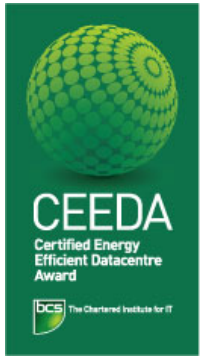
SMA Strategic Media Asia

EU Code of Conduct for Data Centre Efficiency

A Green Practice

Accredited by

British Computer Society (BCS)



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Local Organizer

Practices in Data Centre Industry

- Data centers are one of the most power-hungry and energy-wasteful of all the IT components in a business. The servers usually only operate at about 15% efficiency.
- Power Usage Effectiveness (PUE) / Data Centre Infrastructure Efficiency (DCiE)
- Apply for LEED (Certification of Green Building, US)
- Apply for HKBREEAM (Rating of Green Building, HKSAR; reference to UK BREEAM)

CEEDA

Certified Energy Efficient Datacentre Award (CEEDA) – Data Centre Best Practices

- Benchmarking strategies in UK
- Addressing carbon reduction and rising energy costs
- Operational and equipment assessment

Development Context

- **Political :** carbon reduction, forecast of rising energy use in DC, and energy supply security
- **Industrial :** board review and input from DC industry, Code of Conduct (CoC) first with system standard only, lower the barrier to access and application
- **Economic :** rising energy costs, carbon taxation / trading costs, an increasing proportion of overall business cost
- **Social :** rising public awareness, DC as an easy target, Information and Communication Technology (ICT) as key enabler of environmental impact reduction, demonstrate the industry is not extravagant in energy

Goals

- Inform and stimulate Data Centre operators and owners to reduce energy consumption in a cost effective manner without hampering the critical function ….. “ by Paolo Bertoldi, DG JRC
- Improves understanding of energy demand within data centre raising awareness, and recommending energy efficient best practice and targets
- A practical voluntary commitment
- Reward best practice with branding and associated EU Green marketing
- Build Awareness to financial and infrastructure benefits of improving DC efficiency
- Support effective decision making multidimensional challenge in facilities, IT and demand

Concurrent Problems

- Data centres have been designed with large tolerances for operational and capacity changes, including possible future expansion.
- Many today use design practices that are woefully outdated.
- DC runs significant quantities of redundant power and cooling systems typically to provide higher levels of reliability.
- IT systems are frequently run at a low average utilization.
- In most cases only a small fraction of the grid power consumed by the data centre actually gets to the IT systems
- These factors lead to power consumption inefficiencies.

Scope

- “Data centres” of all sizes – server rooms to dedicated buildings
- Both existing and new facilities
- Physical plant to software
- Enterprise servers, ICT equipment, cooling equipment and power equipment
- IT power and Facility power
- Equipment procurement and system design

International review

- EU, UK, Japan, USA
- Vendor specialist
- Operators
- Professional bodies
- US DoE, the US EPA Energy Star, the Green Grid association, Climate Savers Computing Initiative, the IEEE E-Server project
- Interested parties: participate and support from vendors, data centre operators, and end user organizations

Participants

- Data centre owners and operators
- Software, IT & Data Centre
- Colocation providers
- Vendors, consultants, industry associations
- Corporate level server system
- New or existing data centre(s)
- Government, Utilities, Industry Standards bodies
- ICT service customers / End users (Retail, Finance, Industrial)

Update of CoC

(per Business Green on 29 November 2010)

- The code launched in September 2008
- Some argued that it may have to be embodied in mandatory regulations
- Now, there are 60 datacentres signed up, further 70 have submittied their applications
- There are 28 participants and 101 companies endorsed
- Beside of Europe, code are adopted internally by other organizations in Asia and US
- London, the largest single data centre market in Europe, has 15% of large UK organization adopting it

Existing Market Confusion

- Too many simplistic slogan / rules
- Mixture of engineering terms with product and market names
- No coherent set of expert strategy
- Most information is not vendor neutral

Benefits from CoC

- Reduce over provisioning, ensuring availability and associated costs were previously considered negligible risk to business performance
- Energy costs are increasing which is previously deemed relatively small in comparison to IT budget
- Increasing environmental responsibility and concerns on environmental impacts
- Increasing willingness of manufacturers and vendors to compete on the basis of energy efficiency in data centres

