



Operational energy Efficiency for Users (OEU); Data Management for Global KPI of ICT Site Energy Management

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Reference

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Foreword

This Group Specification (GS) has been produced by ETSI Industry Specification Group (ISG) Operational energy Efficiency for Users (OEU).

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

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Introduction

The objective of the present document is to enable the aggregation of study cases and examples of the implementation of ETSI EN 305 200-3-1 [1].

1 Scope

The present document defines a general process to monitor the energy performance of ICT sites in accordance with ETSI EN 305 200-3-1 [1].

The present document:

- specifies required data to register the ICT site (data centre or any other ICT site) within the data aggregation and monitoring system;
- defines the format for data submission to allow the information for a particular ICT site to be aggregated and monitored;
- describes a tool to calculate the Global KPI for Energy Management (KPI_{DCEM}) as specified in ETSI EN 305 200-3-1 [1].

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

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The following referenced documents are necessary for the application of the present document.

- [1] ETSI EN 305 200-3-1: "Access, Terminals, Transmission and Multiplexing (ATTM); Energy management; Operational infrastructures; Global KPIs; Part 3: ICT Sites; Sub-part 1: DCEM".

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

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The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

Not applicable

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ETSI EN 305 200-3-1 [1] and the following apply:

year of data record: year of a data collection period started

3.2 Symbols

For the purposes of the present document, the symbols given in ETSI EN 305 200-3-1 [1] and the following apply:

EC _{DC}	Energy Consumption DataCentre
EC _{FEN}	Energy Consumption Fossil Energy
EC _{REN}	Energy Consumption Renewable
EC _{REUSE}	Energy Consumption Reused
EC _{SP}	Energy Consumption Specific Provider

3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

DC	Data Centre
EER	Energy Efficiency Ratio
ICT	Information Communication Technologies
IT	Information Technology
KPI	Key Performance Indicator

4 Energy management of ICT site

4.1 Generalities

Energy management of an ICT site (data centre or any other ICT site) is done in a global screen.

This global screen of ICT site energy management is subdivided in three sub-parts:

- Site information.
- Energy consumption stats.
- Site reports.

4.2 Site information

This sub-part "Site information" describes the main technical characteristics of the site.

4.3 Energy consumption stats

This sub-part "Energy consumption stats" provides global energy consumption management statistics of the site.

4.4 Site reports

This sub-part "Site reports" provides a general summary of yearly reports of the site.

Recorded data are input in the "new report" screen.

5 Site information

5.1 Generalities

Registration of the site is done by description of the ICT site (data centre or any other ICT site) and its main characteristics.

Recorded data are input in the first sub-part of the global screen.

The data spaces of this first sub-part are used to input characteristic data, see figure 1.

