

Sustainable Energy and Climate Action Plan Template

The Sustainable Energy and Climate Action Plan (SECAP) template and its monitoring fields constitute the reporting framework of the Covenant of Mayors initiative. It has been developed by the Covenant of Mayors and Mayors Adapt Offices - together with the Joint Research Centre of the European Commission - and in collaboration with a group of practitioners from local and regional authorities. This Excel-based template is an offline working version of the official online template which has to be completed in English and submitted online via "My Covenant": http://www.eumayors.eu/sign-in_en.html. The online version of this template should be available as of 2017. Please note that it is not possible to import the data entered in this Excel into the online platform.





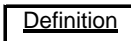



[Reporting Guidelines](#)
[SEAP guidebook](#)
[Urban Adaptation Support Tool](#)

Commitments:

- [2020 CO₂ reduction](#)
- [2030 CO₂ reduction](#)
- [Long-term CO₂ reduction](#)
- [Climate Adaptation](#)

Colour codes:

-  **Mandatory input cells**
-  **Optional input cells**
-  **Output cells**
-  **Pre-filled cells** (for the online version)
-  **Definitions** (visible when clicking)
-  **Monitoring fields**

Template Structure & Minimum Reporting Requirements:

Template Structure	Minimum Reporting Requirements			Link to Tab	
	At the registration stage	Within 2 years	Within 4 years (and then every 2 years)		
Strategy	optional	*	*	→	
Mitigation	Emission Inventories	optional	* (BEI)	* (MEI every 4 years)	→
	Mitigation Actions	optional	*	*	→
	Mitigation Report				→
	Monitoring Report				→
Adaptation	Adaptation Scoreboard	*	*	*	→
	Risks and Vulnerabilities	optional	*	*	→
	Adaptation Actions	optional	optional	* (min. 3 Benchmarks)	→
	Adaptation Report				→
	Adaptation Indicators				→

* mandatory

Objectives

- **IDENTIFY & ASSESS** local climate and energy challenges and priorities
- **MONITOR & REPORT** progress towards commitments
- **INFORM & SUPPORT** decision-makers
- **COMMUNICATE** results to general public
- **ENABLE** self-assessment & **FACILITATE** experience-sharing with peers
- **DEMONSTRATE** local achievements to policy-makers

Developed by: Covenant of Mayors & Mayors Adapt Offices, Joint Research Centre of the European Commission



Last update: July 2016

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Strategy

1) Vision

700 chars left

2) Commitments

Mitigation					
CO ₂ Target	Unit	Target Year	Base Year	Reduction Type	Population estimates in target year
	%	2020	[drop -down]	[drop -down]	
	%	2030	[drop -down]	[drop -down]	
		[drop -down]	[drop -down]	[drop -down]	

Adaptation			
Goal	Unit (% or other)	Target year	Base Year
		[drop -down]	[drop -down]
		[drop -down]	[drop -down]

① Add as many rows as necessary.

3) Coordination and organisational structures created/assigned

700 chars left

4) Staff capacity allocated

Type	Plan Preparation		MONITORING
		Full-time equivalent job(s)	Plan Implementation
Local authority	[Select x]		[Select x]
Covenant Coordinator	[Select x]		x
Covenant Supporter	[Select x]		x
External consultant	[Select x]		[Select x]
Other	[Select x]		[Select x]
Total		0	

① Select x for the ones that are applicable.

700 chars left

5) Involvement of stakeholders and citizens

Type		Stakeholders involved	Level of involvement
Local authority's staff	[Select x]		[drop-down]
External stakeholders at local level	[Select x]		[drop-down]
Stakeholders at other levels of governance	[Select x]		[drop-down]

1 Select x for the ones that are applicable.

700 chars left

6) Overall budget for implementation and financing sources

Source	Budget foreseen for plan implementation (€)					
	Mitigation			Adaptation		
		Investment (€)	Non-investment (€)		Investment (€)	Non-investment (€)
Local Authority's own resources	[Select x]			[Select x]		
Other actors:	[Select x]	0	0	[Select x]	0	0
- National Funds & Programmes	[Select x]			[Select x]		
- EU Funds & Programmes	[Select x]			[Select x]		
- Private	[Select x]			[Select x]		
Total		0	0		0	0

1 Select x for the ones that are applicable.

Time period years

700 chars left

Source	Budget spent so far for plan implementation (€)			
	Mitigation		Adaptation	
		Investment (€)	Non-investment (€)	
Local Authority's own resources	[Select x]			[Select x]
Other actors:	[Select x]	0	0	[Select x]
- National Funds & Programmes	[Select x]			[Select x]
- EU Funds & Programmes	[Select x]			[Select x]
- Private	[Select x]			[Select x]
Total		0	0	

1 Select x for the ones that are applicable.

Time period

700 chars left

7) Monitoring process

700 chars left

Please rate (little/fair/strong/not applicable) the main problems encountered during your action plan implementation, either overall or by sector:

	All sectors	Municipal	Tertiary	Residential	Transport	Adaptation
Limited financial sources						
Absence of / weak regulatory framework						
Lack of technical expertise						
Lack of support from stakeholders						
Lack of political support at other administrative levels						
Changes in the local political priorities						
Incompatibility with national policy orientations						
Immature or high cost technologies						

MONITORING

8) Assessment of the Adaptation Options

700 chars left

9) Strategy in case of extreme climate events

700 chars left

Baseline Emission Inventory

1) Inventory year

2) Number of inhabitants in the inventory year

3) Emission factors

IPCC

LCA (Life Cycle Assessment)

4) Emission reporting unit

tonnes CO₂

tonnes CO₂ equivalent

5) Methodological notes

1000 chars left

A. Final energy consumption

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

Sector	FINAL ENERGY CONSUMPTION [MWh]															Total	
	Electricity	Heat/cold	Fossil fuels							Renewable energies							
			Natural gas	Liquid gas	Heating oil	Diesel	Gasoline	Lignite	Coal	Other fossil fuels	Plant oil	Biofuel	Other biomass	Solar thermal	Geothermal		
BUILDINGS, EQUIPMENT/FACILITIES AND INDUSTRIES																	
<u>Municipal buildings, equipment/facilities</u>																	0
<u>Tertiary (non municipal) buildings, equipment/facilities</u>																	0
<u>Residential buildings</u>																	0
<u>Public lighting</u>																	0
<u>Industry</u>																	0
																	0
Subtotal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRANSPORT																	
<u>Municipal fleet</u>																	0
<u>Public transport</u>																	0
<u>Private and commercial transport</u>																	0
Subtotal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OTHER																	
<u>Agriculture, Forestry, Fisheries</u>																	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

🔑 Covenant Key Sectors

C. CO₂ emissions

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

[Click here to visualise fuel emission factors](#)


Electricity		Heat/cold	Fossil fuels								Renewable energies				
National	Local		Natural gas	Liquid gas	Heating oil	Diesel	Gasoline	Lignite	Coal	Other fossil	Biofuel	Plant oil	Other biomass	Solar thermal	Geothermal

C2. Please complete in case non-energy related sectors are included:

Non-energy related sectors	CO ₂ eq. emissions [t]
<u>Waste management</u>	
<u>Waste water management</u>	
<u>Other non-energy related</u>	

Emission Inventory

Sector	CO ₂ emissions [t] / CO ₂ eq. emissions [t]															Total	
	Electricity	Heat/cold	Fossil fuels								Renewable energies						
			Natural gas	Liquid gas	Heating Oil	Diesel	Gasoline	Lignite	Coal	Other fossil fuels	Biofuel	Plant oil	Other biomass	Solar thermal	Geothermal		
BUILDINGS, EQUIPMENT/FACILITIES AND INDUSTRIES																	
<u>Municipal buildings, equipment/facilities</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<u>Tertiary (non municipal) buildings, equipment/facilities</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<u>Residential buildings</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<u>Public lighting</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<u>Industry</u>	<u>Non-ETS</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	<u>ETS (not recommended)</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRANSPORT																	
<u>Municipal fleet</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<u>Public transport</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<u>Private and commercial transport</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OTHER																	
<u>Agriculture, Forestry, Fisheries</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OTHER NON-ENERGY RELATED																	
<u>Waste management</u>																0	
<u>Waste water management</u>																0	
<u>Other non-energy related</u>																0	
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

 Covenant Key Sectors

Additional comments

500 chars left

Monitoring Emission Inventory

📄 Copy as many "MEI" tabs for Monitoring Emission Inventories as necessary.

1) Inventory year

[drop-down]

2) Number of inhabitants in the inventory year

3) Emission factors

- IPCC
 LCA (Life Cycle Assessment)

4) Emission reporting unit

- tonnes CO₂
 tonnes CO₂ equivalent

5) Methodological notes

0

999 chars left

A. Final energy consumption

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

Sector	FINAL ENERGY CONSUMPTION [MWh]															Total	
	Electricity	Heat/cold	Fossil fuels								Renewable energies						
			Natural gas	Liquid gas	Heating oil	Diesel	Gasoline	Lignite	Coal	Other fossil fuels	Plant oil	Biofuel	Other biomass	Solar thermal	Geothermal		
BUILDINGS, EQUIPMENT/FACILITIES AND INDUSTRIES																	
<u>Municipal buildings, equipment/facilities</u>																	0
<u>Tertiary (non municipal) buildings, equipment/facilities</u>																	0
<u>Residential buildings</u>																	0
<u>Public lighting</u>																	0
<u>Industry</u>																	0
	<u>Non-ETS</u>																0
	<u>ETS (not recommended)</u>																0
Subtotal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRANSPORT																	
<u>Municipal fleet</u>																	0
<u>Public transport</u>																	0
<u>Private and commercial transport</u>																	0
Subtotal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OTHER																	
<u>Agriculture, Forestry, Fisheries</u>																	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

🔑 Covenant Key Sectors

C. CO₂ emissions

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

[Click here to visualise fuel emission factors](#)

	Electricity		Heat/cold	Fossil fuels							Renewable energies					
	National	Local		Natural gas	Liquid gas	Heating oil	Diesel	Gasoline	Lignite	Coal	Other fossil	Biofuel	Plant oil	Other biomass	Solar thermal	Geothermal
BEI	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
MEI																

C2. Please complete in case non-energy related sectors are included:

Non-energy related sectors	CO ₂ eq. emissions [t]
<u>Waste management</u>	
<u>Waste water management</u>	
<u>Other non-energy related</u>	

Emission Inventory

Sector	CO ₂ emissions [t] / CO ₂ eq. emissions [t]															Total	
	Electricity	Heat/cold	Fossil fuels							Renewable energies							
			Natural gas	Liquid gas	Heating Oil	Diesel	Gasoline	Lignite	Coal	Other fossil fuels	Biofuel	Plant oil	Other biomass	Solar thermal	Geothermal		
BUILDINGS, EQUIPMENT/FACILITIES AND INDUSTRIES																	
<u>Municipal buildings, equipment/facilities</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<u>Tertiary (non municipal) buildings, equipment/facilities</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<u>Residential buildings</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<u>Public lighting</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Industry	Non-ETS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ETS (not recommended)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRANSPORT																	
<u>Municipal fleet</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<u>Public transport</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<u>Private and commercial transport</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OTHER																	
<u>Agriculture, Forestry, Fisheries</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OTHER NON-ENERGY RELATED																	
<u>Waste management</u>																0	
<u>Waste water management</u>																0	
<u>Other non-energy related</u>																0	
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

[Covenant Key Sectors](#)

Additional comments

0

Monitoring Emission Inventory

📄 Copy as many "MEI" tabs for Monitoring Emission Inventories as necessary.

