CLIMATE & ENERGY

ACTION PLAN of the Chamonix Mont Blanc Valley Joint Local Authority

WE ARE ALL CONCERNED!

CONCRETE ACTIONS

FOR LIVING SUSTAINABLY IN THE VALLEY

VALLÉE DE CHAMONIX
MONT-BLANC

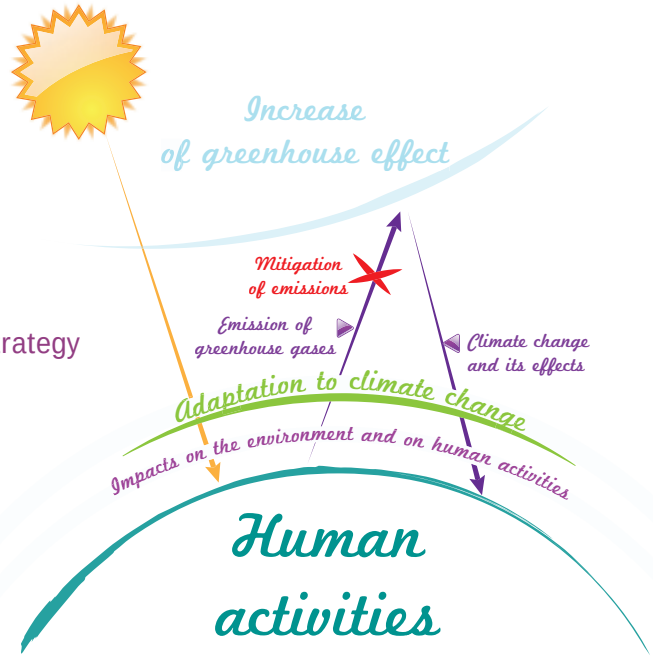
Definitions

Mitigation: Reducing energy consumption and greenhouse gas emissions in order to limitate the importance of climate change.

Climate change

This is caused by the accumulation of greenhouse gases (GhG) in the atmosphere. It manifests itself by the notable increase in the average temperature on earth, a greater variability of temperatures and precipitation, and an increasing number of extreme events (droughts, storms, floods, etc.).

Adaptation: The efforts made to reduce greenhouse gas emissions will reduce the scale of climate change, but will not stop it. Therefore it is important to quickly take measures to adapt our areas and our societies to changes.



SOMMAIRE

What is a ton of CO_2 equivalent, $teqCO_2$, etc.?

Greenhouse gas emissions are measured in tons of CO_2 equivalent ($teqCO_2$).
For example, 1 $teqCO_2$ corresponds to:

- 6,000 km in a Twingo,
- a plane trip from Paris to New York,
- about 20% of a house's annual energy consumption,
- the production of a ton of cement (you need around 10 tons of cement to build a house), etc.

In France, an average person currently emits 9 $teqCO_2$ per year. These emissions will need to be reduced to 2 $teqCO_2$ per year.

All players...

Two years ago, when we launched a Climate Action Plan policy on the scale of our high valley, we knew that this initiative could be a driving force for adapting our strategies.

Since our valley is one of the most attractive in the world in terms of numbers of tourists, in both summer and winter, and knowing that

the development of traffic – particularly for tourism, a major inescapable source of activities for our valley – has created nuisances that we must reduce by applying appropriate measures,

the local players have counted on the development of public transport systems since more than ten years ago, determinedly supporting the modernisation of the public train and bus systems, and :

the adaptation of human behaviour and activities to the requirements of sustainable development is a strong trend of our society,

we had to draw up a Climate & Energy Action Plan, even though the law did not oblige us to do so (since the French government's Grenelle Act on environmental protection only requires such a plan for areas that have a much larger permanent population).

▲ *The mayors of the four municipal districts that make up the Chamonix Mont Blanc Valley Joint Local Authority, the public authority which signed the Climate Action Plan.*

VALLÉE DE CHAMONIX
MONT-BLANC

Several hundred proposals have come out of meetings and workshops organised in the area with all the players concerned. The action plan approved by the Joint Local Authority council retains the most important. This document, which is intended for educational and illustrative purposes, simply presents the most structuring aspects and guidelines. As foreseen, the most directly implicated sectors are transport and housing, where the future results in terms of reducing energy consumption and greenhouse gas emissions will be the most tangible.

The First Climate Action Plan for a mountainous area in France, *its effectiveness probably depends less on specific budget commitments than on the involvement of everyone to reduce their ecological footprint in both their personal life and their working life.*
Therefore we are all personally and collectively committed to this initiative which, in the end, must help to ensure the long-term attractiveness of the valley and to maintain or even restore its quality of life, which is inseparable from our attachment to this area.

Eric Fournier, Mayor of Chamonix-Mont-Blanc
Patrick Dole, Mayor of Les Houches
Laure Schmutz, Mayor of Servoz
Claude Piccot, Mayor of Vallorcine

From observations to commitments in the Chamonix Mont Blanc Valley

Perceivable changes in climate

In our Valley, climate change is already perceivable and even visible:

➥ An increase in the mean temperature: +1.5°C in 75 years, i.e., twice the world increase.

➥ An increase in the frequency of extreme temperatures.

➥ A sharp decrease in the accumulation of fresh snow, which has been halved in 40 years.

