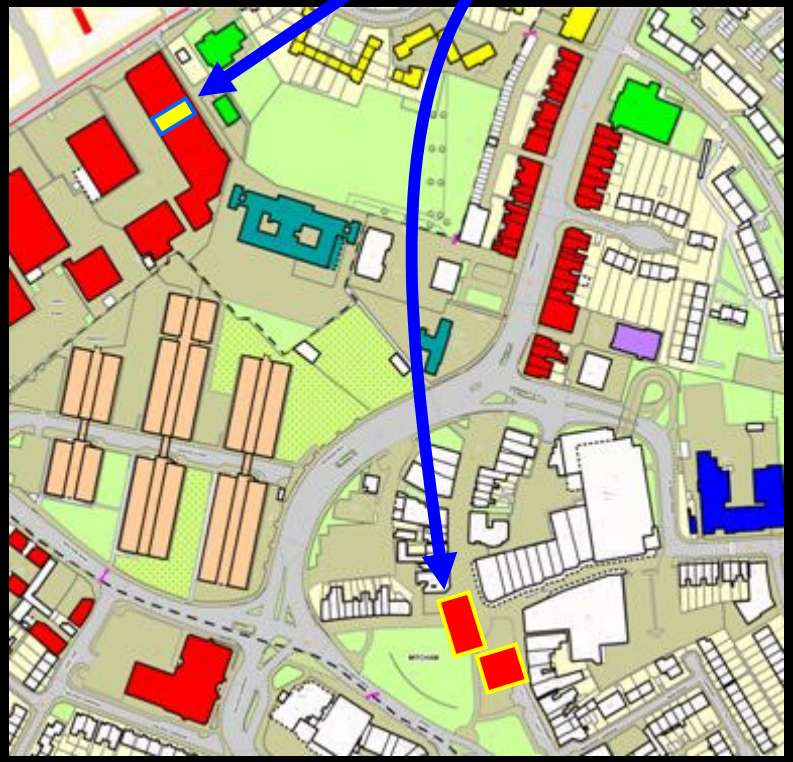


Energy-DataGauge™

Mapping and Monitoring renewables



1. "Birth Certificate"



2. Monitoring the renewable energy

Planning Enforcement Condition

"The developer shall install monitoring devices so that Merton can evaluate the performance of the equipment and energy use of the building."

1. *"Birth Certificate"*

Energy-DataGauge server

On-line Birth Certificate

Developer/planner/renewable installer

Energence / Mapping Renewable Energy

Home | Access account | Create account

http://energence.co.uk

Welcome: Energence ... | Borough (drop down) | Logout

Site/Certificate Data

Development details | Predicted energy | Installed energy equipment | View energy data

