

Sustainable Energy Action Plan of Terrassa

Date of adhesion to Covenant of Mayors

Population	194 947	inh.
Seasonal population	194.947	inh.
Total surface area	70,1	Km ²
Urban land	9,4	Km ²
Urban waste production	1.1	kg/cap.day
Water consumption	212.8	litres/cap.day
Energy consumption	13 036.6	kWh/cap.
Type of municipality ¹	Industrial/services	

¹ Industrial, rural, touristic...

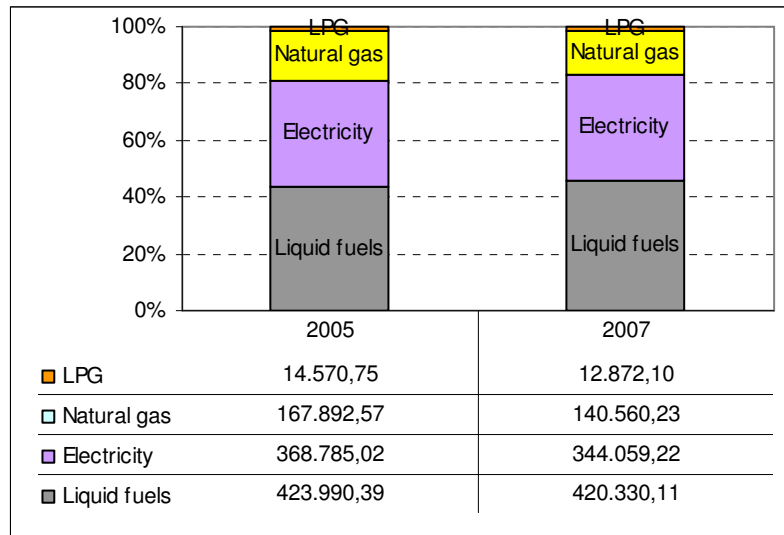
Índex

1	EMISSION ASSESSMENT	3
1.1	GENERAL EVOLUTION OF THE MUNICIPALITY CONSIDERING ALL SECTORS	3
1.1.1	<i>Emissions per sources.....</i>	<i>3</i>
1.1.2	<i>Municipality's total emissions</i>	<i>3</i>
1.2	GENERAL EMISSION EVOLUTION IN SEAP CATEGORIES	4
1.2.1	<i>Emissions per sources.....</i>	<i>4</i>
1.2.2	<i>Total SEAP emissions</i>	<i>4</i>
1.2.3	<i>SEAP emissions per sectors</i>	<i>4</i>
1.2.4	<i>Local energy production less than 20 MW (%).....</i>	<i>4</i>
1.3	TOWN COUNCIL EMISSIONS	5
1.3.1	<i>Town council emissions.....</i>	<i>5</i>
1.3.2	<i>Touwn council emissions per sources.....</i>	<i>5</i>
1.3.3	<i>Town council emissions per sectors.....</i>	<i>5</i>
1.3.4	<i>Highest consumers of municipal buildings/facilities (%).....</i>	<i>6</i>
2	ACTION PLAN	7
2.1	SELECTION OF ACTION FIELDS.....	7
2.2	KEY ELEMENTS OF THE SEAP	8

