



Template for the integrated energy plan





Table of contents

1. Introduction	2
2. Word template for the integrated energy plan	3
2.1 General information about the city/municipality/district	3
2.2 Energy-team	3
2.3 Vision	4
2.4 Strategy till 2030	4
2.5 Analysis of the initial situation	5
2.6 Description of the measures already implemented/ realized	5
2.7 Description of future measures	5
2.7.1 Energy efficiency projects with estimated savings in kWh for the process energy, heating and electricity needs of the entire city/municipality/district	5
2.7.2 Switch to renewable energies with estimated CO ₂ savings	5
2.7.3 Mobility projects with estimated savings in CO ₂ and kWh	6
2.7.4 Integrated energy planning projects	7
2.8 Communication strategy	8
2.8.1 Involving citizens and stakeholders	8
2.8.2 Involvement of companies, farmers, foresters and investors	8
2.8.3 Communication within the municipality/ local authorities	8
2.9 Budget plan	8

1. Introduction

The template should be used for the development of your integrated energy plan within MULTIPLY. The integrated transport, land-use and energy plan should include: long-term visions, concrete short-term implementation measures, realistic financial strategies and a communication strategy.

In addition to this qualitative Word document describing the vision, measures, budget and strategies, the template also consists of a second part: a quantitative template in an Excel file format. This enables the reductions in CO₂ emissions (CO₂ equivalents) and energy savings to be determined. The integrated energy plan should be continuously evaluated in the course of implementation/realization and adapted if necessary. We recommend the following steps:

Planning

The plan should contain objectives, the measures to achieve the objectives, a budget, the human resources required to implement the plan and a concrete timetable.

Realization

The cities and municipalities should implement the plan with the available human resources and budget.

Monitoring

Monitoring is essential to identify the success and obstacles to the implementation of the plan. For the monitoring, the municipalities should copy the quantitative Excel file template and enter the measures and savings actually implemented/ realized. These can then be compared with the planning version.

Evaluation

In this step, the municipalities should analyse the deviations from the plan and their causes. In doing so, they should recommend improvements, course corrections and modifications to the plan.



Figure 1: Steps of integrated energy plan

2. Word template for the integrated energy plan

2.1 General information about the city/municipality/district

At the beginning you should give the basic data of the municipality or the district. As a suggestion here is an excerpt from the EXCEL tool. If you want to enter additional data, you are welcome to do so.

Basic data of municipality and district	
Name of municipality	
Contact person in the municipal administration (Function)	
Postal address	
Mailing address	
Regional data: federal state, country	
Population of municipality (n° inhabitants)	
Optional	
Name of the district	
Population of district (n° inhabitants)	
Settlement area size of district (km ²)	

Figure 2: Extract from the EXCEL tool: General information from the municipalities

2.2 Energy-team

Name the members of the energy team for MULTIPLY. The following table gives you an overview of which persons should be in the energy team.

Energy Team	Plan preparation	
	Name	Position
Mayor		
Environmental committee representative		
Building authority representative		
Climate and Energy Officer / Manager		
Mobility Officer / Manager		
External consultant (city planner)		
External consultant (communication expert)		
Other		

Figure 3: Extract from the EXCEL-Tool: Energy-Team

The energy team should be in regular contact with the political decision-makers. It is strongly recommended that someone from the political decision-makers should join the Energy Team. This will ensure that the relevant team is well informed about ongoing projects and progress towards the objectives of the integrated energy plan. Please describe how to set up sustainable structures (e.g. regular jour fixe) for cooperation and knowledge transfer between the political actors and the technical staff of the municipality.

