



The European Commission activities and perspective on Data Centre sustainability

Svetoslav Mihaylov

Policy Officer

Smart Mobility & Living

Directorate-General Communications Networks, Content and Technology

European Commission

CeBIT 2017, Hannover

Summary

- Why is the European Commission interested
- What is the problem
- EU FP7/H2020 initiatives on sustainable data centers
- Work programme – current & future
- What has been done and what is ongoing in ICT sustainability
- European Code of Conduct for Data Centres and beyond
- Green Data Centres Workshop
- What next



Why is the European Commission interested

- Paris Agreement & EU sustainability objectives
- Strong cross-border dimension of the cloud
- Balancing (allocation to most efficient & cleanest energy sites)
- Contributing to the Sustainable Development Goals

EU sustainability targets compared to 1990 levels:

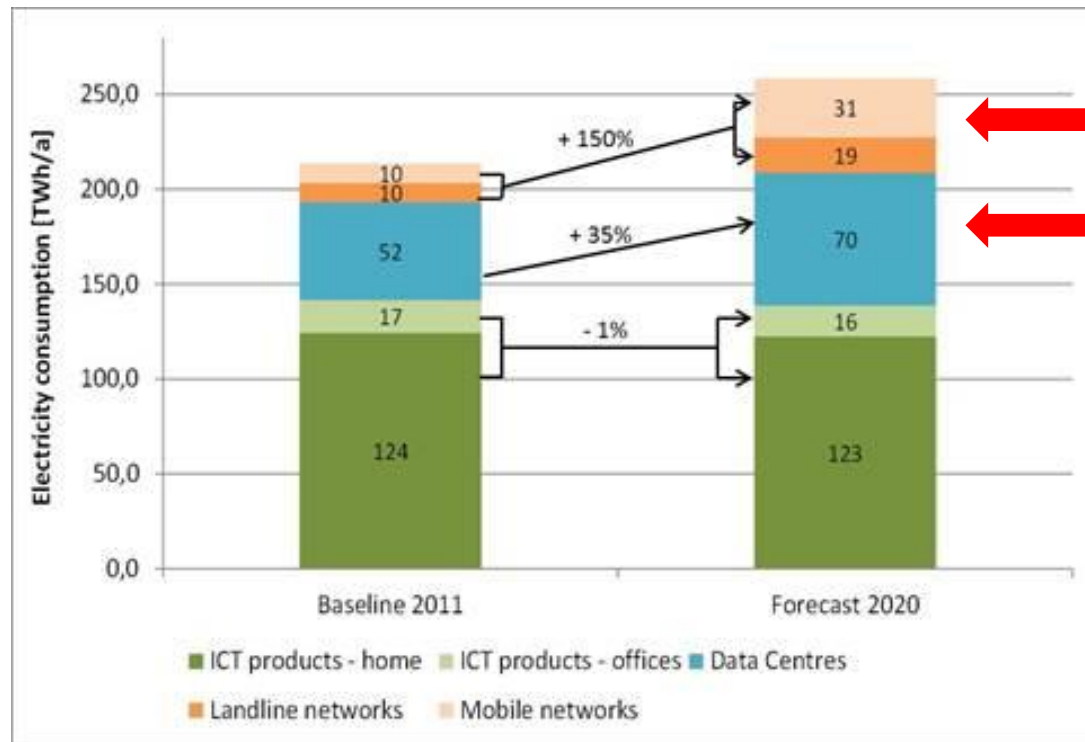
	2020	2030	2050
Decrease in GHG emissions	20%	40%	80-95% (100% for energy sector)
Renewable energy	20%	27%	75-97%
Improvement in Energy efficiency	20%	27%	41% (vs 2005-6 peak)

What is the problem

- European data centres consuming more than **104TWh (2015)** per annum representing **3%** of total electricity (PEDCA project)
- This could grow with **20%** by 2020 (**35% over 9 years** (Smart 2012/0064)) – compared to **falling or flat** rest of ICT
- Even worse for networks – growth in consumption **150% in 9 years** (Smart 2012/0064) – compared to **falling or flat** rest of ICT
- Some new trends such as **IoT, edge computing, SDN/NFV, etc. not taken** into account in above growth figures
- The **percentage** (and if no action the total consumption) **will only go up** as the other sectors become more efficient with ICT (**smartening**)
- **Huge amount of stakeholders** impacted (many with **conflict of interest and conflicting interests** among them)
- Some member countries/cities are hitting the **limit of their power grids**
- There is an **ongoing improvement**, but pace is **slow** with potential to **get slower**

What is the problem - continued

...and these figures are from 2013 and do not include new tendencies such as IoT, edge computing, SDN/NFV, etc.



Efficiency improvements not enough.

Disruptive innovation needed!

EU-27 electricity consumption in 2011 & 2020 (excluding ICT manufacturing)

Source: SMART 2012/0064 study on the practical application of the new framework methodology for measuring the environmental impact of ICT – cost/benefit analysis



European
Commission

EU FP7/H2020 initiatives on sustainable data centers

Call H2020- EE20
ongoing

FP7 First Call

FP7 Second Call

H2020

Individual efficiency of a data centre vs efficiency of a cluster of data centres

