D4.1.2

ANALYSIS REPORT PER PIONEER CITY WITH SURVEY RESULTS:

IVANIC - GRAD

Status	Final
Date of preparation	November 2012
Author	Vlatka Berlan Vlahek
Grant Agreement number	IEE/09/774/SI2.558357

ENGAGE for energy & climate,
make the difference for Europe!
www.citiesengage.eu

energycities
WHERE ACTION & VISION MEET
Supported by
INTELLIGENT ENERGY EUROPE

1 – DESCRIPTION OF THE EVALUATION TOOLS USED

1.1 – TOOL 1

Name of the tool:

UNDP Kalkulator CO_2 (CO_2 UNDP on-line Calculator)

Information required:

The UNDP CO_2 calculator is intended to assist citizens to calculate their greenhouse gas emission footprint. This calculator has been developed with the Greenhouse Gas Protocol and ISO 14064 standard. Using CO_2 calculator we can calculate citizens "carbon footprint", find out what is the total energy consumption in the household in one year and how daily activities produces carbon dioxide and other greenhouse gases. Additionally, we can check out how citizens can reduce energy consumption and thus emissions into the atmosphere, and how to save on utility bills.

Categories covered	Indicator	Unit	Measured or estimates	Primary or Final consumption	Conversion factor used and source if final consumption
Housing	Annual energy consumption (electricity and natural gas)	kWh	Measured	Final	GWP Index
Mobility	Annual kilometres passed and average fuel consumption	Km/l	Estimated	Final	It is automatically calculated by the tool

Weblink: http://www.undp.hr/show.jsp?page=100914

Target Group: citizens

Free: Undp CO_2 calculator is free of charge

Developer: UNDP CO_2 calculator is intended to assist UNDP Country Offices, Regional Centres and Headquarters to calculate their greenhouse gas emission footprint. We use it because it is only one available in Croatia and it is very user friendly. Besides calculation of energy consumption and CO_2 emissions, UNDP calculator gives to citizens recommendations for savings. For households we can have exact calculation if we use date from utility invoices and for mobility we use estimated inputs and, we may say, results are indicative.

1.2 – TOOL 2

Name of the tool: Display®

Information required: The European Display® is a voluntary scheme designed by energy experts from European towns and cities. The Display tools enables to create energy performance certificates (energy: electricity and natural gas, CO_2 and water ratings)

Weblink: http://www.display-campaign.org/

Target Group: stakeholders and public servants/elected representatives

Free: for Energy Cities members

Developer(s): Energy Cities

Comments (advantages/ disadvantages of the tool): City of Ivanić-Grad since 2008 has participated in the Display campaign and monitors energy consumption in all public buildings. In Croatia has not yet developed a tool for energy monitoring and we decided to monitor stakeholders and public servants using Display on line tool. Display online tool is simple to use, takes into account the consumption of electricity, gas and water and calculates CO_2 emissions. Energy Institute Hrvoje Požar has prepared a corrective factor for Croatia, so the results obtained by Display tool are reliable.

2 – MONITORING METHODOLOGY AND STRATEGY FOR ENGAGE

2.1 – MONITORING METHOD

Almost 300 persons are engaged in Ivanić-Grad; 79 of them were monitored to evaluate their energy consumption.

For that purpose, we created a specific form. It contains two groups of data, depending on the engagement. The first group of data monitors energy consumption in households, and the second transportation and mobility.

For households we evaluate consumption of water, electricity, gas and heating. We monitor mobility via number of kilometres travelled and car type. When one is engaged, their average data on energy consumption is collected.

After 12 month, engaged and monitored citizens have been contacted again to collect new data to check whether the Engage campaign leads to real energy savings and reduced emissions of CO2 in tonnes. The first results were available in March 2012.

