



**Capacity building and lessons to be learned for the institutionalization of sustainable energy policies in the municipalities' operations**

Intelligent Energy Europe (IEE)

IEE/11/964/SI2.615949

**Set of updated performance indicators**

*D6.1 Paper*

This paper is composed within Work Package 6

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## Preface

This paper is prepared within the framework of **GREEN TWINNING** project (IEE/11/964/SI2.615949), supported by Intelligent Energy Europe.

Green Twinning aims at strengthening the capacity of public authorities in institutionalising sustainable energy policies into their operations. This will be accomplished through direct exchange of experience, peer-to-peer and twinning approaches between local authorities from Spain that are experienced in the sector and learning ones from the EU-27. “Learning from each other – working together & avoiding repetition of past errors” is the project concept.

The project promotes permanent long-term partnerships and networking between “experienced” and “learning” local authorities towards achieving commonly agreed results in joint project implementation process.

The project will be carried out by a consortium gathering associations/networks of local authorities and consulting firms from Romania, Bulgaria, Slovenia, Greece, Poland and Spain.

## Project Partners

N°	Participant name	Short name	Country
CO1	Regional Union of Municipalities of Attica	PEDA	Greece
CB2	Exergia Energy and Environment Consultants S.A.	EXERGIA S.A.	Greece
CB3	Sofia Energy Centre	SEC	Bulgaria
CB4	Association of Rhodope Municipalities	ARM	Bulgaria
CB5	Polish Network "Energie Cités"	PNEC	Poland
CB6	Municipality of Giurgiu	Giurgiu	Romania
CB7	Building and Civil Engineering	ZRMK	Slovenia
CB8	Energy Agency of La Ribera	AER	Spain
CB9	Municipality of Vrhnika	Vrhnika	Slovenia
CB10	Harghita Energy Management Public Service	HEMPS	Romania



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## 1 INTRODUCTION

The paper “updated performance indicators” is a document included in WP6 “EACI dissemination activities”.

The aim of this paper is to inform EACI on the energy - related impact of GREEN TWINNING project within its duration (2012-2014) and until 2020 by using a set of IEE common performance indicators.

IEE performance indicators are common for all IEE funded projects and demonstrate the contribution of each action to the EU energy targets. These indicators are the following:

- cumulative investment made by European Stakeholders in sustainable energy (measurement unit EUR)
- renewable energy production triggered (measurement unit toe/year)
- primary energy savings compared to projections (measurement unit toe/year)
- reduction of greenhouse gas emissions triggered (measurement unit tCO<sub>2</sub>e/year)

During the proposal phase of GREEN TWINNING, the following values for the IEE common performance indicators were estimated:

Specific and strategic objective	Target within the action duration:	Target by 2020:
Contribution to the EU 2020 targets on energy efficiency and renewable energy sources	<ul style="list-style-type: none"> <li>▪ 5 M€ Cumulative investment made by European Stakeholders in sustainable energy</li> </ul>	<ul style="list-style-type: none"> <li>▪ 250 M€ Cumulative investment made by European Stakeholders in sustainable energy</li> </ul>
	<ul style="list-style-type: none"> <li>▪ 60 Renewable Energy production triggered (toe/year)</li> </ul>	<ul style="list-style-type: none"> <li>▪ 3000 Renewable Energy production triggered (toe/year)</li> </ul>
	<ul style="list-style-type: none"> <li>▪ 1000 Primary energy savings compared to projections (toe/year)</li> </ul>	<ul style="list-style-type: none"> <li>▪ 5000 Primary energy savings compared to projections (toe/year)</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Reduction of greenhouse gas emissions (t CO<sub>2</sub>e/year)</li> </ul>	<ul style="list-style-type: none"> <li>▪ ~ 30000 Reduction of greenhouse gas emissions (t CO<sub>2</sub>e/year)</li> </ul>

Table 1.1: Initial common performance indicators

Throughout the project duration and after EACI request, common performance indicators will be reexamined and updated.

In this stage of the project, IEE common performance indicators will be built up from the main quantitative project outcomes along with an estimation of the knock-on effect. Moreover, in

order to monitor the achieved outcomes and the contribution of each participating country to them, individual project indicators are set.