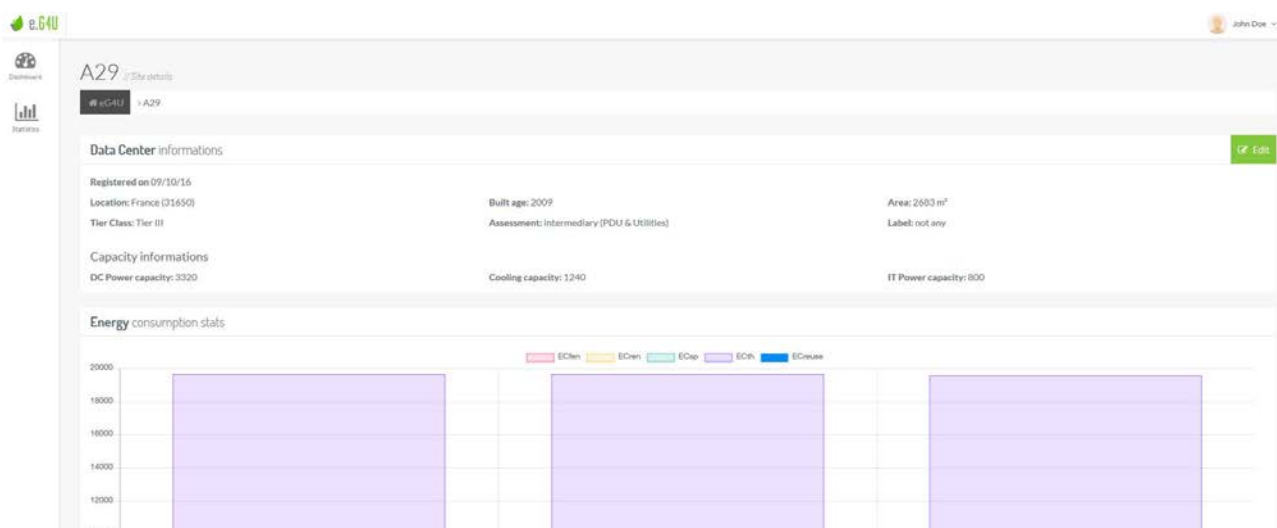


Figure 1: General site information

5.2 Site information inputs

5.2.1 Location

This data space will define the location of the site.

5.2.2 Built age

This data space will define the year of site building.

5.2.3 Area

This data space will define the surface of the site.

5.2.4 Tier Class

This data space will define the Tier class of the site.

5.2.5 Label

This data space defines the site label if there is one.

5.2.6 Assessment intermediary

This data space will define the general use of the site.

5.3 Capacity information

5.3.1 DC Power capacity

This data space defines power capacity of the site.

5.3.2 Cooling capacity

This data space defines cooling capacity of the site.

5.3.3 IT power capacity

This data space defines power capacity of IT equipment.

6 Energy management stats

6.1 Generalities

Energy management statistics are automatically provided in the second sub-part of the global screen.

This second sub-part provides yearly statistics as a global curve of reused energy, see figure 2.

