

# The European Programme for Energy Efficiency in ICT The Codes of Conduct

**Paolo Bertoldi**  
**European Commission DG JRC**  
**Institute for Energy**



# EU Key Climate and Energy Objectives for 2020

By 2020 -20% **EU GHG**

By 2020 +20% **ENERGY SAVING**

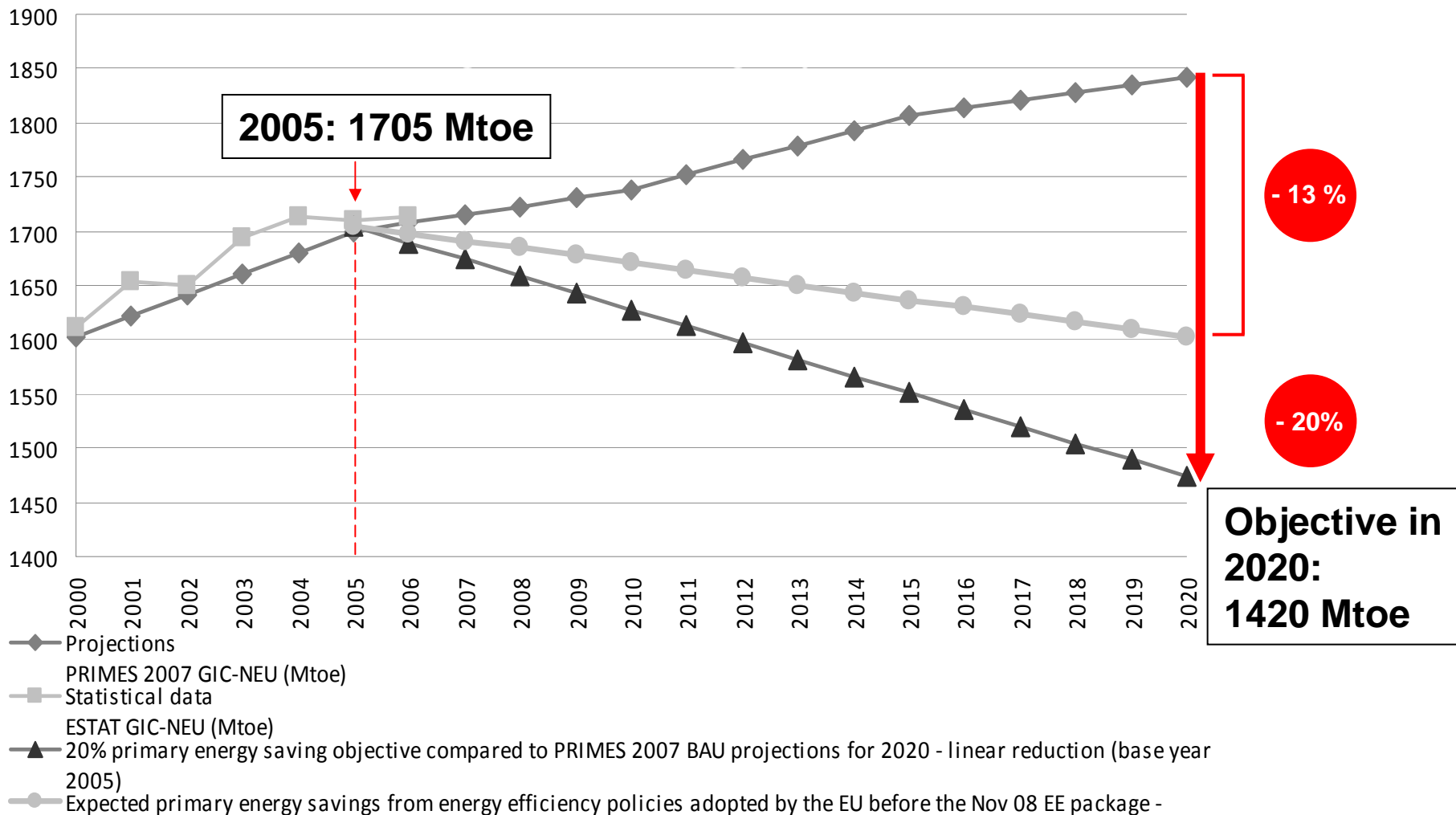
By 2020 binding 20% **RENEWABLES** in final energy consumption at EU level

