Introducing the PrimeEnergyIT procurement guide on energy efficient data centre equipment

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Entretiens Jacques Cartier : Colloquium « Towards ecological and energy efficient Information and Communication Technology »

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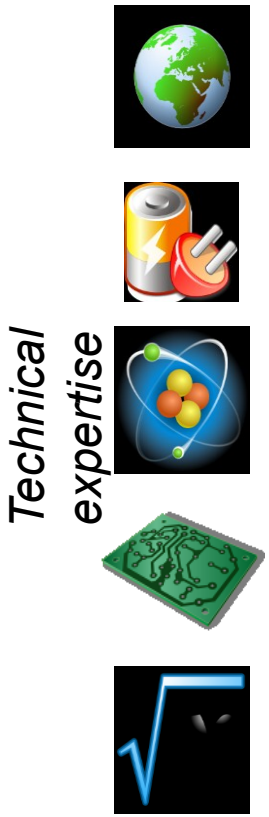
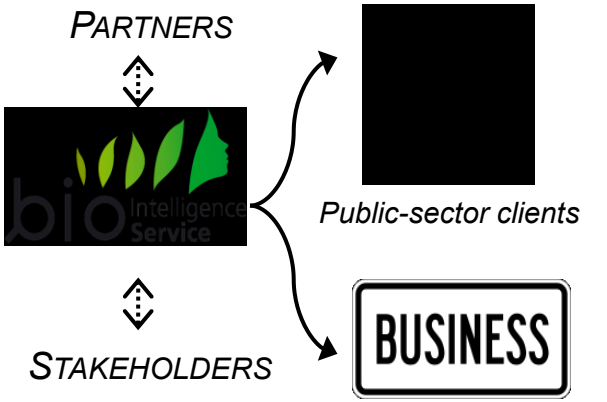
BIO Intelligence Service

- BIO IS has more than 23 years experience in assessing environmental and health quality of products and services in France and Europe. BIO's expertise is well known on the sustainability dimensions of the ICT sector and advises both private and public decision makers of the sector. Some of its pioneering work include:
  - 20 products specific lots for Ecodesign Directive, including standby and network standby power optimisation (Since 2005)
  - European Commission study on ICT4EE (2008)
  - International standby harmonisation for the International Energy Agency (2011)
  - LCAs of ICT products for ADEME (2011)
  - Two projects on the footprint of the ICT sector (2012)
  - Energy efficiency in datacentres (Intelligent Energy Europe), 2010-12

BIO Intelligence Service



BIO brings value to its clients by bringing together the technical expertise of in-house and external experts, collaborating with partners and stakeholders



Since 1989, our references include:

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www.efficient-datacenter.org

Context of PrimeEnergyIT: studies and EU legislation on energy efficiency

- Action Plan for Energy Efficiency (2007-2012)
- Communication « Energy Efficiency Plan 2011 »
- Communication (2008) - 241 “Addressing the challenge of energy efficiency through Information and Communication Technologies ”
- Recommendation of the EC (2009) - 7604, on mobilising Information and Communications Technologies to facilitate the transition to an energy-efficient, low-carbon economy
- Ecodesign Directive (2009/125/EC) on ICT:
  - DG ENTR Lot 3 « PCs and servers »: Regulatory Committee scheduled
  - DG ENTR Lot 4 « Imaging equipment »: Voluntary agreement, Ecolabel and GPP criteria, consultation forum scheduled
  - DG ENTR Lot 6 « Standby and off-mode losses »: Regulation since 2009
  - DG ENTR Lot 26 « Networked standby losses »: Consultation Forum held end of 2011

Context of PrimeEnergyIT: studies and EU legislation on energy efficiency

PrimeEnergyIT
EFFICIENT DATA CENTERS

And for other IT equipment (servers, storage, network…) ?