2.3 Long-term Vision

Please define here the long-term vision of your city/municipality/district in terms of sustainability, mobility and energy efficiency. For example: *Our long-term goal is to make our municipality CO₂-neutral by the year 2030/40/50.*

2.4 Strategy till 2030

Describe your plans for the:

- **Reduction of CO₂ emissions from 2005 to 2030.** The target is based on the specifications of the Covenant of Mayors and should represent at least a 40% reduction in CO₂ emissions from 2005 to 2030.
- **Energy savings from 2005 to 2030.** The MULTIPLY target of savings in GWh/a for all 24 committed cities:

Europe-wide target for all 24 committed cities from 6 countries		
	Reduction %	Reduction GWh/a
Heat	29	58
Electricity	27	75
Mobility	10	44
Total		177

The calculation from the EXCEL tool (Figs. 4 and 5) serves as proof. When entering data in the EXCEL tool, all you have to do is enter the population data in the orange boxes. The rest of the cells are automatically filled in with the information from the data in the next sections.

Reduction of the municipality's (district's) CO₂ emissions from 2005 to 2030

CO ₂ Emission targets (t CO ₂ /a)	CO ₂ Emission base year (free to choose, we suggest 2005) CO ₂ emissions in t/a	CO ₂ Emission Project start 2019 CO ₂ emissions in t/a	CO ₂ Emission Target year 2022 CO ₂ emissions in t/a	CO ₂ Emission Target year 2025 CO ₂ emissions in t/a	CO ₂ Emission Target year 2030 CO ₂ emissions in t/a	CO ₂ Emission Target (SECAP: 40% savings from 2005 to 2030) CO ₂ emissions in t/a
Population (n° of inhabitants)						0
CO ₂ Buildings, equip./fac. & ind. Heating	0	0	0	0	0	
CO ₂ Buildings, equip./fac. & ind. Electricity	0	0	0	0	0	
Total CO ₂ Buildings, equip./fac. & ind. Heating + Electricity	0	0	0	0	0	
CO ₂ Mobility	0	0	0	0	0	
Total CO ₂ emissions in t/a	0	0	0	0	0	0
CO ₂ t/a per person	0,00	0,00	0,00	0,00	0,00	0,00
CO ₂ reduction % t/a per person since 2005		0	0	0	0	40

Figure 4: Reduction of CO₂ emissions from the EXCEL tool from 2005 to 2030

Energy savings of the municipality (district) from 2005 to 2030

Energy consumption targets (kWh/a)	Energy consumption base year 2005 kWh/a	Energy consumption Project start 2019 kWh/a	Energy consumption target year 2022 kWh/a	Energy consumption target year 2025 kWh/a	Energy consumption target year 2030 kWh/a	Energy saving from 2005 to 2030 kWh/a	Energy saving in % from base year 2005 to 2030	Target energy saving MULTIPLY grant agreement in kWh/a from base year 2005 to 2030	Target energy saving MULTIPLY grant agreement in % from base year 2005 to 2030
Population (n° of inhabitants)	0	0	0	0	0	0			
kWh/a Buildings, equip./fac. & ind. Heating	0	0	0	0	0	0	0	0	28
kWh/a Buildings, equip./fac. & ind. Electricity	0	0	0	0	0	0	0	0	27
kWh/a Buildings, equip./fac. & ind. Heating + Electricity	0	0	0	0	0	0	0	0	
kWh/a Mobility	0	0	0	0	0	0	0	0	10
Energy consumption Total kWh/a	0	0	0	0	0	0			
Energy consumption in kWh/a per person	0,00	0,00	0,00	0,00	0,00	0,00			
Reduction in % since 2005		0	0	0	0				

Figure 5: Energy savings from 2005 to 2030 from the EXCEL tool

2.5 Analysis of the initial situation

Describe what your city/municipality/district needs to achieve the objectives (e.g. potential for wind energy, biomass; public transport connections, settlement structure, industry/jobs, etc.).

2.6 Description of the measures already implemented/ realized

Describe the measures implemented/ realized in the municipality during the period 2005-2019.

Also mention measures that are in progress.

2.7 Description of future measures

Here you should describe concrete and realistic implementation measures in detail. You can use the diagrams of the EXCEL tool to illustrate the CO₂ emission and energy savings.

2.7.1 Energy efficiency projects with estimated savings in kWh for the process energy, heating and electricity needs of the entire city/municipality/district

Describe here your energy saving and energy efficiency measures, the incentives for implementation and the timelines. The EXCEL tool is used to calculate the savings, the results of which can then be transferred to the WORD concept. such as Fig. 6.