**RES in transport**  
Min 10% binding

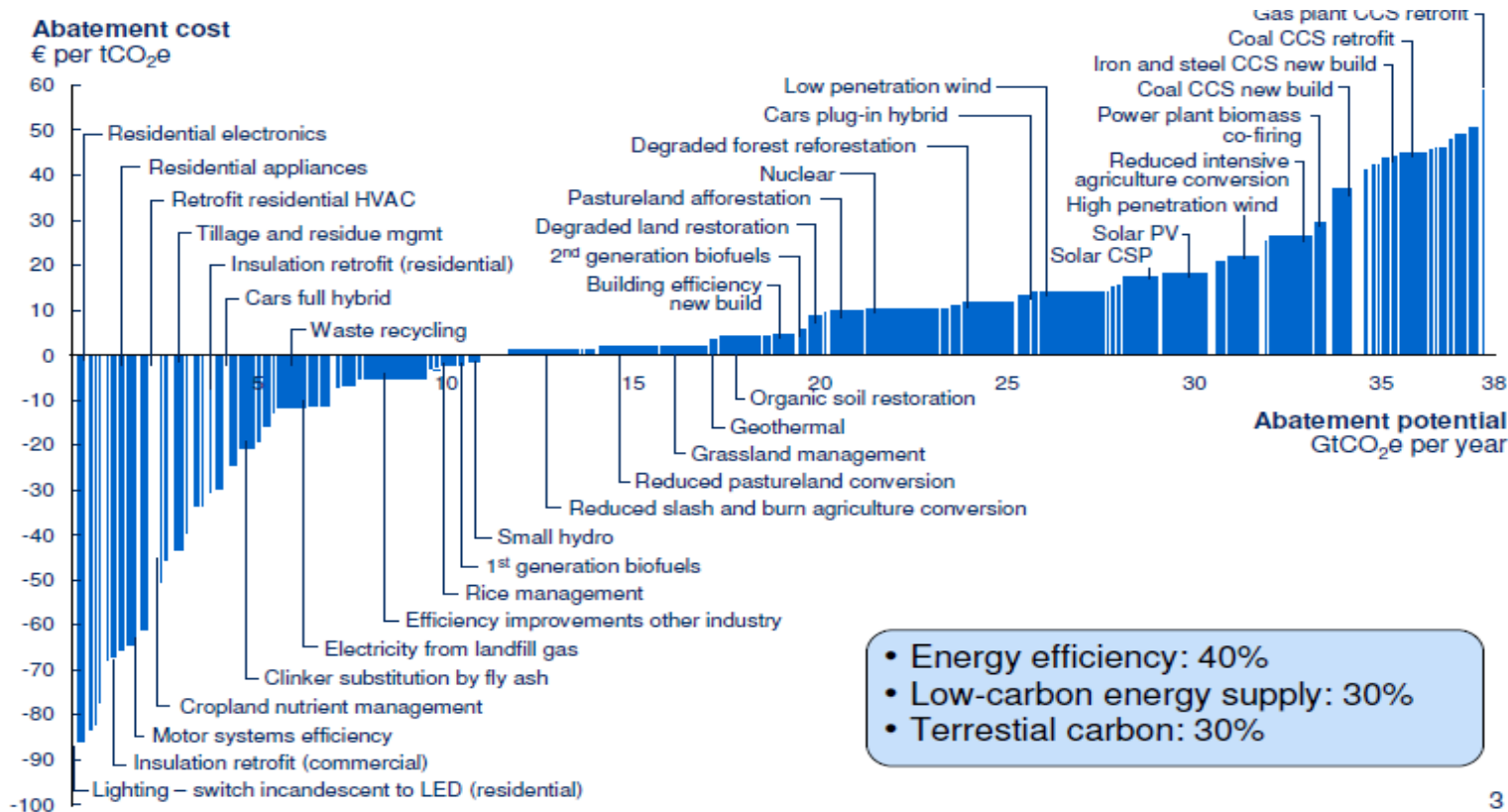
**ELECTRICITY**  
MS binding choice

**HEATING & COOLING**  
MS binding choice

**NATIONAL TARGETS & ACTION PLANS**



End-use efficiency is recognised as the fastest and cheapest way to reduce CO<sub>2</sub> emissions by 2020.