- Future Ecodesign Lots on servers and data storage equipment considered under the new working plan
- European Codes of Conduct for datacentres and broadband equipment
- IEE project on « efficient servers »
- Study for DG INFSO « Impacts of ICT on energy efficiency » (BIO, 2008)
- Study for ADEME on impacts from new ICT (web request, e-mail, USB stick, e-shopping)
- Studies for DG INFSO on measurement methodologies for the carbon footprint of the ICT sector

The PrimeEnergyIT consortium

PrimeEnergyIT
EFFICIENT DATA CENTERS

An international team (7 Member States):

- Austrian Energy Agency (AEA) – Austria, leader
- BIO Intelligence Service – France
- Institut National de Recherche en Informatique et en Automatique (INRIA) – France
- Berlin Institute of Technology (with IZM Fraunhofer) – Germany
- Berlin Energy Agency – Germany
- ICLEI European Secretariat GmbH – Germany
- Institute of Systems and Robotics – University of Coimbra – Portugal
- Politecnico di Milano, Energy Department – Italy
- Gaia – Association of Electronics and Information Technology Industries of the Basque Country – Spain
- SEVEn – Czech Republic

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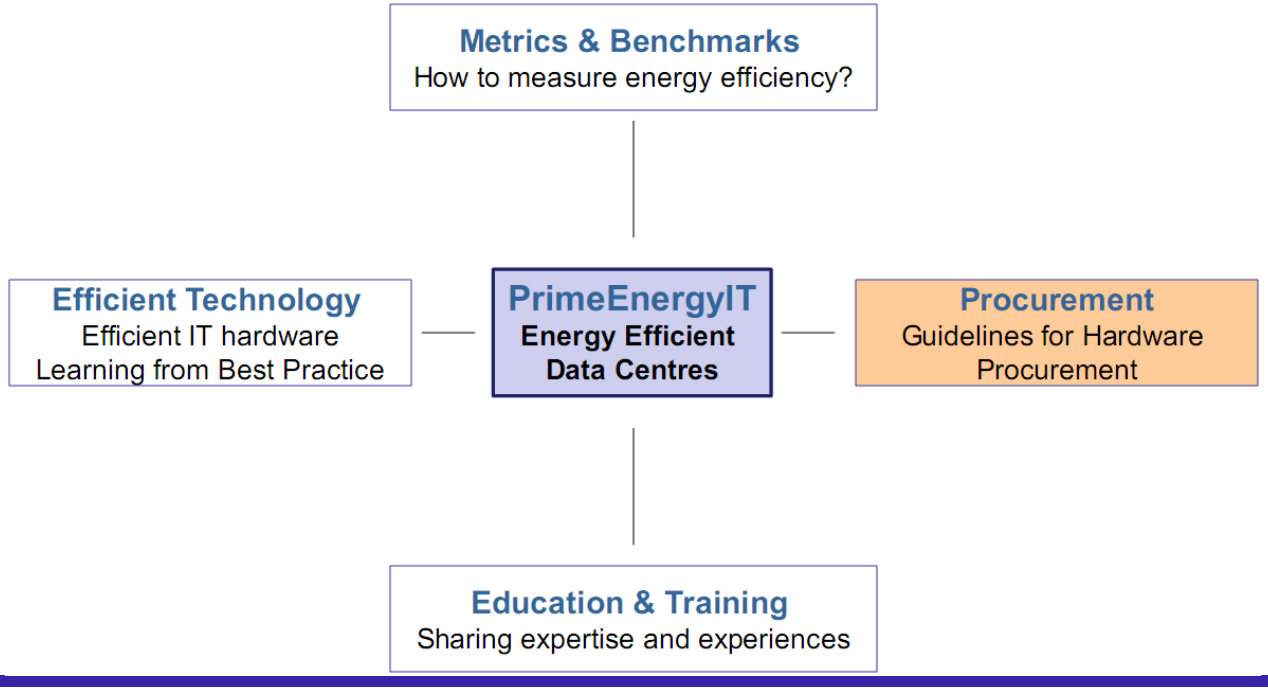
Objectives of PrimeEnergyIT

General objective: Dissemination on how to improve energy efficiency in datacentres and server rooms through the use of more efficient equipment (IT and infrastructure)

