



Short synthesis of the results obtained from the pilot actions taken on “certification for Public Buildings”

*The final goal of this synthesis is to get a clear view of the results of BUDI project regarding the action on public buildings. To achieve this target the idea is to compile the information coming from you with the information coming from all other partners. So please try be clear and brief in your answers and to respect the form of this report (table and questions).
Thank you.*

Partner :

1/ Which buildings did you Certified ?

For each building you certified fill the table below (paste as much tables as buildings you certified) :

Nature of the owner	
Type of building (use)	Office building
Name (or N°)	Ambrožev trg 5 (No. 1)
City	Ljubljana
Country	Slovenia
Total area (m2)	3298
Energy uses taken in account	Final energy for heating and DHW
Main energy figure you got and unity	Calculated 200kWh/m2a (metered 95 kWh/m2a * different use)
Letter for Energy (A, B,...G)	E
Letter for CO2 (A, B,...G)	

Nature of the owner	
Type of building (use)	Office building
Name (or N°)	Poljanska 28 (No. 2)
City	Ljubljana
Country	Slovenia
Total area (m2)	2050
Energy uses taken in account	Final energy for heating and DHW
Main energy figure you got and unity	Calculated 170 kWh/m2a (metered 140 kWh/m2a)
Letter for Energy (A, B,...G)	D
Letter for CO2 (A, B,...G)	

Nature of the owner	
Type of building (use)	Office building
Name (or N°)	Zarnikova 3 (No. 3)
City	Ljubljana
Country	Slovenia
Total area (m2)	3123
Energy uses taken in account	Final energy for heating and DHW; Option: Total final energy including electricity - metered

Main energy figure you got and unity	Calculated 139 kWh/m ² a (Total energy metered: 161 kWh/m ² a)
Letter for Energy (A, B,...G)	C
Letter for CO ₂ (A, B,...G)	

Nature of the owner	municipality
Type of building (use)	Public school
Name (or N°)	School Franceta Prešerna (No. 4)
City	Kranj
Country	Slovenia
Total area (m ²)	8926
Energy uses taken in account	Final energy for heating and DHW
Main energy figure you got and unity	Calculated 183 kWh/m ² a (metered 121 kWh/m ² a)
Letter for Energy (A, B,...G)	D
Letter for CO ₂ (A, B,...G)	

Nature of the owner	
Type of building (use)	Office building
Name (or N°)	Office of Municipality Kranj (No. 5)
City	Kranj
Country	Slovenia
Total area (m ²)	8926
Energy uses taken in account	Final energy for heating and DHW
Main energy figure you got and unity	Calculated 131 kWh/m ² a (metered 89 kWh/m ² a)
Letter for Energy (A, B,...G)	F
Letter for CO ₂ (A, B,...G)	

Nature of the owner	
Type of building (use)	Public school
Name (or N°)	School Oplotnica (No. 6)
City	Oplotnica
Country	Slovenia
Total area (m ²)	3670
Energy uses taken in account	Final energy for heating and DHW
Main energy figure you got and unity	Calculated 166 kWh/m ² a (metered 163 kWh/m ² a)
Letter for Energy (A, B,...G)	D
Letter for CO ₂ (A, B,...G)	

Nature of the owner	
Type of building (use)	Public school
Name (or N°)	Kindergarten Pivka (No. 7)
City	Pivka
Country	Slovenia
Total area (m ²)	860
Energy uses taken in account	Final energy for heating and DHW
Main energy figure you got and unity	Calculated 371 kWh/m ² a ((metered 195 kWh/m ² a)
Letter for Energy (A, B,...G)	G

Letter for CO2 (A, B,...G)	
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Nature of the owner	
Type of building (use)	Public school
Name (or N°)	School Pivka (No. 8)
City	Pivka
Country	Slovenia
Total area (m2)	5086
Energy uses taken in account	Final energy for heating and DHW
Main energy figure you got and unity	Calculated 284 kWh/m2a (metered 195 kWh/m2a)
Letter for Energy (A, B,...G)	F
Letter for CO2 (A, B,...G)	

Nature of the owner	
Type of building (use)	Office building
Name (or N°)	Proletarska 1 (No. 9)
City	Ljubljana
Country	Slovenia
Total area (m2)	3326
Energy uses taken in account	Final energy for heating and DHW
Main energy figure you got and unity	Calculated 125 kWh/m2a (metered 137 kWh/m2a)
Letter for Energy (A, B,...G)	D
Letter for CO2 (A, B,...G)	