Benefits from CoC

- Framework in place for the operators to aspire to and have good decision making
- Multidimensional challenge that requires a concerted effort to optimise power distribution, cooling infrastructure, IT equipment and IT output
- Initiated numerous vendor specific products and services on offer
- Lower the barriers of access to and application of these energy saving opportunities
- DC operators awareness of the financial, environmental and infrastructure benefits to be gained from improving the energy efficiency of their facilities

Benefits from CoC

- Platform to bring together European stakeholders to discuss and agree voluntary actions which will improve energy efficiency
- An increase in server efficiency from around 15% to approximately 70%;
- A reduction of up to 85% in network appliance energy requirements; and
- Up to around 70% utilisation of storage resources, from traditional utilisation rates of around 30% or less

Aims

- Establish common vocabulary and terminology
- Broader coverage, most people are non-expert in some area(s) of data centre
- Knowledge of available technology option
- Distinguish relative merits
- Processes which operators should establish
- Communication that is necessary
- Understand the relationship between technology areas

Best Practices

- Design best practice, software, IT architecture and facility
- Metrics & Measurement – a standard method of comparative measurement of energy efficiency
- Data collection & analysis – performance benchmarking across the industry
- Guidance to operators
- Practices are scored 1-5 (min-max)
- Practice scores are not summed up as an ‘overall score’ (i.e. not all operators required to implement all practices)

Best Practices

- Set a minimum standard for participants
- Current metrics present mixed incentives
- Practices were identified as a measure
- Avoid high barriers in understanding the practices
- Supplier Selection Criterion
- NOT prescription nor exhaustive list
- Focus on goals
- Structured to allow the addition of new technologies

Example of Best Practices

- Establish an approval board containing representatives from all disciplines (software, IT, Facilities, Suppliers)
- Require approval for any significant decision to ensure that the impacts of the decision have been properly understood
- Rack air flow management by the use of Blanking plates
- Review and if possible raise target IT equipment intake temperature
- Review of cooling before IT equipment changes
- Review and if possible increase the working humidity range

Example of Best Practices

- Review set temperature points for air or chilled water system
- To maintain business continuity while running two live storage centres, rather than having to have a backup centre always running idle
- Processes should be put in place to require senior business approval for any new service that requires dedicated hardware and will not run on a resource sharing grid or virtualised platform
- Make the performance of the software, in terms of the power draw of the hardware required to meet performance and availability targets a primary selection factor

Example of Best Practices

- Provision power and cooling only to the as-configured power draw capability of the equipment, not the PSU or nameplate rating
- Include the Performance per Watt of the IT device as a high priority decision factor in the tender process
- Design –Contained hot or cold air
- Variable Speed Air Fans
- Lean provisioning of power and cooling for 18 months worth of data floor capacity

Features

- Bring interested stakeholders together to have coordinated activities and follow the intent of CoC and abide by a set of agreed commitments
- UK CIO (Chief Information Officer) requested to adhere to the CoC
- Supplier’s validate claims
- Benchmarking internally and externally
- Full participant, partial participant or endorser
- Manufacturers, vendors, consultants and utilities

Use of CoC

- Benchmarking against a useful standard
- Justification of economic and energy saving practices
- Procuring services or data centre space
- Start at basic level
- Require participant status of your suppliers
- Drive further energy and cost efficiency
- Use the Best Practice reporting form as a standardized response format to compare potential suppliers
- Request suppliers to provide energy compliance data

Use of CoC

- Help your supplier be efficient
- Allow them to virtualize
- Help them implement air flow management
- Don’t block temperature increases
- Specify efficient hardware and software
- Buy equipment with the widest environmental specifications
- Buy equipment with the correct air flow direction
- Products to assist with compliance

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Training for CoC DCE

- Understand the goals and practices of the Code
- Understand how to maintain compliance
- Understand how to apply for Participant or Endorser status
- Demonstrate to your customers / stakeholders that you are serious about energy management
- Evaluate and compare suppliers specifications / compliance sheets
- Auditing performance against the Code
- Energy metering and reporting
- Best practices

Enrolment:

Contact Strategic Media Asia– info@stmedia-asia.com, www.stmedia-asia.com

Q&A

Thank You