GREENER ICT IN UNIVERSITIES
Quick Wins and Long Term Benefits

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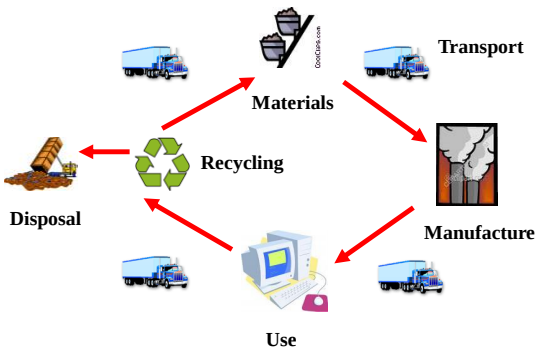
Sustainable IT in Tertiary Education (SusteIT)

- JISC funded project
- Strategic review of ICT in FHE
- Identifying and disseminating good practice
- Guidance documents and >25 Case studies
- Tools: (1) Carbon Footprinting; (2) Cost and Carbon Comparison – Thick vs Thin Clients
- www.susteit.org.uk

ICT & THE ENVIRONMENT

- Equipment
  - manufacture; use; disposal
- Utilisation
  - effectiveness; efficiency
- Enabling
  - conferencing
  - location independent working

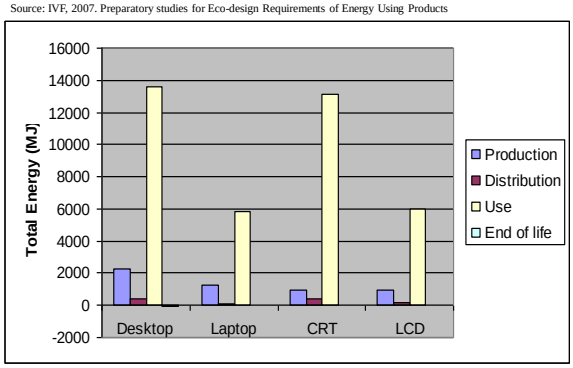
LIFE CYCLE IMPACTS



LIFECYCLE IMPACTS – ENERGY

LIFE CYCLE ENERGY OF PCS

Source: IVF, 2007. Preparatory studies for Eco-design Requirements of Energy Using Products



LIFE CYCLE IMPACTS – WASTE

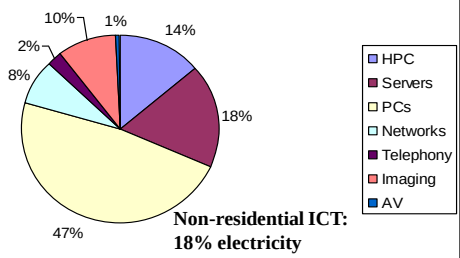
Desktop + CRT

~30 components each
~28 kg materials
~35 kg waste in production
~32 kg waste associated with electricity during use over lifetime

ICT IMPACTS IN HE

- ICT 2% of global CO_2 emissions
- ICT in UK HE
  - 760,000 PCs
  - 215,000 servers
  - 147,000 networked printers
  - 512,000 MWh of electricity
  - 275,000 tonnes of CO_2
  - over £60 million in 2009

UNIVERSITY OF SHEFFIELD – ICT ENERGY BREAKDOWN



Non-residential ICT:
18% electricity
15% carbon

Analysis by Chris Cartledge, 2008

WHY GREEN ICT?

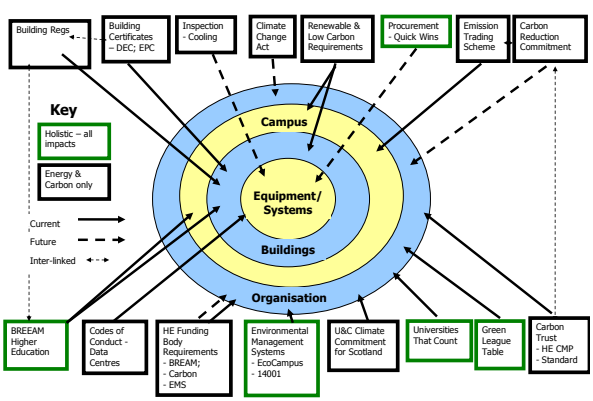
- **Economics**
  - 50 to 100% rise in electricity prices?
- **Compliance**
  - growing regulation

  Corporate Social Responsibility
  - Sustainable policy, reputation
- **Operations**
  - e.g. lack of space

WHY GREEN ICT? - ENERGY COSTS OF PCs

- High energy, high-usage PC with no power management could cost £61 per year in electricity (505 kWh/y @ 12p/kWh)
- Low energy, low-usage PC with power management could cost £3 per year (25 kWh/y @12p/kWh)

