

## JRC TECHNICAL REPORT

# How to avoid typical mistakes in Sustainable Energy Action Plans (SEAPs)

*Annex to the Guidebook "How to develop a Sustainable Energy Action Plan in the Eastern Partnership and Central Asian Cities"*

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2014

**My Sustainable Energy Action Plan**

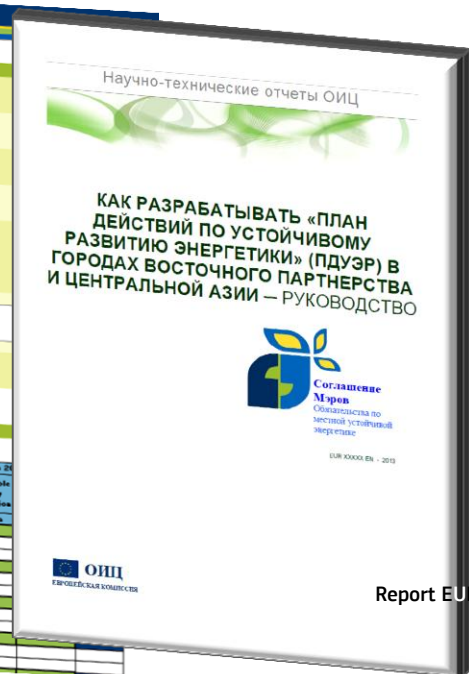
Sustainable Energy Action Plan

- Title: \_\_\_\_\_
- Date of formal approval: \_\_\_\_\_
- Decision body approving the plan: \_\_\_\_\_
- SEAP webpage: \_\_\_\_\_
- Business-as-Usual projections by 2020 (if applicable)
 

CO <sub>2</sub> emissions	_____ tCO <sub>2</sub> e/yr
Final energy consumption	_____ MWh/yr
Coefficient applied for BAU*	_____
- Methodological notes: \_\_\_\_\_
- Estimator of the impacts of actions in 2020 in relation to:  EIE (option 1)

Key Actions of the SEAP

Key Actions	Area of intervention	Policy instrument	Title of the action	Responsible body	Implementation timeframe		Estimated implementation cost	Estimator in 2020	
					Start	End		Energy savings	Renewable energy production
								MWh/yr	MWh/yr
<b>MUNICIPAL BUILDINGS, EQUIPMENT/FACILITIES</b>									
<i>Estimated reduction not associated with any reported actions</i>									
<b>TERTIARY BUILDINGS, EQUIPMENT/FACILITIES</b>									
<i>Estimated reduction not associated with any reported actions</i>									
<b>RESIDENTIAL BUILDINGS</b>									
<i>Estimated reduction not associated with any reported actions</i>									
<b>PUBLIC LIGHTING</b>									
<i>Estimated reduction not associated with any reported actions</i>									



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**Abstract**

This document aims to collect the most common mistakes from Sustainable Energy Action Plans (SEAPs) submitted by local authorities of Eastern Partnership and Central Asian cities and analysed so far by the JRC. The mistakes can refer to methodological issues as well as to the way the information is presented in the SEAP document and/or in the online SEAP submission templates. Furthermore, this document also provides recommendations on how to avoid these most common mistakes, describing relevant examples of good and bad practices. Focusing on these recommendations will increase the possibilities for a SEAP to be accepted by the JRC (without a need for revision by the signatory) Additionally, it will also help signatories to develop a good document, which will be well understood by different stakeholders (technical officers, citizens) and, at the same time, it will lead the way to the successful implementation of the SEAP

## **INTRODUCTION**

This document aims to collect the most common mistakes from Sustainable Energy Action Plans (SEAPs) submitted by local authorities of Eastern Partnership and Central Asian cities in the framework of the Covenant of Mayors (CoM) initiative and analysed so far by the JRC. The mistakes can refer to methodological issues as well as to the way the information is presented in the SEAP document and/or in the online SEAP submission templates. Furthermore, this document also provides recommendations on how to avoid these most common mistakes, describing relevant examples of good and bad practices. Focusing on these recommendations will increase the possibilities for a SEAP to be accepted by the JRC (without a need for revision by the signatory) Additionally, it will also help signatories to develop a good document, fully in line with the Covenant methodology and comparable with SEAPs of other signatories across the region and beyond. Finally, SEAPs will have increased chances to be well understood by different stakeholders (technical officers, citizens, private investors) and, at the same time, to be successfully implemented.

