

eG4U

Users for life cycle resource management of ICT
Utilisateurs pour la gestion des ressources du cycle de vie des TIC



eG4U www.eG4U.org , created in December 2015, is a European NGO (non-governmental organisation) of ICT (*) private and public Users (e.g. enterprises or cities, customers of the ICT providers) dedicated to enforce at European level the sustainability in ICT energy and carbon management and monitoring as in ICT waste monitoring during the whole life cycle of ICT resource.

eG4U is promoting tools using European standards based on monitoring of sustainable ICT performances.

eG4U's main activity is to support its members to share best practises and to use standardised key performance indicators (KPIs) for facilitating benchmark among eG4U members. An important KPI, measuring energy efficiency, is the DC_{EM} (Data processing and Communication Energy Management) standardised by ETSI, the European Telecommunications Standards Institute.



In eG4U, ICT providers are only Associated Members who support the European NGO in compliance with eG4U ethical charter. They cannot occupy official positions, nor have voting rights (only Active Members).

(*) ICT: *Information & communication technologies.*



The European and international context

The European Commission (EC) has fixed targets for a transition to energy efficiency and low carbon economy: by 2020 its greenhouse gas emissions (GHG) must be reduced by 20% compared to 1990 levels and the share of renewable energy must be increased to at least 20% of consumption. Energy savings must achieve 20% or more. By 2030, the cut in GHG must reach 40% and the share of renewable energy must reach at least 27%, together with a 30% improvement in energy efficiency. The EU has set a long-term goal of reducing GHG by 80-95% by 2050 compared to 1990.

The European Commission is issuing regulation in order to improve energy management of ICT. Organisations, companies or public administrations in Europe, are expected to progressively implement tools for monitoring and improving the energy efficiency of their ICT installations.

A series of user initiatives

In this context, ICT area has been asked to develop a framework for measuring its energy and environmental performance and for setting energy efficiency targets:

- In 2008, further to publication of the European Codes of conduct referring to data centre energy consumption, ETSI ATTM standardisation committee (Access, Transmission Terminal & Multiplexing) issued the first technical specifications (TS) on energy management efficiency in broadband networks and ICT sites, data centres included.
- In 2010 the EC published a specific mandate, European Mandate M/462, dedicated to ICT sustainability in order to issue several European Norms (ENs) defining rules and tools to improve and monitor ICT sustainability efficiency. This will be finished by Q2 2018
- In 2013, in collaboration with CRIP association & CTO Alliance, the ICT user group ETSI ISG OEU (*) (*including Airbus, Orange, PSA Peugeot-Citroën, Société Générale and Thales*) defined a single and global key performance indicator (KPI): the Data processing and Communication Energy Management indicator (DC_{EM}).



(*) ETSI ISG OEU: Industry Specification Group Operational Energy Efficiency for Users.

U.N. Cop 21 Agreement in Paris, Dec. 2015

The United Nations Cop 21 Paris Agreement, December 2015, with the contribution of 195 nations has registered the commitment of major countries - including USA, China and EU - to intensify actions and investments for a limitation of climate warming between +1,5°C and +2°C by the year 2100.

In Oct. 2016, over 55 Parties (countries) accounting in total for at least an estimated 55 % of the total global greenhouse gas emissions have already ratified the Paris Agreement for a sustainable low carbon future. Then, the Agreement becomes legally binding for those Parties that have ratified it.

Support to regulation compliance

In a near future, organisations (public or private) will have to be compliant with the regulation. eG4U objective is to help its members to meet the international rules and European guidelines based on European Standards developed by the European Standard Organisations where eG4U is engaged.

Objectives of eG4U

- Defining and providing eG4U members with access to tools to monitoring ICT energy consumption, energy re-use, renewable energy use and ICT equipment waste handling or recycling, among various options;
- Informing and persuading European policy makers to support eG4U members' objectives and interests;
- Supporting companies and public administrations to comply with new regulations for measuring and monitoring energy effectiveness and waste for ICT sites & networks including also support to certification process;
- Providing eG4U members access to user best practices and valuable sources of information on ICT energy management defined by highly-skilled experts;
- And promoting eG4U member's engagement in their environmental and social responsibility policy (e.g. organization of conferences, workshops...).

Achievements and agenda of eG4U

eG4U cooperated with ETSI ISG OEU (ICT Users group) to create DC_{EM} Data processing and Communication Energy Management KPI (ref. ETSI GS OEU 001 V2.1.1 2014-12). This key performance indicator is targeting energy performance in the ICT domain. It is a single operational global KPI defined by ICT users for ICT sites. It can be mainly used for certification like ISO 50.001 and ISO 14.001.

A Web platform to monitor DC_{EM} KPI is already accessible.

eG4U provides its members with a web platform to support the voluntary European ICT Green Label (e.g. Energy performance for Data Centre label - DC_{EM} Certified).