Public buildings. equipment/facilities Heating consumption	Heating consumption Base year 2005 kWh/a	Heating consumption 2019 kWh/a	Reduction in % from Base year until 2022	Heating consumption Target year 2022 kWh/a	Reduction in % from Base year until 2025	Heating consumption Target year 2025 kWh/a	Reduction in % from Base year until 2030	Heating consumption Target year 2030 kWh/a
Hospital				0		0		0
Kindergarten				0		0		0
School				0		0		0
Church (optional)				0		0		0
Municipal Office (with event hall)				0		0		0
Public swimming pool				0		0		0
	0	0		0		0		0

Figure 6: Final energy demand for public buildings and public facilities

2.7.2 Switch to renewable energies with estimated CO₂ savings

The basis for this is the recording of energy consumption within the municipality or district with the EXCEL tool. There you should enter the heating and electricity demand from the three sectors. This energy consumption is then distributed to the different energy sources in the

tool. Over the years until 2030 the share of renewable energy should increase steadily. The improvements identified in the tool can be copied into the Word document to document the planning. Based on this, the future measures, incentives for implementation and timelines should be described.

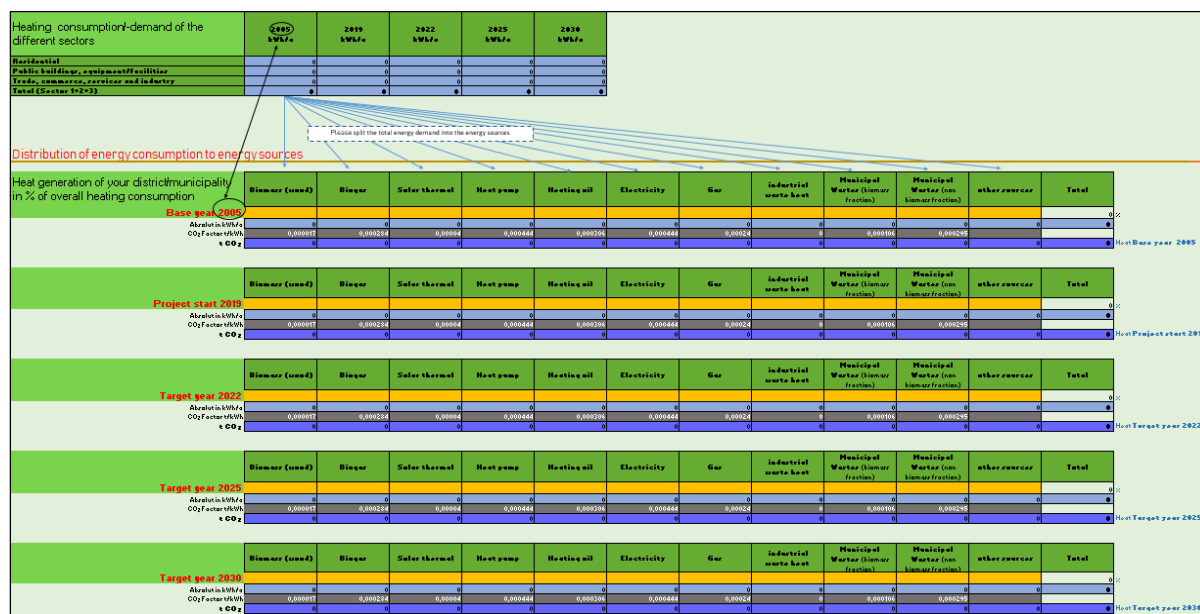


Figure 7: Extract from the EXCEL tool: Conversion to renewable energy sources

2.7.3 Mobility projects with estimated savings in CO₂ and kWh

The basis is the recording of motorised individual traffic within the city/municipality/district with the EXCEL tool. There you should enter the number of registered cars, hybrid cars, e-cars and motorcycles. The template then automatically calculates the CO₂ emissions and energy consumption of the mobility sector. Based on this, the future measures, incentives for implementation and timelines should be described.