## 2 UPDATED IEE COMMON PERFORMANCE INDICATORS

Green Twinning project will contribute to the EU energy targets mainly by assisting: i) 15 participating municipalities to develop and submit for approval their SEAPs and ii) 16 SEAP actions to be prepared for investment financing.

These are the two project outcomes that will be taken into consideration for the estimation of the 4 common performance indicators.

It is estimated that by 2014 (end of the project), the following municipalities will have submitted their SEAPs for approval.

	COUNTRY	MUNICIPALITY	baseline CO <sub>2</sub> emissions (tCO <sub>2</sub> )	reduction of CO <sub>2</sub> emissions until 2020 (tCO <sub>2</sub> )
1	Greece	Paiania	486.000	98.415
2	Greece	Agios Dimitrios	352.831	73.920
3	Greece	Agioi Anargiroi	1.075.440	220.596
4	Romania	Mierurea Ciuc	355.493	71.098
5	Slovenia	Vrhnika	17.770	3.554
6	Slovenia	Kamnik	36.267	7.253
7	Slovenia	Kočevje	23.650	4.730
8	Poland	Kościerzyna	153.817	42.399

*Table 2.1: SEAPs submitted for approval by 2014*

Except the above municipalities, 7 more municipalities are foreseen to submit their SEAPs for approval by 2014. As these 7 municipalities are in foundational level of SEAP development (data collection), there are no available data or estimations regarding the baseline CO<sub>2</sub> emissions or the reduction of CO<sub>2</sub> emissions until 2020. Therefore, for the municipalities that there are no available data, it is assumed that the baseline CO<sub>2</sub> emissions are 312.659 tCO<sub>2</sub> /municipality (average of available data) and the reduction of CO<sub>2</sub> emissions achieved by 2020 will be 65.246 tCO<sub>2</sub>/municipality (average of available data).

#### Estimation of the total reduction of CO<sub>2</sub> emissions by 2014 and 2020

By 2020, Green Twinning project will result in the reduction of greenhouse gas emissions (CO<sub>2</sub> emissions) by:

- assisting in the development and implementation of 15 SEAPs;
- assisting 16 SEAP actions to be implemented.

Assuming, by so far experience, that each SEAP contains approximately 30 actions, it can be estimated that:

- the implementation of 15 SEAPs will result in the reduction of 978.684 tCO<sub>2</sub> emissions by 2020;
- the implementation of 16 SEAP actions will result in the reduction of 34.798 tCO<sub>2</sub> emissions by 2020.

According to the above computations, the total CO<sub>2</sub> reduction achieved by 2020 will be 1.013.482 tCO<sub>2</sub>e/year.

By 2014, Green Twinning project will result in the reduction of greenhouse gas emissions (CO<sub>2</sub> emissions) by:

- assisting 16 SEAP actions to be prepared for investment financing

Assuming that, although by the end of the project duration 16 SEAP actions will be prepared for investment financing, only 8 actions will have been accomplished, the CO<sub>2</sub> reduction achieved by 2014 will be 17.399 tCO<sub>2</sub>e/year.

#### Estimation of the renewable energy production and primary energy savings indicators

For the estimation of the renewable energy production indicator and primary energy savings indicator, the total reduction of CO<sub>2</sub> emissions (tCO<sub>2</sub>e/year) is translated to tonnes of oil equivalent per year (toe/year). By using the standard European emission factor 0,46 tCO<sub>2</sub>/MWh<sup>[1]</sup> and the conversion factor 0,086 toe/MWh, reductions of emissions are translated to 189.477 toe/year (by 2020) and 3.253 toe/year (by 2014).

Assuming that 20% of the aforementioned reductions derived from renewable energy production, while the rest 80% derived from primary energy savings, the following values were estimated.