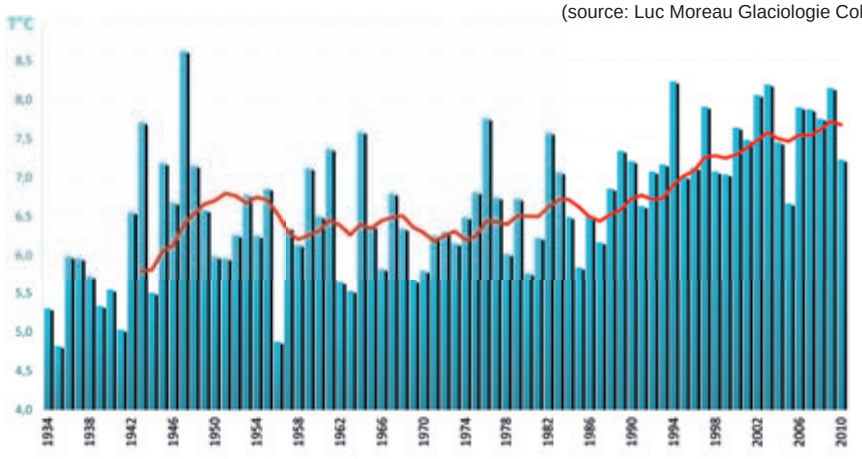
These phenomena have led to an acceleration in the melting of glaciers on the Mont Blanc massif.

If Greenhouse gas emission mitigation measures are not decided and applied throughout the world, the temperature increase in 2100 will be very high and the climate of the Chamonix Valley will be profoundly transformed.

The Mer de Glace around 1915.

The Mer de Glace around 2010.
(source: Luc Moreau Glaciologie Collection)

▼Mean annual temperature in Chamonix
Source: Météo-France 74



A very ambitious and exemplary Climate & Energy Action Plan

Covenant of Mayors
Committed to local sustainable energy

Confirming its contribution to the collective effort against climate change, the Chamonix Mont Blanc Valley Joint Local Authority signed the Covenant of Mayors on 20 April 2010, following the example of several thousand other local government authorities in Europe.

The commitment: To reach or even exceed the goal fixed by the European Union to reduce greenhouse gas emissions by 20% by 2020.

In 2010 and 2011, the Joint Local Authority drew up its Climate & Action Energy Plan ("PCET"), an ambitious scheme which it was not obliged to implement by law. In fact, it is the first Climate & Energy Action Plan in a high mountain resort.

It has decided to commit itself to reduce greenhouse gas emissions by 22% in the area by 2020. The Climate Action Plan is a pluriannual action plan, which will be reflected in the budget of the Joint Local Authority and of the four municipal councils.

The Covenant of Mayors involves more than 3,700 signatories, including at least 140 French local government authorities, and a total population of 159 million people!

▲ *Signature of the Covenant of Mayors by Eric Fournier, Chair of the Joint Local Authority*

The Climate Action Plan's diagnosis and strategy

Sources of greenhouse gas emissions

Greenhouse gas emissions are mainly due to transport, housing and, to a lesser extent, service sector activities.

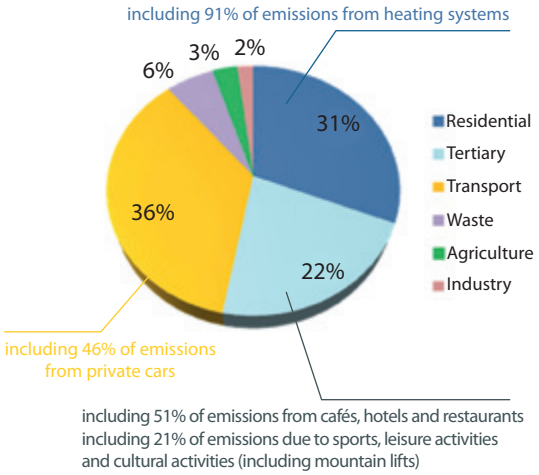
An area of priority action is heating, which represents 91% of greenhouse gas emissions due to housing.

The use of private vehicles is also a major factor, since they produce nearly half the greenhouse gases emitted by all means of transport. Within service sector activities, the local diagnostic has identified the major role played by greenhouse gas emissions produced by the activities related to culture, sport and leisure (including mountain-lifts).

Within these different sectors, a notable share of greenhouse gas emissions is directly related to tourism (38% of total emissions).

Similarly, local government authorities, through their buildings and the services that they manage, represent 10 % of the area's greenhouse gas emissions

The area's greenhouse gas emissions: 125,000 teq CO_2/year



A particularly vulnerable area

The changes in climate will have a major impact on the Valley's main economic activities (tourism and leisure activities):

- Less snow on low altitude ski slopes, and a risk of increased pressure on high altitude ski slopes,
- Major variability in activities at different times of the year: disappearance of activities, but also new opportunities.

Natural habitats, river regimes, forests and agricultural production may be radically transformed or disrupted.

There will probably be an increase in natural hazards (avalanches, floods, landslides, etc.).