1) Inventory year

2) Number of inhabitants in the inventory year

3) Emission factors IPCC
 LCA (Life Cycle Assessment)

4) Emission reporting unit tonnes CO₂
 tonnes CO₂ equivalent

5) Methodological notes

999 chars left

A. Final energy consumption

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

Sector	FINAL ENERGY CONSUMPTION [MWh]															Total	
	Electricity	Heat/cold	Fossil fuels								Renewable energies						
			Natural gas	Liquid gas	Heating oil	Diesel	Gasoline	Lignite	Coal	Other fossil fuels	Plant oil	Biofuel	Other biomass	Solar thermal	Geothermal		
BUILDINGS, EQUIPMENT/FACILITIES AND INDUSTRIES																	
<u>Municipal buildings, equipment/facilities</u>																	0
<u>Tertiary (non municipal) buildings, equipment/facilities</u>																	0
<u>Residential buildings</u>																	0
<u>Public lighting</u>																	0
<u>Industry</u>																	0
	<u>Non-ETS</u>																0
	<u>ETS (not recommended)</u>																0
Subtotal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRANSPORT																	
<u>Municipal fleet</u>																	0
<u>Public transport</u>																	0
<u>Private and commercial transport</u>																	0
Subtotal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OTHER																	
<u>Agriculture, Forestry, Fisheries</u>																	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

🔑 Covenant Key Sectors

C. CO₂ emissions

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

[Click here to visualise fuel emission factors](#)

	Electricity		Heat/cold	Fossil fuels							Renewable energies					
	National	Local		Natural gas	Liquid gas	Heating oil	Diesel	Gasoline	Lignite	Coal	Other fossil	Biofuel	Plant oil	Other biomass	Solar thermal	Geothermal
BEI	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
MEI																

C2. Please complete in case non-energy related sectors are included:

Non-energy related sectors	CO ₂ eq. emissions [t]
<u>Waste management</u>	
<u>Waste water management</u>	
<u>Other non-energy related</u>	

Emission Inventory

Sector	CO ₂ emissions [t] / CO ₂ eq. emissions [t]															Total	
	Electricity	Heat/cold	Fossil fuels							Renewable energies							
			Natural gas	Liquid gas	Heating Oil	Diesel	Gasoline	Lignite	Coal	Other fossil fuels	Biofuel	Plant oil	Other biomass	Solar thermal	Geothermal		
BUILDINGS, EQUIPMENT/FACILITIES AND INDUSTRIES																	
<u>Municipal buildings, equipment/facilities</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<u>Tertiary (non municipal) buildings, equipment/facilities</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<u>Residential buildings</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<u>Public lighting</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<u>Industry</u>	<u>Non-ETS</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	<u>ETS (not recommended)</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRANSPORT																	
<u>Municipal fleet</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<u>Public transport</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<u>Private and commercial transport</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OTHER																	
<u>Agriculture, Forestry, Fisheries</u>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OTHER NON-ENERGY RELATED																	
<u>Waste management</u>																0	
<u>Waste water management</u>																0	
<u>Other non-energy related</u>																0	
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Covenant Key Sectors

Additional comments

0

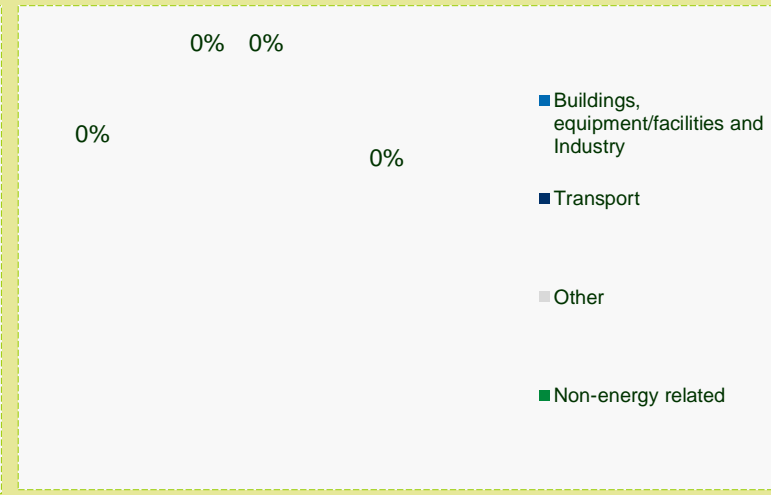
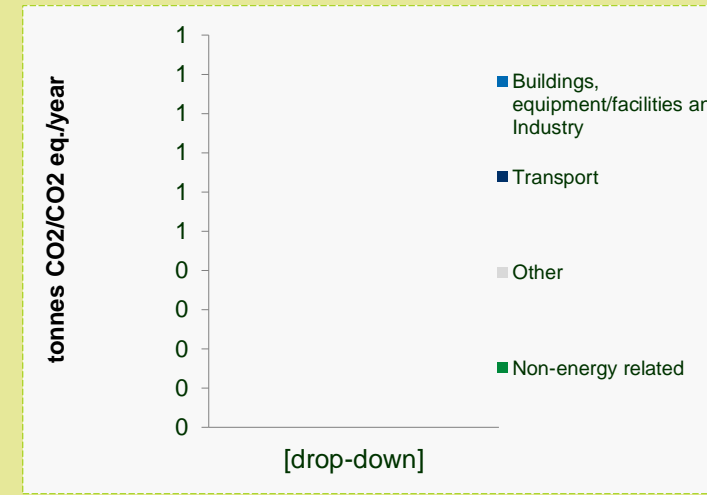
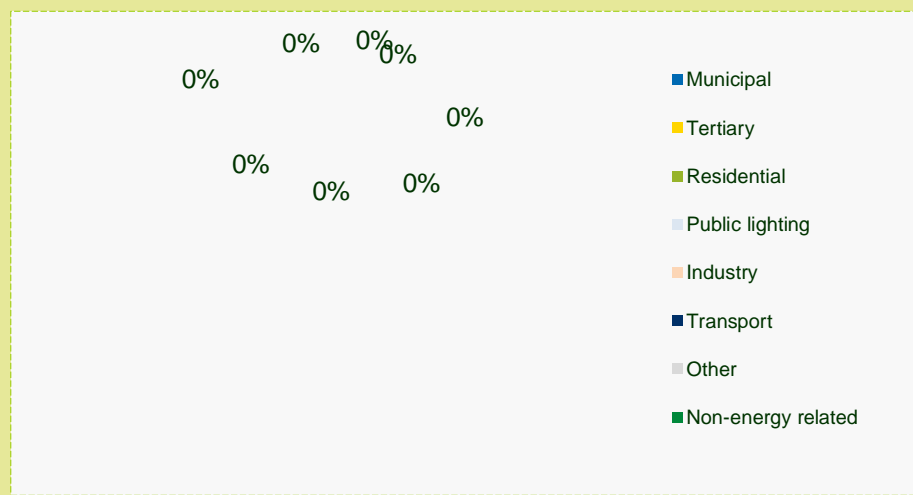
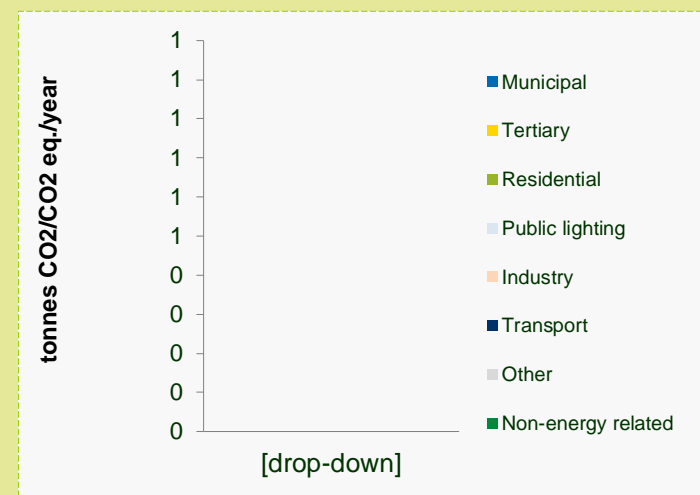
Key Results of the Baseline Emission Inventory

Baseline year: [drop-down]

1) Greenhouse gas emissions and final energy consumption per capita

Emission factor	t CO ₂ (eq.) /capita	MWh/capita
#(DIV/0)	#(DIV/0)	#(DIV/0)

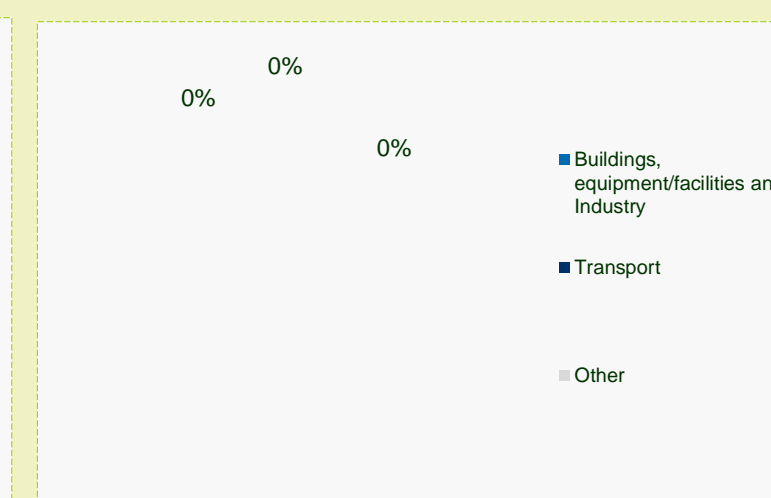
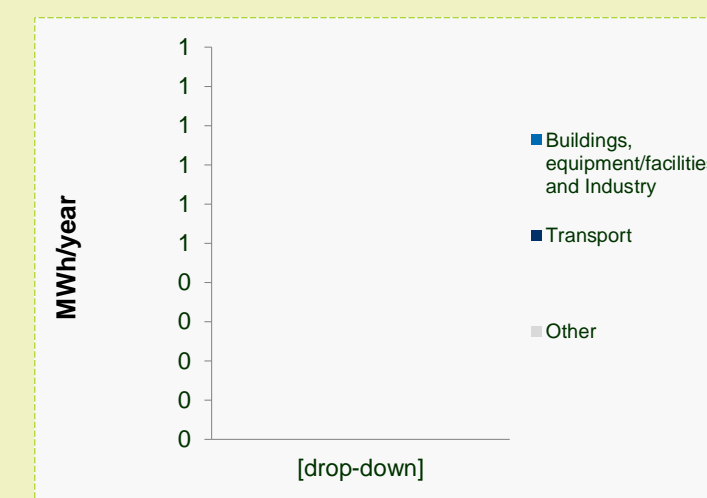
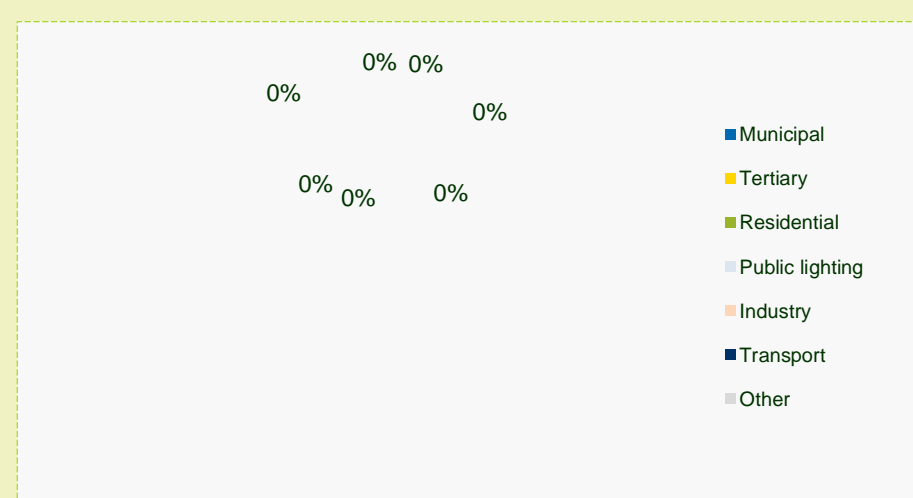
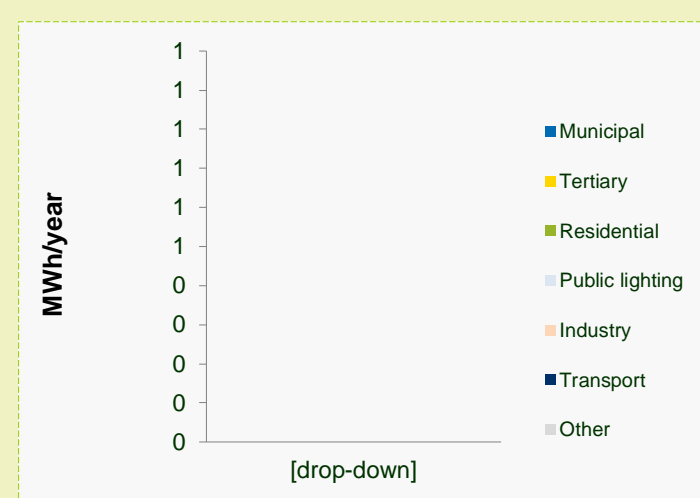
2) Greenhouse gas emissions per sector



Municipal	0
Tertiary	0
Residential	0
Public lighting	0
Industry	0
Transport	0
Other	0
Non-energy related	0

Buildings, equipment/facilities and Industry	0
Transport	0
Other	0
Non-energy related	0

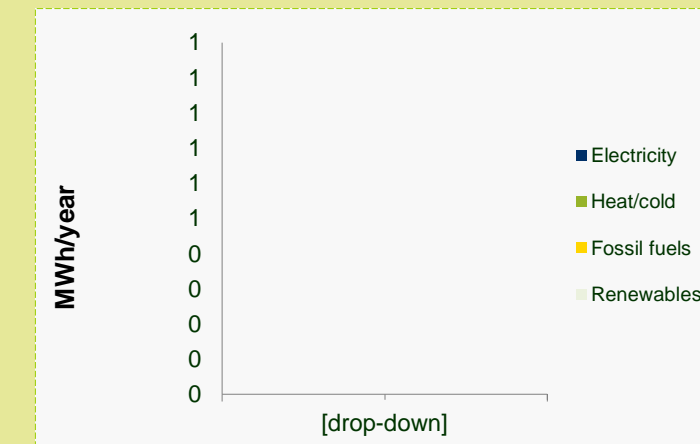
3) Final energy consumption per sector



Municipal	0
Tertiary	0
Residential	0
Public lighting	0
Industry	0
Transport	0
Other	0

