

**SABADELL MUNICIPAL
STRATEGY FOR
CLIMATE CHANGE
MITIGATION**

2008-2012

Ajuntament  de Sabadell

PREAMBLE

Sabadell is facing the challenge of climate change with long experience in planning and applying projects and initiatives concerning sustainability in the form of designing, approving and implementing **the Sabadell municipal Agenda 21** after signing the Aalborg Charter in 2002. Its annually reviewed plan, the Sabadell Action Plan for Sustainability, with a total of 144 actions and projects, has given very good results, which are the basis of the work on **the Sabadell Municipal Strategy for Climate Change Mitigation for the period 2008-2012.**

This Strategy responds to new needs relating to sustainability and the battle against climate change requiring the intensification of **efforts to reduce CO₂ equivalent emissions for the whole municipality** by working basically in two broad directions: energy saving and efficiency by various consumers and mobility focused on non-motorised means of transport. Two important tools for the proper development of the Strategy will undoubtedly be the creation and activity of the **Sabadell Municipal Energy Office and the Sabadell Urban Mobility Plan.**

In order to reduce emissions associated with the municipality, the Strategy presents a **total of 25 projects and 8 complementary initiatives**, cutting across the whole municipality.

Sabadell's is firmly committed to this responsibility and this is shown by **the fact that the city has signed the Covenant of Mayors against climate change**, as one of hundreds of European local authorities with the responsibility of applying the precepts and obligations of the Kyoto Protocol at municipal level.

This documents includes work done by a great deal of people at municipal level: council officers and social, economic and environmental agents through the many sessions concerning the **Sabadell Sustainability and Climate Change Protocol**, a participative round table involving 27 agents in advising and monitoring municipal sustainability policy. The Protocol will be the tool for improving and assessing this Strategy. **We would particularly like to thank them for their contributions and efforts in order to build a city committed to the planet and to new generations.**

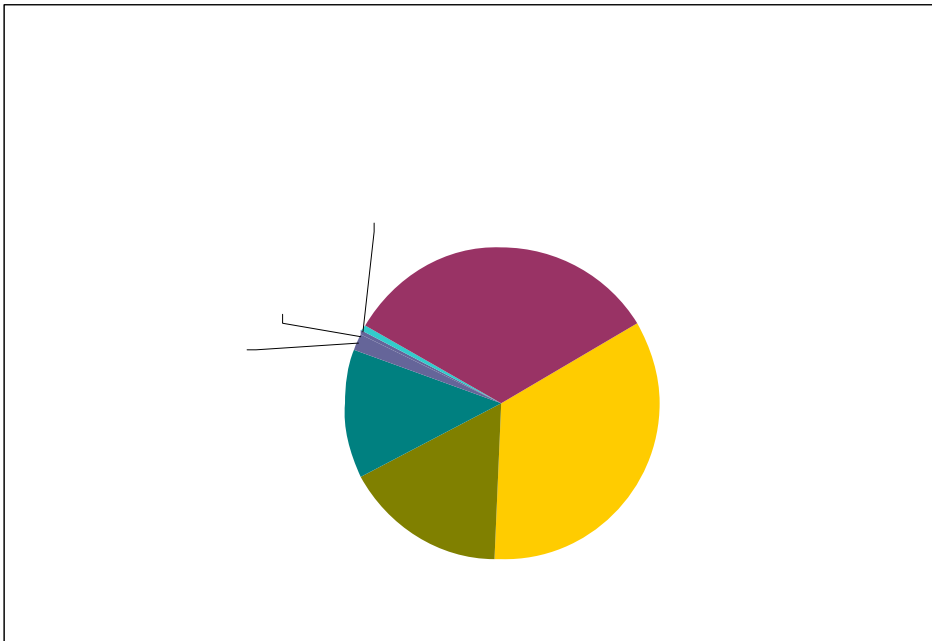
The Strategy was approved at a council plenary on 5 May 2009.

Sabadell, May 2009.

1. MUNICIPAL DIAGNOSIS OF CO₂ EMISSIONS

Total emissions counted for the municipality of Sabadell for 2006 amounted to 875,378 tonnes of CO₂·eq, which equates to 4.36 tonnes of CO₂·eq per capita a year, dominated by the domestic (34%), transport and mobility (33.4%) and industrial (16.6%) sectors.

Figure 1. Greenhouse Gas Emissions for Sabadell Municipality, 2006.