Register or **amend** energy and monitoring hardware

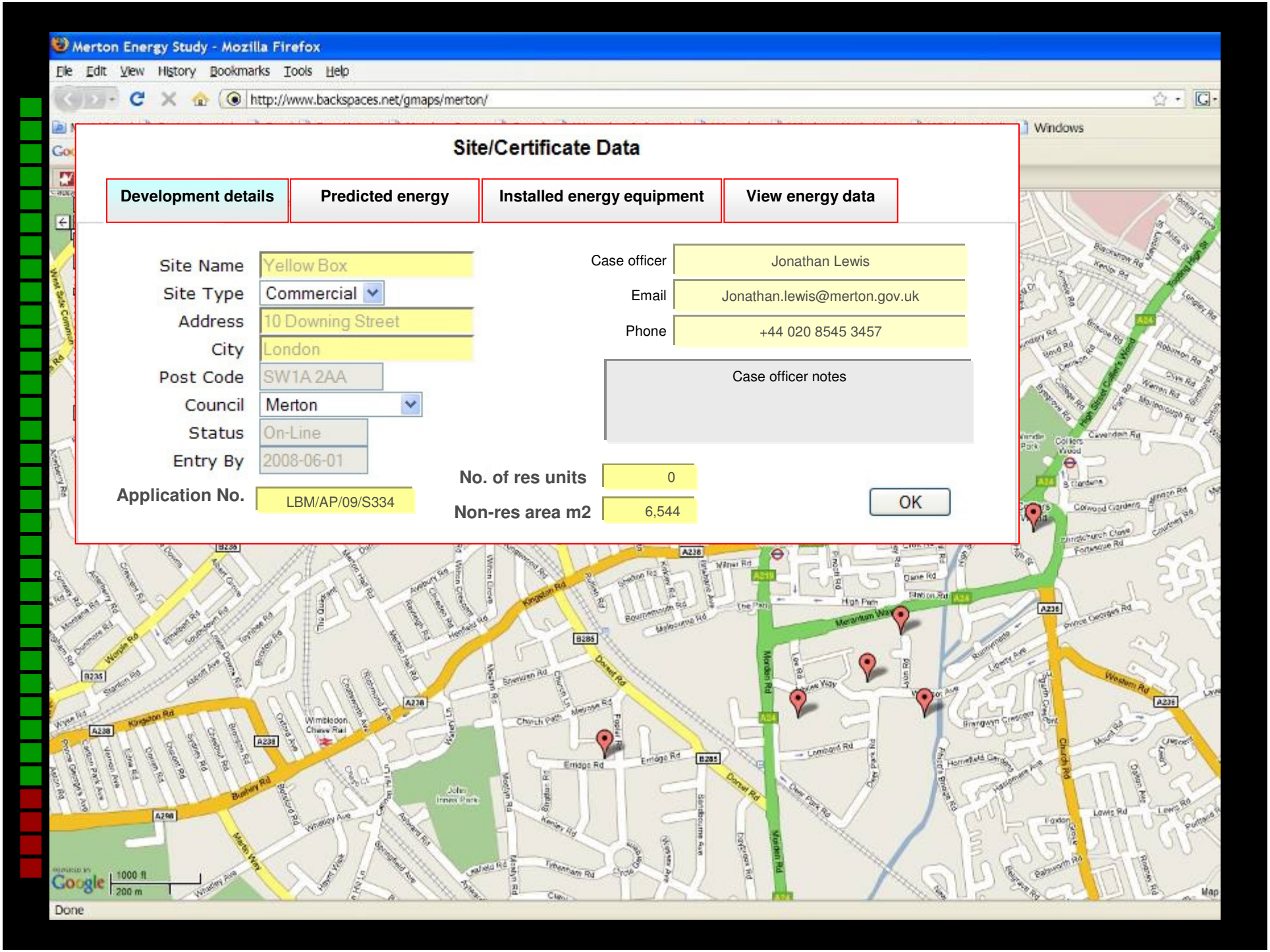
		kW/peak	Predicted kWh/hours/pa	
LBM/AP/09/S334	Technology : *drop-down*	8.6	14,543	Add monitoring device