Buildings, equipment/facilities and Industry	0
Transport	0
Other	0

4) Final energy consumption per energy carrier

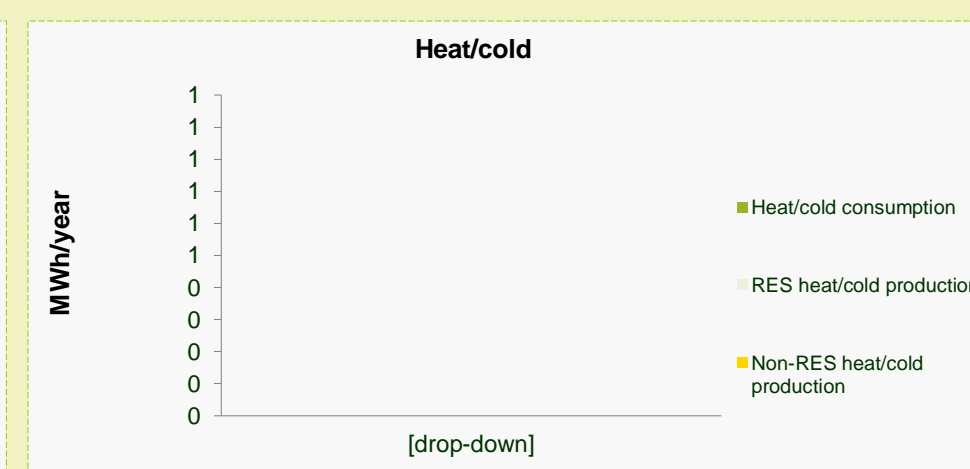
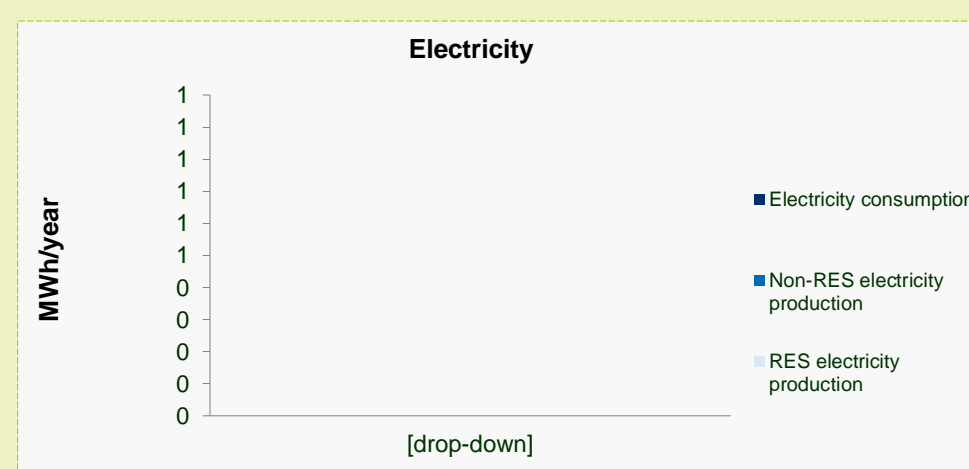


Electricity	0
Heat/cold	0
Fossil fuels	0
Renewables	0

* Renewables - for non-electricity uses.
** The energy mix of heat/cold and electricity is not identified.

5) Local energy production

Share of local energy production to overall final energy consumption	#(DIV/0)
--	----------



Electricity consumption	0
Non-RES electricity production	0
RES electricity production	0

Heat/cold consumption	0
RES heat/cold production	0
Non-RES heat/cold production	0

Other renewables	0
------------------	---

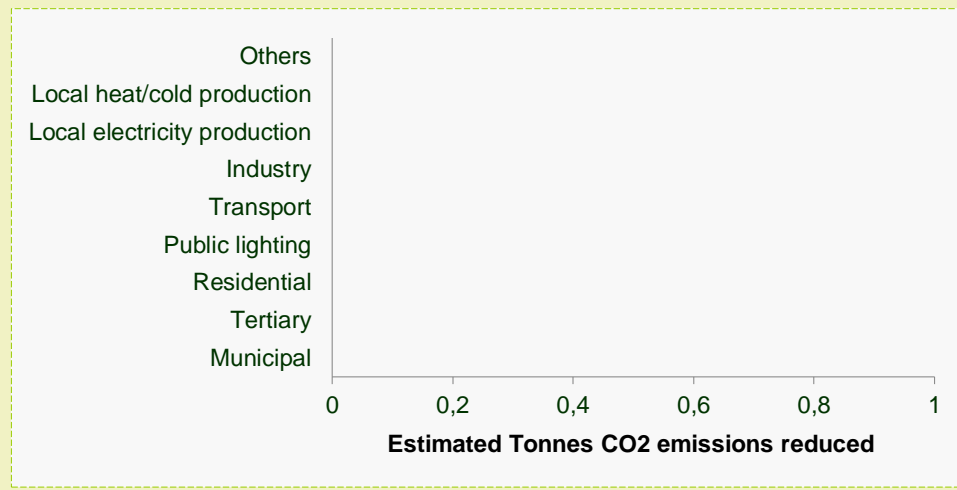
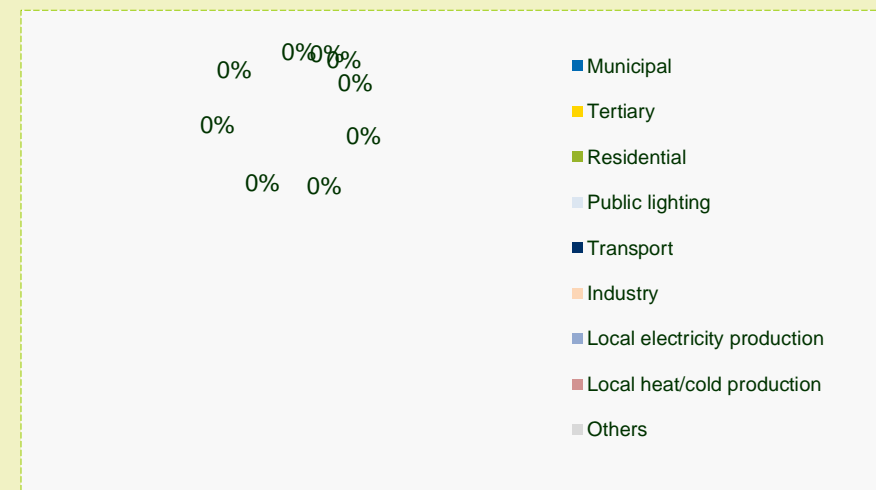
Final energy consumption	0
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Key elements of the SECAP on climate mitigation

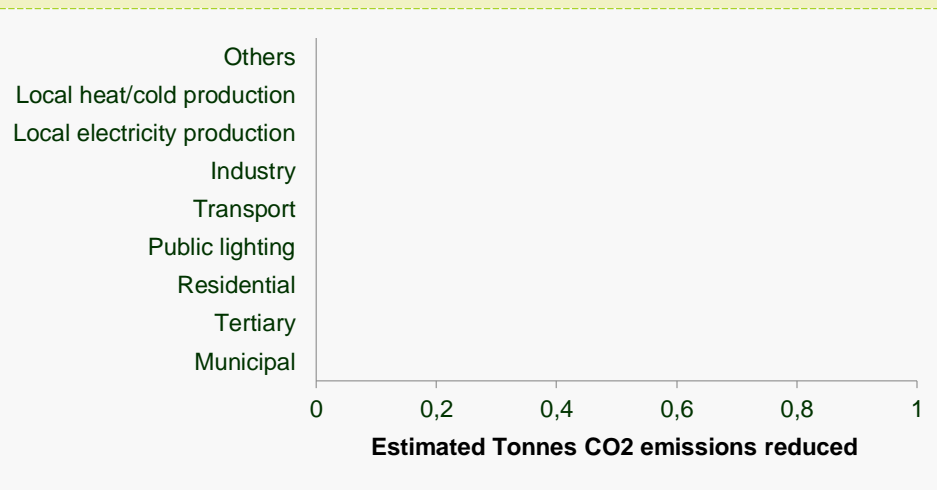
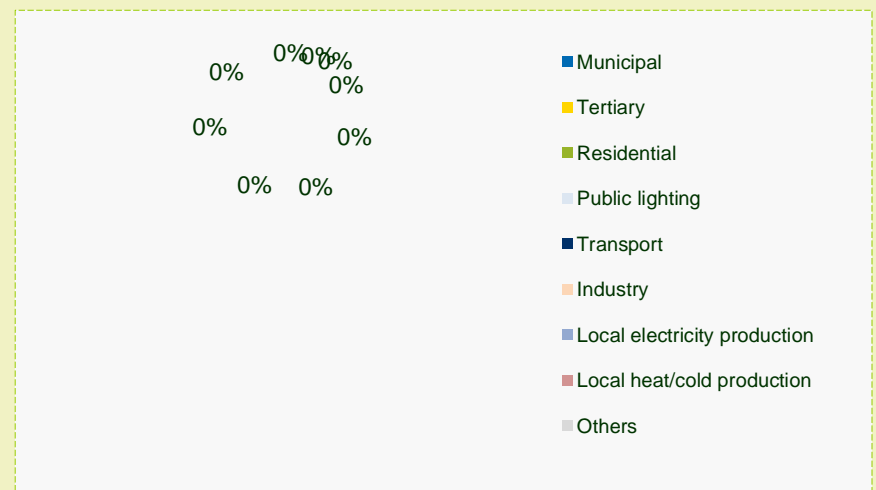
6) Greenhouse gas emissions reduction target

Time horizon	Reduction Target	tonnes CO ₂ (eq.) to be reduced
2020	0%	0
2030	0%	0
[drop -down]	0%	0

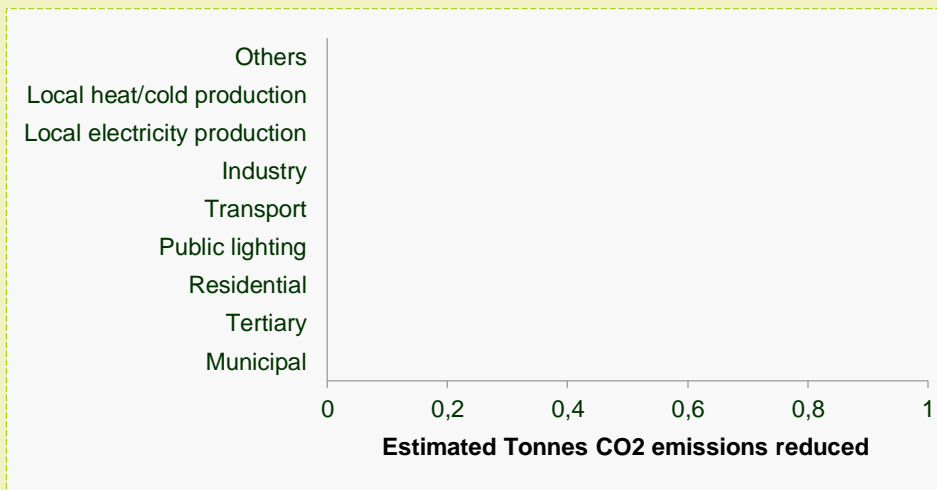
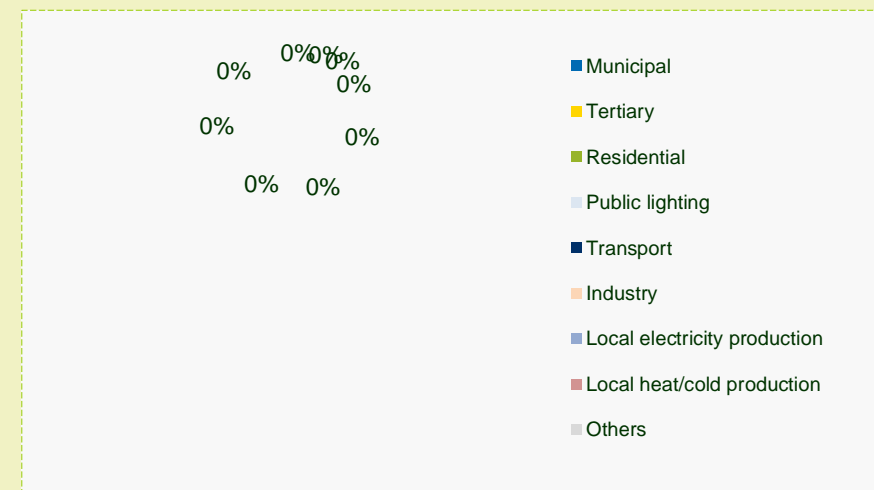
7) Estimated greenhouse gas emissions reduction per sector in 2020