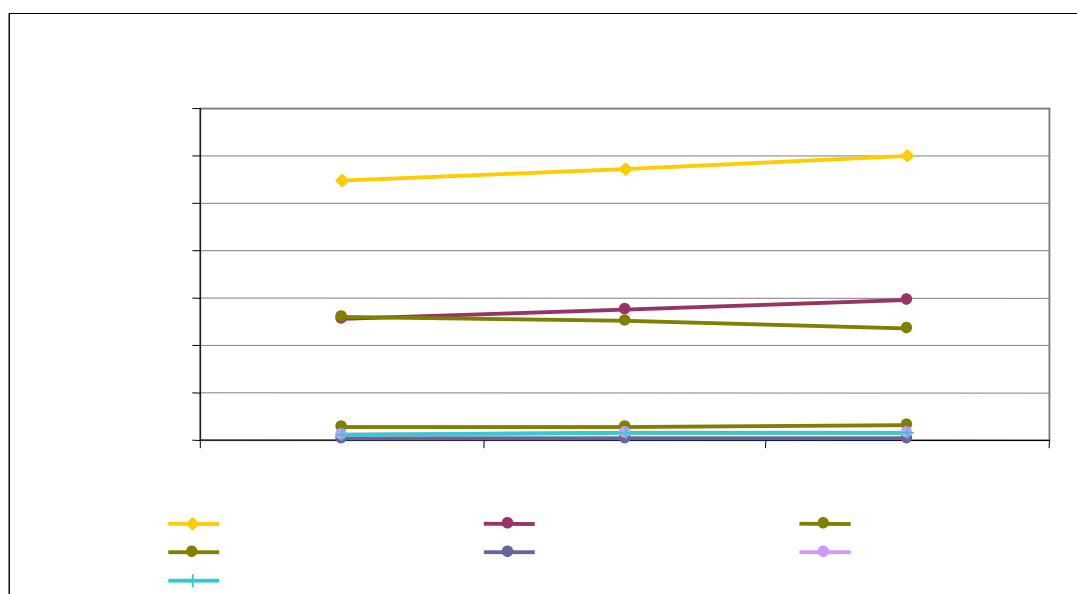


Source: Self-generated

In drawing up the diagnosis, a **total of 32 aspects have been analysed and calculated, divided into 8 vectors:**

- REGIONAL AND CITY PLANNING
- MOBILITY AND TRANSPORT: vehicle fleet emissions.
- ENERGY: emissions from the consumption of electricity, natural gas and liquefied petroleum gas in the domestic, industrial, tertiary and construction sectors.
- MUNICIPAL: Electricity consumption in the primary and construction sectors.
- WASTE: emissions from landfill with domestic waste and the composting and methanisation of organic matter from the domestic sector.
- WATER: emissions from electricity consumption in the treatment, purification and pumping of drinking water.
- NATURAL SYSTEMS: tractor emissions; fermentation emissions; direct and indirect N₂O emissions.
- LOCAL ADMINISTRATION: electricity and natural gas consumption, consumption of fuel for vehicles and water (treatment and purification).
- EDUCATION, COMMUNICATION and PARTICIPATION

Figure 2. Development of Greenhouse Gas emissions in Sabadell for the period 2004-2006.



Source: Self-generated

An assessment of the trend for these aspects shows a positive evolution in 19 of them, a negative development in 12 and neutral development/stabilisation in the others.

As can be seen in the following table, the development of emissions shows an **increasing trend for the domestic and industrial sectors; stabilisation in municipal, construction and transport and a decrease in the tertiary sector.**

Table 1. CO₂ eq. emissions by sectors in the city of Sabadell.

EMISSIONS BY SECTORS Tonnes CO ₂ -eq	2004	2005	2006	2006 (%)	04 - 06 (%)
Domestic	274.597	286.919	299.830	33,8%	9,2%
Industrial	127.165	137.415	147.183	16,6%	15,7%
Tertiary	129.671	125.339	118.034	13,3%	-9,0%
Municipal	15.055	16.120	16.707	1,9%	11,0%
Construction	1.416	1.705	1.814	0,2%	28,1%
Primary	6.965	7.314	7.534	0,9%	8,2%
Mobility and transport	291.917	292.323	295.214	33,3%	1,1%
SUBTOTAL	846.785	867.136	886.317	100,0%	4,7%
Sink effect	10.938	10.938	10.938	-	-
TOTAL	835.847	856.198	875.378	-	4,7%