Application number
This will have been given you by the Developer

or Save & create another

Technology

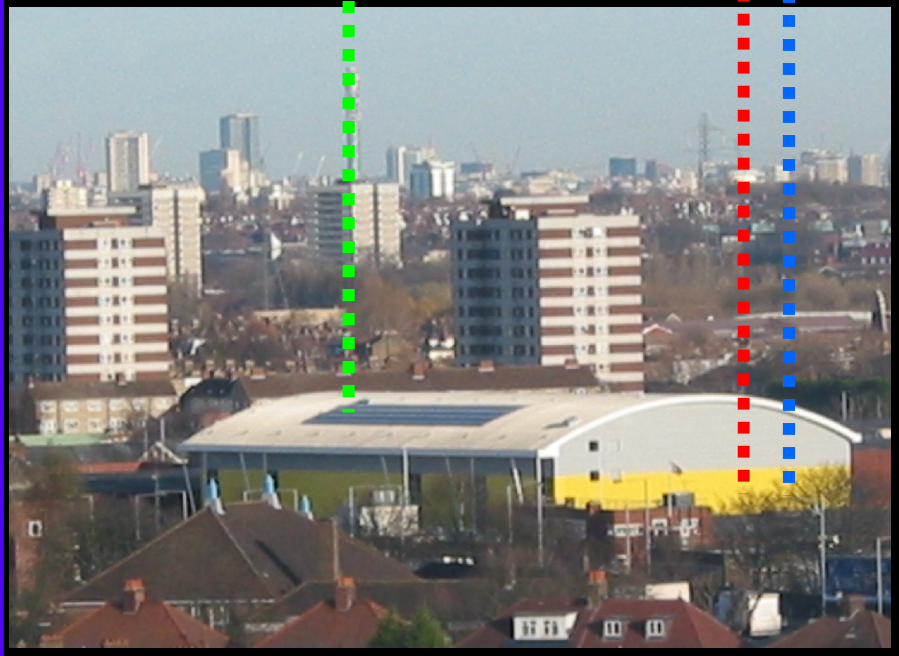
- Photovoltaic
- Wind
- Micro-hydro
- Ground source cooling
- Solar thermal
- Ground source heat
- Air source heat
- Biomass heating
- Biofuel heating
- Hydrogen
- Biomass/fuel CHP
- Natural gas CHP
- Other