Estimated greenhouse gas emissions reduction per sector in 2030

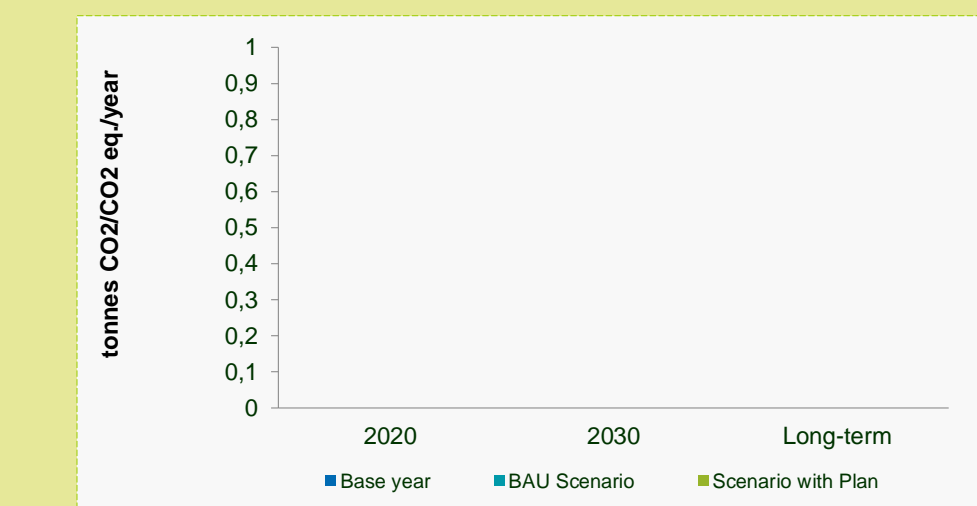
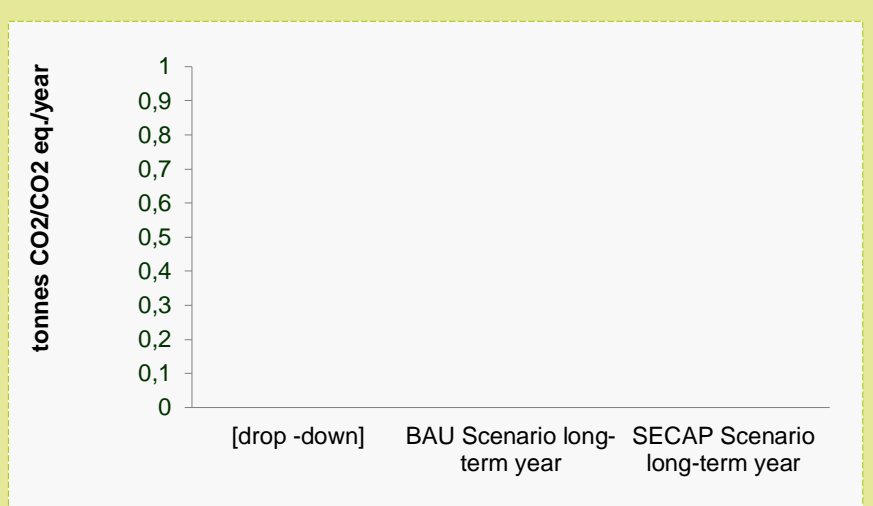
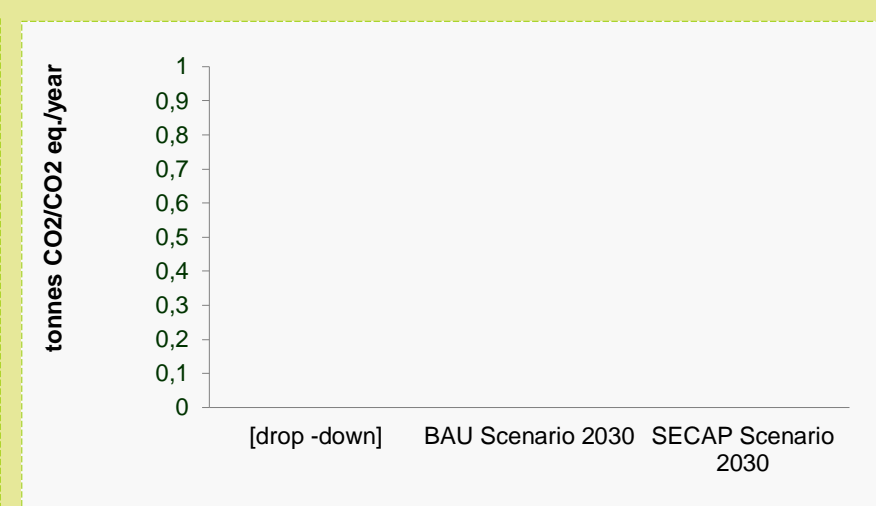
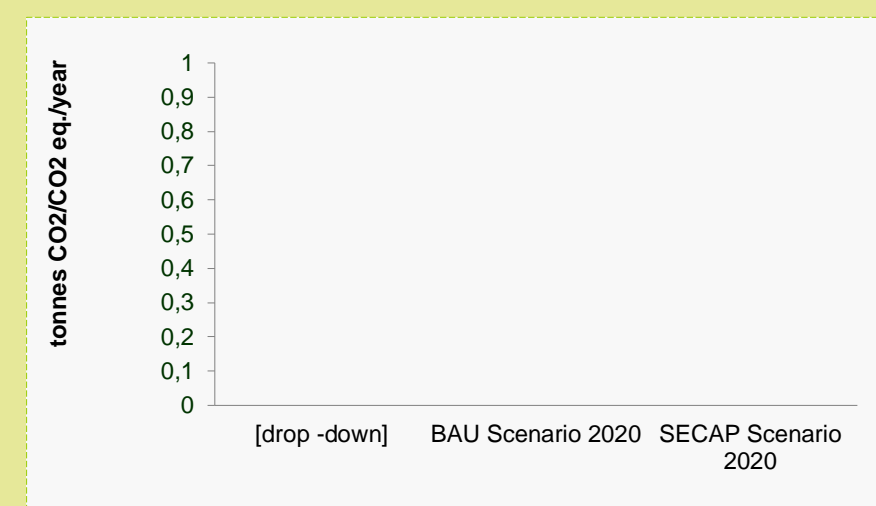


Estimated greenhouse gas emissions reduction per sector in long-term target year



	2020	2030	[drop -down]
Municipal	0	0	0
Tertiary	0	0	0
Residential	0	0	0
Public lighting	0	0	0
Transport	0	0	0
Industry	0	0	0
Local electricity production	0	0	0
Local heat/cold production	0	0	0
Others	0	0	0

8) Expected evolution in terms of greenhouse gas emissions



[drop -down]	0
BAU Scenario 2020	0
SECAP Scenario 2020	0

[drop -down]	0
BAU Scenario 2030	0
SECAP Scenario 2030	0

[drop -down]	0
BAU Scenario long-term year	0
SECAP Scenario long-term year	0

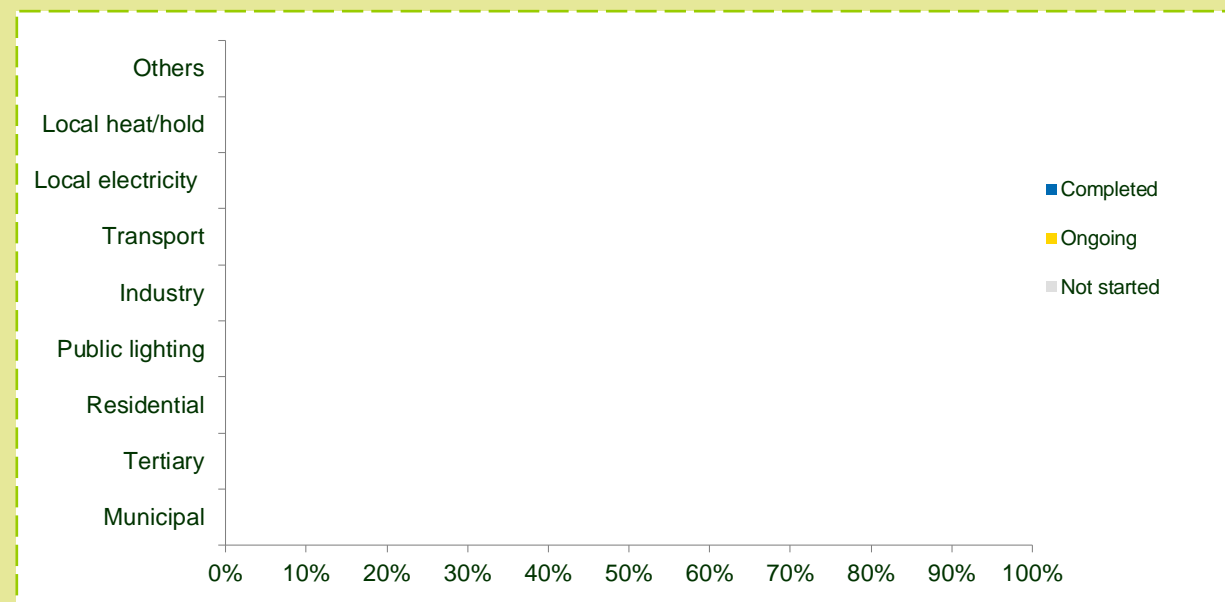
Comments:

2000 chars left

Your implementation progress

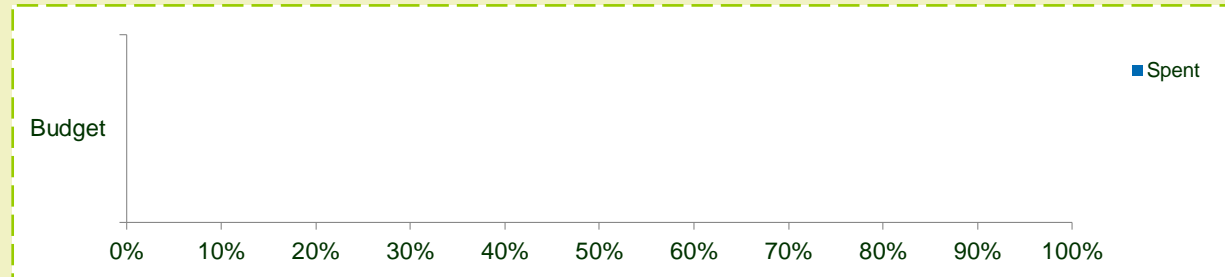
ⓘ This report refers to the monitoring of the mitigation part of the SECAP.

1) Status of implementation of actions



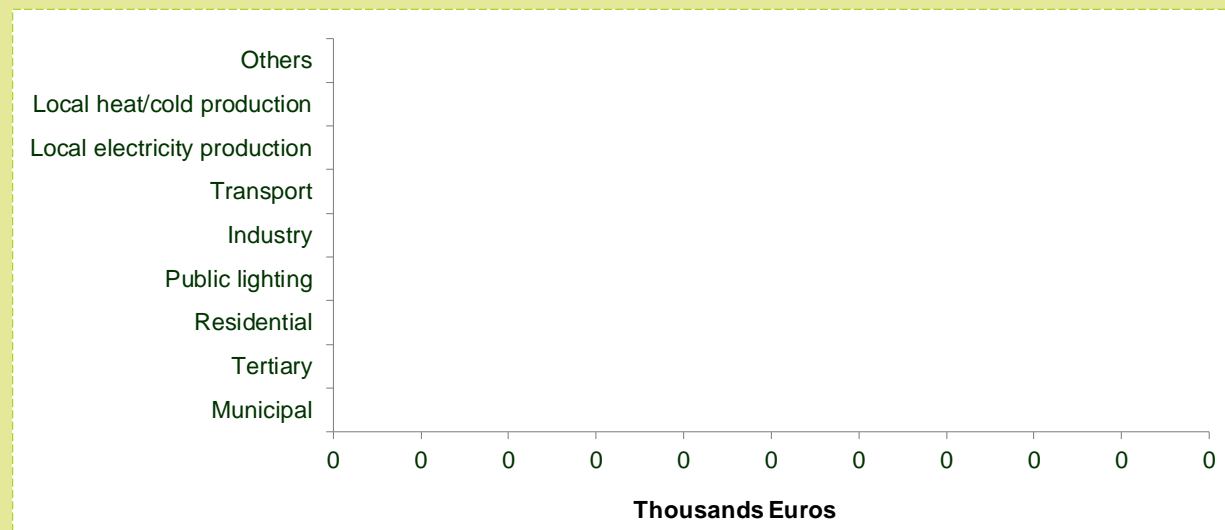
	Municipal	Tertiary	Residential	Public lighting	Industry	Transport	Local electricity	Local heat/cold	Others
Completed	0	0	0	0	0	0	0	0	0
Ongoing	0	0	0	0	0	0	0	0	0
Not started	0	0	0	0	0	0	0	0	0
Postponed	0	0	0	0	0	0	0	0	0