Motorized traffic			Base data 2005 absolute number	Current data 2019 absolute number	Target data 2022 absolute number	Target data 2025 absolute number	Target data 2030 absolute number			
Registered cars (diesel)										
Registered cars (petrol)										
Registered hybrid cars (diesel)										
Registered hybrid cars (petrol)										
Registered e-cars										
Motorbikes										
Please use national current data					Enter Ø km/a. Please do not leave a yellow field blank					
Motorized traffic	Consumption kWh/km	Ø km/a	Base data 2005 in kWh/a	Current data 2019 in kWh/a	Ø km/a	Target data 2022 in kWh/a	Ø km/a	Target data 2025 in kWh/a	Ø km/a	Target data 2030 in kWh/a
Energy										
Cars (diesel)	0.78	13.140	0	0		0		0		
Cars (petrol)	0.92	13.140	0	0		0		0		
Hybrid cars (diesel)	0.66	13.140	0	0		0		0		
Hybrid cars (petrol)	0.71	13.140	0	0		0		0		
E-cars	0.45	13.140	0	0		0		0		
Motorbikes	0.40	3.272	0	0		0		0		
Total			6	0		0		0		
Please use national current data										
Motorized traffic	CO ₂ t/km	Ø km/a	Base data 2005 tCO ₂ /a	Current data 2019 tCO ₂ /a	Ø km/a	Target data 2022 tCO ₂ /a	Ø km/a	Target data 2025 tCO ₂ /a	Ø km/a	Target data 2030 tCO ₂ /a
CO ₂										
Cars (diesel)	0,0002076	13.140	0	0	0	0	0	0	0	
Cars (petrol)	0,0002373	13.140	0	0	0	0	0	0	0	
Hybrid cars (diesel)	0,0001800	13.140	0	0	0	0	0	0	0	
Hybrid cars (petrol)	0,0001620	13.140	0	0	0	0	0	0	0	
E-cars	0,0000838	13.140	0	0	0	0	0	0	0	
Motorbikes	0,0000930	3.272	0	0	0	0	0	0	0	
Total			0	0		0		0		

Figure 8: Motorised transport, energy consumption and CO₂ emissions of the mobility sector

2.7.4 Integrated energy planning projects

Please describe here the integrated energy planning measures that are difficult to express in concrete savings, but which may well indirectly lead to a reduction of CO₂ emissions and a decrease in energy consumption. You will find a pool of ideas for measures in the EXCEL tool as well as in the appendix.

Green spaces /recreation areas	Base data 2005 absolute numbers	Current data 2019 absolute numbers	Target data 2022 absolute numbers	Target data 2025 absolute numbers	Target data 2030 absolute numbers
N° of green spaces (e.g. public parks)					
N° of recreation areas (e.g. Public swimmingpool)					
	m ²	m ²	m ²	m ²	m ²
Green spaces (e.g. public parks)					
Recreation areas (e.g. Public swimmingpool)					
Settlement development	Base data 2005 (inhabitants/km ²)	Current data 2019 (inhabitants/km ²)	Target data 2022 (inhabitants/km ²)	Target data 2025 (inhabitants/km ²)	Target data 2030 (inhabitants/km ²)
Which construction density foresees the urban development plan (zoning)?					
Mixed use	Base data 2005 absolute numbers	Current data 2019 absolute numbers	Target data 2022 absolute numbers	Target data 2025 absolute numbers	Target data 2030 absolute numbers
N° of mixed use buildings					
Vacant lots	Base data 2005 absolute numbers	Current data 2019 absolute numbers	Target data 2022 absolute numbers	Target data 2025 absolute numbers	Target data 2030 absolute numbers
N° of vacant lots					
N° of filled vacant lots					

Figure 9: Extract from the EXCEL tool: Overview of soft measures



2.8 Communication strategy

A good strategy for communicating the benefits of integrated energy planning will help to increase the acceptance of projects by citizens. The communication strategy should also include participatory aspects and highlight the benefits of the planned measures.