Category of participants	***Number of participants***	***Date of 1st evaluation***	***Date of 2nd evaluation***	***Method: estimation or real data***
Citizens	*55*	*21/10/2011*	*21/10/2012*	*Real data (invoices)*
Public servants	*10*	20/03/2011	20/03/2012	Real data (invoices)
Stakeholders	*13*	*21/04/2011*	*21/04/2012*	*Real data (invoices)*

2.2 – MONITORING STRATEGY

Category of participants	***Strategy to get the users to supply the data***	***Staff capacity required***	***Resources***	***Cost of the event***
Citizens	*Day of the City*	*2 people: 1 photographer, 1 coordinator*	*1 stand, 1 roll up*	*100€*
Citizens	*Pumpkin fest, Engage posters exhibition*	*5 people: 1 photographer, 1 coordinator, 3 interns (1 journalist)*	*1 big stand, 1 roll up, Engage posters*	*500€*
Public servants and stakeholders	*Daily activities with stakeholders and public servants*	*2 people: 1 photographer, 1 coordinator*	*1 roll up*	*50€*

In order to simplify administration of ENGAGE, we created an ENGAGE form. On the Engage form we designed space for all relevant information. By signing the Form (when participant join the ENGAGE) participants gave us the right to photograph them, to make their posters and publish it online. Participants who accepted to be monitored, gave us their data on energy consumption and we put it in the Engage form (back side). As one year passed, we contacted again participants (by phone, mail or personal meeting) and we remind them to prepare energy consumption data once again. In the meantime, we invited them to the opening of the ENGAGE poster exhibition when we prepared gifts as a thank you for participating in the Campaign. As evaluation is simple and easy, we were satisfied with the response of the participants, Some of participants decided to be monitored later and we were happy to monitor them.

3 – POSTER RESULTS

Figure	Citizens	Stakeholders	Public Servants	Total (All categories)
Number of posters produced	186	72	23	254
Number of people ENGAGEd	199	81	20	294
Project targets: number of people ENGAGEd	150	15	20	185
Number of baselines done before the end of October 2011	37	6 organisations* representing 18 ENGAGEd stakeholders	11 Entities** representing 12 public servants	54
Number of complete evaluations carried out	30	4 organisations* representing 16 ENGAGEd stakeholders	11 Entities** representing 12 public servants	45
Project evaluations targets	30	3	10	43

* Organisations: private companies, firms, associations or NGOs

** Entities: the local authority or its individual departments, public institutions (such as libraries, schools, etc.)

4 – EVALUATION RESULTS

Figure	Citizens	Stakeholders	Public servants	Total (All categories)
Amount of CO_2 saved (in tonnes of CO_2 equivalents/year)	28,124	16,418	32,800	77,342
Amount of energy saved (in KWh/year) – Primary energy	33075	25707	5821	64603
Amount of RES produced (in KWh/year)	**1**	0	2	3

In Ivanić-Grad, a city full of oil and gas resources, in the past, it was not really thought about saving energy. The City of Ivanić-Grad started to implement energy efficiency projects relatively recently (2008). With education-based programmes for citizens, especially children, we achieved positive changes in behaviour. Saving results of people who were involved in the ENGAGE campaign show that the Campaign gave them positive encouragement. The city administration is very pleased with the positive results of the ENGAGE campaign and with the fact that we are able to present the results in real figures: kWh and tonnes of CO_2.

4.1 – MONITORING

Figure	Citizens	Stakeholders	Public servants
Number of people who did a baseline	55	6 organisations* representing 18 ENGAGEd stakeholders	13 entities** representing 13 ENGAGEd public servants
Number of people who did the second evaluation	30	4 organisations representing 16 ENGAGEd stakeholders	11 entities** representing 11 ENGAGEd public servants
Percentage of people who completed the evaluation process (= who did the 2 evaluations)	55%	88%	85%

4.2 – EXTRAPOLATION FOR THE WHOLE POPULATION

City population: 14.544

- CO2 saved (please indicate the unit): 77,342 CO2 x 99,8% = 7.718,731 CO2
- Energy saved (please indicate the unit): 64603 kwh x 99,8% = 6.447.379 kwh
- RES produced (please indicate the unit): 3 x 99,8% = 299,4 RES

4.3 – INTERESTING STATISTICS:

Figure	Citizens	Stakeholders	Public servants
% of the monitored population that reduced their CO_2 emissions	97 %	67 %	100 %
% of monitored population that increased their CO_2 emissions	3 %	33 %	0 %
% of monitored population that reduced their energy consumption	97 %	67 %	91 %
% of monitored population that increased their energy consumption	3 %	33 %	9 %
% of the monitored population achieving to produce RES:	3 %	0 %	9 %
Average individual % of CO2 emissions avoided	**17%**	N/A	N/A
Average individual % of primary energy saved	**9%**	N/A	N/A
Figure of the most important CO_2 measure	4,12 tonnes	15,23 tonnes	21,05 tonnes
Figure of the most important energy saving measure	8998 kWh	25506kWh	2942 kWh

5 – RECOMMENDATIONS AND LESSONS LEARNT

1- If you choose a tool for monitoring and evaluation, choose the one which is simple as possible. If the procedure of collecting and processing data is easy, citizens will easier decide to participate.

2- Tables and forms can significantly simplify the administration of the project. Good preparation allows you further actions without problems.

3- Participants involved in the campaign should be contacted regularly. We remained in contact with the participants in different ways (e-mail, newsletter, phone calls, …). We also thanked them for their participation, and also reminded them of their obligations (engagements).

6 – APPENDICES

- Evaluation tool (or screenshots if available online)
- Documents given to each category during the campaign
- Etc.

List of engagements

Engage form (image rights, front side)

Misli zeleno za bolje sutra

Grad Ivanić-Grad | www.ivanic-grad.hr

OBVEZUJEM SE GASITI SVE UREĐAJE KADA IH NE KORISTIM

IEE ENGAGE

IZJAVA O SUGLASNOSTI

U svrhu IEE ENGAGE projekta kojeg je Grad Ivanić-Grad član, a koji promiče povećanje svijesti ljudi prema energetskoj učinkovitosti i obnovljivim izvorima energije kroz promotivne aktivnosti i u misiji Grada Ivanić-Grada "Misli zeleno za bolje sutra" dolje navedeni daje sljedeće izjave.

Misli zeleno za bolje sutra.

Misli zeleno za bolje sutra.

[X] Pristajem pod punom odgovornošću da se moja slika i izjava koriste u PR kampanji u svrhu promocije IEE ENGAGE projekta u Ivanić-Gradu i na world wide webu.

[ ] Ne pristajem na gore navedenu izjavu.

[X] Pristajem pod punom odgovornošću da se prati potrošnja u mojem kućanstvu. Pristajem pratiti potrošnju ispunjavanjem Priloga I.

[ ] Ne pristajem na gore navedenu izjavu.

[X] Pristajem da mi Grad Ivanić-Grad šalje obavijesti u digitalnom obliku o svojem sudjelovanju u IEE ENGAGE projektu.

[ ] Ne pristajem na gore navedenu izjavu.

Podaci o davatelju izjave:
IME I PREZIME: HRVOJE STRAŠEK
ADRESA: RUDARSKA 10, IVANIĆ-GRAD
E-MAIL: hrvoje.s@ivanic-grad.hr
KONTAKT BROJ: 099/2831-362

Podaci o maloljetnom članu obitelji, a za kojeg također vrijede dane izjave:
IME I PREZIME:
DATUM RODENJA:
ADRESA:
KONTAKT BROJ:

Podaci o maloljetnom članu obitelji, a za kojeg također vrijede dane izjave:
IME I PREZIME:
DATUM RODENJA:
ADRESA:
KONTAKT BROJ:

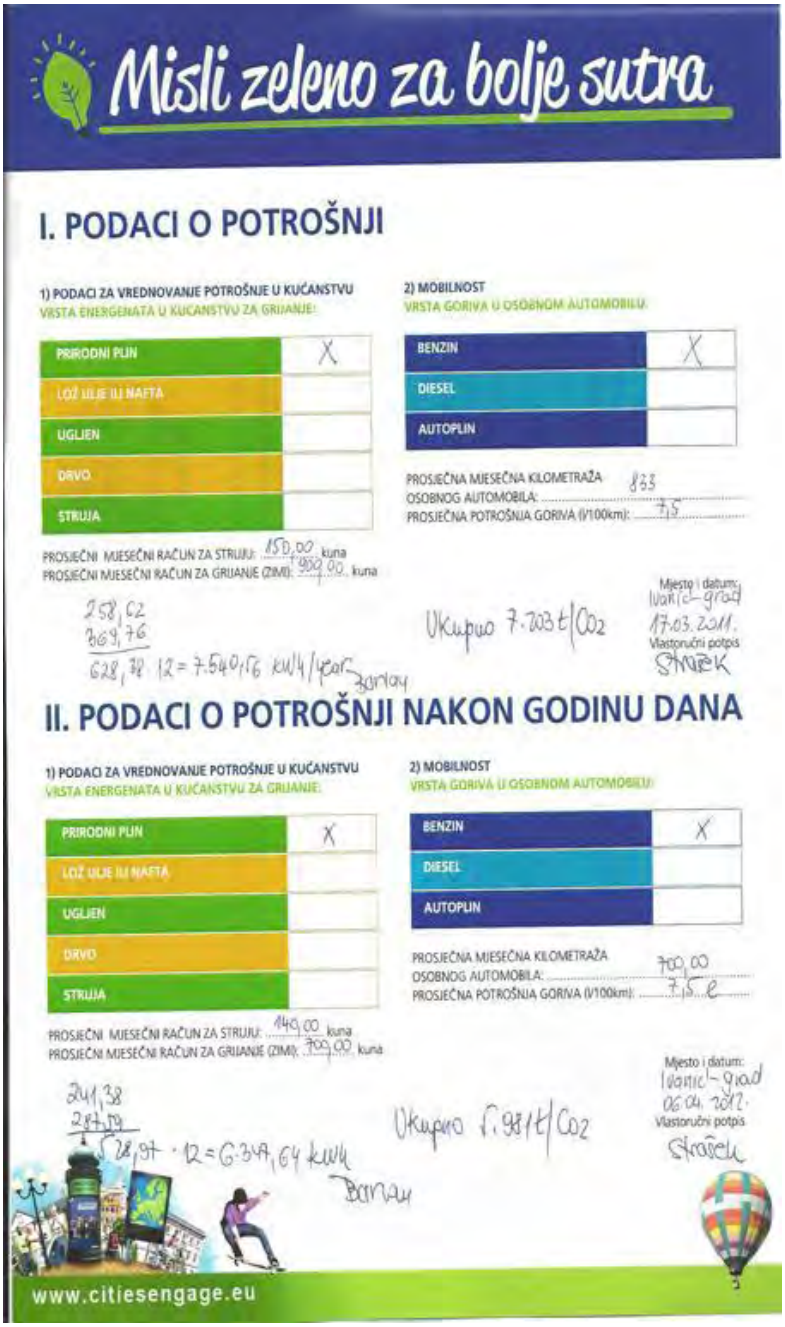
Podaci o maloljetnom članu obitelji, a za kojeg također vrijede dane izjave:
IME I PREZIME:
DATUM RODENJA:
ADRESA:
KONTAKT BROJ:

U Ivanić-Gradu, dana 17.03. 2011.

Vlastoručni potpis: Strašek

www.citiesengage.eu

Engage form (energy consumption, back side)



Misli zeleno za bolje sutra

I. PODACI O POTROŠNJI

1) PODACI ZA VREDNOVANJE POTROŠNJE U KUĆANSTVU
VRSTA ENERGENATA U KUĆANSTVU ZA GRIJANJE:

PRIRODNI PLIN	X
LOŽ ULJE ILI NAFTA	
UGLJEN	
DRVO	
STRUJA	

PROSJEČNI MJESEČNI RAČUN ZA STRUJU: 150,00 kuna
PROSJEČNI MJESEČNI RAČUN ZA GRIJANJE (ZIMI): 900,00 kuna

258,62
369,76
628,38 · 12 = 7.540,56 kuna/god

2) MOBILNOST
VRSTA GORIVA U OSOBNOM AUTOMOBILU:

BENZIN	X
DIESEL	
AUTOPLIN	

PROSJEČNA MJESEČNA KILOMETRAŽA OSOBNOG AUTOMOBILA: 833
PROSJEČNA POTROŠNJA GORIVA (l/100km): 7,5

Ukupno 7.203 t/CO2

Mjesto i datum: Ivanić-grad 17.03.2011.
Vlastoručni potpis: Stražeč

II. PODACI O POTROŠNJI NAKON GODINU DANA

1) PODACI ZA VREDNOVANJE POTROŠNJE U KUĆANSTVU
VRSTA ENERGENATA U KUĆANSTVU ZA GRIJANJE:

PRIRODNI PLIN	X
LOŽ ULJE ILI NAFTA	
UGLJEN	
DRVO	
STRUJA	

PROSJEČNI MJESEČNI RAČUN ZA STRUJU: 140,00 kuna
PROSJEČNI MJESEČNI RAČUN ZA GRIJANJE (ZIMI): 700,00 kuna

241,38
287,79
528,97 · 12 = 6.347,64 kuna

2) MOBILNOST
VRSTA GORIVA U OSOBNOM AUTOMOBILU:

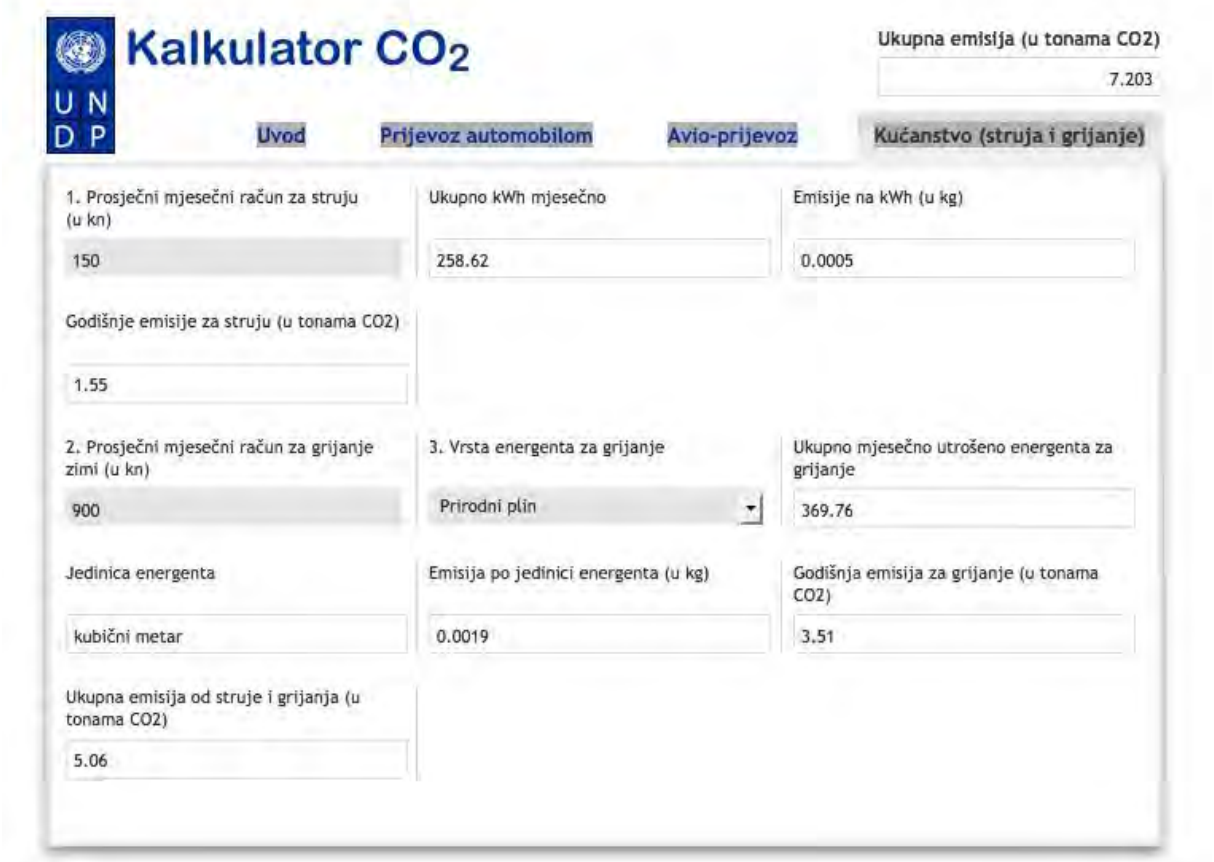
BENZIN	X
DIESEL	
AUTOPLIN	

PROSJEČNA MJESEČNA KILOMETRAŽA OSOBNOG AUTOMOBILA: 700,00
PROSJEČNA POTROŠNJA GORIVA (l/100km): 7,5 l

Ukupno 7.981 t/CO2

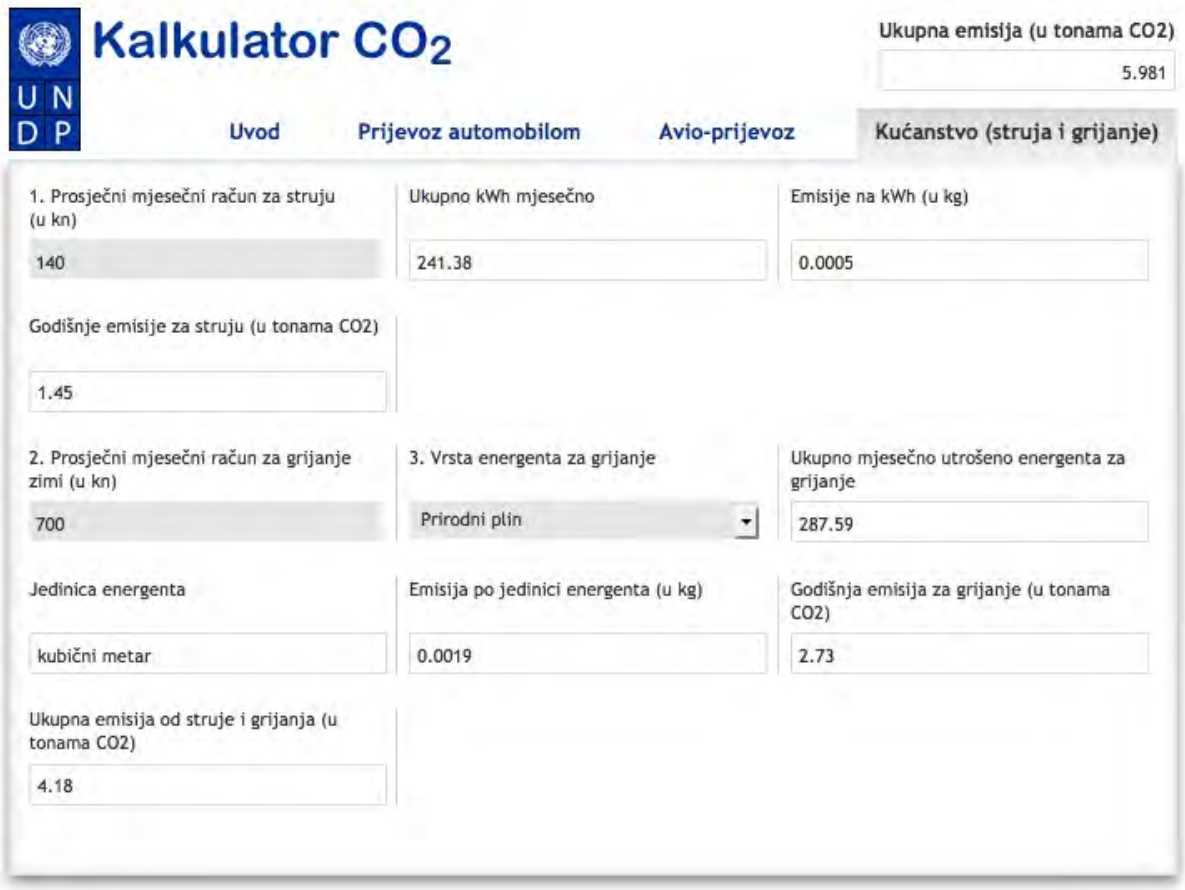
Mjesto i datum: Ivanić-grad 06.04.2012.
Vlastoručni potpis: Stražeč

www.citiesengage.eu



Calculation tool: UNDP CO2 calculator for citizens (household)

Calculation tool: UNDP CO2 calculator for citizens (mobility)



The sole responsibility for the content of this document lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the EACI nor the European Commission are responsible for any use that may be made of the information contained therein.