2) Overall budget spent



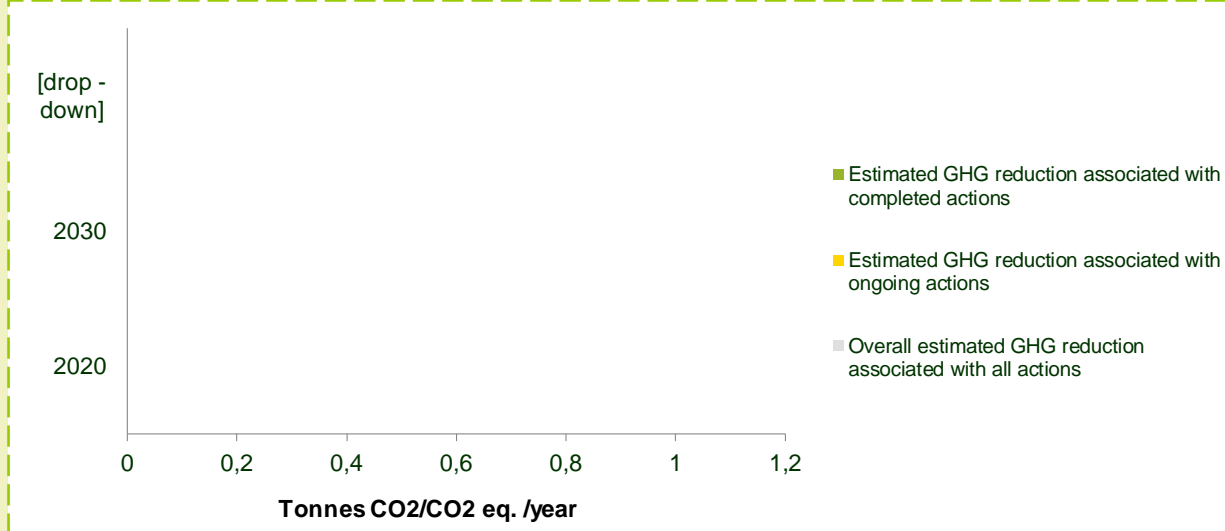
	€
Budget	0
Spent	0
Remaining	0

3) Money spent per sector



	€
Municipal	0
Tertiary	0
Residential	0
Public lighting	0
Industry	0
Transport	0
Local electricity production	0
Local heat/cold production	0
Others	0

4) Estimated greenhouse gas emissions reduction according to the implementation status of the actions

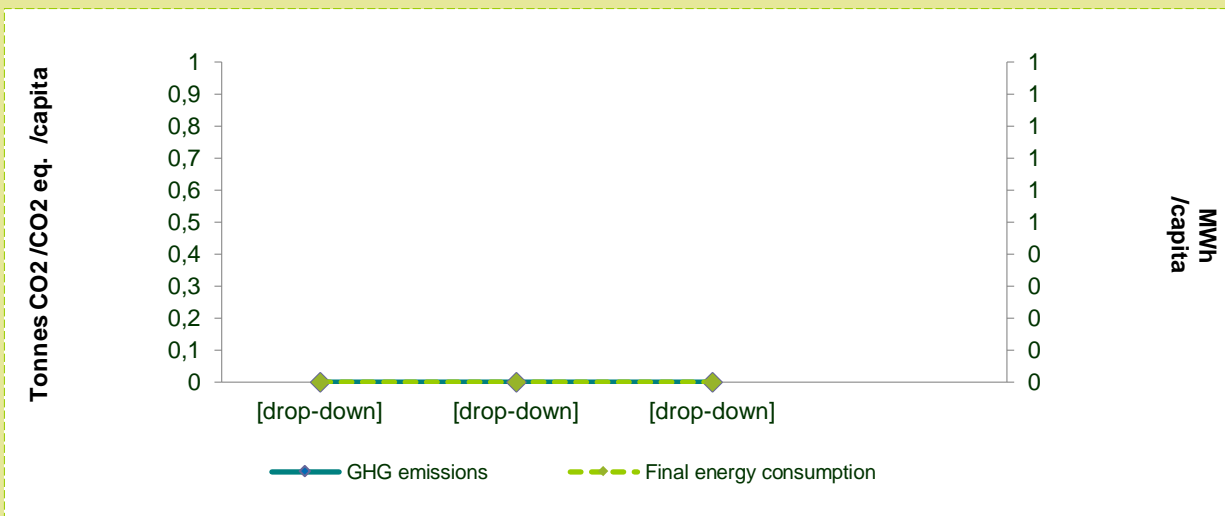


	2020	2030	[drop-down]
Estimated GHG reduction associated with completed actions			
Estimated GHG reduction associated with ongoing actions			
Estimated GHG reduction associated with not started actions			
Overall estimated GHG reduction associated with all actions	0	0	0

ⓘ Insert the values according to the status of implementation of your actions.

Your performance towards energy sustainability and climate mitigation

5) Greenhouse gas emissions and final energy consumption per capita

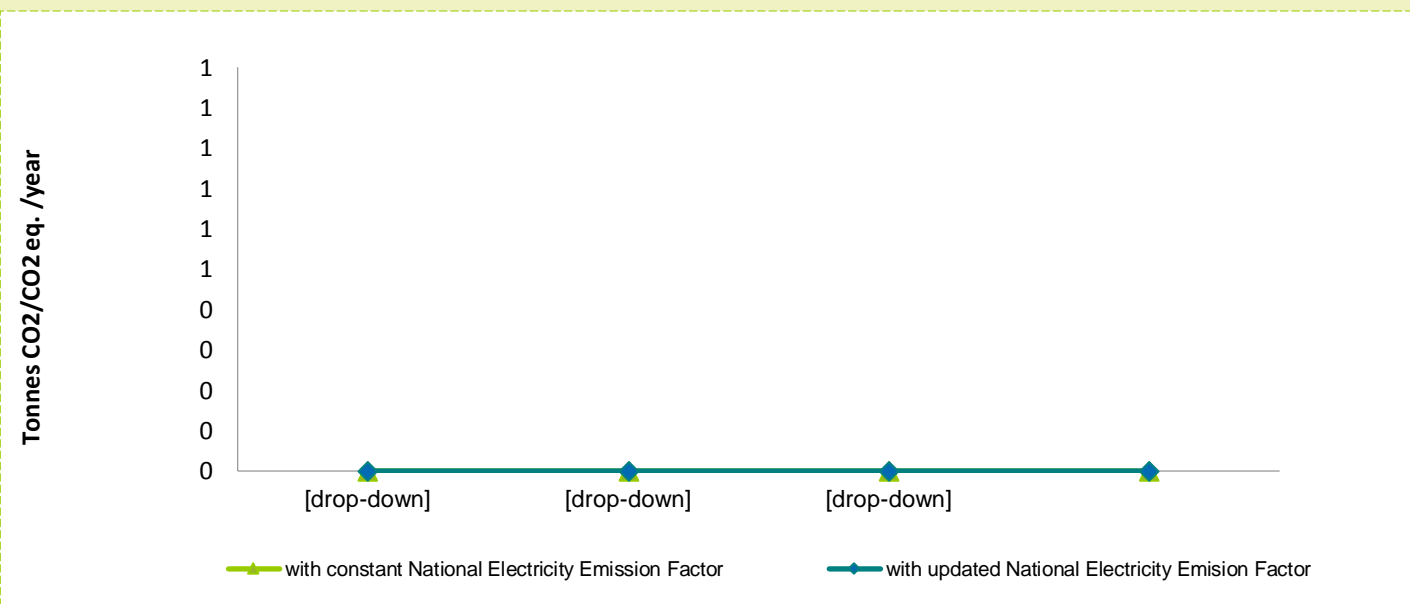


Insert the values according to the number of MEIs included.

year	tonnes/capita
[drop-down]	#DIV/0!
[drop-down]	#DIV/0!
[drop-down]	#DIV/0!

year	MWh/capita
[drop-down]	#DIV/0!
[drop-down]	#DIV/0!
[drop-down]	#DIV/0!

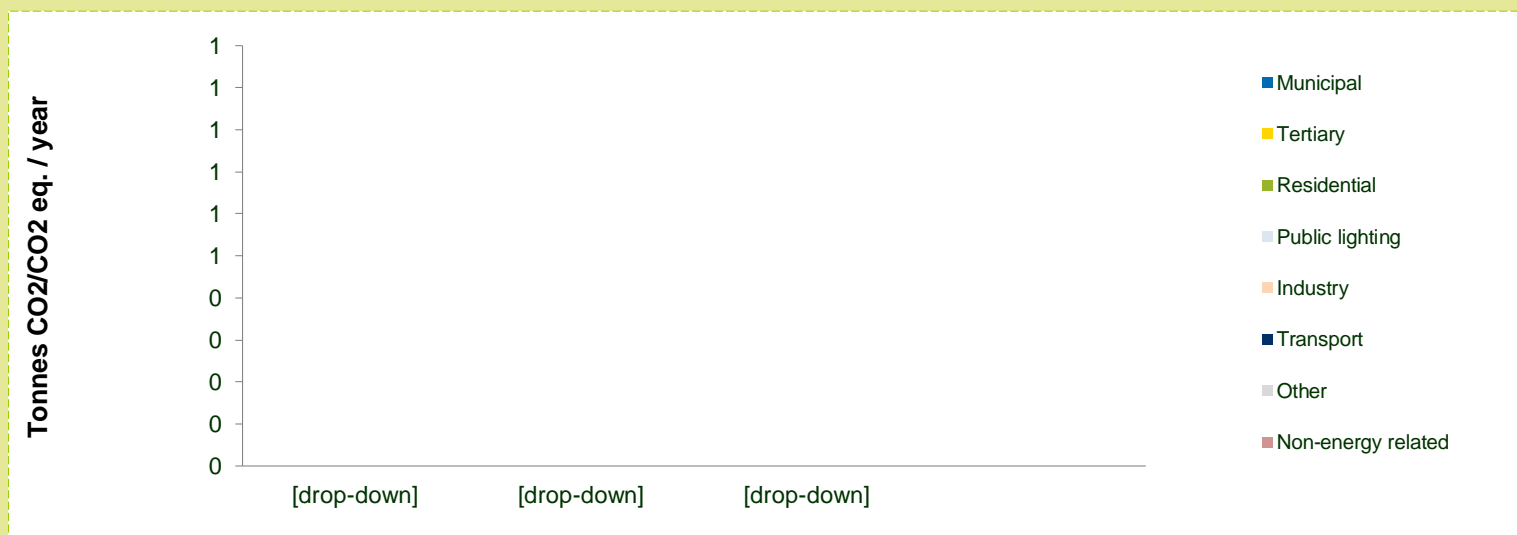
6) Greenhouse gas emissions (influence of the National Electricity Emission Factor)



year	Input National Electricity Emission Factor	Constant emission factor	Yearly updated emission factor	GHG emissions with constant national emission factor	GHG emissions with updated national emission factor
[drop-down]	0	#DIV/0!	-	#DIV/0!	#DIV/0!
[drop-down]	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
[drop-down]	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

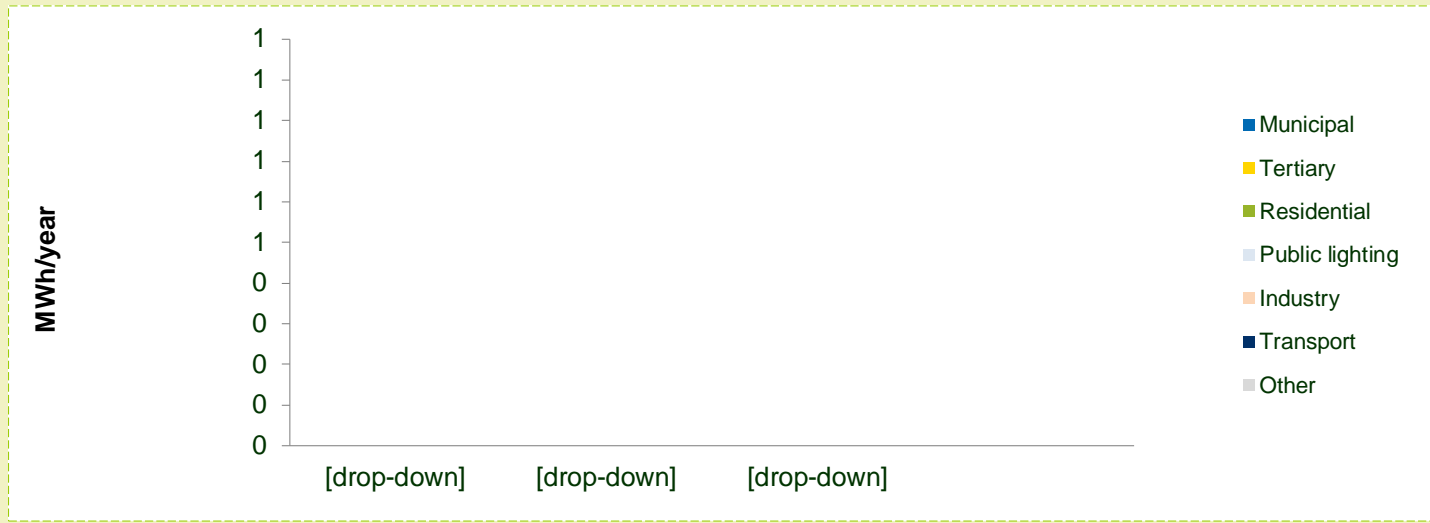
* Total GHG emission according to constant National Electricity Emission Factor has been calculated in order to show the effect on emission reduction expressed by the changing of National Power grid mix and not directly related to actions within the action plan.

