

TC EE sustainability vs IoT

Presented by:

Beniamino Gorini (Nokia); TC-EE chairman

Daniel Dianat (Ericsson); TC-EE vice-chairman

ETSI IoT conference

23/06/2023



Agenda

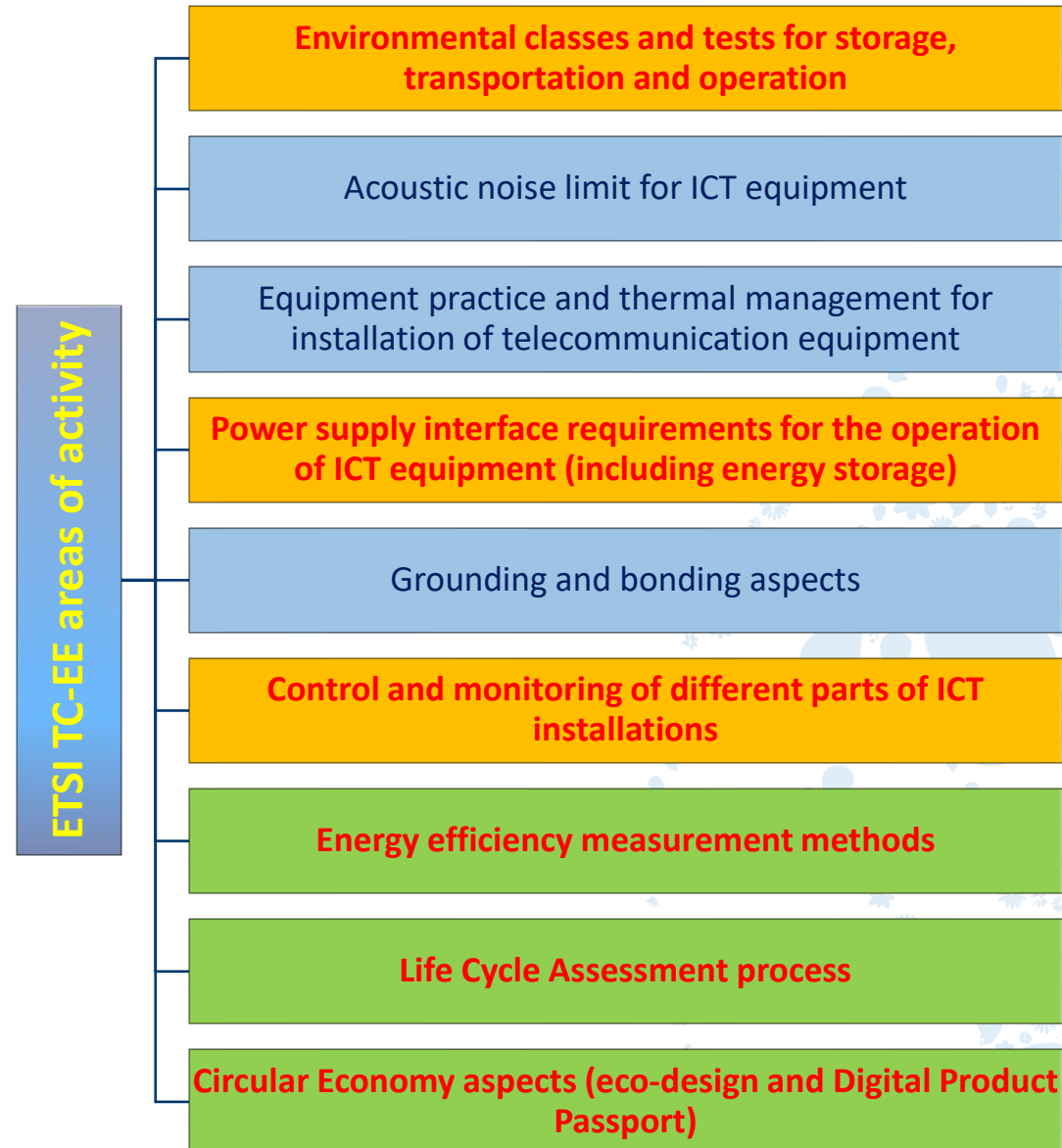
- ETSI - TC EE (Environmental Engineering)
- Sustainability of IoT deployment
- Eco-design activities



Sustainability in ETSI - TC EE (Environmental Engineering)

TC-Environmental Engineering (EE) responsibility

✓ “Define the environmental and infrastructural aspects for all telecommunication equipment and its environment, including equipment installed in subscriber premises.”