A detailed description of the key principles that should be kept in mind when preparing a SEAP can be found in the guidebook "How to develop the Sustainable Energy Action Plan (SEAP) in the Eastern Partnership and Central Asian Cities"<sup>1</sup>.



## **CONTENT**

1. General mistakes related to the SEAP document and online SEAP submission template
2. Mistakes related to setting up a CO<sub>2</sub> emission reduction target
3. Typical mistakes in Baseline Emission Inventory
4. Typical mistakes when describing Actions and Measures

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<sup>1</sup> The Guidebook can be found at: <http://iet.jrc.ec.europa.eu/energyefficiency/covenant-mayors/com-east>

## 1. GENERAL MISTAKES

 <b>Typical mistake</b>	 <b>Recommendation</b>
<ul style="list-style-type: none"> <li>✓ Data in the online SEAP template are inconsistent with SEAP document.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Since the SEAP template does not undergo council approval, it is essential that it accurately reflects the content of the officially approved document. It is advisable to include a SEAP template (or a table summarising the SEAP key elements, such as the target, the BEI and the list of actions) in the SEAP document. This will allow a straightforward understanding of the coherence between SEAP document and template.</li> </ul>

Example



How to correct

*Extract from SEAP document:  
" Energy consumption for solid fossil fuels is reported in SEAP document ..."*

*From the template:  
No energy consumption for solid fossil fuels*

-> Either correct the text in SEAP document  
-> Or add energy consumption for solid fossil fuels in the online SEAP submission template

## 2. CO2 REDUCTION TARGET

 <b>Typical mistake</b>	 <b>Recommendation</b>
<ul style="list-style-type: none"> <li>✓ Lack of clarity regarding the target, e.g. difference between the declared commitment (e.g. 24%) and the estimated impact of the actions (e.g. 20%).</li> </ul>	<ul style="list-style-type: none"> <li>✓ Make sure that the target is based on the estimated impact of the actions.</li> </ul>

Example



How to correct

*Extract from SEAP document:  
"City commits to at 24% reduction target..."*

*From the template:  
The sum of foreseen CO2 emissions reduction when compared to emissions reported in BEI gives CO2 emission reduction of 20%<sup>2</sup>*

-> Either correct the text in SEAP document  
-> Or add measures to reach 24% reduction target

<sup>2</sup> This is relevant to "absolute" emission reduction target, more information in the Guidebook at: <http://iet.jrc.ec.europa.eu/energyefficiency/covenant-mayors/com-east>

 <b>Typical mistake</b>	 <b>Recommendation</b>
✓ Incorrect calculation of per capita reduction target.	✓ Calculate the per capita reduction needed based on BEI result and multiply it by the estimated population in 2020



Example of calculations "per capita target" assuming 3.33% increase of population in 2020

The total amount of CO <sub>2</sub> emission reported in the Baseline Emission Inventory (BEI), expressed in t/year	CO <sub>2</sub> <sub>BEI</sub>	60 000 t CO <sub>2</sub>
The number of inhabitants of the baseline year	NI <sub>BEI</sub>	15 000
Per capita CO <sub>2</sub> emission in the baseline year	CO <sub>2</sub> <sub>Per capita BEI</sub> = CO <sub>2</sub> <sub>BEI</sub> / NI <sub>BEI</sub>	4 t CO <sub>2</sub> /p
Target of CO <sub>2</sub> reduction for the year 2020	%T	20%
Per capita emission target: <b>CO<sub>2</sub><sub>Per capita 2020</sub></b>	CO <sub>2</sub> <sub>Per capita 2020</sub> = (1-%T)* CO <sub>2</sub> <sub>per capita BEI</sub>	3.2 t CO <sub>2</sub> /p
The total amount of CO <sub>2</sub> emission in 2020: <b>CO<sub>2</sub><sub>2020</sub></b>	CO <sub>2</sub> <sub>2020</sub> = CO <sub>2</sub> <sub>Per capita 2020</sub> * NI <sub>2020</sub>	49 600 tCO <sub>2</sub>
The total amount of CO <sub>2</sub> emission in 2020 (scenario without SEAP and with an expected increase in population) <b>CO<sub>2</sub><sub>2020</sub> BAU</b>	CO <sub>2</sub> <sub>2020_BAU</sub> = CO <sub>2</sub> <sub>Per capita BEI</sub> * NI <sub>2020</sub>	62 000 t CO <sub>2</sub>
The total CO <sub>2</sub> reduction needed in 2020: <b>ΔCO<sub>2</sub></b> [t/year]	ΔCO <sub>2</sub> = CO <sub>2</sub> <sub>2020_BAU</sub> - CO <sub>2</sub> <sub>2020</sub>	12 400 t CO <sub>2</sub>

Example is taken from<sup>3</sup> .