Nature of the owner	
Type of building (use)	Office building
Name (or N°)	Resljeva 18 (No. 10)
City	Ljubljana
Country	Slovenia
Total area (m2)	2268
Energy uses taken in account	Final energy for heating and DHW
Main energy figure you got and unity	Calculated 223 kWh/m2a (metered 89 kWh/m2a)
Letter for Energy (A, B,...G)	E
Letter for CO2 (A, B,...G)	

Nature of the owner	
Type of building (use)	Office building
Name (or N°)	Town house Ljubljana (No. 11)
City	Ljubljana
Country	Slovenia
Total area (m2)	3330
Energy uses taken in account	Final energy for heating and DHW, Option: Metered final including electricity
Main energy figure you got and unity	Calculated 198 kWh/m2a (Total final energy consumption metered 258 kWh/m2a)
Letter for Energy (A, B,...G)	E
Letter for CO2 (A, B,...G)	



Table 1 Overview of different energy certificates done – different schemes and layouts were used in absence of final methodology for certification

Name	Type of building	BUDI – asset and operational rating	E-TOOL	DISPLAY	EP-LABEL	OPET pilot certificate – Slovenia2002
Ambrožev trg 5	Office building	X	X			
Poljanska 28	Office building	X		X		
Zarnikova 3	Office building	X	X	X	X	X
School Franceta Prešerna	Public school	X	X			
Municipality Kranj	Office building	X	X			
School Oplotnica	Public school	X		X		
Kindergarten Pivka	Public school	X	X			
School Pivka	Public school	X	X			
Proletarska 1	Office building	X	X	X		
Resljeva 18	Office building	X	X	X		
Town house Ljubljana	Office building	X	X	X	X	X

2/ What does the energy certified represent ?

Consumption / Heat demand

The BUDI energy certificate for public buildings represent calculated final energy demand for space heating and DHW, (the task of BUDI was to calculate the indicators).

Ranking was done by final energy Q for heating and preparing domestic hot water.

In addition the energy certificate based on operational rating was investigated, the core indicator was total final energy for operation of the building (all energy bills).

In addition the CO2 indicator was calculated and presented on a slider.

The regulation about energy certification hasn't been fixed so far in Slovenia.

Operational rating for existing non-residential and public buildings including display is seriously considered.

3/ How the surfaces used in calculation are defined ?

Surface is a crucial data, what would you recommend in order to get good values ?

Since the accuracy in determination of areas was identified as a very important issue, the detailed rules about how to determine the areas will be elaborated. Basically the rules will summarize the principles of external dimensions as given in CEN standards and focus on maximum difference of areas comparing to detailed measurements.



The floor areas from design plans, real-estate data and surfaces related to the facility management should be critically investigated.

4) How was the quality of the calculation data ?

The quality of calculation data was investigated in residential buildings (WP2) in detail.

In public buildings there were not enough data available to do the cross-comparison and to analyse the quality of calculated indicators. In general the difference with metered data is very big, as estimated due to difference in standard and actual use and due to inaccurate input data collection.

5/ What is the methodology used ?

Based on calculated rating or metered rating

If you have done the two can you briefly compare the results ?

Both, metered and calculated, rating methodologies were used in WP3. In practice the use of metered ranking is expected to become obligatory for public buildings.

6/ In your country are already officially defined :

- the official methodology ?

Certification methodology hasn't been prepared in a form of regulation by now. The general rules about energy certification of buildings is given in the amended Energy Act (11/2006).

If the certification of public buildings and their parts will be done based on asset (calculated) rating, there is the calculation methodology completed (regulation is in parliamentary procedure, expected for 9/2007).

More likely the public buildings will be certified based on metered energy consumption data. The regulation on certification procedures is expected for 9/2007.

- different type of ranking for the different types of public buildings or only one scale ?

The different types of ranking for the different types of public buildings haven't been defined in Slovenia. For now, due to the lack of any statistical data on energy use in different building types the proposal for operational rating and ranking of building on a full colour slider was given. It is considered that this way a sufficient message about the energy quality of the building is given to the user without any tedious and unreliable ranking of (public) buildings into classes.

- the frame of the certificate (how does it look like ?) (paste a picture)

The final layout is yet not fixed in Slovenia.

The following suggestions were the result of BUDI project and BUDI cooperation with governmental bodies responsible for EPBD transposition.