1 Emission assessment

1.1 General evolution of the municipality considering all sectors

1.1.1 Emissions per sources



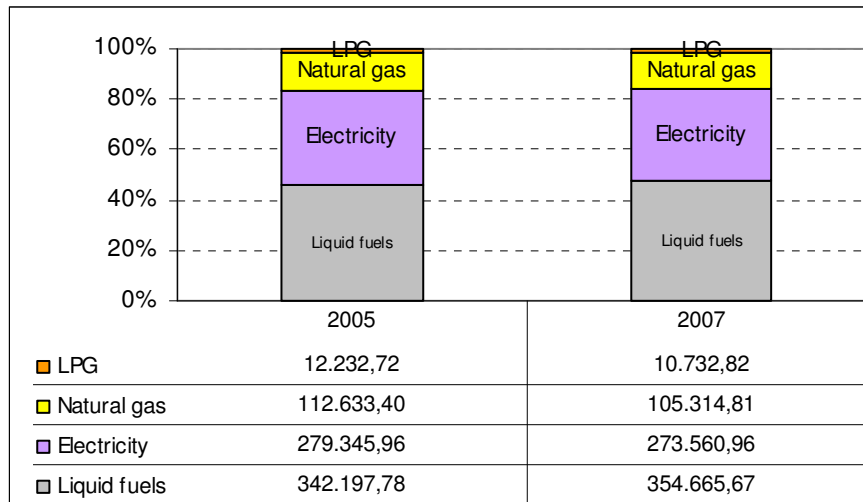
Source: ICAEN (Catalan Institute of Energy)
LPG: Liquefied Petroleum Gas

1.1.2 Municipality's total emissions

	2005	2007
Total tCO ₂ eq.	975 238.7	917 821.7
tCO ₂ eq. /cap.	5.0	4.7

1.2 General emission evolution in SEAP categories

1.2.1 Emissions per sources



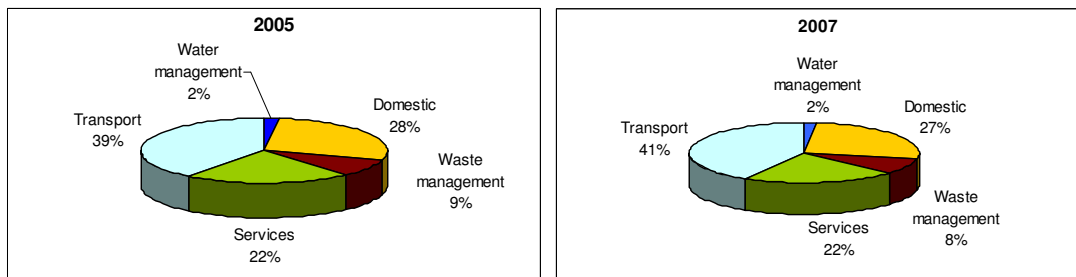
Source: ICAEN (Catalan Institute of Energy)

1.2.2 Total SEAP emissions

	2005	2007
Total tCO ₂ eq.	746 409.9	744 274.3
tCO ₂ eq. /cap.	3.8	3.8
Reduction percentage		

Source: ICAEN (Catalan Institute of Energy)

1.2.3 SEAP emissions per sectors



Source: ICAEN (Catalan Institute of Energy), Catalan Agency of Waste and Catalan Agency of Water

1.2.4 Local energy production less than 20 MW (%)

2005	2007
0.00002	0.0001

Source: ICAEN (Catalan Institute of Energy)

1.3 Town council emissions

1.3.1 Town council emissions

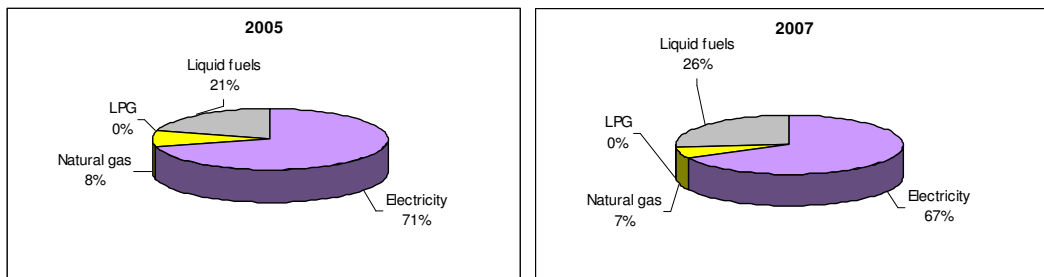
	2005	2007
Total tCO ₂ eq.	5 513.3	5 945.5
tCO ₂ eq. /cap.	0.1	0.1
% of the total municipality's emissions	1.8%	1.9%