Source: Self-generated

2. SABADELL MUNICIPAL STRATEGY FOR CLIMATE CHANGE MITIGATION 2008-2012

Formulating the vision for 2012

The climate change vision of the city of Sabadell for 2012, as a result of the diagnosis and inspiring the Municipal Strategy for Climate Change Mitigation, is as follows:

BY 2012 SABADELL HAS REDUCED ITS CONTRIBUTION TO CLIMATE CHANGE, WITH THE CITY COUNCIL AS THE BODY PROMOTING THIS THROUGH THE INVOLVEMENT OF THE DIFFERENT SOCIAL AND ECONOMIC AGENTS ACTIVE IN THE MUNICIPALITY, MAKING IT MORE EFFICIENT IN TERMS OF CONSUMPTION, MORE OF AN EXAMPLE IN ITS PRACTICES AND MORE AWARENESS TOWARDS THE PROBLEM OF GLOBAL WARMING

Strategic lines

In considering the summary diagnosis carried out about and the vision inspiring the Municipal Strategy for Mitigating Climate Change, 3 strategic lines are taken into account, broken down into sectors and areas of action. Based on this, the set of initiatives and operational projects will be deployed. The three broad strategic lines considered are:

L1. Consuming more sustainably, encouraging the improvement of public well-being and quality of life, reducing its contribution to the greenhouse effect

- 1.1. Residential sector
- 1.2. Industrial sector; services and agriculture.
- 1.3. Waste prevention and treatment area
- 1.4. Mobility and transport area

L2. The Council exemplifying and driving the implementation of good practices promoting a reduction of greenhouse gas emissions

- 2.1 Area of saving, efficiency and promotion of renewable energies
- 2.2 Area of green public purchasing and contracting
- 2.3 Area of good climatic practice

L3. Communicating to raise awareness and increase involvement and participation in the battle against climate change among the different social and economic agents in the city

3.1 Area of raising awareness and spreading knowledge

3.2 Area of education for change

3.3 Area of participation mechanisms

Emission reduction target

The quantitative target for reducing greenhouse gas emissions is derived from the strategic lines in order to achieve the city's vision for the 2012 horizon. In this sense, Sabadell is taking as its landmark objective the targets considered in the Framework Plan for Climate Change Mitigation in Catalonia (PMCCC) developed by the Catalan Climate Change Office, bearing in mind that, as a whole, the emissions due to be reduced are diffuse ones.

Given the lack of figures necessary for estimating Sabadell's emissions for 1990¹ 2005 is considered as the first year for base calculations. It is the first year for which sufficient information is available for estimating the municipality's emissions.

In order to achieve the reduction objectives set in the PMCCC, a GG emission growth rate for Sabadell will be considered consisting of the average growth experienced between the years 2004 and 2007². So, in order to achieve the Catalan objective, **Sabadell needs to reduce its greenhouse gas emissions to achieve emissions of 798,423 tonnes of CO₂·eq in the period 2008-2012.** This means a reduction of 6.75% on 2005 emissions - a total of 57,775 tonnes of CO₂·eq. Per capita, this means moving from 4.36 tonnes of CO₂·eq per capita per year to 3.98 tonnes of CO₂·eq per capita per year.

To achieve this objective Sabadell needs to carry out an **annual reduction in the implementation period for the Strategy (2008-2012) of 31,971 tonnes of CO₂·eq/year**, as can be seen in Figure 3.