The strategy adopted

The people of the Alps have always known how to live with the rigours of their magnificently imposing natural environment. Now, climate change and its effects must be central to the Chamonix Valley's development strategy. Through very concrete measures, the Climate Action Plan aims to stimulate a real change by developing ways and means of consumption, transport and housing that produce less greenhouse gases, by developing the tourist economy with a long-term vision. This plan aims to preserve and better enhance the area's human and natural richness.

The greenhouse target of 22% reduction in gas emissions corresponds to 28,000 teqCO_2.

Are we sure?

Climate change is confirmed by numerous studies, and most specialists consider that it is related to human activities. The future effects are not easy to evaluate on a local scale, and there are many uncertainties. But the consequences for you and for future generations are so important that we cannot remain inactive. By acting from now, one can hope to limit the importance of climate change and to take the time to devise measures to adapt to it (in agriculture, in cities, etc.).

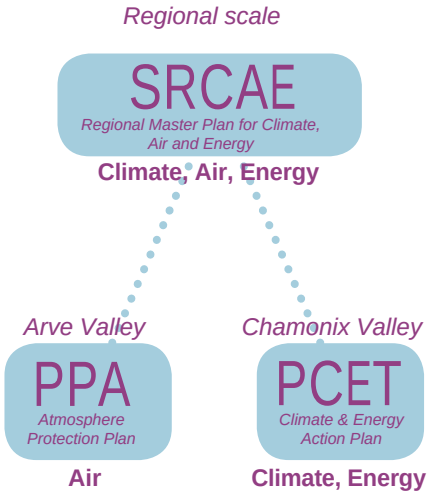
What about air quality?

The air quality: a major stake, but corresponding to a different phenomenon

The quality of air in the Valley is damaged by pollutant gases such as nitrogen dioxide (NO_2), particles, PAHs (polycyclic aromatic hydrocarbons) and ozone emitted by road vehicles, heating appliances, etc. These are local forms of pollutions that have direct effects on health and the environment.

Greenhouse gases rise in the atmosphere, where they accumulate and move with the winds. No matter where they are emitted from, they have a world-wide effect on global warming and therefore on health and the environment.

Several action plans on appropriate scales, consistent with each other



An overall scale is necessary, that of the region, with the Regional Master Plan for Climate, Air and Energy ("SRCAE"). It brings a coordinated approach to the stakes involved in air quality, energy management and the fight against climate change in the entire region.
An Atmosphere Protection Plan ("PPA") has been defined for the entire Arve Valley. It is an important means for combating local pollution, with the goal of reducing the concentration of regulated pollutants to values below imposed standards. It was approved by the Préfet of Haute-Savoie on 16 February 2012.

The Climate Action Plan spells out the Climate and Energy targets on the scale of the Chamonix Mont Blanc Valley Joint Local Authority. The Climate & Energy Action Plan ("PCET") and the Atmosphere Protection Plan ("PPA") must be compatible with the "SRCAE" plan and must be consistent with each other. ■

Public participation

An exemplary approach: an extensive consultation process that mobilised all players in the area

The elected representatives and staff of the Joint Local Authority and of the municipal councils, and all the representatives of the Valley's entire population have contributed actively to the development of the Climate Action Plan by the Chamonix Mont Blanc Valley Joint Local Authority. This consultation process took place throughout 2011.

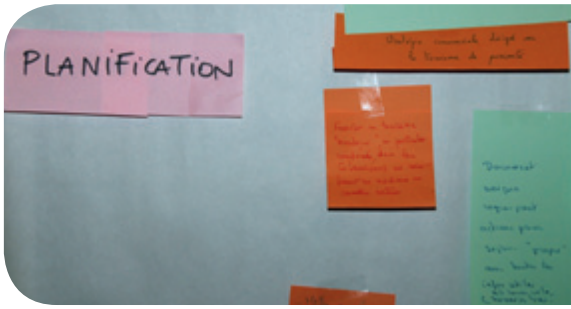
A very representative range of the local population was involved: private individuals, tourists, representatives of associations and community groups, shopkeepers, hotel chains, restaurant owners, architects, transport companies, mountain lifts companies, guide companies, tourist offices, residents' associations, etc.

Fifteen thematic workshops: ➥ three internal workshops within the local government departments, ➥ twelve workshops with the players involved in the area.	300 participants
Three public meetings	100 participants at each
Web site	2,300 consultations; 25 detailed contributions posted on the site

The benefits of a participative approach

The different participants provided their knowledge of the area and expressed their expectations and their desires.
They all acquired better understanding of the effects of climate change, and the collective thinking helped to better anticipate its impacts on the Valley.

More than 300 proposals were received.The actions contained in the Climate Action Plan were thus better defined and are more concrete. As a result, they will be better shared.
All participants in the consultation process have started to mobilise for their application.■



And what can I do?

Some actions are very complex and must be organised by the local authority, a specialist body or a company. But their success often requires the support or even the involvement of all the local people and/or tourists.

Furthermore, everyone can act on their own scale, in everyday life, from the earliest age! Read the following pages carefully: for every subject, you will find ideas for involving yourself, alone or with others.

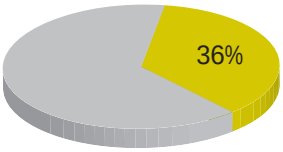
A good idea !