Note: The curve presents an estimate of the maximum potential of all technical GHG abatement measures below €60/tCO<sub>2</sub>e if each lever was pursued aggressively. It is not a forecast of what role different abatement measures and technologies will play.

McKinsey&Company

- Led by European Commission Joint Research Centre
- Flexible mechanism to initiate and develop policy
- Forum for industry, experts and Member States
- Open and continuous dialogue on market and product performance
- Identify and focus on key issues and agree solutions
- Set ambitious voluntary standards and commitments



- Code of Conduct is a **voluntary commitment** of individual companies, which own or operate data centers (including colo), with the aim of reducing energy consumption (against a BaU scenario) through the adoption of best practices in a defined timescale.
- Energy efficiency targets are complemented by **general commitments** of monitor power and energy consumption, adopt management practices, switching off components not needed, and reducing energy consumption where possible

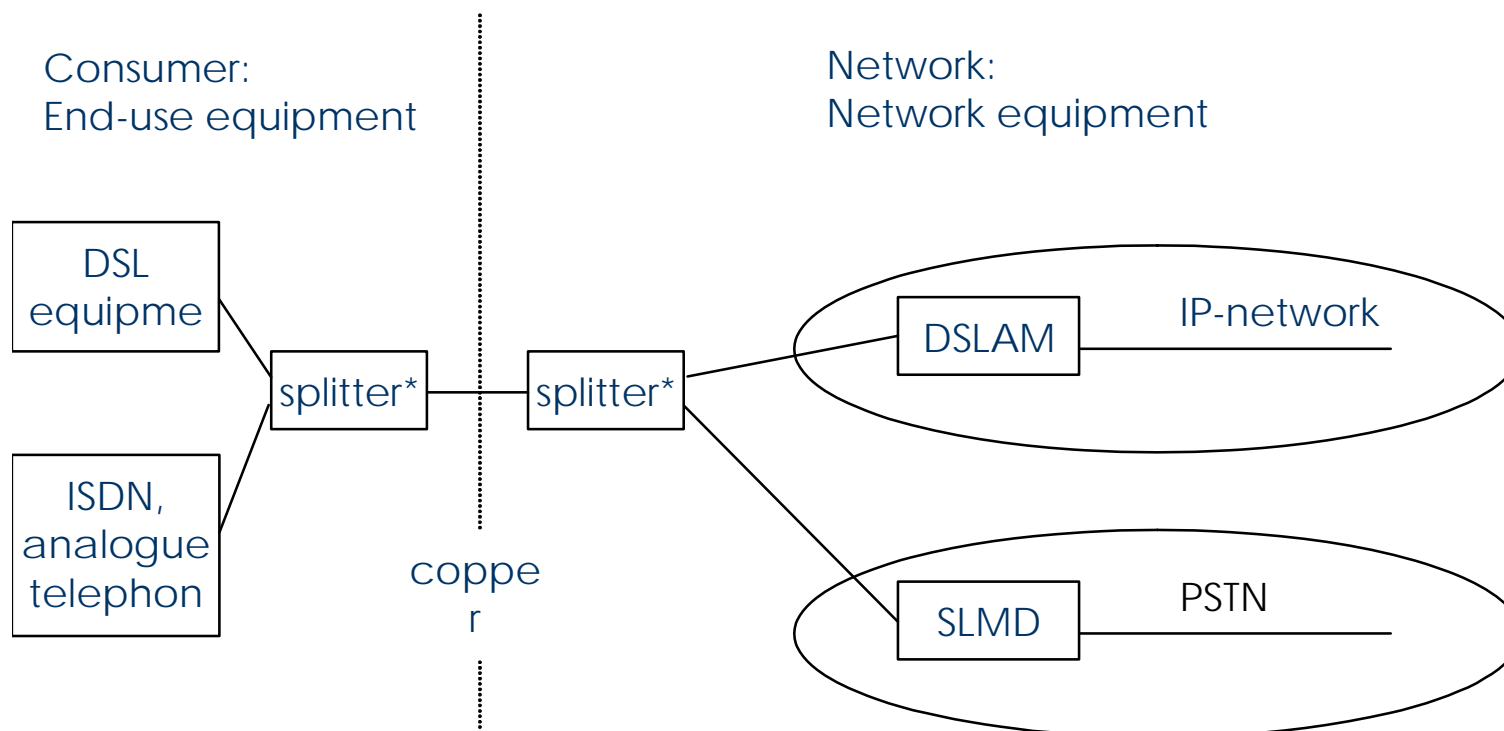
- To **raise awareness** among managers, owners, investors, with targeted information and material on the opportunity to improve efficiency.
- To provide an **open process and forum** for discussion representing European stakeholder requirements.
- To create and provide an **enabling tool for industry** to implement cost-effective energy saving opportunities
- To develop a set of **easily understood metrics** to measure the current efficiencies and improvement.
- To produce a **common set of principles** in harmonisation with other international initiatives.
- To **support procurement**, by providing criteria for equipment (based on the Energy Star Programme specifications, when available, and other Codes of Conducts), and best practice recommendation for complex systems.