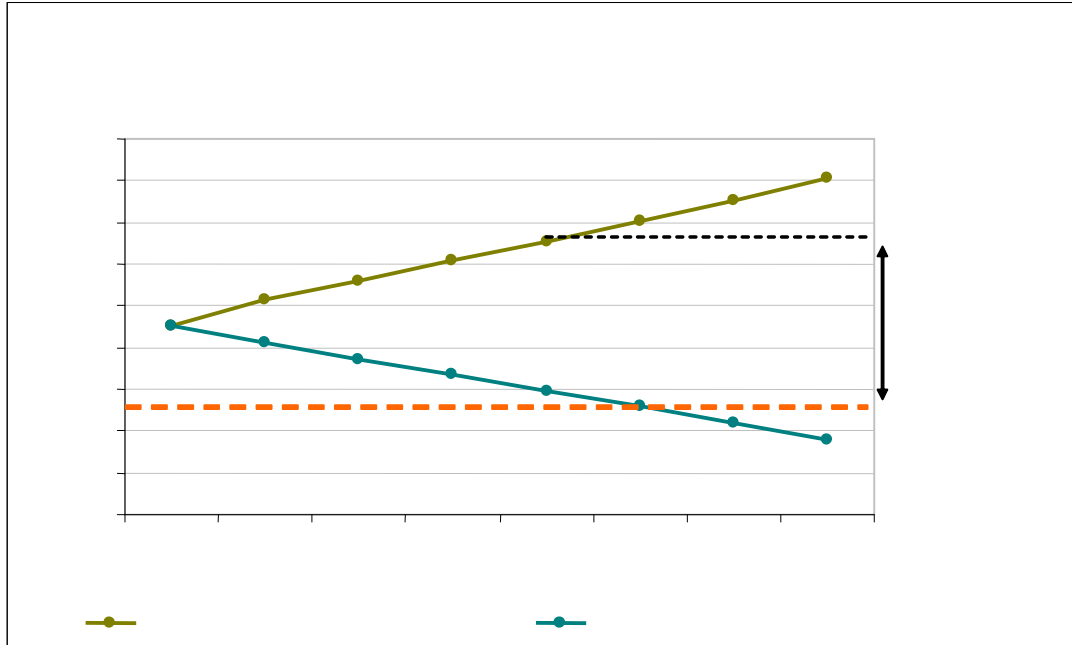
Based on the reduction objectives contained in the Climate Change Framework Plan for Catalonia, the **mission of the city of Sabadell concerning climate change for 2012 is:**

TO REDUCE GREENHOUSE GAS EMISSIONS IN THE MUNICIPALITY IN THE PERIOD 2008 - 2012 BY 6.75% COMPARED TO EMISSIONS FOR 2005

¹ 1990 is the reference year established in the Kyoto Protocol which is taken as a base year for achieving emission objectives.

² GG emission figures for 2007 have been estimated.

Figure 3. Development of Sabadell's GG emissions and reduction objective according to the PMMCC



Source: Self-generated.

It must be made clear that there is a whole set of emissions to which the local administration's action is quite restricted because of competence issues. These involve the emissions caused by the industrial and commercial sector, making up 30% of total emissions, where the impact of the local administration is a minority one in terms of competence. This is where the intervention of the Government of Catalonia becomes necessary, although this is an issue which remains to be resolved in the Climate Change Framework Plan for Catalonia, as this document does not specify the role of local councils in mitigating climate change or the existing or desirable systems of coordination with other local councils and the Government of Catalonia.

2.1 STRATEGIC LINES AND PROJECTS/INITIATIVES.

The tree structure of the **Municipal Strategy for Climate Change Mitigation** is shown in diagram form in **Figure 4**, divided into strategic areas and actions.

From each of the areas and strategic actions is derived a set of projects and/or initiatives, making up the specific working plan for achieving the objectives set and the emission reduction target, as presented in the following diagram.