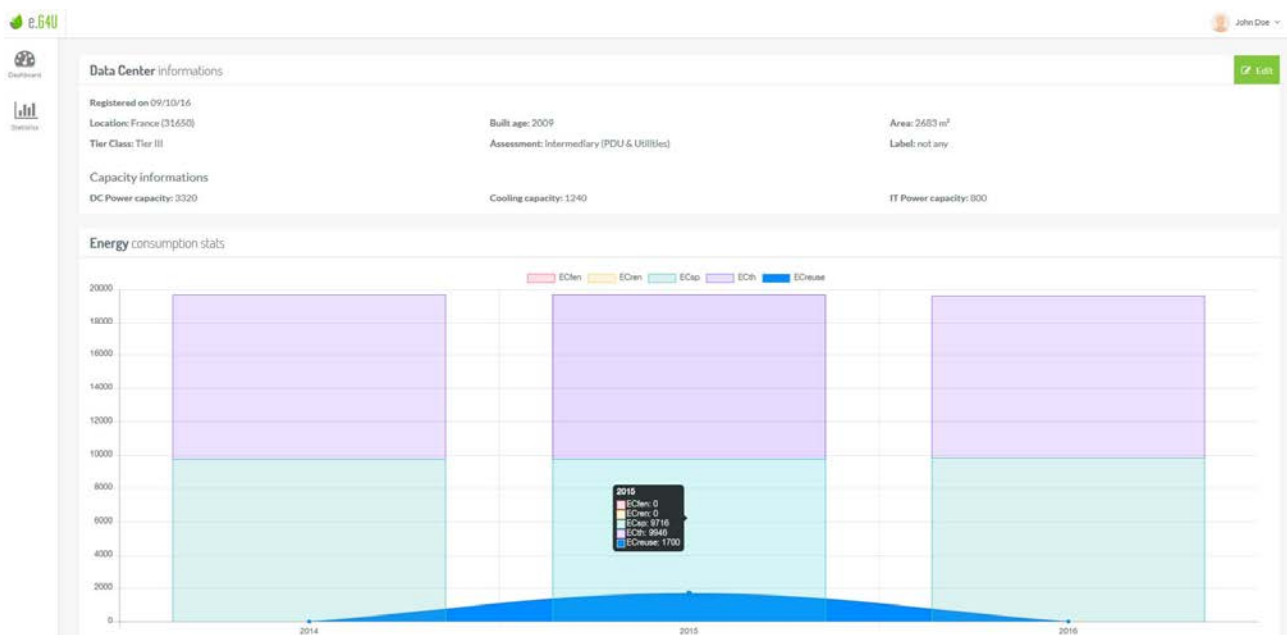


Figure 2: Energy management statistics

7 Site reports

7.1 Generalities

A report is made on the energetic data of the site every year. The annual data are input by opening another screen by clicking on the "new report" button.

Recorded data are input in the "new report" screen.

The date spaces of the "new report" screen are used to input annual data, see figure 3.

In the third sub-part of the main screen a table summarized the site yearly reports, see clause 7.3.

The screenshot shows the 'New report' interface with the following sections and data:

- Data center informations:**
 - Period: Yearly
 - Year: Please select a year
 - DC Power capacity: 3320 kWe
 - Cooling capacity: 1240 kWth
 - IT Power capacity: 800 kW
- Site boundaries:**
 - Grid electricity:** EP_{GP} = 0 kWe, EC_{GP} = 0 MWh
 - Local non renewable source:** EC_{CRN} = 0 MWh
 - Local renewable source:** EC_{REN} = 0 MWh
 - Energy reuse:** EC_{REUSE} = 0 MWh, EC_{ALR} = 0 MWh
 - District or central cooling:** EC_{TH} = 0 MWh, EP_{TH} = 0 kWth, K_{TH} = 0.368, K_{TH} × EC_{TH} = 0 MWh
 - Data room:** EC_{DR} = 0 MWh, EP_{DR} = 0 kWe, CR_{DR} = 0 m², Floor area = 2683 m²
- Energy balance:**
 - Energies consumptions:** KPI_{EC1} = 0, KPI_{EC} = 0, EC_{DC} = 0 MWh, DC_{CP} = 0
 - Task efficiency:** KPI_{TE} = 0
 - Energy reuse:** KPI_{REUSE} = 0
 - Renewable energy:** KPI_{REN} = 0
 - Density:** IT area density, DC Power load factor, Cooling load factor, IT Power load factor
 - Constants:** W_{CRS} = 1, W_{REUSE} = 0.8, W_{REN} = 0.8, EER = 2.5, Losses = 8

A green 'Add report' button is located at the bottom right of the interface.

Figure 3

7.2 Mandatory Site Report inputs

7.2.1 Year of data record

This data space defines the year of this data collection period started.

7.2.2 EC_{DC}

This data space defines the Total consumption by Data Centre during the collection period.

7.2.3 EC_{SP}

This data space defines the Total energy consumption from grid electricity during the collection period.

7.2.4 EC_{REN}

This data space defines the Total energy consumed during the collection period from local renewable energy sources.

7.2.5 EC_{REUSE}

This data space defines the Total energy reused during the collection period at the delivery point.

7.2.6 EC_{TH}

This data space defines the Total energy consumed during the collection period from external cold loops.

7.2.7 EC_{HE}

This data space defines the Total energy consumed during the collection period by ICT equipment.

7.3 Annual report summary

In the third sub-part of the main screen a table summarized the site yearly reports as defined in figure 4.