- Since 2002 Codes of Conduct on:
  - External power supply units
  - Digital TV services
  - Uninterruptible power supplies
- Lays groundwork which has been used by other European policies (e.g. Eco-Design)

- 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.

## 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>

# Signatories of the Code of Conduct

- Equipment suppliers: E.g. Technicolor, Alcatel Lucent, Huawei, Nokia Siemens, CISCO
- Equipment purchasers, e.g. Telecom companies: DT, Telecom Italia, Swisscom, TDC Services, TeliaSonera, KPN, France Telecom, Telecom Portugal, Belgacom, etc.
- In addition, it is important that companies in any case follow the CoC requirements to their best efforts



Brussels, September, 28<sup>th</sup> 2010

13

## Joint Codes of Conduct Signature Event

The following Operators and Vendors have attended the "Joint CoC Signature Event", hosted in Brussels on September, 28<sup>th</sup> 2010, and have signed one or both the CoC on BroadBand and Data Centres.

 Alcatel-Lucent	Emmanuel Darmois VP Corporate Standards 	 belgacom	Concetta Fagard VP Group Reputation 
 BT	Henk Mannekens European Regulatory Manager 	 CISCO	Klaus Verschuere Technical Leader Geo-Design 
 T-Mobile	Luis Neves Vice President Corporate Responsibility 	 orange	Marc Fossier Executive VP - Chief CSR Office 
 hp	Maria Morse CFS Business Development Principal 	 HUAWEI	Kathrin Neunteufel Public Affairs Manager, EU Department 
 kpn	Marga Blom Manager Energy Management Group 	 Microsoft	John Vassallo Vice President EU Affairs 
 Nokia Siemens Networks	Van Hemeledonck Walter Head of European Union Policies 	 OTE	Tim McPhie OTE representative - APCO 
 PT	José Fino Gomes Wireline Network O&M Director 	 swisscom	Stefan Kilchenmann Head of public affairs 
 TDC	Henning Andersen Environmental Manager 	 TELECOM ITALIA	Sandro Dionisi Head of Technology R&D 
 Telefonica	Alberto Andreu Pinillos Director on Corporate Responsibility 	 A1 Telekom Austria	Elisabeth Mattes Director of Corporate Communications 
 telenor group	Lotte Abildgaard VP Representative Office in Brussels 	 TeliaSonera	Kaisu Karvala President European Affairs 
 TURK TELEKOM	Kemal Uzunboy Telecommunication Expert 		