STRATEGY FOR CLIMATE CHANGE MITIGATION IN SABADELL

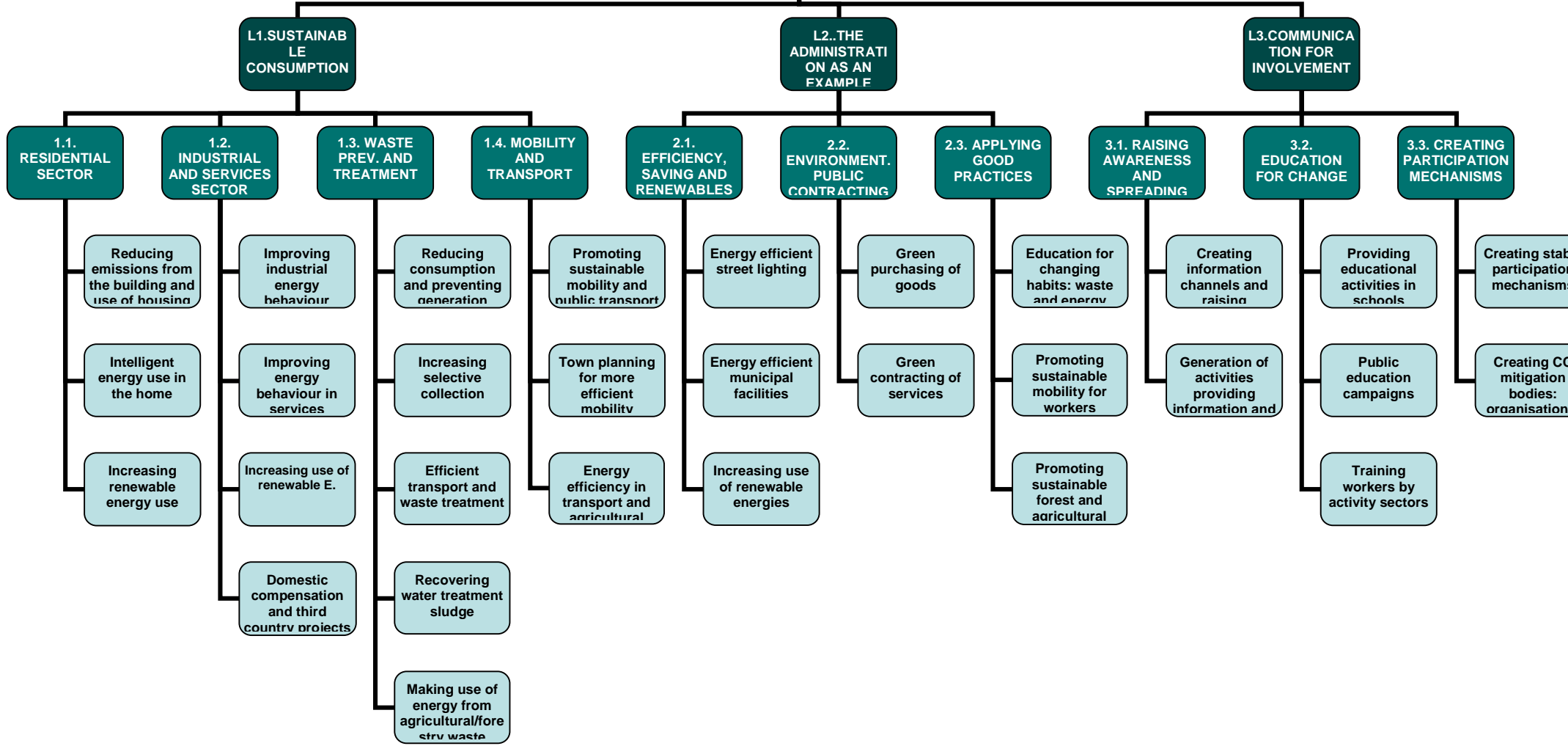


Figure 4. Diagram of the Sabadell Municipal Strategy for Climate Change Mitigation.

Table 2. Structure of projects/action initiatives

STRATEGIC LINE: 1.SUSTAINABLE CONSUMPTION		
STRATEGIC AREA	STRATEGIC ACTION AND PRIORITY INTERVENTION AREAS	PROJECT/INITIATIVE
1.1. RESIDENTIAL SECTOR	Reducing GG emissions in the building and use of housing <ul style="list-style-type: none"> Increasing incentives for the energy renovation of housing. Acting to improve the energy efficiency of the public housing stock to set an example, with a defined emission reduction strategy. Applying the Technical Building Code (CTE) and energy certification for new buildings and buildings to be renovated. 	P23, PC1
	Intelligent energy use in the home <ul style="list-style-type: none"> Developing campaigns on the intelligent use of energy in the home, workplaces and schools through the use of instant or intelligent counters. 	P3, PC1
	Increasing use of renewable energies <ul style="list-style-type: none"> Control and strict monitoring of compliance with the implementation of the Technical Building Code (CTE) in new and renovated buildings. 	P18, P23, P24, PC1
1.2. INDUSTRIAL AND SERVICE SECTOR	Improving energy behaviour and reducing GG emissions in the industrial sector <ul style="list-style-type: none"> Promoting the implementation of energy diagnoses in industries, the tertiary sector and groups of homes. Publicising and promoting energy efficiency and renewable energy grants in the different activity sectors. Promoting energy efficiency and thermal solar energy in the industrial sector based on the results of the EINSTEIN project from the <i>Intelligent Energy Europe programme</i>. 	P4, P16, PC1, PC2
	Improving energy behaviour and reducing GG emissions in the service sector	P4, P20, PC2