Duration: from May 2010 to October 2012



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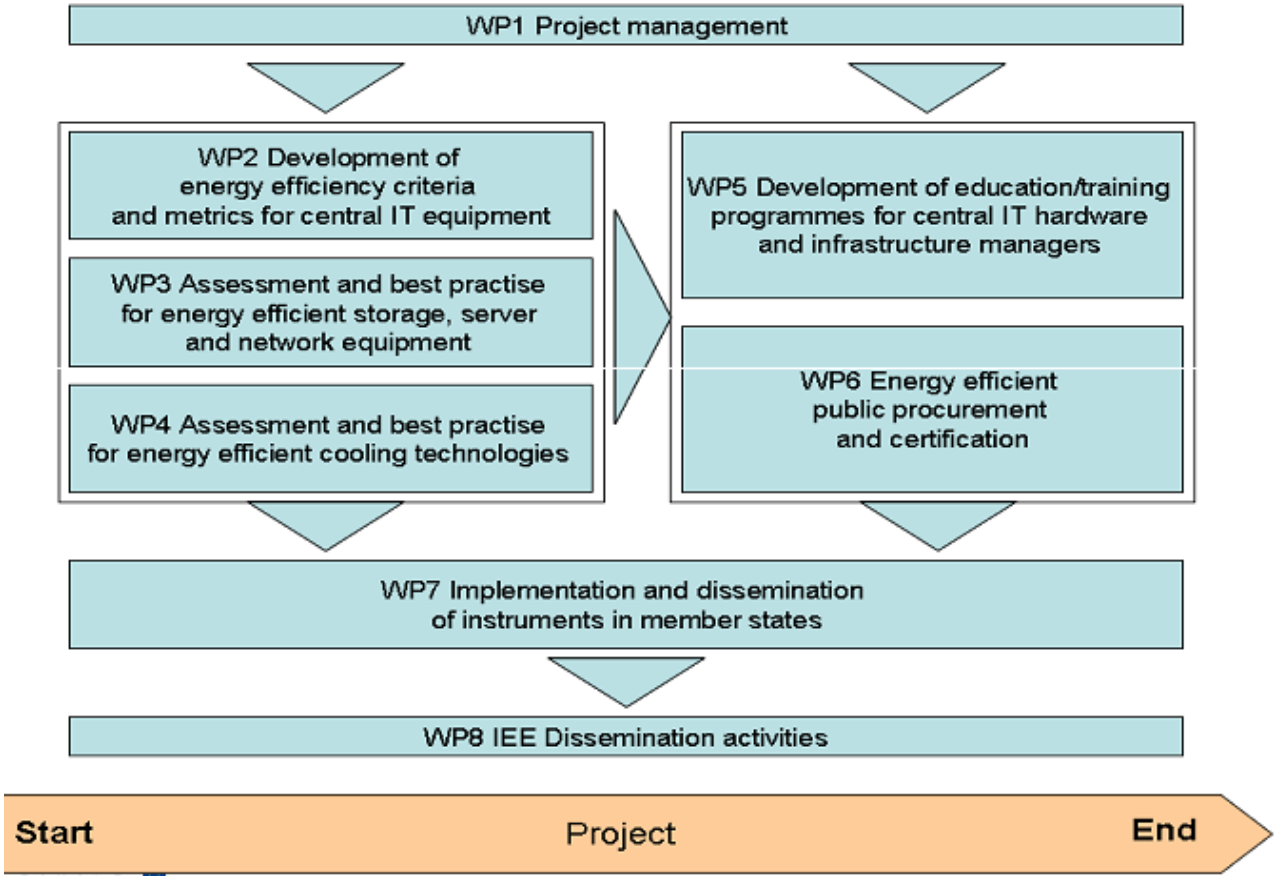
Task plan


WP1 Project management
WP2 Development of energy efficiency criteria and metrics for central IT equipment
WP3 Assessment and best practise for energy efficient storage, server and network equipment
WP4 Assessment and best practise for energy efficient cooling technologies
WP5 Development of education/training programmes for central IT hardware and infrastructure managers
WP6 Energy efficient public procurement and certification
WP7 Implementation and dissemination of instruments in member states
WP8 IEE Dissemination activities
Start
Project
End

Green Public Procurement

Objectives of Green Public Procurement:

- Purchase the most economical and environmental-friendly equipment, to meet budget and environmental constraints
- Reduce the direct and indirect purchase costs, supported by taxpayers