Source: Council of Terrassa

1.3.2 Town council emissions per sources

	2005	2007
Electricity	12 813.5	11 731.2
Natural gas	1 461.0	1 160.4
Liquefied Petroleum Gas (LPG)	0.0	0.0
Liquid fuels	3 763.0	4 558.3

Source: Council of Terrassa

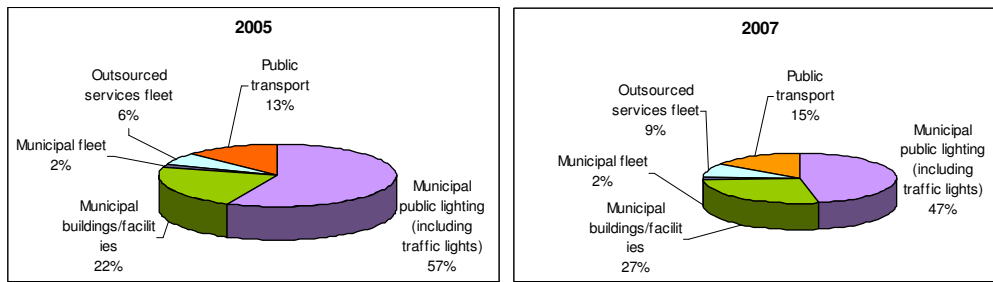


Source: Council of Terrassa

1.3.3 Town council emissions per sectors

	2005	2007
Municipal public lighting (including traffic lights)	10 281.4	8 197.3
Municipal buildings/facilities	3 993.1	4 694.3
Municipal fleet	293.8	341.5
Outsourced services fleet	1 121.7	1 571.4
Public transport	2 347.4	2 645.5

Source: Council of Terrassa



Source: Council of Terrassa

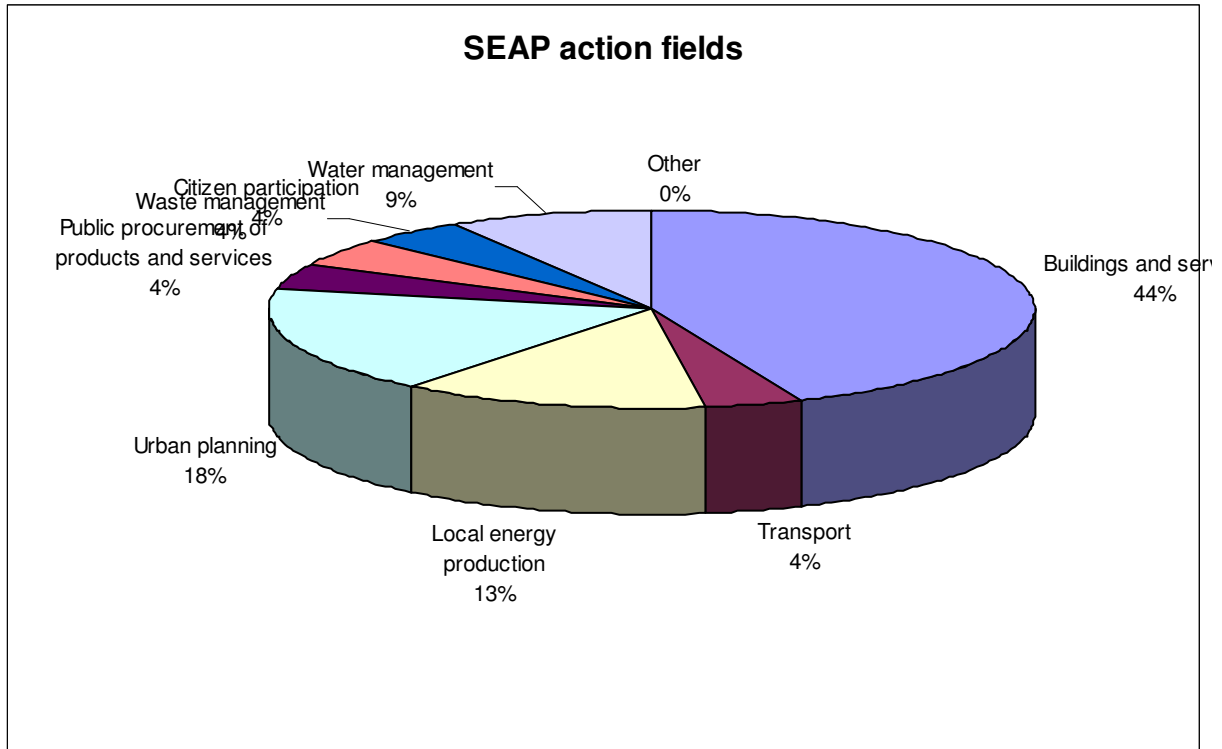
1.3.4 Highest consumers of municipal buildings/facilities (%)