STRATEGIC LINE: 1.SUSTAINABLE CONSUMPTION

STRATEGIC AREA	STRATEGIC ACTION AND PRIORITY INTERVENTION AREAS	PROJECT/INITIATIVE
	<ul style="list-style-type: none"> Promoting the implementation of energy diagnoses in industries, the tertiary sector and groups of dwellings. Publicising and promoting energy efficiency and renewable energy grants in the different activity sectors. 	
	<p>Increasing use of renewable energies</p> <ul style="list-style-type: none"> Publicising and promoting energy efficiency and renewable energy grants in the different activity sectors. Promoting photovoltaic solar energy on roofs, particularly on industrial estates and in the third sector. 	P4
	<p>Carrying out domestic compensation and third country projects.</p>	
<p>1.3. WASTE PREVENTION AND TREATMENT</p>	<p>Reducing consumption and preventing municipal waste generation</p> <ul style="list-style-type: none"> Increasing the prevention of municipal waste in order to reduce the per capita waste generation rate through measures such as deposit, refund and return systems (DRRS). 	P1, P4, PC4
	<p>Increase in selective collection and recovery of municipal and industrial waste</p> <ul style="list-style-type: none"> Improving the level of selective municipal collection, particularly the organic fraction and glass. Optimising the involvement of the commercial sector in selective collection. Promoting the use of blue points in the municipality and make them easier to access. Increasing the recovery of industrial waste rather than controlled disposal. 	P1, P4

STRATEGIC LINE: 1.SUSTAINABLE CONSUMPTION

STRATEGIC AREA	STRATEGIC ACTION AND PRIORITY INTERVENTION AREAS	PROJECT/INITIATIVE
	<p>Efficient transport and waste treatment</p> <ul style="list-style-type: none"> Promoting the bringing into operation of the new Vacarisses Waste Treatment Centre so that the facility is operational by the end of 2009. 	P4
	Recovery of water treatment sludge	
	Energy use of agricultural and forestry biomass waste	P4, PC5, PC6
1.4. MOBILITY AND TRANSPORT	<p>Promoting sustainable mobility and public transport use</p> <ul style="list-style-type: none"> Drawing up and approving the city's Urban Mobility Plan and providing it with resources. Promoting the increase in journeys using "soft" means of transport (on foot, by bicycle and on public transport) by improving the quality of the urban public transport service and the quality of walking and cycling routes; and, with traffic calming, the reduction of priority of certain sectors and parking regulation. 	P4, P5, P6, P7, P8, P9, P10, P11, P12, P13, P14, P15,
	<p>Town planning for more efficient mobility</p> <ul style="list-style-type: none"> Completing the process of reforming and densifying the existing urban fabric, promoting mixed uses. Strengthening the various district centres, promoting economic activities and public services and facilities. Reducing the need for journeys, promoting mixed uses and compactness through town planning actions (action linked to the Regional and Town Planning). 	P4, P7, P8, P9, P10, P11
	Energy efficiency in transport and the use of agricultural machinery	

STRATEGIC LINE: 2.THE ADMINISTRATION AS AN EXAMPLE

STRATEGIC AREA	STRATEGIC ACTION AND PRIORITY INTERVENTION AREAS	PROJECT/INITIATIVE
2.1. EFFICIENCY, ENERGY SAVING AND RENEWABLE ENERGIES	Energy saving and efficiency in street lighting and traffic lights <ul style="list-style-type: none"> • Compliance with the Technical Installation in Buildings Regulations (RITE) in municipal facilities (with preventive maintenance system) and compliance with the adaptation of street lighting to light pollution standards and the Low Voltage Regulations. 	P21, PC1, PC3
	Energy saving and efficiency in municipal facilities and installations <ul style="list-style-type: none"> • Increasing energy efficiency in public buildings with the installation of energy management systems, an increase in renewable energies and the energy renovation of the highest consuming buildings. • Implementing environmental awareness-raising activities with workers and middle management in order to promote a change in habits contributing to reducing energy and water use and waste generation. 	P17, P19, P21, P22, P25, PC1
	Increasing use of renewable energies <ul style="list-style-type: none"> • Carrying out a study of the potential and viability of implementing renewable energies and increasing energy self-sufficiency in the municipality and defining a medium-term local strategy. 	P18, P23, P24, PC1
2.2. GREEN PUBLIC PURCHASING AND CONTRACTING	Green purchasing of goods and contracting of services <ul style="list-style-type: none"> • Developing an action plan on green purchasing and contracting based on the diagnosis study and proposals for improving green purchasing good practices. 	P2, PC4

