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Energy Strategy Overall

Green
Lean
Mean
£/ kg CO$_2$ saved
London 2012: Energy & Sustainability at the Olympics
3rd July 2012
Energy Centre Design

- New building
- Refurbishment of existing building
London 2012: Energy & Sustainability at the Olympics
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Thermal Stores
- hot and cold
- Treated water store

Air Handling and Ventilation

2 Stage Waste Heat Boilers

Cooling Towers
- Double Effect Absorption Chillers

Gas Engines

High efficiency Ammonia Electric Chillers

Boilers

Switchgear

Pump Sets

Transformers
Network Construction

Installation
- Pre-insulated steel pipe
- Leak detection system
- Fibre network in same trench for metering/monitoring

Design Criteria
- Sized for legacy
- Long life expectancy
- Variable volume with differential pressure control
Why CHP

Conventional

CHP

>20% reduction in CO₂ emissions
**ESCo Business Case**

ESCo manages capital and financing, O&M and all electricity and heat / cooling sales.
Carbon Savings

2011 Energy Statement CO₂ Saving Breakdown
Renewable Energy

- Biomass boiler – 3MWth
- Small wind turbines
- Lighting integrated PV
Renewable Energy

- PV retrofit on roof of MPC
- To be provided on MSCP

- Procured under framework contract available to any government body
Carbon Savings

2011 Energy Statement CO₂ Saving Breakdown
**Retrofit for carbon savings**

Retrofit of building stock in the surrounding boroughs

Developed bespoke Olympic versions of existing programmes for community retrofit

BH role to audit existing programmes

Use of existing programmes; beneficial to ODA as a sunset organisation, and to enable efficient delivery
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1. Marketing RE:NEW to households
   - Local authority branding
   - Area-based marketing
   - Leafletting and advertising in community spaces
   Households can book an appointment for a RE:NEW visit.
   - Door knocking
     A RE:NEW assessor knocks door-to-door.

2. Energy survey advice and easy measures in the home
   Energy assessor goes into the home and carries out a whole-house survey, gives energy saving advice and installs appropriate easy energy efficiency measures. The assessor books appointments for the further measures to be installed, provides benefits advice and links to other council services e.g., Fire safety.
   - Easy measures
     - Low energy lightbulbs
     - Stand-by switches
     - Hot-water tank insulation
     - Shower timer
     - Tap aerators
     - Smoke a flush

3. Installation of further measures
   Contractor visits the home and installs further measures where appropriate: loft and cavity wall insulation, boilers, solid wall insulation and renewables.

4. Single point of follow-up advice
   Households can contact the Energy Saving Trust.

5. Data collection
   Data from homes fed back to local authority, RE:NEW team and the Energy Saving Trust.
**RE:FIT**

Refurbishment works to schools within the local boroughs

Measures installed to save energy in the schools, hence reduce energy bills and carbon emissions

500 tonnes of carbon savings targeted

Energy Performance Contracting approach

12 schools available to receive retrofit measures
Carbon Savings

2011 Energy Statement CO₂ Saving Breakdown
Renewables and Retrofitting; Costs and Benefits

Renewable Energy

- 787 tonnes of carbon saving / year
- Vital new generation capacity
- In line with policy
- Value variable depending on RE type and stage of integration
- Cost to have met entire renewable shortfall with PV ~£30million
- PV retrofit project ~£7,400/tonne of carbon saved

Retrofitting

- 1,300 tonnes of carbon saving / year
- Reducing energy demand
- Benefiting wider area, reduced fuel bills
- Outside the ‘red-line’ of the park
- Approach similar to that proposed under allowable solutions
- Predicted value £1,300/tonne of carbon saved
Key Lessons

• Plan for flexibility
   For a long term project, it’s almost impossible to anticipate and stay ahead of regulatory changes

• Set requirements in briefing documents / contracts as early as possible
   Don’t wait until contractors are on board. If you’re pushing boundaries, be prepared that design and construction teams will need your support to achieve your aims.

• Infrastructure scale solutions can be the most efficient and cost effective
   For a large body with considerable power, sometimes facilitation is the most important role, guaranteed demand is critical for large scale solutions. Providing this certainty can enable commercial viability of centralised solutions.

• Remember the point!
   Always tie back to your aim; don’t be afraid of changing the target if it’s no longer relevant or the most appropriate target... This links into the plan for flexibility.

• How could we have built people and behaviour into the strategy?