



**TÜRK
STANDARLARI
ENSTİTÜSÜ**

Türk Standardı

TS EN 50600-4-2/A1

Nisan 2019

ICS 35.020; 35.110; 35.160

RENKLİ İÇERİK

**Bilgi teknolojisi - Veri merkezi tesisleri ve altyapıları -
Bölüm 4-2: Güç Kullanımı Verimliliği**

Information technology - Data centre facilities and infrastructures - Part 4-2:
Power Usage Effectiveness

Technologie de l'information - Installation et infrastructures de centres de
traitement de données - Partie 4-2 : Efficacité de l'utilisation de l'énergie

Informationstechnik - Einrichtungen und Infrastrukturen von Rechenzentren -
Teil 4-2: Kennzahl zur eingesetzten Energie



TELİF HAKKI KORUMALI DOKÜMAN

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Bu düzeltme, üç resmi dilde yayınlanan EN'nin eki olarak Ocak 2019 tarihinde CENELEC tarafından onaylanan ve Türk Standardları Enstitüsü tarafından adapte edilerek yayınlanan TS EN 50600-4-2:2017 standardının ekidir.

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 50600-4-2:2016/A1

March 2019

ICS 35.020; 35.110; 35.160

English Version

**Information technology - Data centre facilities and infrastructures
- Part 4-2: Power Usage Effectiveness**

Technologie de l'information - Installation et infrastructures
de centres de traitement de données - Partie 4-2 : Efficacité
de l'utilisation de l'énergie

Informationstechnik - Einrichtungen und Infrastrukturen von
Rechenzentren - Teil 4-2: Kennzahl zur eingesetzten
Energie

This amendment A1 modifies the European Standard EN 50600-4-2:2016; it was approved by CENELEC on 2019-01-29. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This amendment exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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European foreword

This document (EN 50600-4-2:2016/A1:2019) has been prepared by CLC/TC 215 “Electrotechnical aspects of telecommunication equipment”.

The following dates are fixed:

- latest date by which this document has to be (dop) 2020-01-29
implemented at national level by publication of
an identical national standard or by
endorsement
- latest date by which the national standards (dow) 2022-01-29
conflicting with this document have to be
withdrawn

This document updates subclauses 5.2, 6.2.3 and Annex B.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association.

1 Modification to the Introduction

Replace Figure 1 with:

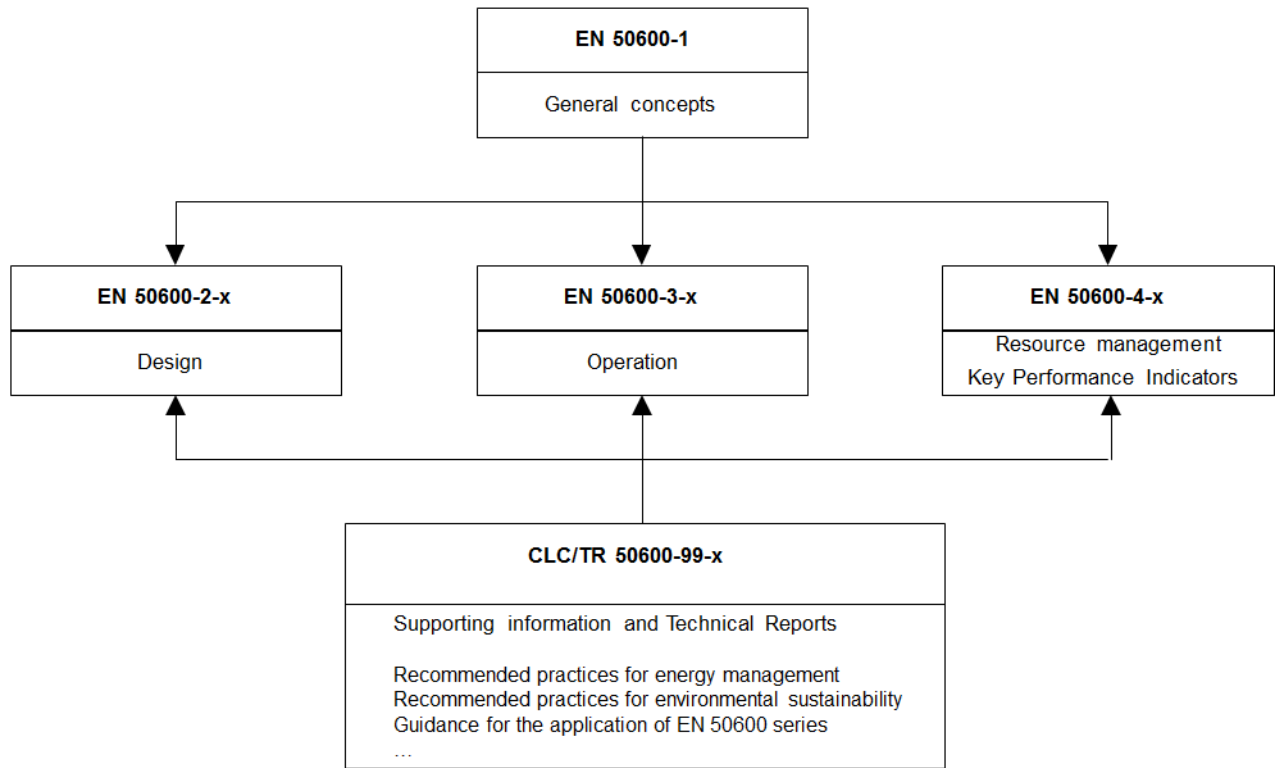


Figure 1 — Schematic relationship between EN 50600 series of standards

2 Modification to 5.2, Total data centre energy consumption

Replace paragraphs 5 to 7 with:

Gaseous or liquid fuels shall be metered in kWh or converted into kWh using the heat of combustion values for the fuel used. Where information on combustion values is not available and no local regulation applies, the following values shall be applied:

- diesel: 9,9 kWh/l;
- gas: 10,5 kWh/m³;
- hydrogen: 38,9 kWh/kg;
- bioethanol: 6 kWh/l.

The energy contribution of fluids for cooling shall be measured using heat meters (providing information on flow rate and differential temperature) and multiplied by the relevant conversion factor X of the system used to provide the fluid used.

For the conversion of thermal energy to its electrical equivalent, the conversion factor X shall be obtained from the supplier; in case there is no equivalent available, a conversion factor $X = 0,4$ shall be used.

Technical subsystems, e.g. on-site co-generation of heat and electricity, shall have meters at their output and are considered external to the system.

3 Modification to 6.2.3, Category 2 (PUE2) – intermediate resolution

Replace the subclause with:

The IT load is measured at the output of the PDUs within the data centre and is typically read from a meter on the PDU output (with or without transformer, the measurement point is then after the transformer).

4 Modification to Annex B, Calculation of PUE using various energy supplies

Replace Annex B with:

B.1 Examples of PUE calculation with various energy supplies

Figures B.1 to B.4 show examples of PUE calculation with various energy supplies.