STRATEGIC LINE: 2.THE ADMINISTRATION AS AN EXAMPLE

STRATEGIC AREA	STRATEGIC ACTION AND PRIORITY INTERVENTION AREAS	PROJECT/INITIATIVE
2.3. APPLICATION OF GOOD PRACTICES	Preventing waste generation and increasing selective collection <ul style="list-style-type: none"> Monitoring the production of waste generated in municipal buildings and its subsequent management. 	P1, PC4
	Promoting the sustainable mobility of workers <ul style="list-style-type: none"> Improving the fleet of municipal vehicles and those belonging to concession holders in order to increase their efficiency and reduce their emissions. Reducing the km covered by vehicles from the city's various services, improving the efficiency of the journeys made. Drawing up a Mobility Plan for the municipal administration's work centres. 	P13
	Training workers to change their habits <ul style="list-style-type: none"> Implementing environmental awareness-raising actions with workers and middle management in order to encourage a change of habits contributing to reducing energy and water consumption and waste generation. 	P1, PC1
	Carrying out tasks in order to preserve the area of the municipality's woodland and to manage it in an integrated way, as a sink for absorbing GG emissions	PC5, PC6, PC7
	Encouraging more sustainable forest and agricultural management	PC5, PC6, PC7

STRATEGIC LINE: 3.COMMUNICATING TO INVOLVE

STRATEGIC AREA	STRATEGIC ACTION AND PRIORITY INTERVENTION AREAS	PROJECT/INITIATIVE
3.1. RAISING AWARENESS AND SPREADING KNOWLEDGE	Creating information channels to raise awareness of climate change <ul style="list-style-type: none"> Developing a permanent communication programme on environmental aspects in the municipality, with a particular emphasis on issues concerned with climate change. 	PC1
	Generating activity providing information and debate on climate change <ul style="list-style-type: none"> Promoting issues connected with the battle against climate change in information campaigns at the Environmental Information Point. 	P1, PC1
3.2. EDUCATION FOR CHANGE	Developing educational activities in schools <ul style="list-style-type: none"> Developing campaigns on the intelligent use of energy in the home, workplaces and schools through the use of instant or intelligent counters. 	P1, P3, P14, P17, PC1, PC7
	Carrying out public education campaigns concerning the alleviation of climate change <ul style="list-style-type: none"> Developing campaigns concerning energy saving and efficiency and sustainable mobility (use of public transport, efficient driving, etc.) 	P1, P3, P4, P5, P6, P13, PC1, PC7
	Promoting working training campaigns by activity sectors	P4, P6, PC1

STRATEGIC LINE: 3.COMMUNICATING TO INVOLVE

STRATEGIC AREA	STRATEGIC ACTION AND PRIORITY INTERVENTION AREAS	PROJECT/INITIATIVE
3.3. CREATING PARTICIPATION MECHANISMS	Promotion and public participation <ul style="list-style-type: none">• Promoting and revitalising the Sabadell Sustainability and Climate Change Protocol as a round table for multi-agent participation with advice, validation and planning functions concerning municipal climate change policy.	P4, PC8
	Creating sectoral climate change mitigation bodies (organisations, businesses, etc.) <ul style="list-style-type: none">• Promoting awareness raising in the local networks of associations and social and economic fabric concerning environmental vectors and climate change.	P4, PC8

2.2 INITIATIVES AND PROJECTS

Based on the diagram of the Municipal Strategy for Climate Change Mitigation 2008-2012, and considering the analysis and summary diagnosis carried out at the previous stage, a total of **25 initiatives or projects and 8 complementary projects or initiatives have been defined** in order to achieve the reduction of Sabadell's contribution to the climate change phenomenon.

Each initiative can contribute to the achievement of one or more of the objectives established. At the same time, each objective can have one or more projects linked to it.