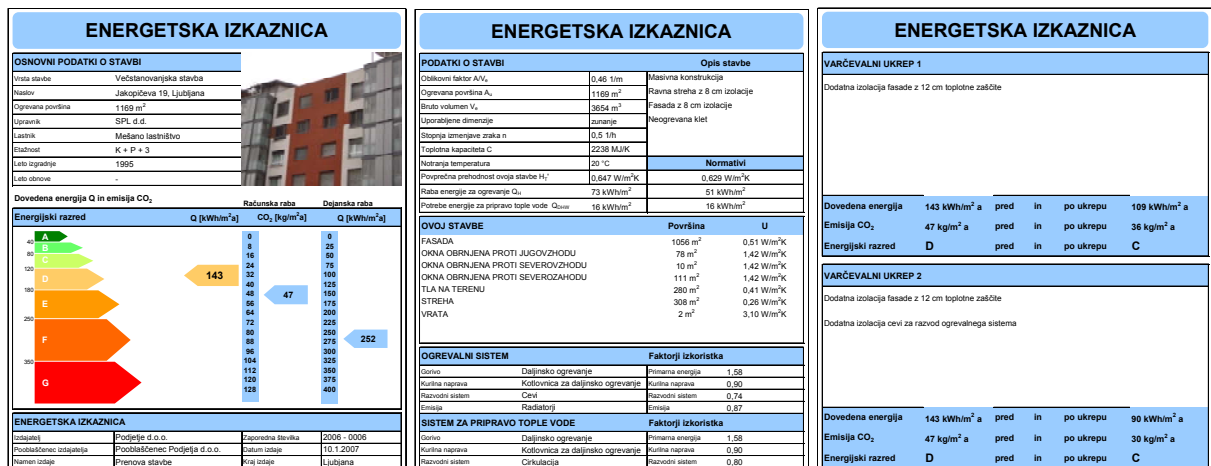


Figure BUDI energy certificate – calculated rating, used as suggestion for regulation.



Figure BUDI calculated energy certificate (for all buildings, but primarily for existing residential) and metered energy certificate (existing non-residential), used as proposal for regulation.

- the displaying (what are the conditions) ?

Display of energy certificated is obligatory from January 1, 2008, according to amended Energy Act form 11/2006, and will have to be completed by January 1, 2011 for all public buildings defined in the operational regulation (i.e. buildings owned and used by local authorities and governmental bodies).

- the person able to produce the certificates (qualification, independence...) ?
If yes, or if you have good presumptions, please explain ?

Quality control of the assessors is foreseen already in the amended Energy act (11/2006), where the obligatory qualification for assessors (education profile and level), obligatory training course and exam are defined, as a precondition for the state license for assessors. Regular additional training (once in 5 years) is necessary to maintain the licence. The amended Energy Act (11/2006) defined obligatory qualification of assessors, i.e. engineering degree in technical studies and architecture (5 years study and/or 3

years professional study and professional degree diploma in technical education - engineering or architecture). Minimum 5 years of working experience in their own professional area is needed.

The independence is defined in the Energy Act in detail and has to be declared by the assessors in each case.

7/ Did you manage to get some certificates displayed ?

What are the obstacles ?

The main obstacle to do the public display is that the regulation for certification hasn't been accepted and there is no final layout and procedure. In such situation the displayed information may confuse the clients.

And yet we did the display of energy certificate for public buildings based on metered energy indicators. The display was accompanied by the promotional event in the Ljubljana town hall. Two displays were done at this occasion: for town hall building and for the municipal office building on Zarnikova.

The posters with other options (Display, EP-Label, OPET Slovenia pilot certificate...) of certificates were produced and were exhibited in order to stimulate the users opinion on content of publicly displayed data.

Other six certificates were made available for public display and handed over to contact persons the respective on the buildings.



Figure. Public display for BUDI energy certificate in Ljubljana town hall.

8) What was the motivation/incentive of the owners to get an energy performance certificate?

In the Slovenian case we co-operated with the Municipality of Ljubljana and with the Municipality of Kranj. Both municipalities showed interest for energy efficiency in public buildings, and to promote themselves as an energy-conscious municipality.

9/ Regarding the production of energy certificates on public buildings, what would be your 3 main recommendations for each of :

- the owners



Prepare accurate and reliable data on energy consumption in the building, collect the energy bills, and commit the energy manager to do the energy book-keeping.

Look-up for building plans in archives before the survey begins.

Energy certificate is an information tool for building owner and users. It can promote the energy efficient building owner. In case of bad indicators it can be used as a push to allocate the public budget for energy efficient refurbishment.

- the assessors

Be as accurate as possible in preparation of building related data, areas are the most important, check what the bills are for, which areas and time are they related to.

Check the implemented technologies on-site, listen to the client but verify the given information.

Try to co-operate with a client well in advance, before the certification start. That will allow you to get a better picture of the building condition and the user / owners problems.