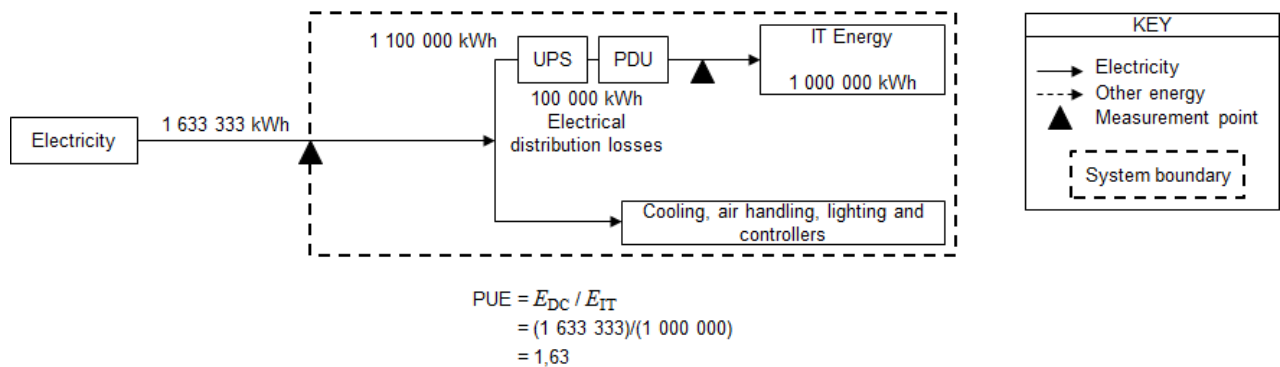


Figure B.1 — Example for a data centre purchasing all electricity

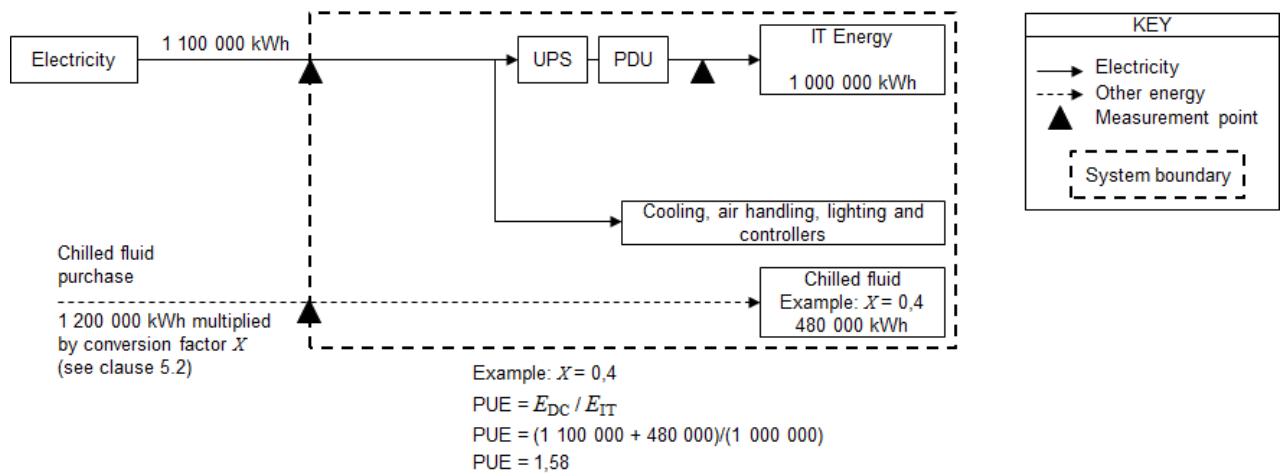


Figure B.2 — Example for a data centre purchasing electricity and chilled water

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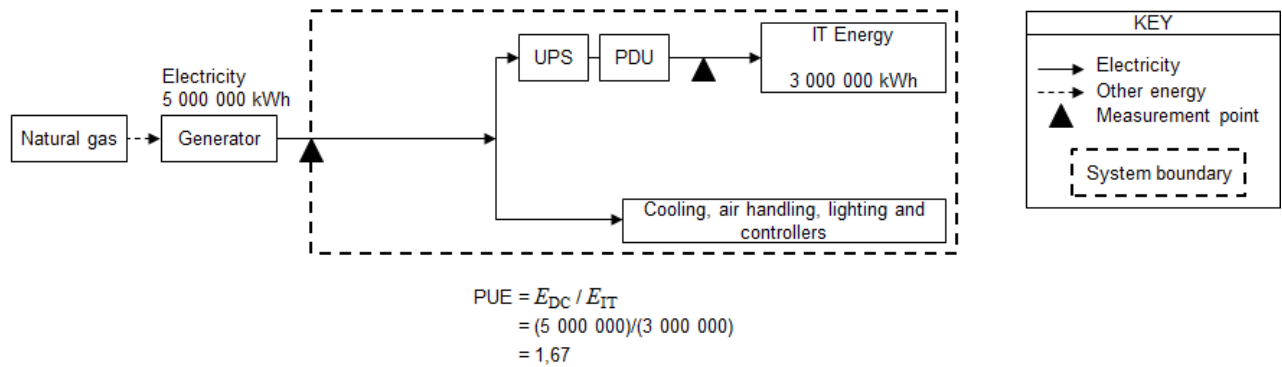