Table 3. List of projects and specific chronogram

CODE	INITIATIVE/PROJECT	POTENTIAL REDUCTION (Tn CO ₂ -eq)	ASSOCIATED OBJECTIVES	CHRONOGRAM				
				08	09	10	11	12
P1	Prevention and optimisation of waste management	Low (< 2,500)	1.3, 2.3, 3.1, 3.2					
P2	Implementation of a green purchasing programme	Low (< 2,500)	2.2					
P3	Smart-metering energy saving campaign	Low (< 2,500)	1.1, 3.2					
P4	Plans for climate change mitigation in businesses	Medium (2,500-5,000)	1.2, 1.3, 1.4, 3.2, 3.3					
P5	Extending car pooling and car sharing initiatives	Low (< 2,500)	1.4, 3.2					
P6	Efficient driving training programme	Low (< 2,500)	1.4, 3.2					
P7	Developing traffic organisation and calming measures	High (> 5,000)	1.4					
P8	Organising and regulating parking	Medium (2,500-5,000)	1.4					
P9	Programme to improve the competitiveness of buses	Medium (2,500-5,000)	1.4					

P10	Improving bicycle-paths for pedestrians	Medium (2,500-5,000)	1.4					
P11	Developing the network of cycle routes and parkings	Medium (2,500-5,000)	1.4					
P12	Implementing a public system of bicycle-use	Medium (2,500-5,000)	1.4					
P13	Drawing up and implementing mobility plans	Medium (2,500-5,000)	1.4					
P14	Implementing safer routes to school	Medium (2,500-5,000)	1.4, 3.2					
P15	Promoting electric vehicles	Medium (2,500-5,000)	1.4					
P16	Promoting energy efficiency and saving in the industrial sector	Medium (2,500-5,000)	1.2					
P17	50/50 energy saving project in schools	Low (< 2,500)	2.1, 3.2					
P18	Promoting photovoltaic solar installations on roofs (>5 Kw)	Medium (2,500-5,000)	1.1, 2.1					
P19	Installing remote-managed counters connected to an EMS in buildings with the greatest consumption (>70%)	Low (< 2,500)	2.1					
P20	Tax incentives and aid to SMEs and businesses with biomass boilers, heating or solar refrigeration	Low (< 2,500)	1.2					
P21	Installing remote energy management and audit systems (EMS) in public facilities and for streetlighting	Low (< 2,500)	2.1					
P22	Implementing a	Medium (2,500-5,000)	2.1					

	programme of good energy practices in the public buildings with highest consumption							
P23	Sustainable construction of the future public housing buildings	Medium (2,500-5,000)	1.2, 2.1					
P24	Implementing community facilities with energy services companies (ESCOs)	Medium (2,500-5,000)	1.2, 2.1					
P25	Completing the adaptation of lighting with double-level remote management and control for all panels	Low (< 2,500)	2.1					

2.3. OTHER PLANS, INITIATIVES AND PROJECTS.

A series of complementary initiatives and projects are planned as an addition to the municipal effort for CO₂ emissions reduction, presented in Table 3 do complement the 25 basic and significantly more important initiatives and projects to be developed during the period of application of the Strategy.

Table 3. Additional initiatives and projects in accordance with the Strategy

PROJECT CODE	INITIATIVE/PROJECT	POTENTIAL CO ₂ REDUCTION	ASSOCIATED OBJECTIVES
PC1	Creating and developing the Sabadell Municipal Energy Office(OME)	-	1.1, 1.2, 2.1, 2.3, 3.1, 3.2
PC2	Incentivising the implementation of Environmental Management and Audit Systems (EMAS), placing special emphasis on aspects linked to energy consumption and management	Low (< 2,500 tonnes of CO ₂ -eq)	1.2
PC3	Replacement of incandescent bulbs in all municipal traffic lights with LED technology bulbs.	Low (< 2,500 tonnes of CO ₂ -eq)	2.1
PC4	Adherence to and implementation of current waste prevention campaigns: Sabadell free of plastic bags.	Low (< 2,500 tonnes of CO ₂ -eq)	1.3, 2.2, 2.3
PC5	Consolidating the forest fire prevention plan and promoting actions directed towards this aim.	-	1.3, 2.3
PC6	Continuing and increasing forestry improvement tasks in <i>El Rodal</i> , drawing up and promoting the approval of PTGMF, consolidating it as an ecological connector and municipal CO ₂ sink.	-	1.3, 2.3
PC7	Continuing with the task of recovering riverbank environments along the <i>River Ripoll</i> .	-	2.3, 3.2
PC8	Encouraging local participation mechanisms (protocols) as bodies promoting the Strategy.	-	3.3