Whole life costing essential



ACTION PLAN - DESKTOP

- Management - Power down computers when not in use
- Procurement - Specify low energy computers
- End of Life
  - Make 5 year refresh cycles the norm - justify exceptions by evidence and sign off
  - Dispose of old equipment responsibly

POWER MANAGEMENT

- Most PCs idle for most of the time – similar energy to active mode
- Most PCs left on overnight - standby power (e.g. 5W) adds up across campus
- Uni Liverpool's FREE powerdown software http://pcwww.liv.ac.uk/powerdown/
- See presentations from Sheffield 2.9.08 at www.susteit.org.uk

HIGH EFFICIENCY PCs

- Consider whole life costs of any purchase
- Specify Energy Star compliance
- OR select high efficiency low power PCs e.g. desktops based on laptop technology

PROCUREMENT – WHAT'S COMING

- **Energy Star** – Energy eco-label for office equipment
- **Quick Wins** – Government procurement standards
- **Electronic Product Environmental Assessment tool (EPEAT)** – Broader eco-label for PCs

ENERGY STAR

- Voluntary labelling scheme for energy efficient office products
- Database of most energy efficient models
- Updated specifications (v5.0) for computers and monitors take effect July 2009
- Only deals with energy IN USE
- www.eu-energystar.org

ENERGY STAR V. 5.0 – Requirements for Computers

Covers desktop computers, gaming consoles, integrated desktop computers, notebook computers, small-scale servers, thin clients, and workstations.

Efficient power supply (internal & external) required.

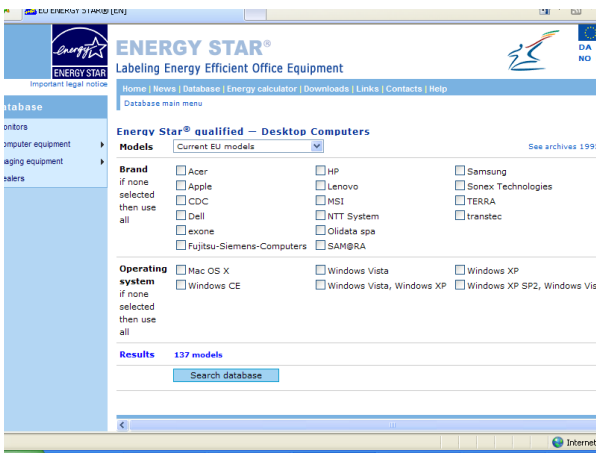
ENERGY STAR ENERGY PERFORMANCE

Desktops:
Category A ≤ 148kWh
Category B ≤ 175kWh
Category C ≤ 209kWh
Category D ≤ 234kWh

Notebooks:
Category A ≤ 40kWh
Category B ≤ 53kWh
Category C ≤ 88.5kWh

Minimum annual energy consumption – based on weighted time spent in each mode (idle, sleep, off).

Different performance standards for workstations and small servers



BUY SUSTAINABLE – QUICK WINS

- Government procurement standards for Central Government
- Likely standards for HE in future - HEFCE Sustainable Development Action Plan
- Energy Star specified for office equipment
- http://www.defra.gov.uk/sustainable/government/what/priority/consumption-production/quickWins/

REUSE EQUIPMENT

- Increase the useful life of devices by
  - extending the period of refresh cycles, or
  - by donating to staff or charity
- Reduces lifecycle impacts - energy, waste, pollution
- Computeraid sends PCs to organisations in developing countries – around 65% of the computers are sent to education institutions www.computeraid.org

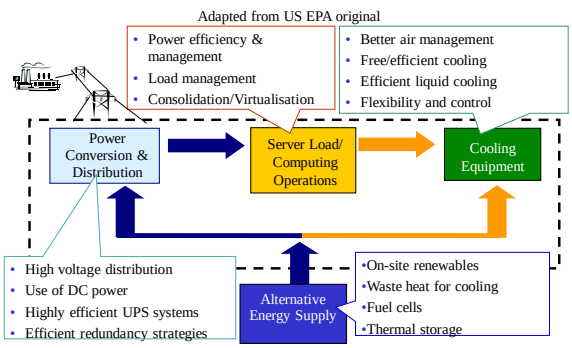
ACTION PLAN - MANAGEMENT

- Calculate energy consumption
  - formulate action plan and targets
- Set up a cross-functional team
- Calculate total cost of ownership
  - energy prices; refresh cycles; support costs
- Energy-related financial incentives for IT
  - paying energy bills for server rooms?

ACTION PLAN - PRINTING

- Audit paper consumption
  - set targets
  - measure/monitor consumption
- Power down printers outside office hours
- Encourage paper-efficient printing
  - draft mode
  - double sided
- Encourage paperless meetings

ACTION PLAN – SERVER ROOMS



THANK YOU!

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