<sup>3</sup> *Technical Annex to the Guidebook "How to develop a sustainable Energy Action Plan" available at <http://iet.jrc.ec.europa.eu/energyefficiency/covenant-mayors/com-east>*

### 3. BASELINE EMISSION INVENTORY


 <b>Typical mistake</b>	 <b>Recommendation</b>
<ul style="list-style-type: none"> <li>✓ Emission factor for most common fuels differ a lot from the values indicated in the guidebook "How to develop the Sustainable Energy Action Plan (SEAP) in the Eastern Partnership and Central Asian Cities"<sup>4</sup>.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Emission factors for fuels reported in the guidebook<sup>4</sup> should be used. Other values can also be used from well-recognized sources, which should be specified in the SEAP document and in the field "5) Methodological notes" in the BEI section of the template.</li> </ul>
<ul style="list-style-type: none"> <li>✓ Emission factor for electricity is selected as average value of EU countries.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Emission factors reported in the guidebook should be used. National Emission factors should be assumed constant through the years. Generally softwares for BEI calculation allow to edit the EFs.</li> </ul>

Example: values in the fields marked with  should be taken from the guidebook (or reference should be provided)

**C. CO2 emissions**

**C1. Please insert the CO2 emission factors adopted [t/MWh]:**

If you would like to use default emission factors, please select them from the drop-down menus.



 Please note that for separating decimals dot [.] is used. No thousand separators are allowed.

National electricity	Local electricity	Heat/Cold	Fossil fuel						
			Natural gas	Liquid gas	Heating oil	Diesel	Gasoline	Lignite	Coal
Select	Select	Select	Select	Select	Select	Select	Select	Select	Select
0.46	0.400	0.288	0.200	0.23	0.267	0.24			

**C2. Please tick the box in case non-energy related sectors are included:**



[Generate emission table](#)

<sup>4</sup> The Guidebook can be found at: <http://iet.jrc.ec.europa.eu/energyefficiency/covenant-mayors/com-east>



 <b>Typical mistake</b>	 <b>Recommendation</b>
<ul style="list-style-type: none"> <li>✓ Heat consumption is not reported in tables A and D although measures are planned for district heating (for example renovation of district heating pipelines).</li> </ul>	<ul style="list-style-type: none"> <li>✓ Collect information on heat consumption for buildings and on heat production (i.e., from the heat supplier on the plant producing heat and cold, in order to obtain the correct emission factor, and provide it in the corresponding table).</li> </ul>
<ul style="list-style-type: none"> <li>✓ Heat consumption is reported in table A, but its production is not reported in table D.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Collect information from the heat/cold supplier on the plant producing heat /cold, in order to obtain the correct emission factor, and provide it in the corresponding table. Please find more information in the Chapter 4 of the Part II of the Guidebook.</li> </ul>
<ul style="list-style-type: none"> <li>✓ When a district heating system is included in Baseline Emission Inventory, combined heat and power production (from CHP) is reported as a unit only producing heat (i.e., boiler)</li> </ul>	<ul style="list-style-type: none"> <li>✓ Combined heat and power production (from CHP) is present on the territory of municipality, heat and electricity production should be reported separately (in Tables D and C respectively). Please note that electricity production should be reported if it meets the criteria described in the Chapter 3.4.2 of the Part II of the Guidebook.</li> </ul>
<ul style="list-style-type: none"> <li>✓ The data collection and elaboration process is not well documented. Risk that future MEIs are not fully consistent with the BEI.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Make sure that the data collection process is well documented (if not in the SEAP, at least in the records of the municipality) to ensure that all future inventories are carried out based on the same approach.</li> <li>✓ Clearly describe the data collection and elaboration process to obtain the BEI (if not in the SEAP, at least in an annex).</li> </ul>