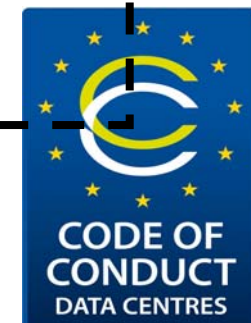
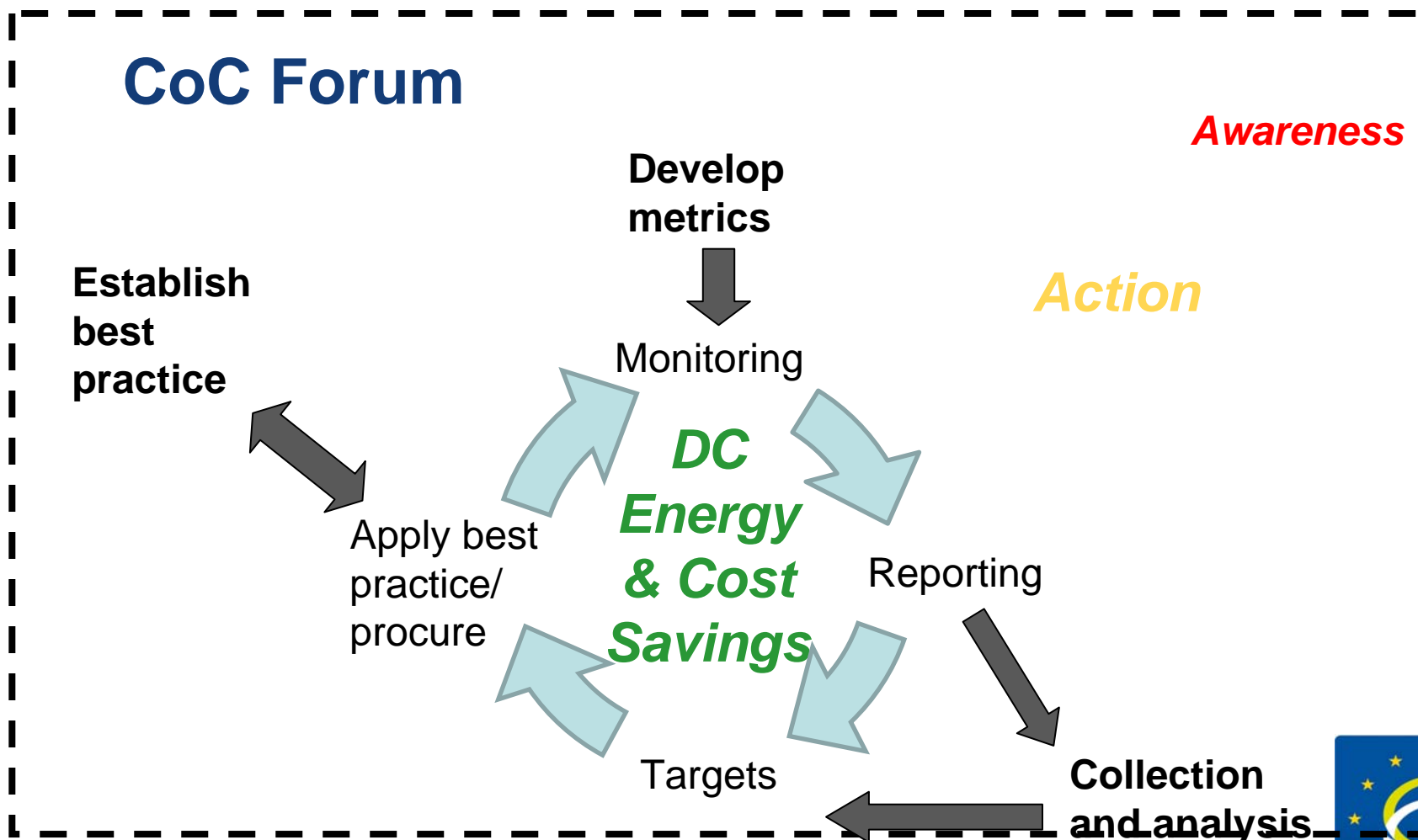
- Continuing demand for IT services
- Rising DC electricity consumption projected:
  - Western Europe: 56 TWh in 2007, projected to rise to 104 TWh in 2020
- Expected to contribute substantially to the UK and European Union (EU) commercial sector consumption
- Maximise energy efficiency of data centres to ensure the carbon emissions and energy consumption are mitigated