7) Greenhouse gas emissions per sector



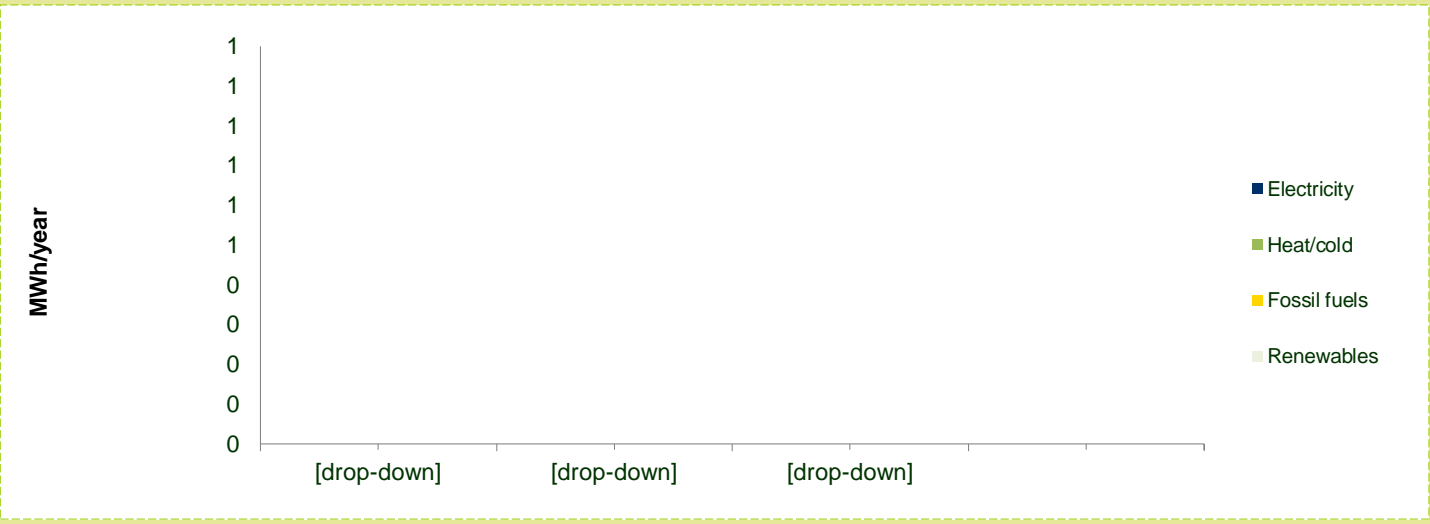
	[drop-down]	[drop-down]	[drop-down]
Municipal	0	0	0
Tertiary	0	0	0
Residential	0	0	0
Public lighting	0	0	0
Industry	0	0	0
Transport	0	0	0
Other	0	0	0
Non-energy related	0	0	0

8) Final energy consumption per sector



	[drop-down]	[drop-down]	[drop-down]
Municipal	0	0	0
Tertiary	0	0	0
Residential	0	0	0
Public lighting	0	0	0
Industry	0	0	0
Transport	0	0	0
Other	0	0	0

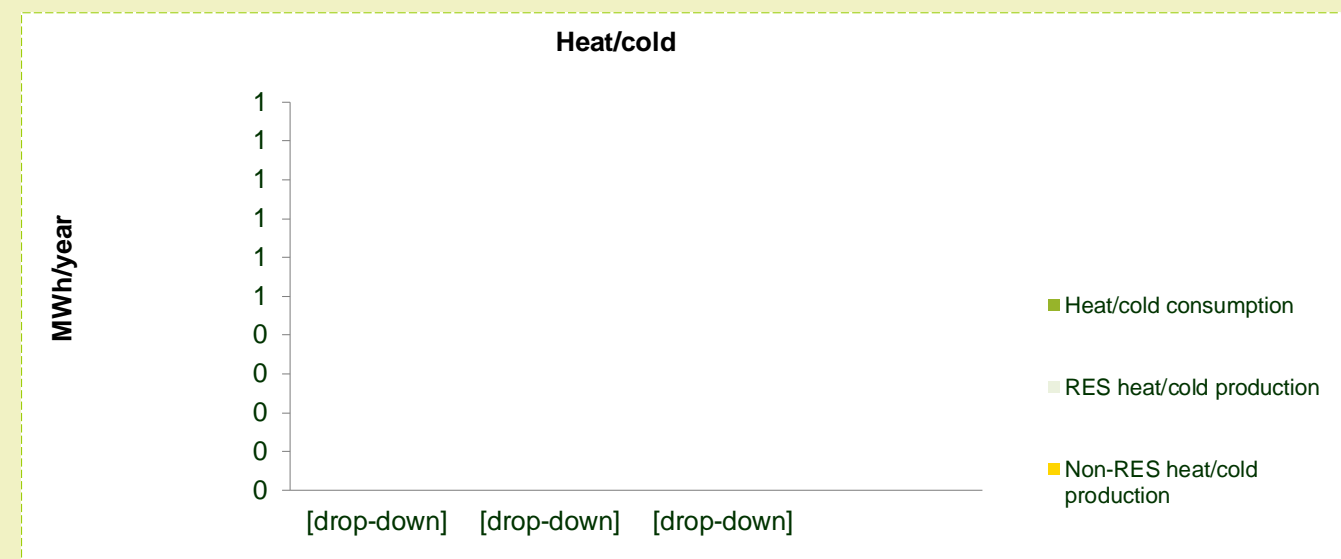
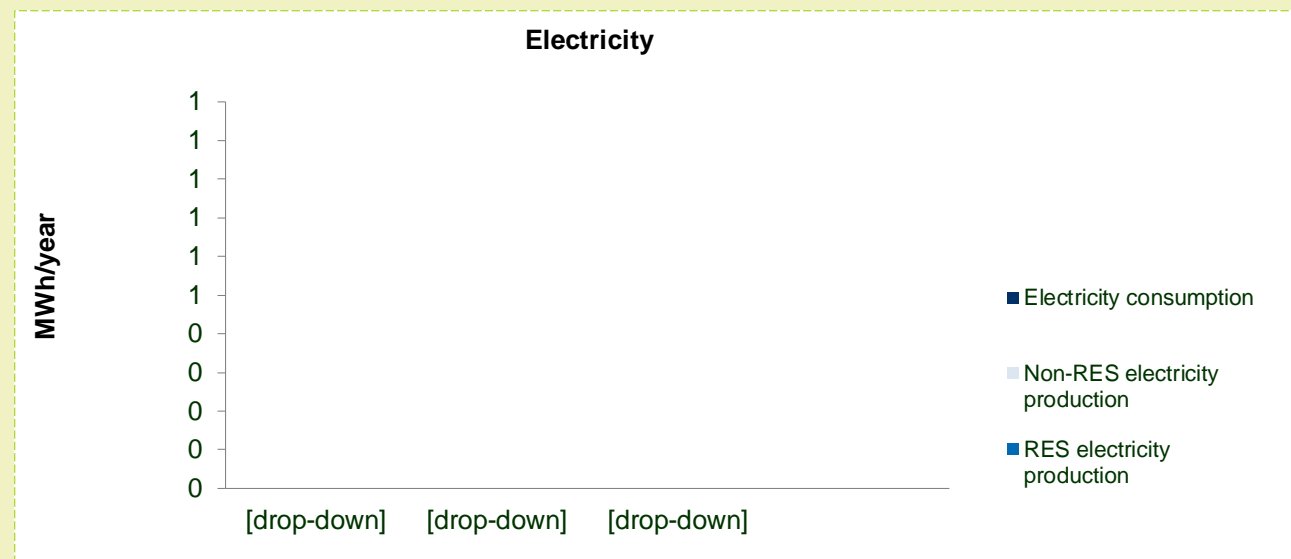
9) Final energy consumption per energy carrier



	[drop-down]	[drop-down]	[drop-down]
Renewables	0	0	0
Fossil fuels	0	0	0
Heat/cold	0	0	0
Electricity	0	0	0

* Renewables for non-electricity uses.
 ** The energy mix of heat/cold and electricity is not identified.

10) Local energy production



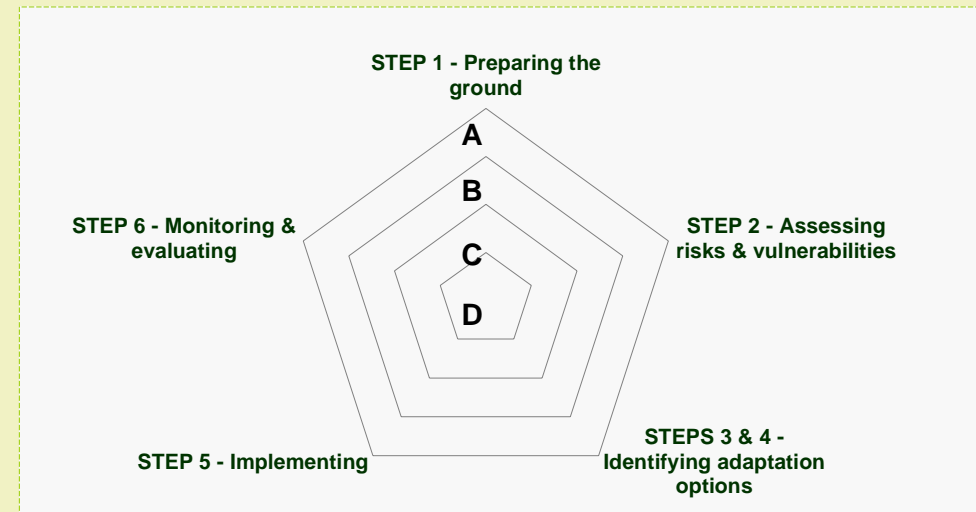
	[drop-down]	[drop-down]	[drop-down]
RES electricity production	0	0	0
Non-RES electricity production	0	0	0
RES heat/cold production	0	0	0
Non-RES heat/cold production	0	0	0
Electricity consumption	0	0	0
Heat/cold consumption	0	0	0

Comments:

2000 chars left

① Please complete the following self-assessment checklist, using the A-B-C-D scaling system (presented below) in column F (compulsory). Identify your next steps/areas of possible improvements through comments entered in column I (optional). The average status for every step is then visualised through the (automatically computed) spider graph below a well as in the "Synthesis Report" tab.

Status Scale	Status	Indicative Completion Level
D	Not started or getting started	0-25 %
C	Moving forward	25-50 %
B	Forging ahead	50-75 %
A	Taking the lead	75-100 %



Adaptation cycle steps	Actions	Self check of the Status	Comments
STEP 1 - Preparing the ground for adaptation <div style="border: 1px solid black; padding: 5px; display: inline-block;">➡ STRATEGY</div>	<u>Adaptation commitments defined/integrated into the local climate policy</u>		
	Human, technical and financial resources identified		
	Adaptation team (officer) appointed within the municipal administration and clear responsibilities assigned		
	Horizontal (i.e. accross sectoral departments) coordination mechanisms in place		
	Vertical (i.e. accross governance levels) coordination mechanisms in place		
	Consultative and participatory mechanisms set up, fostering the multi-stakeholder engagement in the adaptation process		
	Continuous communication process in place (for the engagement of the different target audiences)		500 chars left
STEP 2 - Assessing risks & vulnerabilities <div style="border: 1px solid black; padding: 5px; display: inline-block;">➡ RISKS & VULNERABILITIES</div>	Mapping of the possible methods & data sources for carrying out a <u>Risk & Vulnerability Assessment</u> conducted		
	Assessment(s) of climate risks & vulnerabilities undertaken		
	Possible sectors of action identified and prioritised		
	Available knowledge periodically reviewed and new findings integrated		500 chars left
STEPS 3 & 4 - Identifying, assessing and selecting adaptation options <div style="border: 1px solid black; padding: 5px; display: inline-block;">➡ ACTIONS</div>	Full portfolio of adaptation options compiled, documented and assessed		
	Possibilities of <u>mainstreaming adaptation</u> in existing policies and plans assessed, possible synergies and conflicts (e.g. with mitigation actions) identified		
	<u>Adaptation Actions</u> developed and adopted (as part of the SECAP and/or other planning documents)		500 chars left

<p>STEP 5 - Implementing</p> <p>ACTIONS</p>	<p>Implementation framework set, with clear milestones <u>Adaptation actions</u> implemented and mainstreamed (where relevant) as defined in the adopted SECAP and/or other planning documents Coordinated action between mitigation and adaptation set</p>			500 chars left
<p>STEP 6 - Monitoring and evaluating</p> <p>INDICATORS</p>	<p>Monitoring framework in place for adaptation actions Appropriate M&E indicators identified Progress regularly monitored and reported to the relevant decision-makers <u>Adaptation strategy</u> and/or <u>Action Plan</u> updated, revised and readjusted according to the findings of the M&E procedure</p>			500 chars left

1) Climate Change Risk and Vulnerability Assessment(s)

Title	Author(s)	Year	Description	Boundary	Method & Source(s)	Published?
		[Drop-Down]				[√/×]
		[Drop-Down]				[√/×]

① Add as many rows as necessary

① Click here to send your Risk & Vulnerability Assessment(s) to helpdesk@mayors-adapt.eu - it(they) will be made available under your signatory profile on the Covenant of Mayors website.