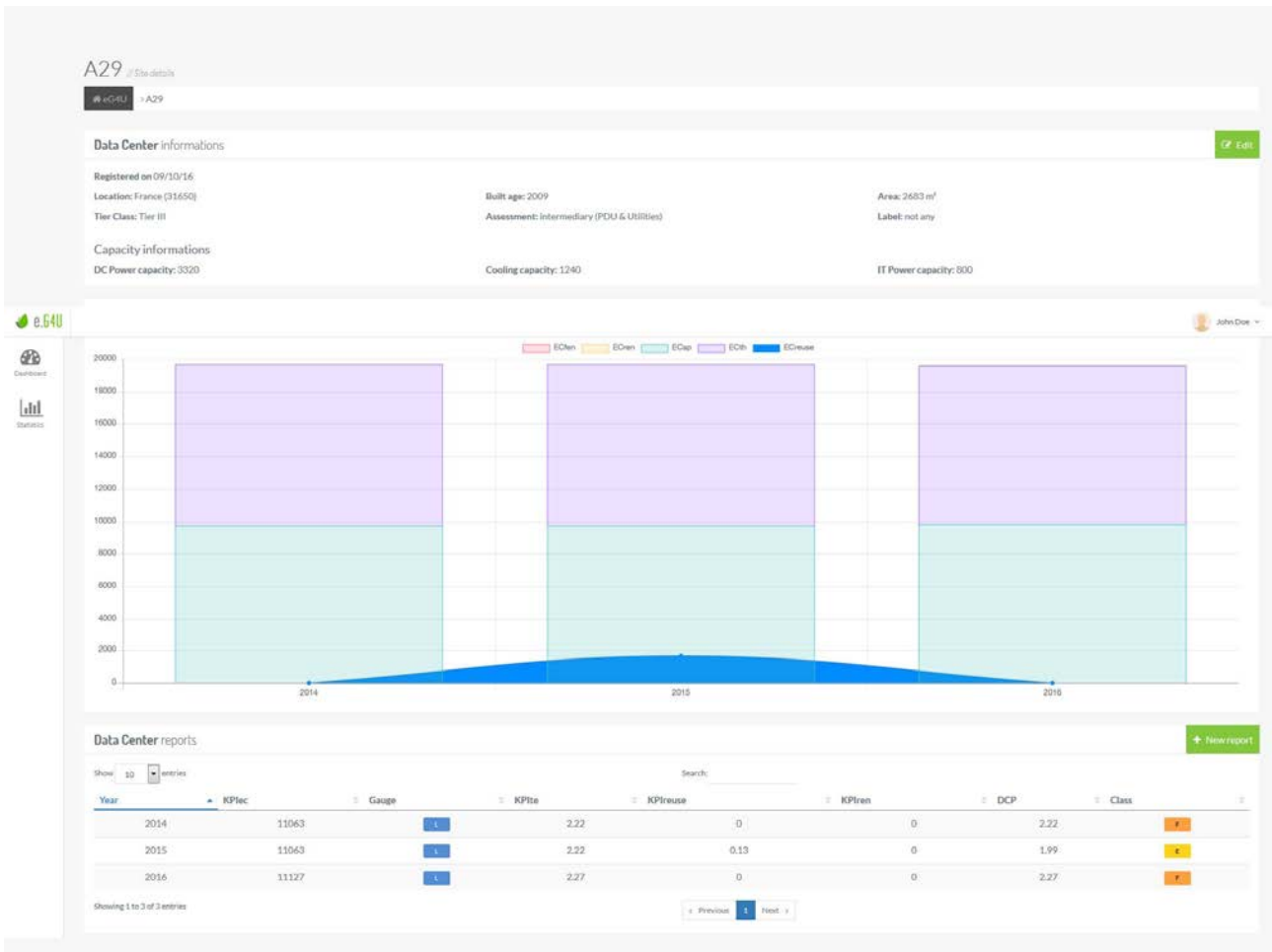


Figure 4

Annex A (informative): Optional report inputs

EC_{FEN}

This data space defines consumption of local fossil energy during collection period.

EER

This data space defines Energy Efficiency Ratio of external cold loop cold generator.

Losses

This data space defines losses in the external cold distribution loop.

Density

This data space will define the percentage of IT room occupation.

History

Document history		
V1.1.1	July 2018	Publication