#### 4. ACTIONS AND MEASURES

 <b>Typical issues and mistakes</b>	 <b>Recommendation</b>
<ul style="list-style-type: none"> <li>✓ SEAP template filled-in in national language</li> </ul>	<ul style="list-style-type: none"> <li>✓ SEAP template should always be filled-in in English or Russian.</li> </ul>
<ul style="list-style-type: none"> <li>✓ Costs of measures are reported in local currency</li> </ul>	<ul style="list-style-type: none"> <li>✓ Costs of measures should be reported in EUR</li> </ul>
<ul style="list-style-type: none"> <li>✓ CO2 emission reduction and energy saving are not specified for the technical measures where guidelines are available:               <ul style="list-style-type: none"> <li>- <i>building renovation</i></li> <li>- <i>public lighting renovation</i></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>✓ Specify energy saving and CO2 emission reduction for the technical measures according to the methods provided in the <sup>5</sup></li> </ul>
<ul style="list-style-type: none"> <li>✓ Vague description of measures, for example:               <ul style="list-style-type: none"> <li>- <i>Action: Energy requalification</i></li> <li>- <i>Action: Energy efficiency in buildings</i></li> <li>- <i>Action: Refurbishment of municipal buildings.</i></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>✓ Be specific, provide quantitative information on the measures you are going to implement and on the type of intervention you want to promote. This will allow you to easily monitor the progress of each action. Examples:               <ul style="list-style-type: none"> <li>- <i>Incentives for building envelope retrofitting</i></li> <li>- <i>Aim to retrofit 10000 m2 of residential buildings</i></li> <li>- <i>Construction of 5km of cycling lanes.</i></li> </ul> </li> </ul>

<sup>5</sup> Technical Annex to the Guidebook "How to develop a sustainable Energy Action Plan" available at <http://iet.jrc.ec.europa.eu/energyefficiency/covenant-mayors/com-east>

 <b>Typical mistake</b>	 <b>Recommendation</b>
<ul style="list-style-type: none"> <li>✓ Measures that have different areas of intervention are presented as one measure. Examples:               <ul style="list-style-type: none"> <li>- <i>Action 1: Incentives for the refurbishment of residential buildings and increase of parks, gardens and green space in urban areas.</i></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>✓ Specify measures according to the area of intervention as this will help to monitor the progress of each action. Examples:               <ul style="list-style-type: none"> <li>- <i>Action 1: Incentives for building envelope retrofitting for residential buildings:</i></li> <li>- <i>Action 2: Incentives for urban space planning in residential sector</i></li> <li>- <i>Action 3: Incentives for urban planning of green zones</i></li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>✓ None of the actions in the SEAP are planned in details (responsibilities not assigned, costs are not assessed, possible financing sources are not well identified, progress indicators are not defined...)</li> </ul>	<ul style="list-style-type: none"> <li>✓ Make sure that at least some actions to be implemented in the short term are planned in their details. It is also mandatory to provide information in "Area of intervention" and "Policy Instrument" columns of the template, by selecting a category from the dropdown menu.</li> </ul>

Example: the fields marked with ○ should be filled

**Key Actions of the SEAP**

■ Add action    
 ✖ Delete action    
 ★☆☆ Select/edit action as Benchmark of Excellence

Please start by providing your totals by sector and add your key actions. Please complete the totals by sector under the previous Buildings, etc.

Key Actions	Area of intervention	Policy Instrument	Origin of the action	Responsible body	Implementation timeframe		Estimated implementation cost [€]	Estimates in 2020		
					Start time	End time		Energy savings [MWh/a]	Renewable energy production [MWh/a]	CO2 reduction [t CO2 /a]
<b>MUNICIPAL BUILDINGS, EQUIPMENT/FACILITIES</b>										
Action 1.1.: Insulation of the Municipal buildings: - Municipal school - 3 kindergartens					2013	2015	0	0	0	0
Action 1.2. Installation of solar panels in 3 kindergartens					2013	2015	0	0	0	0
Action 1.3. Replacement of bulbs with energy efficient ones in Municipality Council building					2013	2015	0	0	0	0
Action 1.4. Installation of Energy and climate control system					2013	2014	0	0	0	0
<b>TERTIARY BUILDINGS, EQUIPMENT/FACILITIES</b>										
<b>RESIDENTIAL BUILDINGS</b>										
Action 2.1.: Insulation in 7 blocks-of-flats					2014	2020	0	0	0	0
Action 2.2.: Replacement of bulbs with energy efficient ones					2014	2020	0	0	0	0
<b>PUBLIC LIGHTING</b>										
Action 3.1. replacement of non-efficient lamps with efficient ones					2013	2014	0	0	0	0
Action 3. 2. Modernization of the public lighting system					2013	2014	0	0	0	0
<b>INDUSTRY</b>										



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