➥ Look and compare your greenhouse gas emissions in the valley:
http://www.3x20.org

➥ Calculate your greenhouse gas emissions and find practical solutions with Coach Carbone®
http://coachcarbone.org

➥ Look at the air quality in real time:
www.air-rhonealpes.fr

Transport & Travel



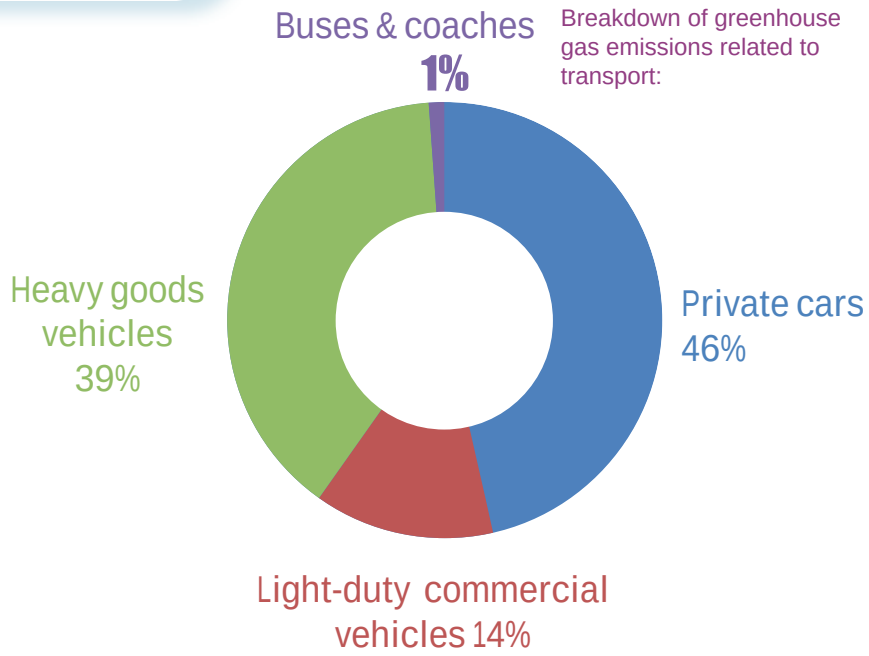
Transport represents 36% of greenhouse gas emissions in the area.

The main stakes

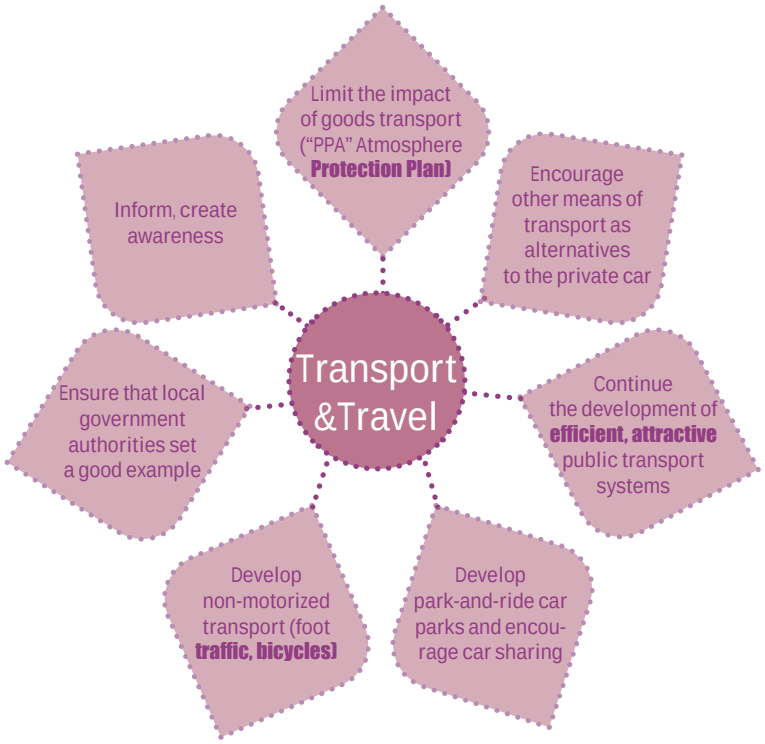
The area is marked by the international transport of goods. However, most greenhouse gas emissions (46%) come from traffic of private cars.

In the tourist season, there are almost 80,000 journeys every day on the roads by all forms of transport!

Breakdown of greenhouse gas emissions related to transport:



The Climate Action Plan's 7 areas of action



Many actions are already being implemented to enable local people and tourists to travel without their cars. Thus the Climate Action Plan aims to:

- Improve, amplify and boost these initiatives,
- Improve communication / publicity to make them more widely known,
- Open new perspectives.

Objectives:

To reduce greenhouse gas emissions by 19% by 2020.

Priority actions

1 Efficient, attractive public transport systems

➥ Develop the St-Gervais – Vallorcine Mont-Blanc Express railway line by improving services: adapt timetables, increase the frequency of trains and the capacity for carrying bicycles on board, develop rail transport of goods.

➥ For the local and regional government authorities, choose vehicles with low greenhouse gases emissions when renewing service vehicles and town buses.

2 Encourage alternative means of transport to the private car, and increase intermodal transport

➥ Improve the Grépon park-and-ride car park (redevelop it, increase its capacity, improve signage, regulate waiting times, make bicycles available, etc.).