Highest	Buildings/facilities	2005	2007
	Municipal public lighting	56.8%	47.0%
	Municipal buildings, equipments/facilities	21.9%	26.6%
	Public transport	13.0%	15.2%
	Municipal fleet	7.8%	11.0%
lowest			

Source: Council of Terrassa

2 Action plan

2.1 Selection of action fields²



Source: Pla d'Acció per l'Energia Sostenible de Terrassa

SEAP emissions reduction target (tones) (*)	165.313
SEAP emissions reduction target (tones/capita)	0,85
Emissions reduction between 2005 and 2007 implementing municipal policies(**)	
Number of actions of the SEAP	23

(*) there are 4 actions that haven't been quantified, but they will contribute to emission reduction therefore the final reduction will exceed the established target (20%)

² % of the number of actions for each SEAP action field

2.2 Key elements of the SEAP

(It is possible to include more than 1 action in each field)

SECTORS & optional fields of action	Energy saving target per sector [MWh] in 2020	CO ₂ reduction target per sector [t] in 2020	Actions/measures per field of action	Responsible department, person	Implementation [start & end time]	Estimated costs per action/measure	Expected CO ₂ reduction per measure [t/a]
BUILDINGS, EQUIPMENTS/FACILITIES AND INDUSTRIES:	137.130,5	46.113					
Municipal buildings, equipments/facilities			Replace of boilers, heaters, electrical heating systems for biomass boilers / high performance	Environment Department	2020	3.300.000 €	426
			Improving the efficiency of lighting systems equipment by replacing electromagnetic ballasts by electronic ballasts for fluorescent tubes and / or LEDs.	Environment Department	2020	280.000 €	64
			Implementation of a remote management and continuous monitoring system of energy consumption in municipal buildings.	Environment Department	2012	200.000 €	259

SECTORS & optional fields of action	Energy saving target per sector [MWh] in 2020	CO ₂ reduction target per sector [t] in 2020	Actions/measures per field of action	Responsible department, person	Implementation [start & end time]	Estimated costs per action/measure	Expected CO ₂ reduction per measure [t/a]	
Tertiary (non municipal) buildings, equipments Residential buildings			Created position of manager of energy and energy committee	Environment Department	2012	80.000 €/year	259	
			Installing energy management systems of the computers used in all the municipal buildings	Government Area	2012	25.000 €	106	
			Implement a system of monitoring and controlling the maintenance of solar thermal installations in the municipality.	Environment Department	2012	50.000	8.125	
			Promote the establishment of solar thermal energy systems in the existing residential buildings and other activities of the municipality	Environment Department	2020	50.000+20.000/year	24.593	
			To improve energy	Environment	2012	50.000+20.000/year	45.554	

SECTORS & optional fields of action	Energy saving target per sector [MWh] in 2020	CO ₂ reduction target per sector [t] in 2020	Actions/measures per field of action	Responsible department, person	Implementation [start & end time]	Estimated costs per action/measure	Expected CO ₂ reduction per measure [t/a]
			efficiency in the household sector through the application of passive systems	Department			
			To improve energy efficiency in the household sector through the implementation of active systems.	Environment Department	2020	50.000+20.000/year	48.333
Municipal public lighting (including traffic lights)			Adequacy of the Public Lighting Implementation Plan	Public lighting	2012	Running	3.075
Optional additional field(s) of action - please specify:							
TRANSPORT:	143,5	43					
Municipal fleet and outsourced services fleet			Replacement of municipal fleet vehicles to hybrid, electric or low emission ones	Government Area	2020	656.250	43
Public transport							
Private and commercial transport							
Optional additional field(s) of action - please specify:							