Renewables; Heat Reuse; Smart Grids

Public procurement of fast evolving technologies

Support for measuring environmental efficiency

12M€

18M€

1.5M€

0.4M€

- CoolEmAll
- All4Green
- Fit4Green
- GAMES

- RenewIT
- GreenDataNet
- Dolfin
- GENiC
- DC4Cities
- GEYSER

- EURECA

- ICTFootprint

Project Cluster
Common Metrics and
Methodologies

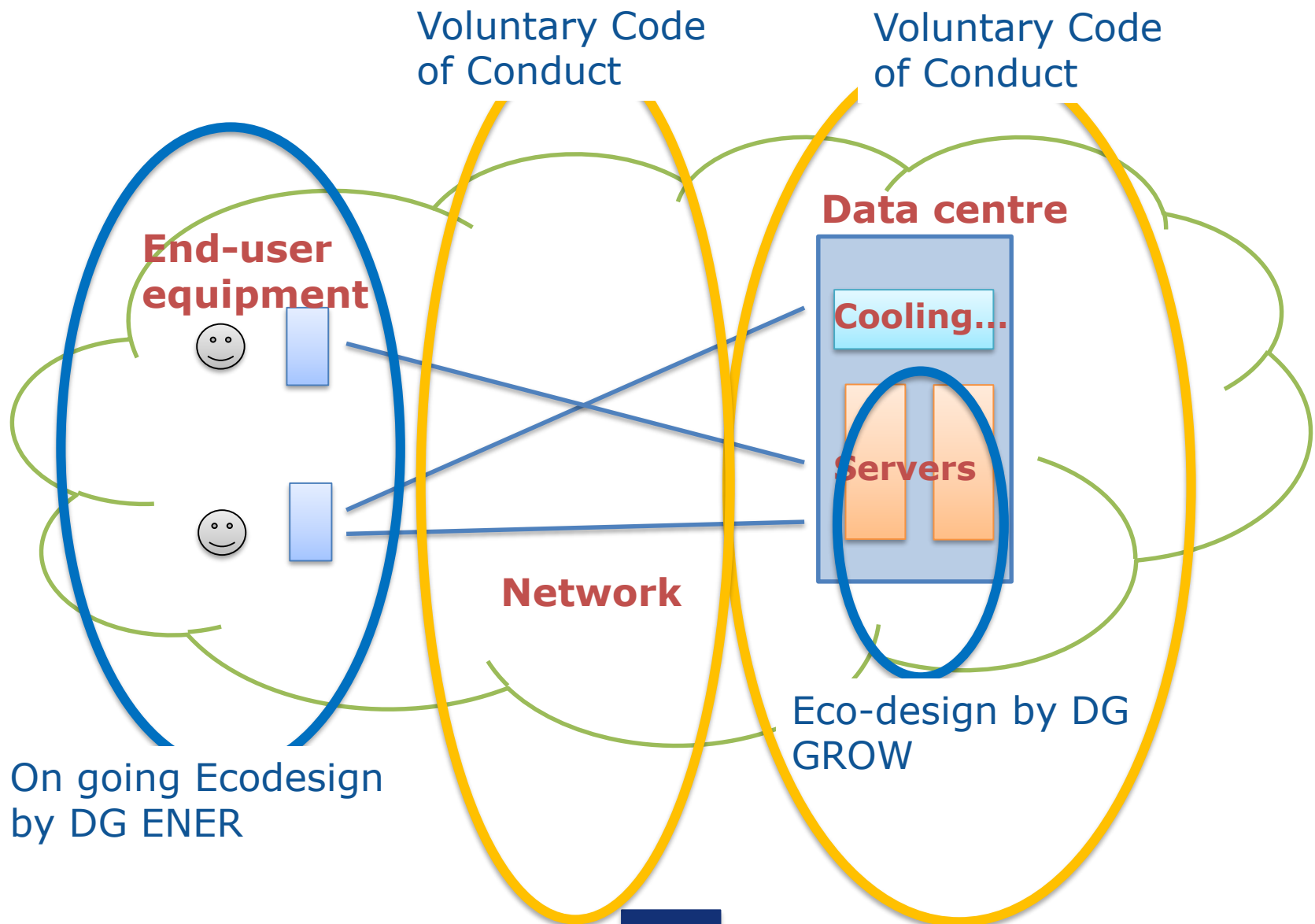
Work programme – current & future

- Work programme 2016-2017
 - **EE-20-2017 Bringing to market more energy efficient and integrated data centres - ongoing**
- Work programme 2018-2020
 - **Call under consideration focusing on more specific data centre groups**
- Framework Programme 9
 - **Under discussion**

What has been done what is ongoing



in ICT sustainability





European Code of Conduct for Data Centres and beyond



- Voluntary
- Best practices
- Widely used by other standards and initiatives
 - e.g. ITU-T L.1300
- Members – 200+ data centres (2% of energy consumption of data centres)
- Inform and stimulate data centre operators and owners to reduce energy consumption in a cost-effective manner without hampering the mission critical functions

Green Data Centres Workshop

- April 1st 2014, EC premises, Brussels
 - stakeholders (experts); policies and actions; data availability; methodologies; metrics (KPIs) and their harmonization; policy measures and initiatives
 - Outcome* - Faster Internet policies aligned with technological developments; debate on indicators – existing vs new performance based; local situation; DC whole; type/tier; use phase focus, life cycle monitored; Maintain, translate and make mandatory the EU CoC; training
 - Report from the discussion is publicly available at: <https://ec.europa.eu/digital-agenda/news-redirect/17261>

*This outcome reflects the views only of the workshop participants, and does not represent the position of the European Commission

What next?

- **Issues and questions**
 - **No data on data centres**
 - **Transmit bits or energy?**
 - **Edge computing, IoT, ...**
- **What next**
 - **Go beyond green marketing – green claims based on contracts**
 - **100% powering by renewables**
 - **Lowering energy consumption even as capacities grow**
 - **Stabilizing of the grid (smart grid) and optimising the energy production capacity**
 - **Real deployment of heat-reuse solutions**
 - **New stakeholder consultation workshop**
 - **Put all the parties around the table**
 - **Etc.**



Thank you for your attention!

Any questions?

svetoslav.mihaylov@ec.europa.eu