➥ Create other park-and-ride car parks in the area.

➥ Put in place an overall pricing policy, which is clearly readable and reasonably progressive, for roadside parking, town centre car parks and ski-lifts.

3 Emphasize non-motorized means of travel

➥ Develop a network of routes for pedestrians and cyclists on the scale of the area, complementary to the public transport system, to meet the various travel needs (for commercial and goods purposes and for leisure activities).

➥ Encourage local people and tourists to use and buy electric bicycles: as an experiment, in association with the tourist offices, make available a fleet of electric bicycles.

What does intermodal transport mean?

This means combining several different means of transport for one journey (public transport, walking, car sharing, cycling, etc.). For example, you can take your car, then leave it in a park-and-ride (P+R) car park, such as Le Grépon car park in Chamonix, and then go by bus to the town centre. This reduces nuisances due to use of the car. Another example: you can take your bicycle on a bus, which enables you to travel a longer distance than by bicycle alone, and therefore it avoids you taking your car.

The aim is to limit the distances travelled by car and thereby to limit fuel consumption and greenhouse gas emissions.

A good idea !

➥ Calculate the impact of your daily journeys on the environment and on your spending:
http://www.ademe.fr/eco-deplacements/calculette/

Everyday solutions

The Mont Blanc Express railway line

In the early 20th century, the creation of the Saint Gervais-Vallorcine railway line made the Chamonix Valley more easily accessible. Its use developed with its gradual modernisation, making it one of the valley's symbols. Between 2005 and 2010, improvements made it more attractive. Its number of passengers in the winter period increased by 30%.

Now, the development of the valley's railway system is the Climate Action Plan's flagship action. The objective is to provide one train every 30 minutes by the end of 2013, and, in the long term, three trains every hour.

▼ *Below: Advertising poster for the Mont-Blanc Express railway line*

Transport on Demand ("TAD")

The "Mulet des Hameaux" shuttle bus offers you the possibility of travelling from nearby hamlets (which are not served by the town's transport system) to Chamonix town centre. This service is reserved for subscriber customers. The bus comes and picks you up at the nearest stop to you, at a given time. NB: You must book the bus before 5:00 pm the previous day.

TAD le Mulet des Hameaux

Free travel

Various local travel pass cards – called "Gens du pays", "Résidents", "Saisonniers" and "Carte d'hôte" – are available for free travel by train or bus in the entire area.

➥ Ask for your travel pass card in your town hall!■

Quizz !

What we can do is like a drop of water in the ocean. Is it worth the trouble?

If your mother currently drives 10 km by car to her work every day, she could take the train instead. This would reduce her annual fuel consumption by 400 litres, emit 1 ton of CO_2 less, and save around €1,800!

A good idea !

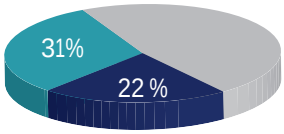
➥ Think of car sharing!

➥ For more information on the public transport system: *http://www.chamonix-bus.com*

By what percentage can a fuel bill be reduced by driving smoothly?

Answer: 10 to 15%

Land use & Housing



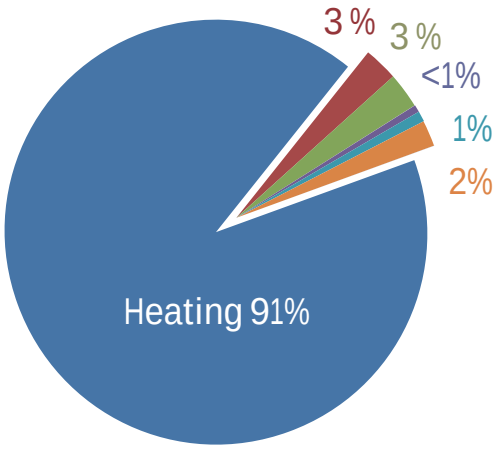
The residential sector represents 31% of the area's greenhouse gas emissions, and the service sector 22%.

- *space heating*
- *cooking*
- *heating sanitary hot water*
- *specific electricity consumption for cooling*
- *specific electricity consumption for washing*
- *specific electricity consumption for other purposes*