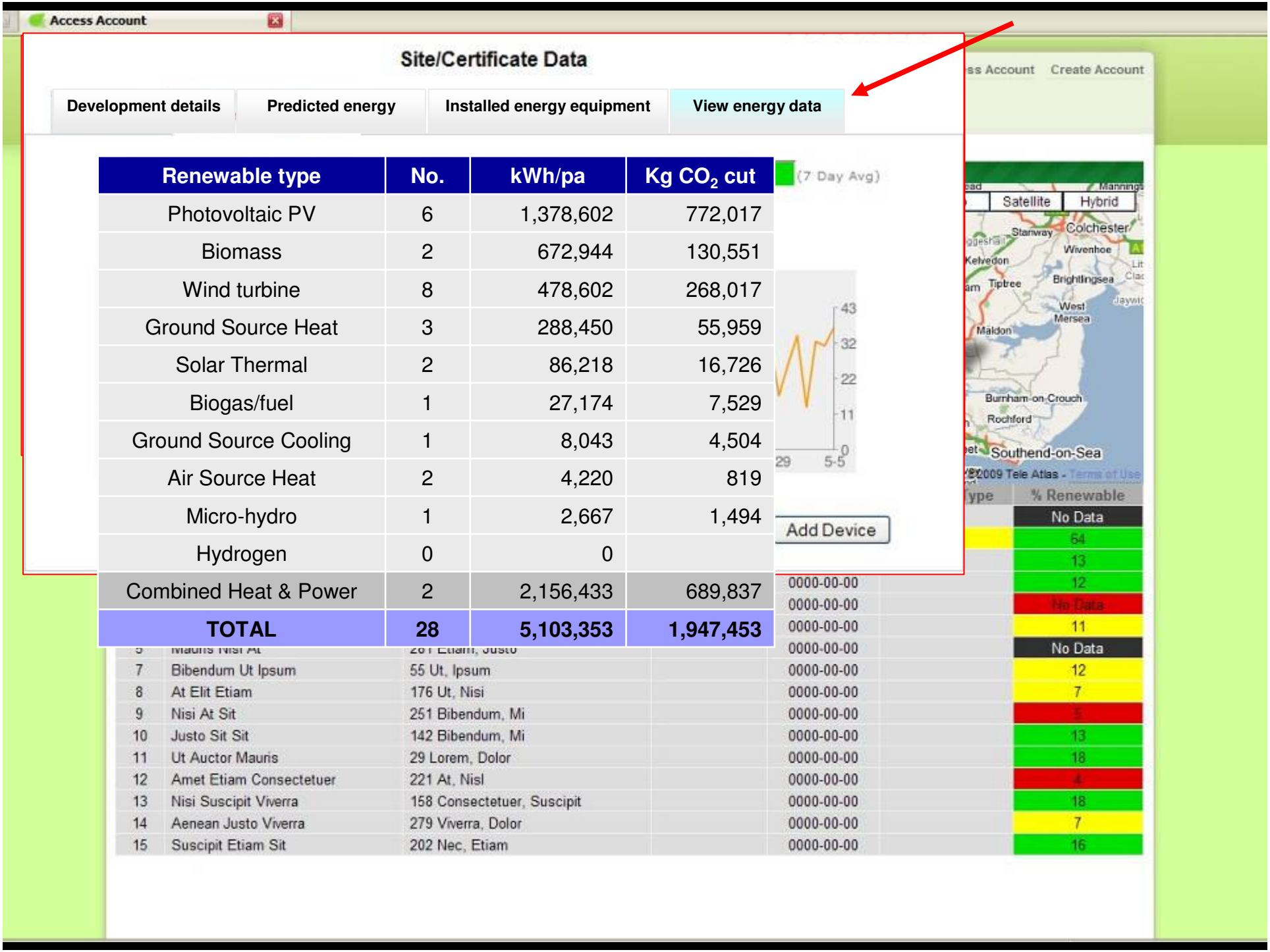

Merton Energy Study - Mozilla Firefox
File Edit View History Bookmarks Tools Help
http://www.backspaces.net/gmaps/merton/
Windows
Site/Certificate Data
Development details
Predicted energy
Installed energy equipment
View energy data
Site Name
Yellow Box
Site Type
Commercial
Address
10 Downing Street
City
London
Post Code
SW1A 2AA
Council
Merton
Status
On-Line
Entry By
2008-06-01
Application No.
LBM/AP/09/S334
Case officer
Jonathan Lewis
Email
Jonathan.lewis@merton.gov.uk
Phone
+44 020 8545 3457
Case officer notes
No. of res units
0
Non-res area m2
6,544
OK
Google
1000 ft
200 m
Done