ETSI - TC EE (Environmental Engineering)











✓ *Co-operations*

- ✓ *Inside ETSI: TC-ATTM (eco-environmental and reverse powering), TC-CYBER (OS/SW aspects linked to eco-design)*
- ✓ *CEN/CENELEC (e.g. JTC10 on material efficiency, Green Data Center coordination group, TC215)*
- ✓ *ITU-T SG5 on Climate Change ([link](#) to the list of technically aligned deliverables between TC-EE/ITU-T SG5)*
- ✓ *3GPP on energy efficiency*
- ✓ *European Commission (including JRC for CoC of energy efficiency of Broadband Equipment and Data Centers)*

Sustainability for IoT deployment



Sustainable IoT deployment

-  *IoT solutions can help*
 -  *digital transformation*
 -  *Automation*
 -  *Sustainability (e.g. waste management, energy efficiency monitoring & control, etc.)*
-  *To support sustainability*
 -  *IoT devices shall be efficient (ratio of power consumption in respect to the type of service/functionality)*
 -  *Interconnecting network shall be efficient (less power per Gb)*
 -  *Alternative energy sources to feed networks/devices*
 -  *Eco-design specifications for devices/products/networks*
 -  *Methodology is required to measure the environmental impact of IoT deployment/use*

Sustainable ICT networks are essentials

- ✔ *IoT is an important enabler of a more sustainable approach to designing, building and operating cities.*
- ✔ *ICT Broadband network becomes a critical urban infrastructure, no different from electricity, water and roadways.*
- ✔ *IoT and Smart Communities leverage broadband networks by connecting devices and citizens to:*
 - ✔ *improve public and administration operations,*
 - ✔ *optimize public security operations,*
 - ✔ *develop local economy,*
 - ✔ *provide eGovernment platform and services,*
 - ✔ *improve citizen's engagement, lifestyle and environment*

Deploy sustainable networks to support IoT

✔ *Energy efficiency*

✔ *Methods to determine energy efficiency of ICT network equipment*

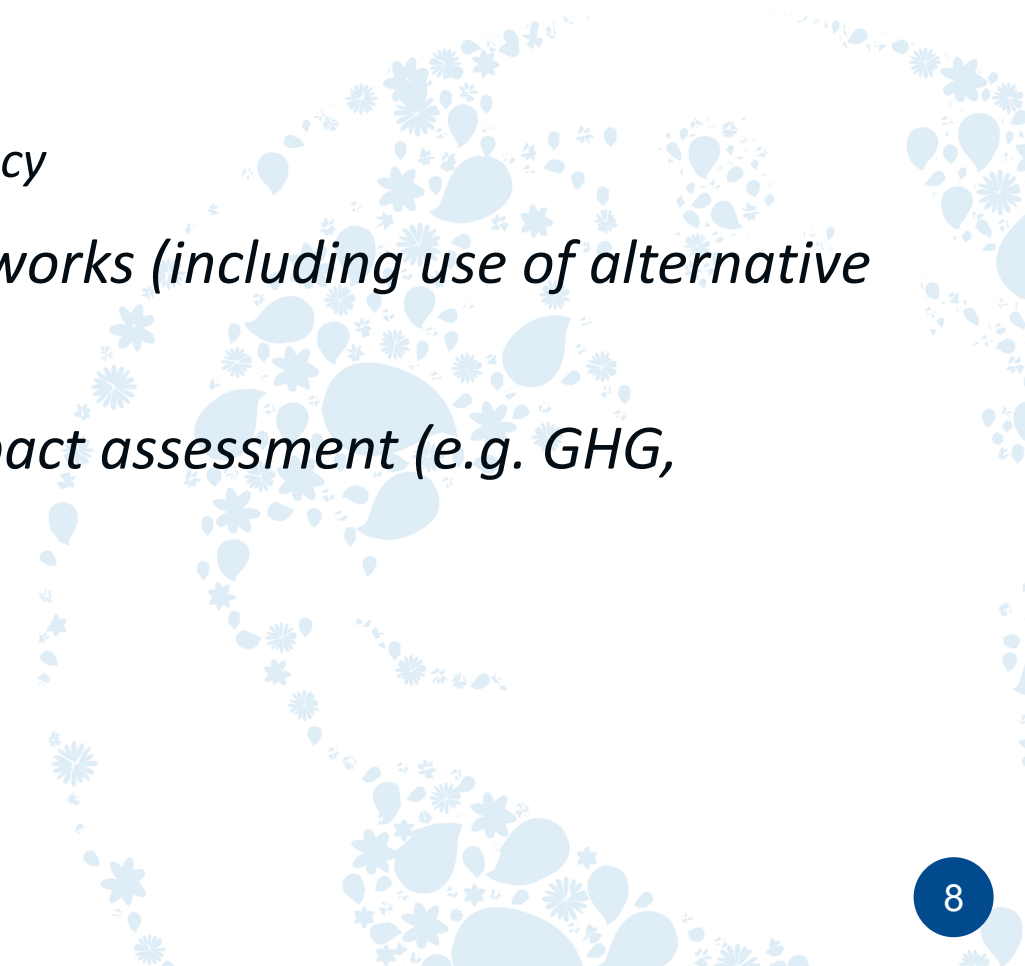
✔ *Evaluation of energy efficiency of the network*