2) Climate hazard risks particularly relevant for your local authority or region

		<< Current Risks >>		<< Anticipated Risks >>		
Climate Hazard Type		Current hazard risk level	Expected change in intensity	Expected change in frequency	Timeframe	Risk-related indicators
<u>Extreme Heat</u>		[Drop-Down]	[Drop-Down]	[Drop-Down]	[Drop-Down]	
<u>Extreme Cold</u>		[Drop-Down]	[Drop-Down]	[Drop-Down]	[Drop-Down]	
<u>Extreme Precipitation</u>		[Drop-Down]	[Drop-Down]	[Drop-Down]	[Drop-Down]	
<u>Floods</u>		[Drop-Down]	[Drop-Down]	[Drop-Down]	[Drop-Down]	
<u>Sea Level Rise</u>		[Drop-Down]	[Drop-Down]	[Drop-Down]	[Drop-Down]	
<u>Droughts</u>		[Drop-Down]	[Drop-Down]	[Drop-Down]	[Drop-Down]	
<u>Storms</u>		[Drop-Down]	[Drop-Down]	[Drop-Down]	[Drop-Down]	
<u>Landslides</u>		[Drop-Down]	[Drop-Down]	[Drop-Down]	[Drop-Down]	
<u>Forest Fires</u>		[Drop-Down]	[Drop-Down]	[Drop-Down]	[Drop-Down]	
<u>Other</u>	[please specify]	[Drop-Down]	[Drop-Down]	[Drop-Down]	[Drop-Down]	

① Hide the rows that do not concern your local authority

① To be completed for the climate hazards that concern your local authority only.

① Click here to see examples of risk-related indicators


3) Vulnerabilities of your local authority or region


Vulnerability Type	Vulnerability Description	Vulnerability-related indicators
Socio-Economic:		
Physical and Environmental:		


① Click here to see examples of vulnerability-related indicators

4) Expected impacts in your local authority or region

Impacted Policy Sector	Expected Impact(s)	Likelihood of Occurrence	Expected Impact Level	Timeframe	Impact-related indicators
<u>Buildings</u>		[Drop-Down]	[Drop-Down]	[Drop-Down]	
<u>Transport</u>		[Drop-Down]	[Drop-Down]	[Drop-Down]	
<u>Energy</u>		[Drop-Down]	[Drop-Down]	[Drop-Down]	
<u>Water</u>		[Drop-Down]	[Drop-Down]	[Drop-Down]	
<u>Waste</u>		[Drop-Down]	[Drop-Down]	[Drop-Down]	
<u>Land Use Planning</u>		[Drop-Down]	[Drop-Down]	[Drop-Down]	
<u>Agriculture & Forestry</u>		[Drop-Down]	[Drop-Down]	[Drop-Down]	
<u>Environment & Biodiversity</u>		[Drop-Down]	[Drop-Down]	[Drop-Down]	
<u>Health</u>		[Drop-Down]	[Drop-Down]	[Drop-Down]	
<u>Civil Protection & Emergency</u>		[Drop-Down]	[Drop-Down]	[Drop-Down]	
<u>Tourism</u>		[Drop-Down]	[Drop-Down]	[Drop-Down]	
<u>Other</u>	[please specify]	[Drop-Down]	[Drop-Down]	[Drop-Down]	

 Hide the rows that do not concern your local authority

 To be completed for the sectors that are impacted in your local authority only.

 [Click here to see examples of impact- & sector-related indicators](#)

1) Adaptation Action Plan(s)

Title	Short Description	Date of Adoption (if any)	Language	Published?
		[dd/mm/yy]	[Drop-Down]	[√/x]
		[dd/mm/yy]	[Drop-Down]	[√/x]
		[dd/mm/yy]	[Drop-Down]	[√/x]

① Add as many rows as necessary

① Send your Local Adaptation Action Plan and other planning documents (if any) to helpdesk@mayors-adapt.eu.

Adaptation mainstreaming into other policy fields:

500 characters left

2) Adaptation Actions

① List your adaptation actions in the table below. Actions can be comprehensive or representative, taken from one or more of the documents cited by the local authority in the section above.

Sector	Title (max. 120 chars)	Short description (max. 300 chars)	Responsible body/department	Implementation timeframe		Implementation status	Action also affecting mitigation?	Select as Key Action (☑)	<< Extra mandatory fields for "Key Actions" only >>				
				Start	End				Stakeholders involved	Risk and/or vulnerability tackled	Outcome(s) reached (min. 1)	Costs (€)	
									Investment	Non-investment			
[Drop-Down]				[Drop-Down]	[Drop-Down]	[Drop-Down]	[Select x]	[Please select]					
[Drop-Down]				[Drop-Down]	[Drop-Down]	[Drop-Down]	[Select x]	[Please select]					
[Drop-Down]				[Drop-Down]	[Drop-Down]	[Drop-Down]	[Select x]	[Please select]					
[Drop-Down]				[Drop-Down]	[Drop-Down]	[Drop-Down]	[Select x]	[Please select]					
[Drop-Down]				[Drop-Down]	[Drop-Down]	[Drop-Down]	[Select x]	[Please select]					
[Drop-Down]				[Drop-Down]	[Drop-Down]	[Drop-Down]	[Select x]	[Please select]					
[Drop-Down]				[Drop-Down]	[Drop-Down]	[Drop-Down]	[Select x]	[Please select]					
[Drop-Down]				[Drop-Down]	[Drop-Down]	[Drop-Down]	[Select x]	[Please select]					
[Drop-Down]				[Drop-Down]	[Drop-Down]	[Drop-Down]	[Select x]	[Please select]					
[Drop-Down]				[Drop-Down]	[Drop-Down]	[Drop-Down]	[Select x]	[Please select]					
[Drop-Down]				[Drop-Down]	[Drop-Down]	[Drop-Down]	[Select x]	[Please select]					
[Drop-Down]				[Drop-Down]	[Drop-Down]	[Drop-Down]	[Select x]	[Please select]					
[Drop-Down]				[Drop-Down]	[Drop-Down]	[Drop-Down]	[Select x]	[Please select]					
[Drop-Down]				[Drop-Down]	[Drop-Down]	[Drop-Down]	[Select x]	[Please select]					

① Add/hide as many rows as necessary.

① For quantifying the risk/vulnerability tackled and/or the outcome reached, click to see examples of indicators.

3) Impact Rating Matrix

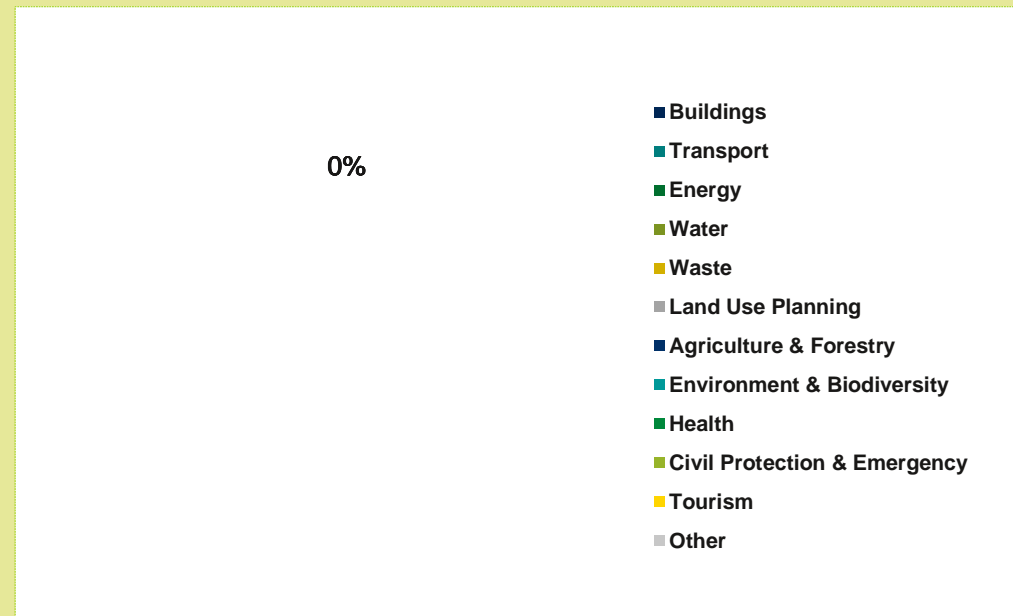
[Source: "Risks & Vulnerabilities" tab]

Impacted Policy Sector	Likelihood of Occurrence	Expected Impact Level	Timeframe
Buildings			
Transport			
Energy			
Water			
Waste			
Land Use Planning			
Agriculture & Forestry			
Environment & Biodiversity			
Health			
Civil Protection & Emergency			
Tourism			
Other [please specify]			

!: Low	: Current
!!: Moderate	▶: Short-term
!!!: High	▶▶: Medium-term
[?]: Not Known	▶▶▶: Long-term
	[?]: Not known

4) (Reported) Adaptation Actions by Sector

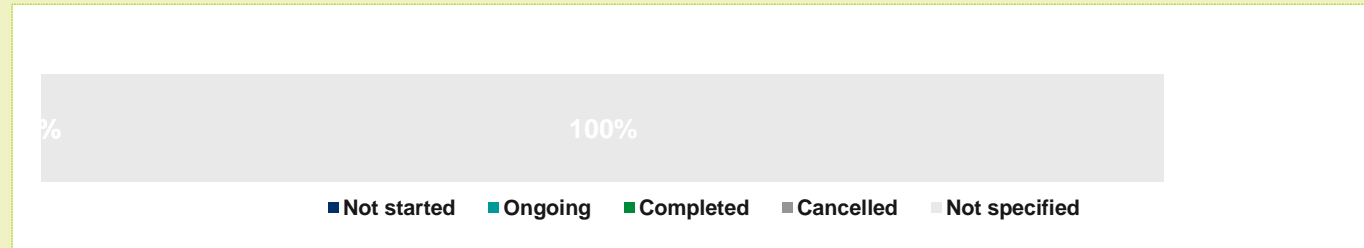
[Source: "Adaptation actions" tab]



Sector	Number of reported actions
Buildings	0
Transport	0
Energy	0
Water	0
Waste	0
Land Use Planning	0
Agriculture & Forestry	0
Environment & Biodiversity	0
Health	0
Civil Protection & Emergency	0
Tourism	0
Other	0

4) Status of the (Reported) Adaptation Actions

[Source: "Adaptation Actions" tab]



Action Status	Number of reported actions	
Not started	0	0%
Ongoing	0	0%
Completed	0	0%
Cancelled	0	0%
Not specified	15	100%
Total:	15	

5) Comments

ⓘ This annex serves as a [source of inspiration only](#). None of these indicators are compulsory, but rather illustrative examples. Only process-based indicators (A-B-C-D scaling system proposed in the "Adaptation Scoreboard") are compulsory.

→ Table of Contents

Type of indicators	Definition	Min. Reporting Requirements	Output	Link
Process-based indicators	track where the local authority is in the adaptation process (through self-assessment questions & an A-B-C-D scaling system).	Compulsory (in the "Adaptation Scoreboard")	Spider Graph (generated by Excel)	↻ (Adaptation Scoreboard)
Vulnerability indicators	provide information about the level of local authority's vulnerability to climate impacts (incl. exposure and sensitivity to risk).	Optional (but highly recommended for the main vulnerabilities reported in the "Risks & Vulnerabilities" tab)	**	↻
Impact indicators	give an indication of the impacts (e.g. affecting the environment, society and the economy) measured by the local authority in its territory.	Optional (but highly recommended for the main impacts reported in the "Risks & Vulnerabilities" tab)	Risk & Impact Rating Matrix (generated by Excel)	↻
Outcome indicators	quantify progress in delivering adaptation actions and outcomes (e.g. vulnerabilities reduced / resilience strengthened) in the different sectors.	Optional (but at least 1 highly recommended per "Key Action" reported in the "Actions" tab)	Key facts & figures on the Covenant (to come on the Covenant website)	↻

→ Indicators

ⓘ Below is a list of indicator examples (non-exhaustive) ; please select any indicators that your local authority is using to measure progress and complete the list with your own indicators - [simply add/hide the rows according to your needs](#). Note that the indicators are classified according to the different sectors and categories you can find in the previous tabs of this present template.