	Target by 2014	Target by 2020
Renewable energy production triggered (toe/year)	651	37.895
Primary energy savings compared to projections (toe/year)	2.602	151.582

Table 2.2: Estimated values for renewable energy production and primary energy savings by 2014 and 2020

### Estimation of the cumulative investment made by European Stakeholders in sustainable energy

Considering a minimum investment cost of 650.000 € per implemented action, it is estimated that 10.400.000€ will be invested for the implementation of 16 SEAP actions by 2020. Moreover, the 15 municipalities that will submit their SEAPs for approval by the end of project duration, will also achieve the target set by 2020 and will implement all SEAP actions. According to the aforementioned, it is assumed that each SEAP includes 30 actions with a minimum investment cost of 650.000 € per implemented action. Therefore, the total investment cost by 2020, for the implementation of 466 actions, will be 302.900.000€.

Regarding the target set by 2014, it is assumed that although by the end of the project duration 16 SEAP actions will be prepared for investment financing, only 8 will have been accomplished. Consequently, 5.200.000 € will be invested for the implementation of 8 SEAP actions.

According to all the above assumptions and computations, the following values for the updated common performance indicators were estimated.

Specific and strategic objective	Target within the action duration:	Target by 2020:
Contribution to the EU 2020 targets on energy efficiency and renewable energy sources	<ul style="list-style-type: none"> <li>5,2 M€ Cumulative investment made by European Stakeholders in sustainable energy</li> </ul>	<ul style="list-style-type: none"> <li>302 M€ Cumulative investment made by European Stakeholders in sustainable energy</li> </ul>
	<ul style="list-style-type: none"> <li>651 Renewable Energy production triggered (toe/year)</li> </ul>	<ul style="list-style-type: none"> <li>37.895 Renewable Energy production triggered (toe/year)</li> </ul>
	<ul style="list-style-type: none"> <li>2.602 Primary energy savings compared to projections (toe/year)</li> </ul>	<ul style="list-style-type: none"> <li>151.582 Primary energy savings compared to projections (toe/year)</li> </ul>
	<ul style="list-style-type: none"> <li>17.339 Reduction of greenhouse gas emissions (t CO<sub>2</sub>e/year)</li> </ul>	<ul style="list-style-type: none"> <li>1.013.482 Reduction of greenhouse gas emissions (t CO<sub>2</sub>e/year)</li> </ul>

Table 2.3: Updated IEE common performance indicators

### 3 INDIVIDUAL PROJECT INDICATORS

To monitor the achieved outcomes within the project duration and at the same time, to update and describe the IEE common performance indicators, a table with the main quantitative project outcomes was created by the co-coordinator and completed by all partners.

At the initiation stages of the project (June 2012), individual project indicators are estimated.

	GREECE	BULGARIA	ROMANIA	POLAND	SLOVENIA	SPAIN	TOTAL
▪ 15 SEAPs submitted for approval under the CoM	3	3	2	3	3	-	<b>14</b>
▪ 16 SEAP actions prepared for investment financing	2	3	2	3	2	-	<b>12</b>
▪ 40 local authorities personnel trained in SEAP development and in implementation	8	8	8	8	8	-	<b>40</b>
▪ 10 obligatory twinning agreements	2	2	2	2	2	10	<b>10</b>
▪ 10 voluntary twinning agreements	2	2	-	2	-	10	<b>6</b>
▪ 20 local authorities supported through helpdesk	4	4	3	4	4	-	<b>19</b>
▪ 50 new CoM signatories	8	10	2	10	5	-	<b>35</b>
▪ 50 local authorities being involved in the awareness raising events	8	10	3	10	2	-	<b>33</b>
▪ 5 countries participating in the awareness raising events	1	1	1	1	1	-	<b>5</b>

*Table 3.1: Quantitative contribution of each participating country to the main project outcomes within the project duration*

During the project duration, individual project indicators will be updated according to the quantitative contribution of each participating country, to the main project outcomes.

#### References:

[1] Technical annex to the SEAP template instructions document: The emission factors.  
[Online]  
Available at: [http://www.eumayors.eu/IMG/pdf/technical\\_annex\\_en.pdf](http://www.eumayors.eu/IMG/pdf/technical_annex_en.pdf)

[2] International Energy Agency, Unit converter. [Online]  
Available at: <http://www.iea.org/stats/unit.asp>