The main stakes

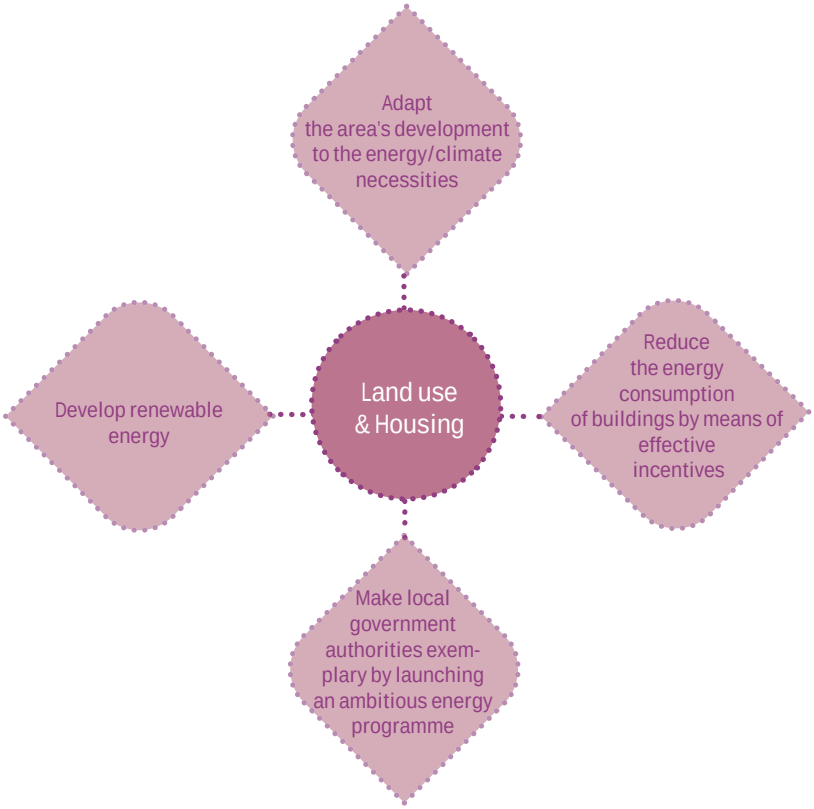
Due to the Alpine climate, a lot of energy is required for heating homes in winter.
Thus, 91% of greenhouse gas emissions from the residential and service sectors come from building heating systems, especially the most used one, oil-fired heating, which produces high levels of greenhouse gases.

Of the 6,000 main homes in the valley, more than 3,000 were built before 1975, when there were no heating and thermal regulations specifying obligatory requirements for insulation or for the efficiency of heating equipment.



Breakdown of greenhouse gas emissions by the residential sector.

The Climate Action Plan's 4 areas of action



Therefore, as part of the Climate Action Plan, we must:

➥ Renovate buildings to limit energy consumption,

➥ Ensure that new buildings make economical use of energy,

➥ Develop renewable energy in buildings,

➥ Work towards more appropriate development of the area.

Objectives:

By 2020, reduce the energy consumptions of existing buildings by 38%, and reduce greenhouse gas emissions of the residential and service sectors by 20%.

Priority actions

1 Incentives to promote energy efficiency in housing

➥ Assist the acquisition of more efficient and less polluting means of heating, in accordance with the stakes of the Atmosphere Protection Plan (in association with the ADEME energy management agency).

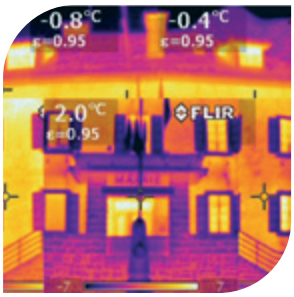
➥ Create awareness of energy renovation in housing as a factor for reducing the energy bill of households, and assist this by putting in place an appropriate taxation measure.

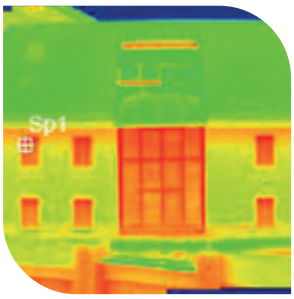
2 Exemplary local government authorities

➥ Renovate the properties of local government authorities.

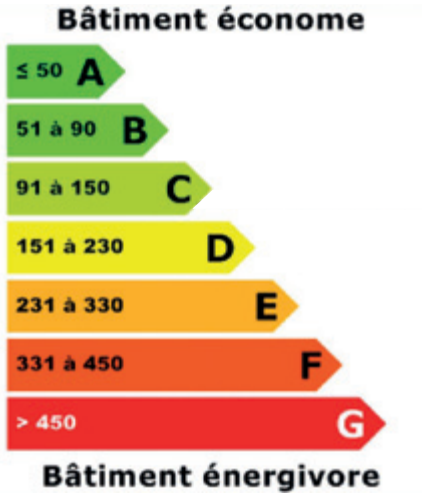
➥ Encourage the social housing agencies to carry out thermal renovation of social housing,

➥ Plan the reduction of consumption related to street lighting and reduce the periods of night-time lighting in consultation with the local people.





▲ *Thermography can be used to show the energy losses from a building.*



Examples in the valley

It is now possible to construct energy-efficient buildings. The town of Les Houches has set an example by building its new town hall in accordance with the “THPE” Very High Energy Performance standard. Its energy performance exceeds the requirements of the 2005 technical regulations by 24%. Analysis by infrared thermography reveals the heat losses from the old town hall.■

Useful information !

The PRIORITERRE Association is the Centre for Information and Advice on Water, Energy and Consumption of the Haute-Savoie area. Whether you are a private individual or a company director, PRIORITERRE can provide you with concrete solutions that contribute to the fight against climate change.

For further information:
+33 (0)4 50 67 17 54 (Espace Infos free information centre).
http://www.prioriterre.org/

La chaufferie bois

Renewable energy

Three principles of action for all

Frugality ➔ Efficiency ➔ Renewable energy.

"The cheapest energy is the energy we do not use".

© Association Négawatt

1 *Eliminate energy waste (change our behaviour)*

2 *Use less energy for a given service (insulate buildings, use more efficient appliances, etc.)*

3 *Develop renewable energy*

▲ *Emosson hydroelectric power station*

▲ *Vallorcine collective wood-fired boiler house*

The main stakes

Hydroelectric power, the leading source of renewable energy, is characteristic of mountainous areas. It is now produced mainly by high output power stations such as the Les Bois station under the Mer de Glace.