Vulnerability Type	Vulnerability-related indicators	Unit	Base year	Expected Change	Timeframe
Climatic	Number of days/nights with extreme temperature (compared to ref. annual/seasonal temperatures at day/night times)	Number of days/nights		[Drop-Down]	[Drop-Down]
Climatic	Frequency of heat/cold waves	Average per monthly/year		[Drop-Down]	[Drop-Down]
Climatic	Number of days/nights with extreme precipitation (compared to ref. annual/seasonal precipitation at day/night times for each season)	Number of days/nights		[Drop-Down]	[Drop-Down]
Climatic	Number of consecutive days/nights without rainfall	Number of days/nights		[Drop-Down]	[Drop-Down]
Socio-economic	Current population vs. projections 2020/2030/2050	Number of inhab.		[Drop-Down]	[Drop-Down]
Socio-economic	Population density (compared to national/regional average in year X in country/region X)	People per km ²		[Drop-Down]	[Drop-Down]
Socio-economic	% share of sensitive population groups (e.g. elderly (65+)/young (25-) people, lonely pensioner households, low-income/unemployed households) - compared to national average in year X in country X	%		[Drop-Down]	[Drop-Down]
Socio-economic	% of population living in areas at risk (e.g. flood/drought/heat wave/ forest or land fire)	%		[Drop-Down]	[Drop-Down]
Socio-economic	% of areas non-accessible for emergency / firefighting services	%		[Drop-Down]	[Drop-Down]
Physical & environmental	% change in average annual/monthly temperature	%		[Drop-Down]	[Drop-Down]
Physical & environmental	% change in average annual/monthly precipitation	%		[Drop-Down]	[Drop-Down]
Physical & environmental	Length of transport network (e.g. road/rail) located in areas at risk (e.g. flood/drought/heat wave/ forest or land fire)	Km		[Drop-Down]	[Drop-Down]
Physical & environmental	Length of coastline / river(s) affected by extreme weather conditions / soil erosion (without adaptation)	Km		[Drop-Down]	[Drop-Down]
Physical & environmental	% of low-lying or at altitude areas	%		[Drop-Down]	[Drop-Down]
Physical & environmental	% of areas at coasts or rivers	%		[Drop-Down]	[Drop-Down]
Physical & environmental	% of protected (ecologically and/or culturally sensitive) areas / % of forest cover	%		[Drop-Down]	[Drop-Down]
Physical & environmental	% of (e.g. residential/commercial/agricultural/industrial/touristic) areas at risk (e.g. flood/drought/heat wave/ forest or land fire)	%		[Drop-Down]	[Drop-Down]
Physical & environmental	Current energy consumption per capita vs. projections 2020/2030/2050	MWh		[Drop-Down]	[Drop-Down]
Physical & environmental	Current water consumption per capita vs. projections 2020/2030/2050	m ³		[Drop-Down]	[Drop-Down]
Other [please specify]	Other [please specify]	[please specify]		[Drop-Down]	[Drop-Down]

ANNEX - Indicators for Adaptation

Impacted Sector(s)	Impact-related indicators	Unit	Base year	Expected Change	Timeframe
Buildings	Number or % of (public/residential/tertiary) buildings damaged by extreme weather conditions/events	(per year / over a certain period)		[Drop-Down]	[Drop-Down]
Transport, Energy, Water, Waste, ICT	Number or % of transport/energy/water/waste/ICT infrastructure damaged by extreme weather conditions/events	(per year / over a certain period)		[Drop-Down]	[Drop-Down]
Land Use Planning	% of grey/blue/green areas affected by extreme weather conditions/events (e.g. Heat Island Effect, Flood, Rockfalls and/or Landslides, Forest/Land Fire)	%		[Drop-Down]	[Drop-Down]
Transport, Energy, Water, Waste, Civil Protection & Emergency	Number of days with public service interruptions (e.g. energy/water supply, health/civil protection/emergency services, waste)			[Drop-Down]	[Drop-Down]
Transport, Energy, Water, Waste, Civil Protection & Emergency	Average length (in hours) of the public service interruptions (e.g. energy/water supply, public transport traffic, health/civil protection/emergency services)	hours		[Drop-Down]	[Drop-Down]
Health	Number of people injured/evacuated/relocated due to extreme weather event(s) (e.g. heat or cold waves)	(per year / over a certain period)		[Drop-Down]	[Drop-Down]
Health	Number of deaths related to extreme weather event(s) (e.g. heat or cold waves)	(per year / over a certain period)		[Drop-Down]	[Drop-Down]
Civil Protection & Emergency	Average response time (in min.) for police/fire-fighters/emergency services in case of extreme weather events	min.		[Drop-Down]	[Drop-Down]
Health	Number of water quality warnings issued	%		[Drop-Down]	[Drop-Down]
Health	Number of air quality warnings issued			[Drop-Down]	[Drop-Down]
Environment & Biodiversity	% of areas affected by soil erosion / soil quality degradation	%		[Drop-Down]	[Drop-Down]
Environment & Biodiversity	% of habitat losses from extreme weather event(s)	%		[Drop-Down]	[Drop-Down]
Environment & Biodiversity	% change in number of native species	%		[Drop-Down]	[Drop-Down]
Environment & Biodiversity	% of native (animal/plant) species affected by diseases related to extreme weather conditions/events	%		[Drop-Down]	[Drop-Down]
Agriculture & Forestry	% of agriculture losses from extreme weather conditions/events (e.g. drought/water scarcity, soil erosion)	%		[Drop-Down]	[Drop-Down]
Agriculture & Forestry	% of livestock losses from extreme weather conditions	%		[Drop-Down]	[Drop-Down]
Agriculture & Forestry	% change in crop yield / evolution of the annual grassland productivity	%		[Drop-Down]	[Drop-Down]
Agriculture & Forestry	% of livestock losses from pests/pathogens	%		[Drop-Down]	[Drop-Down]
Agriculture & Forestry	% of timber losses from pests/pathogens	%		[Drop-Down]	[Drop-Down]
Agriculture & Forestry	% change in Forest composition	%		[Drop-Down]	[Drop-Down]
Agriculture & Forestry	% change in water abstraction	%		[Drop-Down]	[Drop-Down]
Tourism	% change in tourist flows / tourism activities	%		[Drop-Down]	[Drop-Down]
Other	€ annual direct economic losses (e.g. in commercial/agricultural/industrial/touristic sectors) due to extreme weather event(s)	€/year		[Drop-Down]	[Drop-Down]
Other	€ annual amount of compensation received (e.g. insurance)	€/year		[Drop-Down]	[Drop-Down]
Other	Other [please specify]			[Drop-Down]	[Drop-Down]

ANNEX - Indicators for Adaptation

[HOME](#)

Concerned Sector(s)	Outcome-related indicators	Unit	Base year	Expected Change	Timeframe
Buildings	% of (public/residential/tertiary) buildings retrofitted for adaptive resilience	%		[Drop-Down]	[Drop-Down]
Transport, Energy, Water, Waste, ICT	% of transport/energy/water/waste/ICT infrastructure retrofitted for adaptive resilience	%		[Drop-Down]	[Drop-Down]
Land Use Planning	% change in green & blue infrastructure/areas (surface)	%		[Drop-Down]	[Drop-Down]
Land Use Planning	% change in connected green and blue areas	%		[Drop-Down]	[Drop-Down]
Land Use Planning	% change in sealed surfaces / soil moisture level	%		[Drop-Down]	[Drop-Down]
Land Use Planning	% change in runoff of rainwater overflows (due to change in soil infiltration)			[Drop-Down]	[Drop-Down]
Land Use Planning	% change in shading (& related change in the Urban Heat Island effect)	%		[Drop-Down]	[Drop-Down]
Land Use Planning	% of coastline designated for managed realignment	%		[Drop-Down]	[Drop-Down]
Water	% change in water loss (e.g. due to leakage in the water distribution system)			[Drop-Down]	[Drop-Down]
Water	% change in storage of rain water (for reuse)	%		[Drop-Down]	[Drop-Down]
Waste	% change in solid waste collected / recycled / disposed of / burned			[Drop-Down]	[Drop-Down]
Environment & Diversity	% of habitats restored / % of species protected	%		[Drop-Down]	[Drop-Down]
Agriculture & Forestry	% change in crop yield due to adaptation measures	%		[Drop-Down]	[Drop-Down]
Agriculture & Forestry	% change in water consumption for agriculture/irrigation	%		[Drop-Down]	[Drop-Down]
Agriculture & Forestry	% of forest restored	%		[Drop-Down]	[Drop-Down]
Tourism	% change in tourist flows	%		[Drop-Down]	[Drop-Down]
Tourism	% change in tourism activities	%		[Drop-Down]	[Drop-Down]
Other	% change in costs for recovery and reconstruction associated with extreme climate events	%		[Drop-Down]	[Drop-Down]
Other	€ investment in adaptation research (e.g. soil conservation, water/energy efficiency...) by the city / by other stakeholders	€		[Drop-Down]	[Drop-Down]
Other	€ investment in education / in health & emergency systems by the city	€		[Drop-Down]	[Drop-Down]
Other	Number of awareness-raising events targeting citizens and local stakeholders			[Drop-Down]	[Drop-Down]
Other	Number of training sessions targeting staff			[Drop-Down]	[Drop-Down]
Other	Number of direct beneficiaries involved in adaptation process milestone decision making through community participatory activities			[Drop-Down]	[Drop-Down]
Other	Other [please specify]			[Drop-Down]	[Drop-Down]

➔ ADAPTATION ACTIONS

→ Relevant Resources

[EUROSTAT Urban Audit – Database](#)

[EEA Urban Vulnerability Map book – Tool](#)

[EEA Urban Vulnerability Map book – Factsheets](#)

[Urban Vulnerability Indicators – Technical Report \(ETC-CCA & ETC-SIA, 2012\)](#)

["World Council on City Data" – Open Data Portal](#)

[ISO 37120 Sustainable Development of Communities: Indicators for City Services and Quality of Life \(ISO May 2014\) - Note: only informative sessions of standards are publicly available.](#)

[Planning for Adaptation to Climate Change – Guidance Document \(ACT Life project, 2013\)](#)

CoM Template Energy carriers	Fossil fuels												Renewable energies													
	Natural gas	Liquid gas		Heating Oil	Diesel	Gasoline	Lignite	Coal			Other fossil fuels		Plant oil	Biofuel (1)	Biofuel (2)	Other biomass (1)	Other biomass (2)	Other biomass (3)	Other biomass (4)	Other biomass (5)	Solar thermal	Geothermal				
IPCC Energy carriers	Natural gas	Liquified Petroleum Gases	Natural Gas Liquids	Gas/Diesel oil	Gas/Diesel oil	Motor gasoline	Lignite	Anthracite	Other Bituminous Coal	Sub-Bituminous Coal	Municipal Wastes (non-biomass fraction)	Peat	Other Liquid Biofuels		Biogasoline	Biodiesels		Biogas	Municipal Wastes (biomass fraction)	Wood	Wood Waste	Other Primary solid biomass				
Sustainability criteria ^(a)													(s)	(ns)	(s)	(ns)	(s)	(ns)	-	-	(s)	(ns)	-	-	-	
IPCC	t CO ₂ /MWh	0,202	0,227	0,231	0,267	0,267	0,249	0,364	0,354	0,341	0,346	0,330	0,382	0,000	0,287	0,000	0,255	0,000	0,255	0,197	0,000	0,403	0,403	0,360	-	
	t CO ₂ eq./MWh ^(b)	0,202	0,227	0,232	0,268	0,268 ^(c)	0,250 ^(c)	0,365	0,356	0,342	0,348	0,337	0,383	0,001	0,302	0,001	0,256	0,001	0,256	0,197	0,007	0,410	0,410	0,367	-	
LCA	t CO ₂ /MWh	0,221	n.a.	n.a.	0,292	0,292	0,299	0,368	0,379	0,366	0,371	0,181	0,386	0,171		0,194		0,147		n.a.	0,107	0,006	0,409	0,193	n.a.	n.a. ^(h)
	t CO ₂ eq./MWh	0,237	n.a.	n.a.	0,305	0,305	0,307	0,375	0,393	0,380	0,385	0,174	0,392	0,182 ^(d)		0,206 ^(d)		0,156 ^(d)		n.a.	0,106	0,013	0,416 ^(d)	0,184	n.a.	n.a. ^(h)

^(a) if sustainability criteria during production are fulfilled
^(ns) if sustainability criteria during production are not fulfilled

- a. IPCC emission factor should be reported zero if the biofuels/biomass meet sustainability criteria; fossil fuel emission factors to be used if biofuels are unsustainable, (s) sustainable, (ns) not sustainable
- b. Taking into consideration also the CH₄ and the N₂O emissions from combustion in stationary sources
- c. If choosing to report in CO₂eq, please consider that the emission factors for the transport sector are with up to 3% higher than the values provided here, which are characteristic for stationary sources
- d. Conservative figure regarding pure plant oil from palm oil. Note that this figure represents the worst ethanol plant oil pathway and does not necessarily represent a typical pathway. This figure does not include the impacts of direct and indirect land use change. Had these been considered, the default value could be as high as 9 t CO₂-eq/MWh, in the case of conversion of forest land in the tropics.
- e. Conservative figure regarding ethanol from wheat. Note that this figure represents the worst ethanol pathway and does not necessarily represent a typical pathway. This figure does not include the impacts of direct and indirect land use change. Had these been considered, the default value could be as high as 9 t CO₂-eq/MWh, in the case of conversion of forest land in the tropics.
- f. Conservative figure regarding biodiesel from palm oil. Note that this figure represents the worst biodiesel pathway and does not necessarily represent a typical pathway. This figure does not include the impacts of direct and indirect land use change. Had these been considered, the default value could be as high as 9 t CO₂-eq/MWh, in the case of conversion of forest land in the tropics.
- g. The figure reflects the production and local/regional transport of wood, representative for Germany, assuming: spruce log with bark; reforested managed forest; production mix entry to saw mill, at plant; and 44% water content. Carbon dioxide incorporation is considered. The local authority using this emission factor is recommended to check that it is representative for the local circumstances and to develop an own emission factor if the circumstances are different. These a
- h. Data not available, but emissions are assumed to be low (however the emissions from electricity consumption of heat pumps is to be estimated using the emission factors for electricity). Local authorities using these technologies are encouraged to try to obtain such data.