- Many activities have been initiated including US EPA Energy Star, US *DoE Save Energy Now* and The Green Grid
- But no EU regulatory or voluntary initiatives addressing the energy efficiency of data centres. This creates risk of confusion, mixed messages and uncoordinated activities
- Need for independent assessment and coordination – tailored to European conditions such as the climate and energy markets regulation
- The new Code of Conduct provides a platform to bring together European stakeholders to discuss and agree voluntary actions which will improve energy efficiency

- The Code of Conduct covers:
  - “Data centres” of all sizes – server rooms to dedicated buildings
  - Both existing and new
  - IT power and Facility power
  - Equipment procurement and system design
- The Code of Conduct is for:
  - **Participants**: Data centre owners and operators
  - **Endorsers**: Vendors, consultants, industry associations

- Day to day operations (energy management)
- Normal replacement cycle/adding new servers
- Retrofit/ dedicated energy efficiency programme
- Designing new data centres

- Metrics and measurements
  - How to measure and report efficiency
- Best Practice
  - Establishing guidance and support
- Data collection & analysis
  - Monitor and report on savings



Category	Description
Entire Data Centre	Expected to be applied to all existing IT, Mechanical and Electrical equipment within the data centre
New Software	Expected during any new software install or upgrade
New IT Equipment	Expected for new or replacement IT equipment
Build or retrofit 2010 onwards	Expected for any data centre built or undergoing a significant refit of the M&E equipment from 2010 onwards

## Best Practice Intent:

- Neither a prescriptive nor exhaustive list of specific technologies
- Focussed on goals and processes
- Structured to allow the addition of new technologies

- Establish common vocabulary and terminology
- Provide operators with an understanding of the available technology options
- Their relative merits
- The processes they should establish
- The communication that is necessary
- The relationship between technology areas
- Most people are non-expert in some area(s) of the data centre
- Best Practices are guidance to operators on how they might improve energy efficiency
- Practices are scored 1-5 (min-max) based upon their likely energy use benefit
- Practices are ordered by score
- Practice scores are not intended to be summed for an ‘overall score’

- Participants will receive public **recognition** for their efforts, through the **Code of Conduct promotion campaign**, aimed at raising public awareness of energy issues.
- Participants may use the **Code of Conduct logo (under development)**, publicising their energy saving actions and the contribution they are making to the environment.
- Participants that score a low energy for the data centre, will be allowed to indicate that are Code of Conduct Low Energy Champion and will be eligible for the annual Data Centre Awards (still under development).
- The list of **Participants**, including a description of their specific contribution to energy saving will be published widely (brochure, Internet, etc.)..
- The Participant Data Centres may be included in promotional activities, such as Awards and the Catalogue.
- Participants will be invited to a Code of Conduct **Stakeholder Forum** to review progresses and further develop the Code of Conduct. The Code of **Conduct Stakeholder Forum** will meet regularly and at least once per year.



- **A1 Telekom Austria AG - data centre in Vienna**
- **Bracknell Forest Borough Council**
- **British Telecommunications plc data center in Cardiff (Ty Cynnal)**
- **Bull SAS**
- **Business & Decision - Corporate level**
- **Bytesnet BV - Data Centre in Groningen**
- **EvoSwitch Netherlands B.V. - Data Centre in Haarlem (Amsterdam)**
- **FUJITSU Services - 2 data centres in London, one DC in Slough, one DC in Warwick and one DC in Manchester**
- **Hewlett-Packard - Data Centre Doxfrod Park**
- **IBM Deutschland Business Services GmbH, data centre located in Frankfurt**
- **IBM United Kingdom Limited : Data Centre in London**
- **INTEL - Data Centre Leixlip**
- **LAMDA Hellix S.A. - Data Centre Koropi Attica**
- **Memset Ltd. Corporate level - 2 Data Centres in Reading**
- **Microsoft Corporation - Data Centre in Dublin**
- **Onyx Group Limited - Data center in Edinburgh**
- **Petroleum Geo-Services (PGS) - Data Centre in Weybridge**
- **Reed Specialist Recruitment - Corporate level**
- **TCN Telehousing - Data Centre in Groningen**
- **TelecityGroup (corporate level) with datacentres: Paris 1 and 2; Stockholm 1 and 2; Frankfurt 1 and 2; Amsterdam 1, 2, 3 and 4; Milan 1, 2; London 1,2,3,4,5,6,7 and 10, Manchester 1 and Dublin 1**
- **The UK Grid Network Ltd -data center located in Mancehster**
- **Thomson Reuters**
- **TISSAT S.A. - Data Centre Tissat, Valencia**
- **UK Meteorological Office - Data Centre in Exeter**
- **VCD Infra Solutions - Data Centre in Groningen**
- **Vodafone Group Service GmbH - Data Centre Rehhecke, Ratingen**

