

# European Code of Conduct for Data Centres

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# European Code of Conduct: what is it?

- Code of Conduct:  
a voluntary commitment of individual companies, with the **aim of reducing energy consumption of products and/or systems** through the setting of agreed targets in a defined development timescale.
- Targets could expressed in **maximum allowed power consumption** for the different operational modes or based on indicators (e.g. W, KWh/m<sup>2</sup>) or benchmarking.
- Energy consumption levels are complemented **by general commitments of power and energy management**, switching off components not needed, and reducing energy consumption where possible.

# European Code of Conduct: what is it?

- There are 5 Codes of Conduct in operation:
  - Digital TV Service Systems (set-top boxes);
  - External Power Supplies;
  - UPS;
  - Broadband Equipment
  - Data Centers

# EU Code of Conduct: Basic Mechanisms

- Stage 1: Identify priority products/system and set up working groups, involving all relevant stakeholders.
- Stage 2: Improved energy efficiency criteria (must be more than BaU!) and CoC roadmap.
- Stage 3: Achieved outcome, agreed with stakeholders.
- Stage 4: Continuous review to identify best practices.

N.B. very important for fast changing technology such as Set Top Boxes, Data Centers and Broadband Equipment. Difficult to use legislation

# Why a Code of Conduct for Broadband Equipment?

- Broadband equipment will contribute to the electricity consumption in European Community depending on the penetration level, the specifications of the equipment and the requirements of the service provider, a total European consumption of up to 50 TWh per year can be estimated for the year 2015.
- With the general principles and actions resulting from the implementation of this Code of Conduct the (maximum) electricity consumption could be limited to 25 TWh per year, this is equivalent to 5,5 Millions tons of oil equivalent (TOE) and to total saving of about € 7,5 Billions per year.

# Aim of the Code of Conduct for Broadband Equipment

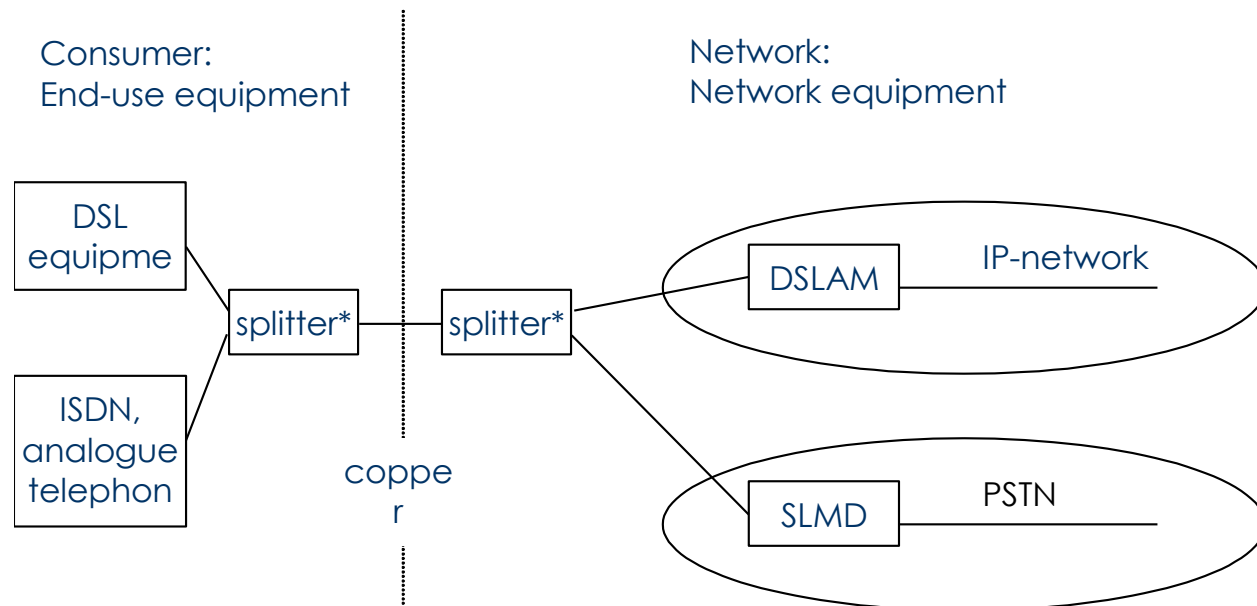
To reduce energy consumption of broadband communication equipment without hampering the fast technological developments and the service provided

# General Principles

- Equipment is designed to achieve reduced power consumption targets on the whole system as well as individual components.
- Control systems are specified on the presumption that hardware has power management built in, and the hardware will automatically switch to the state with the lowest possible power consumption.
- Any external power supplies used for end-use equipment shall be in accordance with the EU Code of Conduct for External Power Supplies.
- End-use equipment is designed on the assumption that the equipment may be physically disconnected from the mains supply by the consumer.
- Broadband Network equipment should be designed to fulfil the environmental specifications of Class 3.2 for indoor use and even more extended environmental conditions than Class 3.2 for use at remote sites according to the ETSI Standard. It should be preferably cooled with fresh air. The COP 'Coefficient Of Performance' of new site cooling systems,, should be more than 10.
- VDSL2 Network equipment should use a low power state (L2) and a standby state (L3) when relevant standards and definitions will be available.

# Equipment covered by the Code of Conduct for Broadband Equipment

Equipment both on the consumer side (end-use equipment) and the network side (network equipment), for services providing a two way data rate of 144 kb/s or above.