But also a **major tool to drive the market towards the most virtuous equipment**, as the public sector is a major « customer »:

- In 2010, the European authorities spent 2300 billions Euros, i.e. 16% of GDP
- Public procurement represented 68 billions Euros in France in 2008, i.e. 7% of GDP (OEAP)

General principes and proceedings

General principles imposed by EU legislation:

- Transparent
- Non-discriminatory
- Equal treatment

Directives 2004/17 and 2004/18, coordinating the procurement procedures:

- Use of environmental criteria
- Use of standards
- Use of ecolabels (EnergyStar, Blue Angel, EU Ecolabel, Nordic Swan)

Steps of a standard procedure

1. Identify the type of tender (open/restricted call for tenders, framework contract, competitive dialogue, etc.)
2. Define the object
3. Clarify the selection criteria (financial, technical, on the bidder and product)
4. Develop the technical specifications and verification procedures
5. Define the award criteria (weighting between different factors: price, performance, etc.)
6. Use of the contract performance clauses

PrimeEnergyIT procurement guidelines

- First version available since February 2012, translated into several languages (available at www.efficient-datacenter.org)
- **Target**: public procurers and organisations purchasing datacentres equipment
- **Core elements include**: Recommended criteria developed by type of equipment, following the steps of a standard procedure (specifications, award criteria, etc.)
- **Developed through:** several national working groups animated by the consortium partners, with consultation of procurers and technical advisors

PrimeEnergyIT procurement guidelines

- **Scope**: purchasing recommendations for the replacement and upgrading of server room/data centre equipment – namely:
  - Servers
  - Storage devices
  - Network equipment
  - Monitoring equipment
  - Cooling equipment

- The document does not give guidance related to the design, configuration or management of server rooms or data centres. Advice on these aspects is included in other PrimeEnergyIT publications (Technology brochure)

- Only energy efficiency

PrimeEnergyIT procurement guidelines

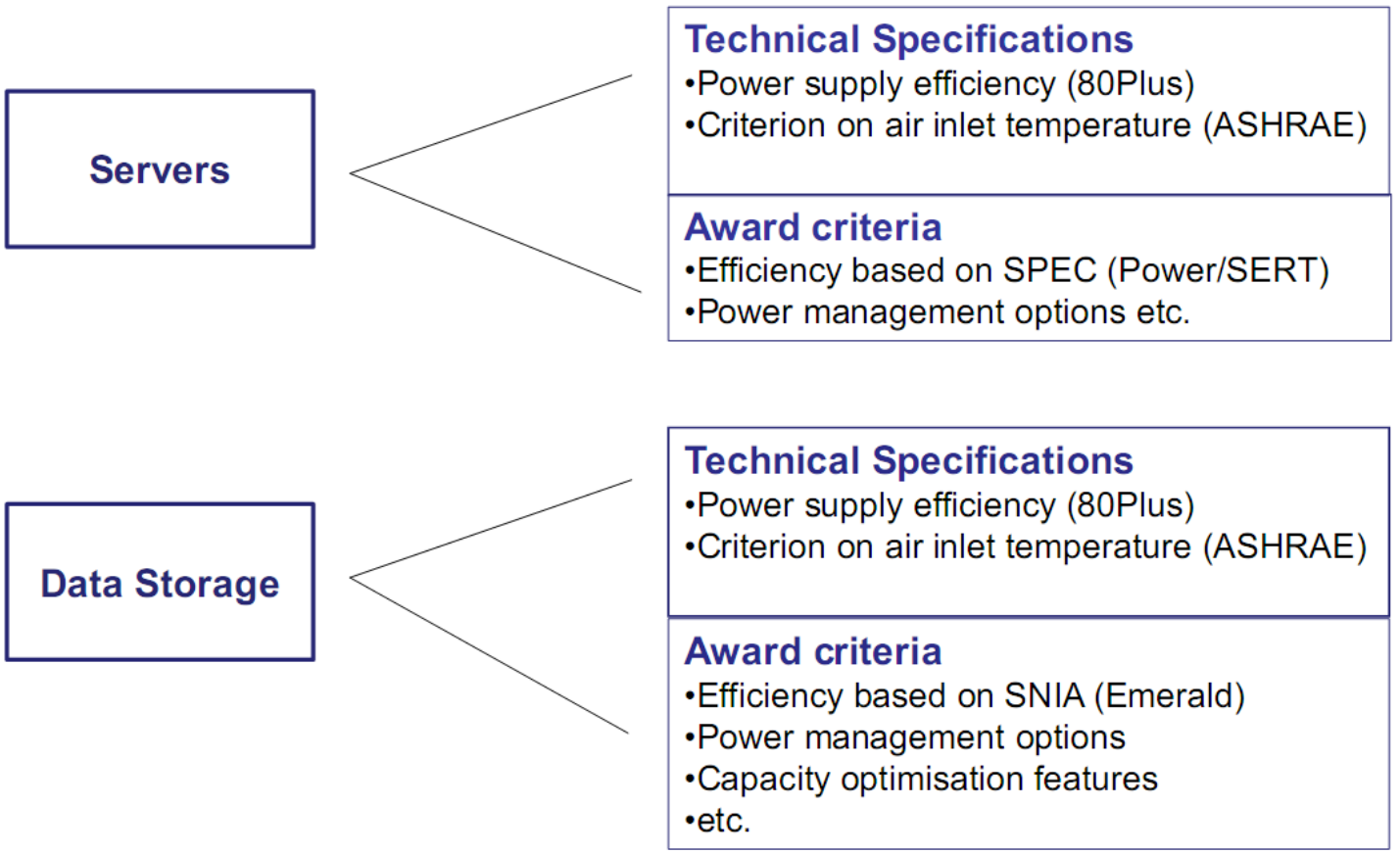
- **Content**:

1. Preparation section, covering:
    - Functional and performance specifications (including reference to benchmarks and indicators)
    - Engaging the market
    - Joint procurement

2. For each equipment type – introduction to market developments, then list of tender criteria (specifications, award criteria, contract clauses)

3. Future developments for benchmarks and metrics included in boxes where relevant

PrimeEnergyIT procurement guidelines



Collection of procurement case studies

- Offering **positive results**:
  - Significant reduction of monetary costs: Up to 30% of operative costs in some cases
  - Significant reduction on energy costs: Up to 78% of total server room in some cases
  - Positive environmental externalities: production of usable energy (heating), reduction of CO2 emissions (up to 47% in some cases)
  - System reliability

- Subject to **challenges**:
  - Need of internal resources with technical skills
  - Finding an optimal ecological & economical solution
  - Verification of technical specifications & data
  - Long-term performance monitoring

Collection of procurement case studies

- The way forward:
  - Clearer and more comprehensive technical specifications
  - Increased number of public tenders with energy-saving requirements planned

Feedback on the guidelines from French procurers

- Guidelines were disseminated to procurers and networks: UGAP, national inter-networks platform managed by ADEME, Concerted Action for the Energy Services Directive, Ministry working group on energy efficiency in public procurement, working group for the revision of the circular letter on “plans for an Exemplary administration”

- Content estimated clear, pragmatic and of good quality in general

- No actual implementation in tenders so far, and the general feeling is that few procurers are ready and prepared for this approach:
  - IT equipment (and especially central IT) does not represent a large share of the procurement
  - All public authorities do not own/manage their central IT equipment
  - Tendering is a long (and long-term) process

Feedback on the guidelines from French procurers

- Criteria have to **be realistic** to make the call for tenders fruitful. Consultations with stakeholders are therefore very important.

- When environmental criteria are included in tenders, the responses from bidders are **often disappointing**: need to progress slowly to multiply such processes and make manufacturers understand that it is a real stake for their competitivity.

- **MatInfo3** (one of the case study collected, joint procurement process initiated by EcoInfo and involving several public universities and organisations in France) plans to consider the two ecolabels Energy Star and 80 PLUS (for the power supply units) in the award criteria.

Brochures and training sessions

- Printed “Technology” and “Best practice” brochures available (in French/English) upon request

- Two last training sessions in BIO’s premises:
  - 22 November 2012 (free introduction session)
  - 03-05 December 2012 (three-day session)

More info at:
https://sites.google.com/a/biois.com/prime-energy-it-formation

Thank you for your attention !

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