2.8.1 Involving citizens and stakeholders

Please describe how you intend to involve citizens and stakeholders in the preparation of your integrated energy plan (i.e. citizen participation, working groups, forum, workshops – to be used) and how you plan to involve them in the subsequent implementation. The number of stakeholders can be very large. Therefore, municipalities should first identify the different types of stakeholders that need to be involved in the process.

A good starting point is to ask decision makers, energy team members and other interested parties the following questions:

- Who will be affected by the measures and projects formulated in the integrated energy plan?
- Are there other internal or external participants in the integrated energy plan whose needs must be taken into account?
- Who will want to support or possibly prevent the integrated energy plan?
- Is there anyone else?

2.8.2 Involvement of companies, farmers, foresters and investors

The involvement of companies, farmers, foresters and investors (wind power, hydroelectric power, biomass, etc.) should take place as early as possible. Describe who is important for the implementation of your projects and how they will be involved in the planning and implementation process. Please also describe how you will organise their involvement.

2.8.3 Communication within the municipality/ local authorities

The individual departments of the municipality (building authority, finance committee, environmental municipal council, etc.) should not plan and implement the measures independently of each other, but should coordinate their concepts at regular intervals. This ensures that all departments work in the same direction. Explain how you will organise the joint planning of all those involved.

2.9 Budget plan

In order to implement the measures of the integrated energy plan, the financing for this must also be clarified. In doing so, you should describe a realistic financing strategy that takes into account innovative financing solutions, explores funding possibilities and exploits the potential to activate private investment.

Various financing possibilities:

- Own resources of the municipality/ municipal budget
- National funds & support programmes
- EU funds & funding programs
- Private investment (Private investors, Crowdfunding, Contracting, ...)

The budget calculated in the EXCEL tool can be transferred to the Word template.

Budget foreseen	€	Budget	€
Local Authority's own resources		Spent	0
National Funds & Programmes		Remaining	0
EU Funds & Programmes			
Private			
Total	0		

Figure 10: Extract from the EXCEL tool: Budget for the measures of the integrated energy plan

The individual measures with the costs and time frame for implementation from the EXCEL tool can also be transferred to the Word template.

Key actions	implementation timeframe		Status of implementation	Implementation cost (€)
	Start	End		
Buildings				
Installation of PV panels on the roof of the city hall	20.03.2020	15.05.2020	Completed	42.000
			[drop-down]	
			[drop-down]	
			[drop-down]	
			[drop-down]	
Mobility/ Transport				
Municipal Car-Sharing	15.04.2020	26.02.2022	Ongoing	150.000
			[drop-down]	
			[drop-down]	
			[drop-down]	
			[drop-down]	

Figure 11: Extract from the EXCEL tool: Key actions



Legal notice:

Klimabündnis Österreich GmbH
Regional Office Styria
Schumanngasse 3, 8010 Graz

PROJECT PARTNERS



Swedish Environmental
Research Institute



LEGAMBIENTE

POSAD MAXWAN
strategy x design



ENERGIACLUB
CLIMATE POLICY INSTITUTE
APPLIED COMMUNICATIONS

www.citiesmultiply.eu

Copyright notice

©2019 MULTIPLY Consortium Partners. All rights reserved. MULTIPLY is a HORIZON2020 Project supported by the European Commission under grant agreement No785088. For more information on the project, its partners and contributors, please see the MULTIPLY website (www.citiesmultiply.eu). You are permitted to copy and distribute verbatim copies of this document, containing this copyright notice, but modifying this document is not allowed. All contents are reserved by default and may not be disclosed to third parties without the written consent of the MULTIPLY partners, except as mandated by the European Commission contract, for reviewing and dissemination purposes. All trademarks and other rights on third party products mentioned in this document are acknowledged and owned by the respective holders. The information contained in this document represents the views of MULTIPLY members as of the date they are published. The MULTIPLY consortium does not guarantee that any information contained herein is error-free, or up-to-date, nor makes warranties, express, implied, or statutory, by publishing this document



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 785088