# Equipment covered by the Code of Conduct for Broadband Equipment

End-user equipment associated with broadband distribution for residential customers and SOHO	Network equipment
<ul style="list-style-type: none"> <li>• DSL modem</li> <li>• Cable modem</li> <li>• PLC modem</li> <li>• (DSL) router with/without WLAN up to 5 ports (1WAN port and 4LAN ports) up to 1000 Mbits/s</li> <li>• Small hubs and switches up to 8 ports (10/100/1000 Mbits/s)</li> <li>• WLAN access points</li> <li>• WiMAX</li> <li>• Small printer server (connected to broadband)</li> <li>• Home gateway</li> <li>• Telephone devices for VoIP (ATA or VoIP-Handset)</li> <li>• Optical network termination (ONT)</li> <li>• Equipment that is a combination of one or more of the equipment above</li> </ul>	<ul style="list-style-type: none"> <li>• DSL port (example: ADSL, ADSL2, ADSL2+, VDSL2)</li> <li>• Combined port (example: MSAN, POTS/ISDN + ADSL2+ etc)</li> <li>• NTBA (ISDN terminator at customer premises)</li> <li>• WiMAX Base Stations</li> <li>• PLC &amp; Cable service provider equipment</li> <li>• Optical line termination (OLT)</li> </ul>

- Carbon reduction commitment (the 3 \* 20% by 2020 targets)
- Forecasts of rising energy use in Data Centres
  - Europe 56TWh / PA 2007
  - rising to 104TWh / PA by 2020
- Energy security

- Many activities within Industry and Governments
  - US EPA ENERGY STAR, US DoE, Green Grid, Climate Savers Initiative, IEE E-Server project, Global Action Plan, etc.
- Risk of Confusion and Mixed Messaging
  - Broad review and input
  - CoC tailored to EU conditions
  - Lower the barrier to access and application
  - Action oriented

- Rising energy costs
  - Increased demand
  - Tipping point in supply
  - Environmental policy to allow energy cost to rise
- Data Centres represent an increasing proportion of overall business cost
- Carbon taxation / trading costs

- Rising public awareness
  - Impacts of energy use – climate change
  - Energy used by ICT – comparisons to Aviation
- Data Centres represent an easy target
- ICT is a key enabler of environmental impact reduction both directly and indirectly
- Demonstrate that the industry is not profligate with energy

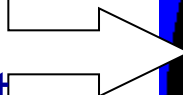
- Led by European Commission, DG JRC
  - *“aim is to inform and stimulate Data Centre operators to reduce energy consumption in a cost effective manner without hampering the critical function  
....”*
- A Voluntary Commitment

OK to install energy-efficient solutions where:

- 1) it is PROFITABLE and
- 2) Quality an reliability of service is maintained or improved



Recognition  
Info. Support



Top-manager

- Build Awareness
  - *Financial and infrastructure benefits of improving Data Centre efficiency*
- Develop practical voluntary commitments
  - *which improve the energy efficiency of data centres and in so doing minimise the TCO.*
- Support Effective Decision Making
  - Multidimensional challenge in Facilities, IT and Demand

- The Code of Conduct covers:
  - “Data centres” of all sizes – server rooms to dedicated buildings
  - Both existing and new facilities
  - Equipment procurement and system design

- The Code of Conduct is for:
  - Participants: Data centre owners and operators
  - Endorsers: Vendors, consultants, industry associations

- Broad participation and support from
  - Vendors – directly and via the Green Grid
  - Data centre operators – CoLocation and Managed Services
  - End user organisations – all sectors – Telecom, Retail, Finance, Industrial

- **Metrics & Measurement**
  - Developing a standard method of comparative measurement of energy efficiency

- **Data Collection & Analysis**
  - Performance benchmarking across the industry

- Internal document to demonstrate energy efficiency
  - How efficiently are you operating?
  - What is being done to improve this?
- Internal reference for future planning
  - How can you go further?

- **Best Practice**
  - Focused on design best practice,  
Software, IT Architecture and Facility

# Becoming a Code of Conduct Signatory

- Single data centre or corporate level
  - Corporate > 40% of facilities
- Select new or existing data centre(s)
  - Implement measurement capabilities, IT and total facility power
  - Implement or commit to implementing a subset of best practices
  - Implement energy and practice compliance reporting

## Complete application form

- Practices implemented and committed to implement with dates (or details of new data centre facility technologies)
- First energy report (before measure implemented)
- Assessment by the CoC Secretariat
- Reporting
  - Continue to submit energy and practice compliance reporting

- Organisations
  - Vendors, Consultancies, Utilities, Government, Industry Associations & Standards bodies, End users
- Support and promote the goals of the Code
  - Products, consultancy, services
  - Programmes, education
  - Labelling
  - Supplier selection criterion

- Voluntary approach flexible enough to allow different situations (new, old, colocation, etc.);
- Some simple rules to assure that action is implemented and monitored to give credibility to the scheme;
- Not a benchmarking scheme, but a tool to help data centre operators to improve their energy performances, and to receive support and recognition by public authorities (e.g. European Commission)

- For Broadband Equipment we have voluntary efficiency requirements (MEPS), which substantially reduce energy consumption
- What we need to implement our policies are IEC standards about test methods (for products) and metrics for systems;

**Thank you!**

**For more information!**

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**<http://re.jrc.ec.europa.eu/energyefficiency>**