Figure B.3 — Example for a data centre purchasing natural gas

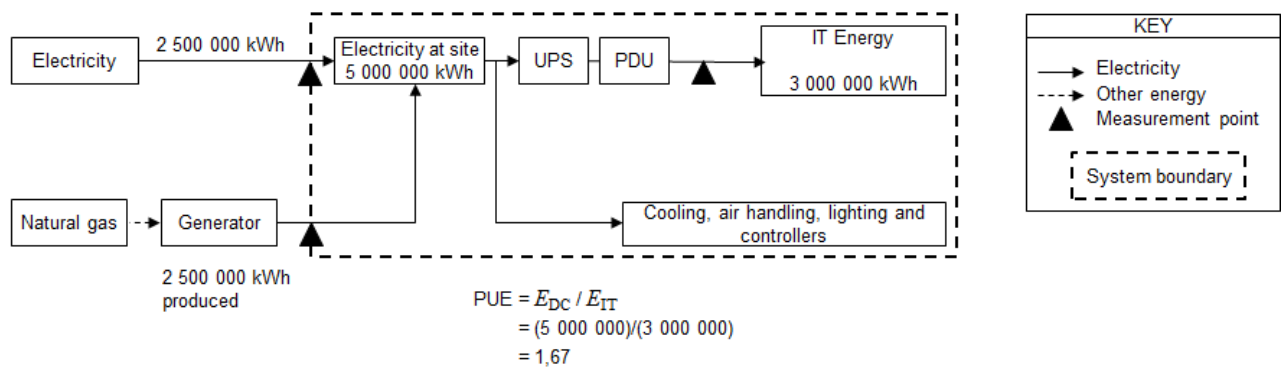


Figure B.4 — Example for a data centre purchasing electricity and natural gas

B.2 Example of PUE calculation with cogeneration using electricity and natural gas

Figure B.5 shows an example of PUE calculation with cogeneration using electricity and natural gas.

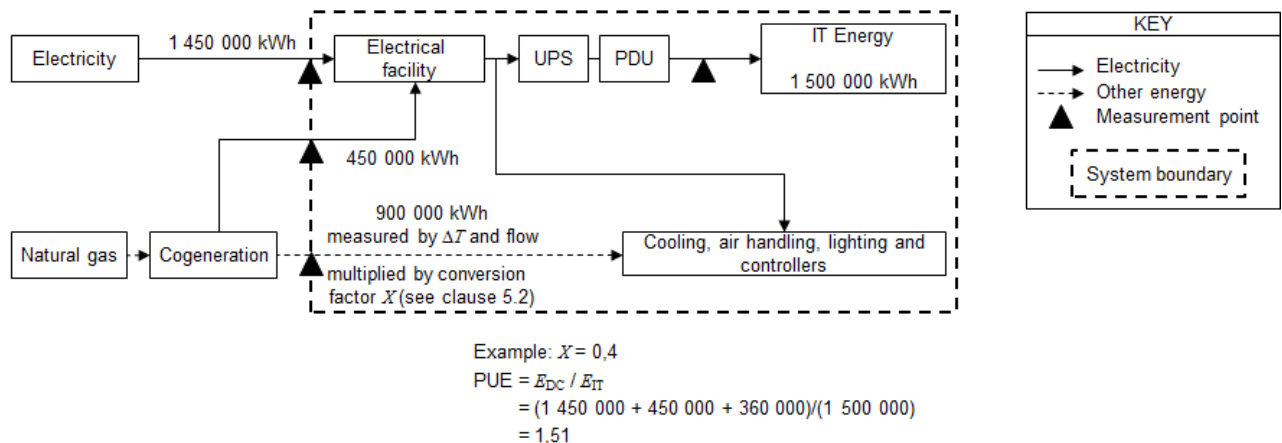


Figure B.5 — PUE calculation with cogeneration using electricity and natural gas

B.3 Examples of PUE calculation with absorption type chiller

Figures B.6 and B.7 show examples of PUE calculation with absorption type refrigerator.