SECTORS & optional fields of action	Energy saving target per sector [MWh] in 2020	CO ₂ reduction target per sector [t] in 2020	Actions/measures per field of action	Responsible department, person	Implementation [start & end time]	Estimated costs per action/measure	Expected CO ₂ reduction per measure [t/a]
LOCAL ELECTRICITY PRODUCTION:							
Hydroelectrical power							
Wind farm							
PVs			Installing solar photovoltaic panels on the roofs of municipal buildings	Environment Department	2012	The measure is income energy sell	1.385
			Promote local production of renewable energy in the private sector	Environment Department	2012	No cost	13.164
CHPs			Use of biogas digester sludge from the Waste Water Treatment Plant of Terrassa for cogeneration	Catalan Water Agency	2012	No cost	1.550
Optional additional field(s) of action - please specify:							
LAND USE PLANNING:	267.043	70.177					
Strategic urban planning							
Transport / mobility planning			Development of the measures included in the Director Mobility Plan of Terrassa for the period 2005-2011	Mobility planning	2012	Running	no quantifiable

SECTORS & optional fields of action	Energy saving target per sector [MWh] in 2020	CO ₂ reduction target per sector [t] in 2020	Actions/measures per field of action	Responsible department, person	Implementation [start & end time]	Estimated costs per action/measure	Expected CO ₂ reduction per measure [t/a]
			Replace 25% of the fleet of private vehicles in the town for electric vehicles, hybrid or low emissions ones.	Environment Department	2020	Rating Pending	42.817
			Review the Mobility plan according to the reducing CO ₂ emissions criteria	Mobility planning	2015	No quantifiable	27.360
Standards for refurbishment and new development			Promoting the adoption of measures to mitigate climate change on the new growth sectors	Urban planning	2020	No cost	not quantifiable
Optional additional field(s) of action - please specify:							
PUBLIC PROCUREMENT OF PRODUCTS AND SERVICES:							
Energy efficiency requirements/standards			Implementation of a green procurement program	Government Area	2012	50.000	not quantifiable
Renewable energy requirements/standards							
Optional additional field(s) of action - please specify:							
WORKING WITH THE							

SECTORS & optional fields of action	Energy saving target per sector [MWh] in 2020	CO ₂ reduction target per sector [t] in 2020	Actions/measures per field of action	Responsible department, person	Implementation [start & end time]	Estimated costs per action/measure	Expected CO ₂ reduction per measure [t/a]
CITIZENS AND STAKEHOLDERS (CITIZEN PARTICIPATION)							
Advisory services							
Financial support and grants							
Awareness raising and local networking			Carry out campaigns for the promotion of sustainable water use	Environment Department	2015	272.000	not quantifiable
Training and education							
Optional additional field(s) of action - please specify:							
OTHER SECTOR(S) - Please specify:	2.341	32.881					
Waste management			Implement the necessary actions to improve collection rates, to achieve the objectives predicted in the Waste Local Plan	Environment Department	2012	no quantifiable	31.383
Water management			Leakage and pressure control of the water distribution network	Environment Department	2015	slope rating	922
			Optimization, renewal and implementation	Environment Department	2015	slope rating	576

SECTORS & optional fields of action	Energy saving target per sector [MWh] in 2020	CO ₂ reduction target per sector [t] in 2020	Actions/measures per field of action	Responsible department, person	Implementation [start & end time]	Estimated costs per action/measure	Expected CO ₂ reduction per measure [t/a]
			of more efficient systems for water pumping.				
Other actions. Please specify:							
TOTAL							