1E  
3Com Corporation  
3PAR Inc.  
A.C.I.E.  
Active Power Solutions Ltd.  
ADA Networks Ltd  
ADJUGO SA/NV  
Aegide  
AIT Partnership Group Ltd.  
AMSTEIN +WALBERT LAUSANNE  
APC By Schneider Electric  
APL France  
AST (Advanced Shielding Technologies)  
Atrium Data  
BCS HQ  
Belden  
Bull  
Business & Decision  
ByrneDixon Associates  
Camco International Limited  
Cap Ingelec  
Capitoline LLP  
Carbon3IT Ltd.  
CBI Plc  
C.e.s.i.t. comité des exploitants des salles informatiques  
Chloride Spa  
Connectix Ltd.  
Corning Cable Systems GmbH & Co. KG  
CNet Training  
Colofinder (Anytime Office Limited)  
Comms Room Services Ltd.  
Critical Building  
CS Technology Ltd

Datacentre UK Limited  
Dataracks  
Daxten GmbH and Ltd  
DECLIC Telecom TOUR AREVA  
Deerns  
Dell Corporation Limited  
Dimension 85 Ltd  
e-Business & Resilience Centre  
EC2 Partners Limited  
eCool Solutions  
Eaton Corporation  
Electron Technical Services T/A Optimum Data Centres  
EMC Corporation  
Enefyg  
Evolved IT Services Ltd  
Externus Ltd.  
FIBROPTIC INDUSTRY ASSOCIATION  
FUJITSU Services  
Future-Tech SCI Ltd  
Gimélec  
Greenvision  
Haskoning Nederland B.V.  
Hewlett Packard Company  
Hewlett-Packard - Critical Facilities Services  
Hitec Power Protection bv  
IBM Data Center Services (EMEA)  
Ingenium nv  
INS Sudlows Ltd  
ITE Projects Ltd  
ITM Communications Ltd  
JLBdata  
Keysource Ltd  
LAMDA Hellix S.A.  
Memset Ltd. Corporate level  
MANSYSTEMS NEDERLAND BV

Microsoft Corporation  
NDSL Ltd., makers of Cellwatch.  
NETPLEX Ltd.  
Nexans Cabling Solutions  
nlyte Software  
Norland Managed Services  
Nubis Solutions Ltd.  
On365 Limited  
Prism Power Ltd  
Powertech Ltd  
PTS Consulting Group plc  
REM Enterprise  
Rittal GmbH & Co. KG  
Romonet Limited  
Shoden Data Systems  
Siemens NV/SA  
Sir Robert McAlpine Integrated Solutions  
SNIA Europe (Storage Networking Industry Association Europe Ltd.)  
Société d'Etudes et des Management de Project (SEMP)  
Societe Schneider Electric  
Spook limited  
Stratégies S.A.  
STULZ GmbH  
TA Migration Solutions Ltd.  
TelecityGroup  
Thames Renewables  
The Green Grid Administration  
UK Department for Environment Food and Rural Affairs (Defra)  
Uniflair S.p.A.  
Upsite Technologies Europe bv  
Waterman Building Services  
Weatherite Building Services Ltd  
Workspace Technology Ltd



Thank you for your attention  
paolo.bertoldi@ec.europa.eu

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