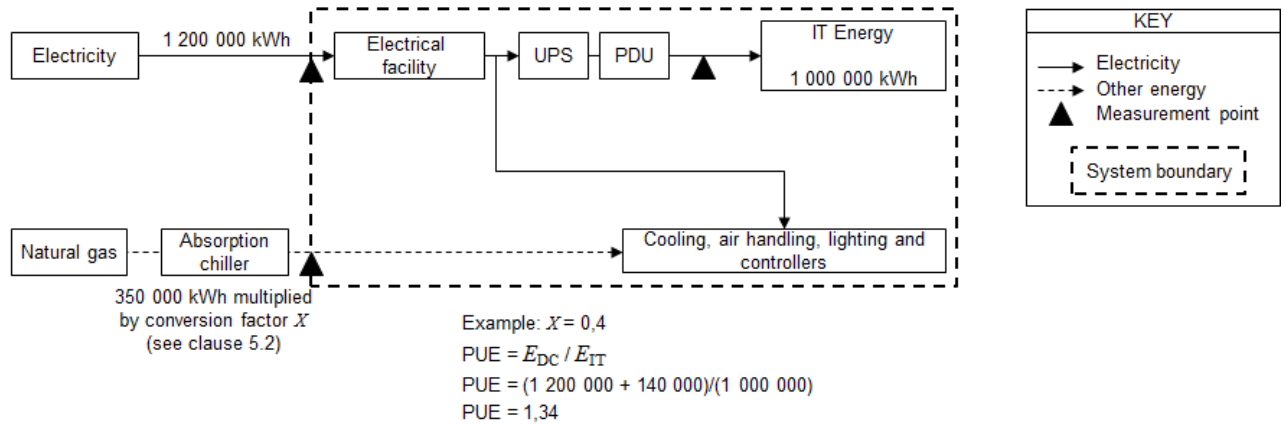


Figure B.6 — Method 1: Measured by chilled water flow

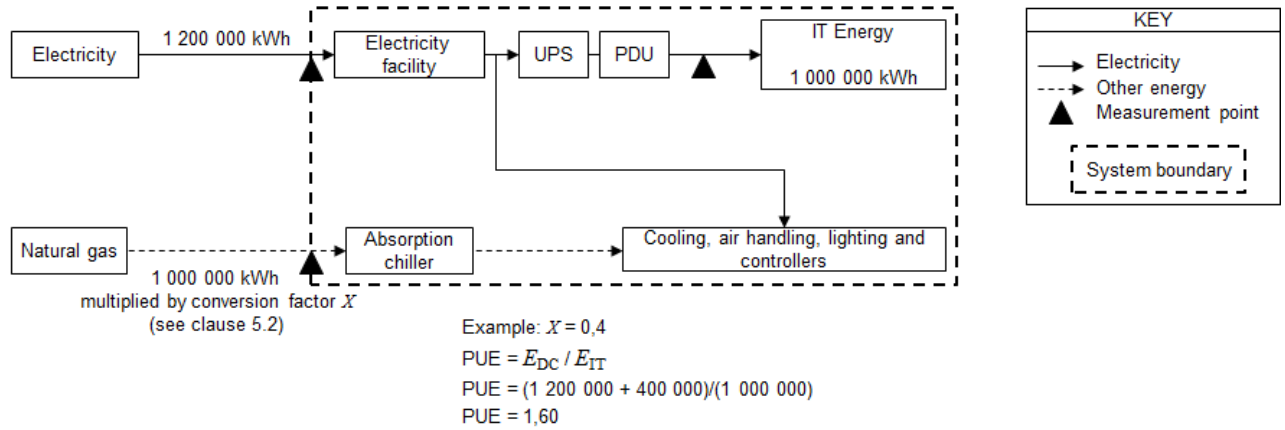


Figure B.7 — Method 2: Measured by input gas