2. Monitoring the renewable energy

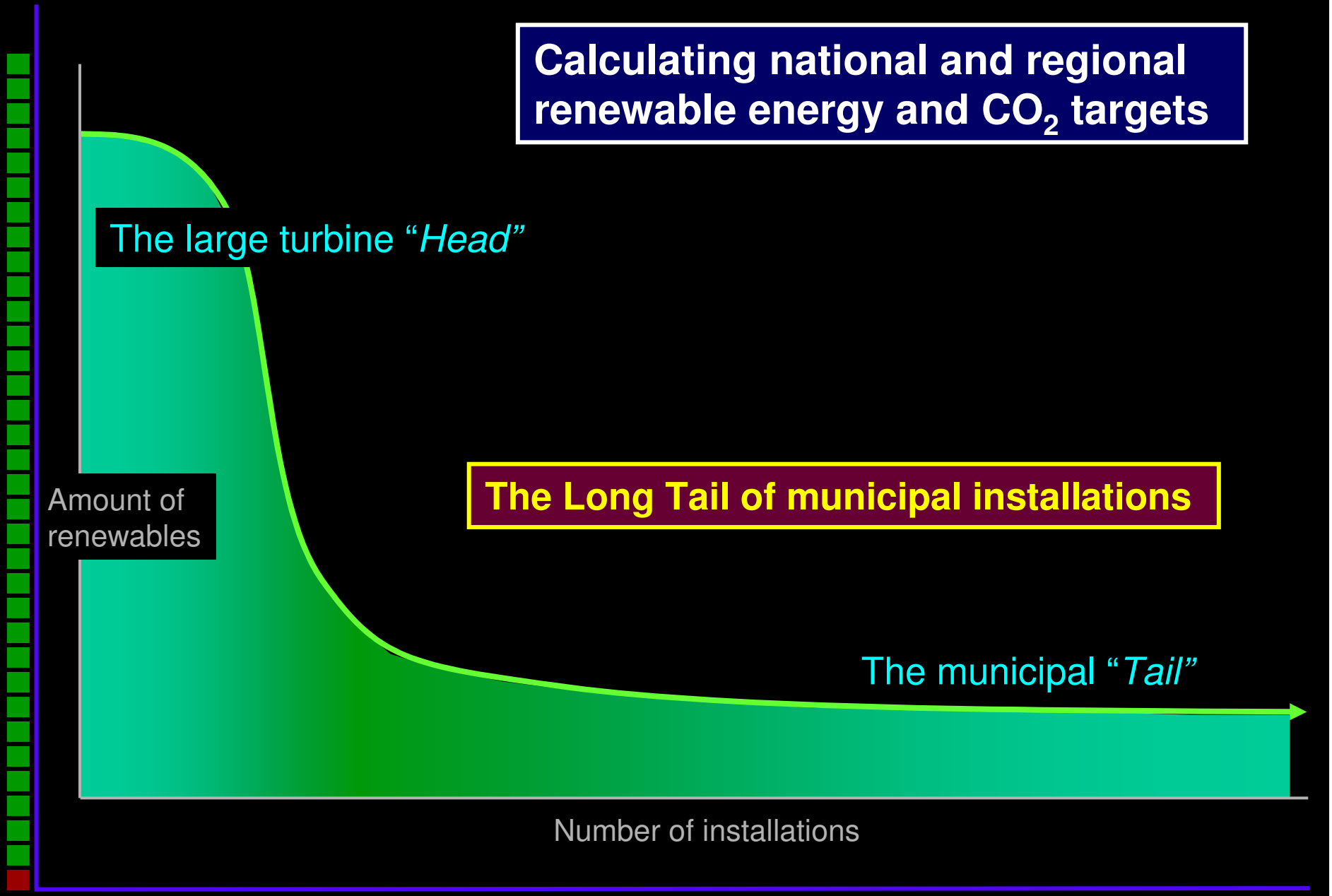
internet

Energy-DataGauge server




Access Account
Site/Certificate Data
Development details
Predicted energy
Installed energy equipment
View energy data
Renewable type | No. | kWh/pa | Kg CO2 cut
Photovoltaic PV | 6 | 1,378,602 | 772,017
Biomass | 2 | 672,944 | 130,551
Wind turbine | 8 | 478,602 | 268,017
Ground Source Heat | 3 | 288,450 | 55,959
Solar Thermal | 2 | 86,218 | 16,726
Biogas/fuel | 1 | 27,174 | 7,529
Ground Source Cooling | 1 | 8,043 | 4,504
Air Source Heat | 2 | 4,220 | 819
Micro-hydro | 1 | 2,667 | 1,494
Hydrogen | 0 | 0 |
Combined Heat & Power | 2 | 2,156,433 | 689,837
TOTAL | 28 | 5,103,353 | 1,947,453
(7 Day Avg)
Add Device
Satellite
Hybrid
Colchester
Wivenhoe
Brightlingsea
Maldon
Burnham-on-Crouch
Rochford
Southend-on-Sea
% Renewable
No Data
64
13
12
No Data
11
No Data
12
7
5
13
18
4
18
7
16

Calculating national and regional renewable energy and CO_2 targets



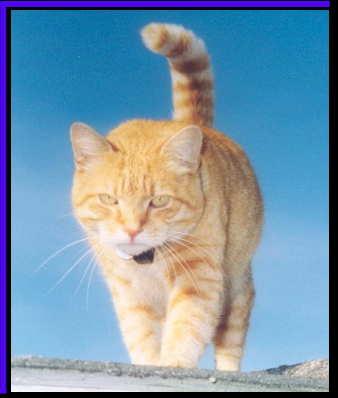
Combating Climate Change

The power of municipal Planning

Energy-DataGauge

http://energence.co.uk

"To mobilize we must develop a technique and methods so simple that the citizen of good common sense can readily grasp the idea."



Adrian Hewitt
Metropolis Green

Contact: adrian.hewitt@metropolisgreen.co.uk

·I·C·L·E·I Local Governments for Sustainability

LETIT