Nevertheless, the main stake is now the development of existing sites with hydroelectric potential that are still not exploited, wood-based energy production with the organisation of the local industry for production, storage, processing, etc.

The development of renewable energy must be based on sound knowledge of energy sources that are available locally, in order to ensure the long-term viability of the projects envisaged.

This is one of the objectives of the Climate Action Plan.■

Examples in the valley

A wood-fired boiler house is in operation in Vallorcine. It supplies a complex of 80 serviced holiday apartments, as well as several public buildings.

Objectives:

Increase renewable energy production to at least a 20% share of the area's final energy consumption.

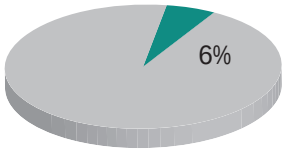
Can I do something, too?

Small gestures are very useful. For example, in winter, the best temperatures for saving energy while keeping a comfortable atmosphere are 19°C in habitable rooms and 16°C in bedrooms. If you lower the temperature from 20°C to 19°C, you use 7% less energy, and this shows right away on the heating bills paid by your parents!

A good idea !

➥ Get information on grants and subsidies to promote the development of renewable energy and the energetic rehabilitation of buildings. Information is available in town-halls and on the web site of the ADEME energy management agency at: *http://ecocitoyens.ademe.fr/mon-habitation* and *http://ecocitoyens.ademe.fr/financer-mon-projet*

Consumption & Waste



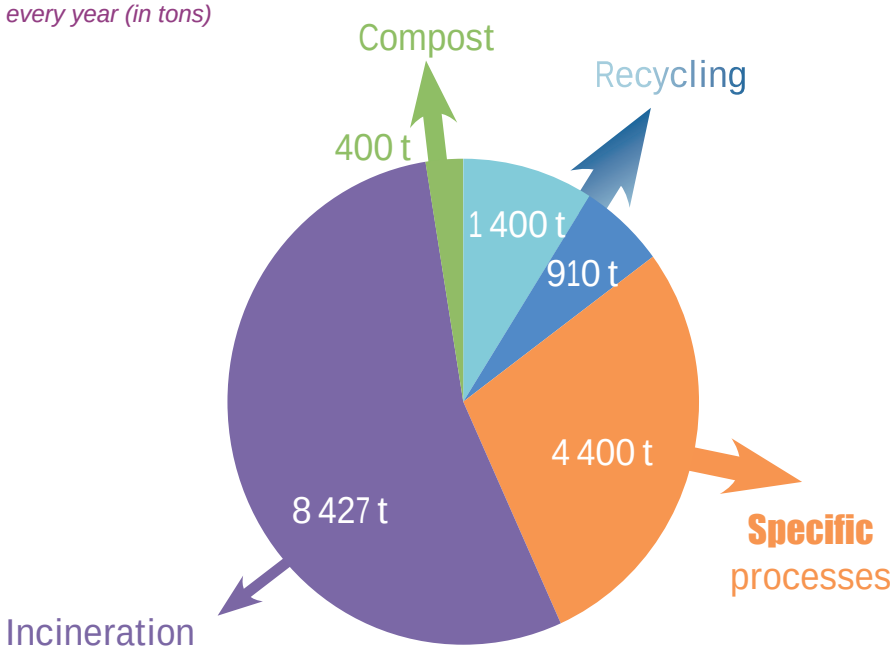
The waste sector represents 6% of the area's greenhouse gas emissions.

- *Residual household waste*
- *Tyres, electronic waste, etc.*
- *"Green" waste*
- *Recyclable packaging*
- *Glass*

The main stakes

The incineration of household waste is the source of only 6% of greenhouse gas emissions in the area. Therefore it may seem a minor factor. However, behind every ton of incinerated waste, there is a product that has been manufactured and distributed, and then the waste itself has to be transported. Therefore it is at the level of consumption itself that we must limit the production of waste.

Waste produced in the area every year (in tons)



The Climate Action Plan's 3 areas of action

Therefore, as part of the Climate Action Plan, we must:

- Promote the production and consumption of local products,
- Improve waste sorting,
- Promote recycling and composting.

Objectives:

Reduce the quantities of waste incinerated by 15% by 2020.

Priority actions

To encourage sustainable consumption in the area, we must develop local production and processing, facilitate distribution channels for these products and promote them.

Therefore, with an association-type non-profit organisation, we must bring together the "acteurs du goût", i.e. the decisive players, of the Chamonix Mont Blanc Valley: local government authorities, professionals (farmers/ producers, restaurant owners/chefs, catering firms, mountain hut caretakers), associations/community groups concerned or representative organisations (associations of pasture landowners, forest/forestry associations, community garden associations, tourist offices).

1 Support for local agricultural production

➥ Maintenance and development of mountain agriculture,

➥ Development of local production for private individuals (vegetable gardens, community gardens),

➥ Development of local channels for processing and consumption of the area's products.

2 Reduction in the quantity of targeted green and fermented waste by composting

➥ By developing collective composting centres for housing complexes and public institutions and buildings.