Definition of energy consumption gauge of the DC (DC_G)

Table 1: Default Gauges (DC_G)

| DC _G | KPI _{EC} range |
|-----------------|--|
| XXS | $KPI_{EC} \leq 0.04$ GWh |
| XS | $0.04 \text{ GWh} < KPI_{EC} \leq 0.2$ GWh |
| S | $0.2 \text{ GWh} < KPI_{EC} \leq 1$ GWh |
| M | $1 \text{ GWh} < KPI_{EC} \leq 5$ GWh |
| L | $5 \text{ GWh} < KPI_{EC} \leq 25$ GWh |
| XL | $25 \text{ GWh} < KPI_{EC} \leq 120$ GWh |
| XXL | $KPI_{EC} > 120$ GWh |

Definition of performance of the DC (DC_P)

Table 2: Default Classes of DC_P

| DC _{CLASS} | DC _P | |
|---------------------|-----------------|------|
| | ≥ | < |
| A | | 1,00 |
| B | 1,00 | 1,40 |
| C | 1,40 | 1,70 |
| D | 1,70 | 1,90 |
| E | 1,90 | 2,10 |
| F | 2,10 | 2,30 |
| G | 2,30 | |

The following formula applies to the calculation of DC_P for all the gauges:

$$DC_P = KPI_{TE} \times (1 - W_{REUSE} \times KPI_{REUSE}) \times (1 - W_{REN} \times KPI_{REN})$$

where:

W_{REUSE}^{TM} = Weighting factor for KPI_{REUSE} (the value may vary depending on the gauge within the range 0 to 1, the default value is 0.5).

W_{REN}^{TM} = Weighting factor for KPI_{REN} (the value may vary depending on the gauge within the range 0 to 1, the default value is 0.5).

Matrix for KPI_{DCEM}

The Global KPI_{DCEM} is presented as a combination of the two values, DC_G and DC_P, in the following form: Gauge (see table 1), Class (see table 2) e.g. M,E. This global KPI for ICT sites is dedicated to Data treatment and Data transmission including all types of ICT sites (e.g. Data Centre, transmission node) considered as standalone site or group of site.

DC_{EM} This KPI combines 4 objective KPIs:

- **Energy consumption:** total energy consumption by an operational infrastructure;
- **Task efficiency:** a measure of the work done (as a result of design and/or operational procedures) for a given amount of energy consumed;
- **Energy re-use:** transfer or conversion of energy (typically in the form of heat) produced by the operational infrastructure to do other work;
- **Renewable energy:** energy produced from dedicated generation systems using resources that are naturally replenished.

Advantages of KPI : 1 - One single operational global KPI defined

by users for ICT sites ; 2 - Supporting formulation of targets, trends or comparison; 3- Valorisation of decentralised environmental friendly actions (renewable energy sources and energy recovering); 4 - Tool for regional and country environmental policy: Futures environmental taxes, Incentives specific actions (i.e whites certificates in France), Integrate flexibility for Policy making (weighting factors); 5- Useful for ISO 50 001 certification, (§4.4.5 Energy Performance Indicators, § 4.5.5 Operational control of the Norm requirements).



eG4U agenda 2016 -2017:

- November 30th, 2016: Castelnaudary (South of France), conference “Energetic performances: Infrastructures, building & industries”.
- June 7th - June 8th, 2017: Bordeaux, Workshop & Showcases “Making Smart Cities Sustainable week”.

Why becoming an eG4U member? <https://www.eg4u.org/becoming-a-member>

eG4U is a NGO, independent from providers ; it acts in the ICT domain to manage green level improvement.

eG4U allows its members:

- sharing best practises and benefiting from high-skilled expertise
- benchmarking energy efficiency of their ICT sites and networks through efficient tools
- collaborating in the development of European Position Papers (ETSI GS) and European standards (ETSI EN/ES/TS/TR)
- participating in the promotion new standards and shaping future regulation
- building collaborative and long lasting relationships with major ICT stakeholders.

Annual membership rate

| Organization | Category | Active (Rate in EUR) | Associated (Rate in EUR) |
|--------------|---|-------------------------|-----------------------------|
| Non Trading | Professional community | 1 500 | |
| | Official or Associated | 1 500 | |
| | Authority or Administration | 1 500 | |
| | Independent | 300 | |
| | Other | 1 500 | |
| Trading | Individual company | 500 | 1 500 |
| | Start-up less 3 years | 500 | 1 500 |
| | Small company (<= 250 Nb. employees) | 1 500 | 5 000 |
| | Medium company (251< Nb. employees <= 5 000) | 3 500 | 5 000 |
| | Large companies (Nb. employees > 5 000) | 7 500 | 15 000 |

Code of conduct

Applicants must agree the eG4U Membership Code of Conduct. This is a simple set of rules ensuring that any applicant does not abuse their position to detriment of other membership subscribers' benefit, see <https://www.eg4u.org/ethic-charter-for-eg4u-organisation>.

3 levels of membership: Active, Associated or Honorary.

Only Active Members have voting rights. Active and associated members can be a legal entity or a natural person. Legal entities shall provide the legal status of the organisation and the trade registration.

Information & contacts : contact@eg4u.org

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