✔ *Key performance indicator of ICT networks*

✔ *Methodologies to monitor and manage the energy efficiency*

✔ *Guidelines for the realization of sustainable ICT networks (including use of alternative energy sources)*

✔ *Methodologies to determine the environmental impact assessment (e.g. GHG, resource consumption etc)*



Energy Efficiency of ICT equipment/network

- ✓ *Wireline Broadband Access equipment: EN 303 215*
- ✓ *Wireless Broadband Access equipment: ES 202 706-1 for “Static method” and TS 102 706-1 for “Dynamic method”*
- ✓ *Customer Premises equipment: EN 301 575*
- ✓ *Core Network equipment: ES 201 554*
- ✓ *Transport equipment: ES 203 184*
- ✓ *Switching and Router equipment: ES 203 136*
- ✓ *Server equipment: EN 303 470*
- ✓ *Storage equipment: in preparation (EN 303 804)*
- ✓ *Mobile networks: ES 203 228*
- ✓ *Fixed networks: in preparation (DES-EE-EEPS65)*
- ✓ *Network Function Virtualisation (NFV): EN 303 471 and ES 203 539*
- ✓ *Network standby: EN 303 423 (for EU Regulation 2023/826 of 17 April 2023 repealing Regulations 1275/2008 and 107/2009)*

Methods for assessing the environmental impact of ICT products/networks/services

✓ *ES 203 199 “Life Cycle Assessment of ICT equipment, ICT network and service: General definition and common requirement”*

✓ *Purpose of this ES is to harmonize the LCA of ICT:*

- ✓ *Products*
- ✓ *Networks*
- ✓ *Services*

✓ *It includes specific requirements for LCA of ICTs in respect to:*

- ✓ *ISO 14040 Life cycle assessment, Principles and framework*
- ✓ *ISO 14044 Life cycle assessment, Requirements and guidelines*
- ✓ *International Reference Life Cycle Data System (ILCD) Handbook - General guide for Life Cycle Assessment*

✓ *DES/EE-EEPS62 “Guidance on simplified life cycle assessments of information and communication Technologies” (e.g. to apply for screening purposes)*

ETSI ES 203 199 V1.3.1 (2015-02)



Environmental Engineering (EE);
Methodology for environmental Life Cycle Assessment (LCA)
of Information and Communication Technology (ICT)
goods, networks and services

Eco-design










Eco-design of devices/products/ICT equipment

✔ *Sustainable eco-design of devices/products/ICT equipment shall address*

- ✔ *Efficient use of natural resources*
- ✔ *Reduction of use of virgin natural resources*
- ✔ *Reduction of use of critical raw material*
- ✔ *Product extended life (including robustness)*
- ✔ *Recyclability*
- ✔ *Methodology to evaluate sustainable products*
- ✔ *Identification for product sustainability index*



ETSI TC-EE supporting eco-design

- 
Standards in support of some eco-design Regulations in the frame of directive 2009/125/EC (e.g. regulation: 2023/826 on off mode, standby mode, and networked standby energy consumption, 2019/424 eco-design of servers/storage equipment)
- 
Standards on material efficiency for ICTs (based on CEN/CLC JTC 10 standards)
- 
Digital Product passport containing sustainability information
 - 
DTS/EE-EEPS55 (TS 103 881) “Requirements for a global digital sustainable product passport to achieve a circular economy”
 - 
It defines the general framework of a “product information sheet” or a “digital product passport” including the requirements to include information relevant to sustainability, environmental and health related, of ICT/digital devices in a common digital format.
 - 
DES/EE-EEPS64 “Information model for digital product information on sustainability and circularity”
 - 
This complements the DTS/EE-EEPS55 (TS 103 881) work item and defines the information model for the description of details about ICT products, with a focus on the environment: circularity, environmental sustainability, and human health



Thank you for your attention

Follow us on:    

Any questions?

Contact:

Beniamino.gorini@nokia.com

Daniel.Dianat@ericsson.com