➥ By offering solutions to private individuals for shredding and crushing green waste, through specialist companies located in the area. ■

Consumption and waste are really parts of my daily life. But how can I know what is good for the Earth?

You can apply the "3 Rs" principle as follows:

➥ **R**educe the production of waste at source (consume in such a way that you throw less away).

➥ **R**euse goods rather than throw them away.

➥ Otherwise, **R**ecycle them to give them a second life.

You can also consume products that have a low impact on the environment (they have an "éco-label" ecological seal of approval), and also local products that do not need to be transported over long distances.

For further information on these solutions, refer to the ADEME web site: *http://ecocitoyens.ademe.fr/mes-dechets* et *http://ecocitoyens.ademe.fr/mes-achats*

Information

For further information

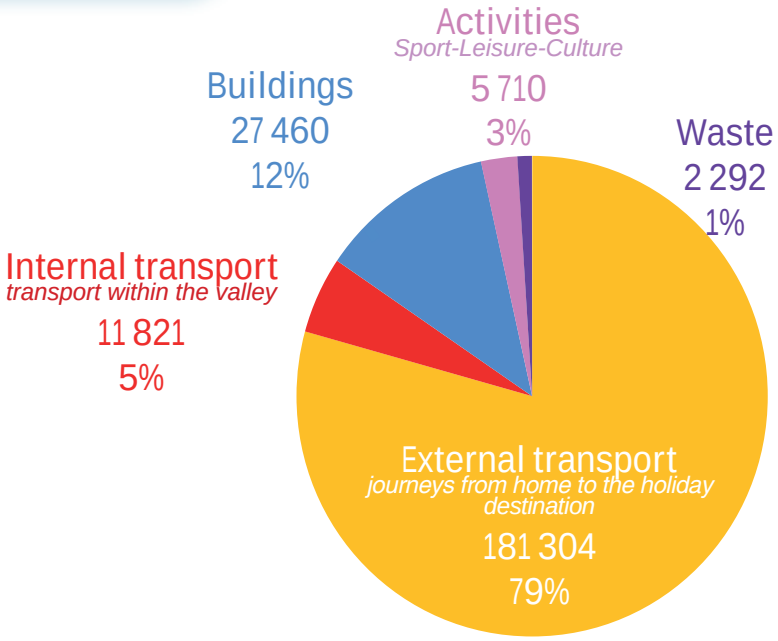
The Climate Action Plan targets objectives both for air quality and for climate, and this notably concerns composting of green waste.
Burning 50 kg of plants in the open air emits as many carcinogenic particles and toxic molecules as a car that travels 8,500 km or as an oil-fired heating system operating for 4 months!

Tourism

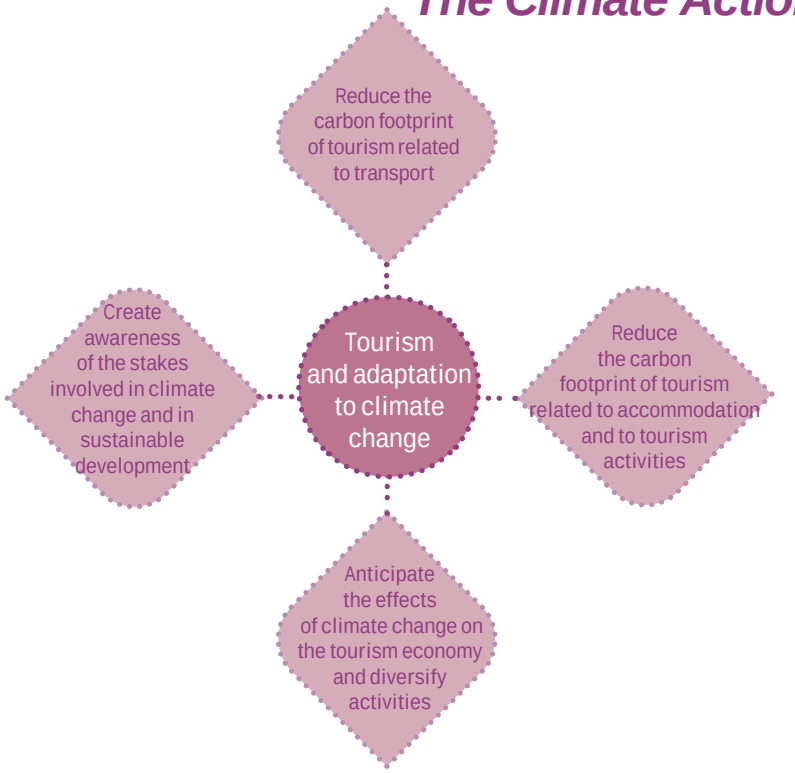
Since it is the dominant economic activity in the valley, tourism is naturally a priority area for action of the Climate Action Plan policy. This sector represents 38% of the area's greenhouse gas emissions.

The main stakes

Transport of visitors from their normal place of residence to the Valley is the main source of greenhouse gas emissions, especially as many tourists come from far away and/or use means of transport that emit high levels of greenhouse gases (such as planes, private cars, etc.). Next are emissions related to accommodation for these visitors, their local transport within the area, their activities, the waste they produce, etc. All sectors of activity are concerned and must be mobilised.



The Climate Action Plan's 4 areas of action



The purpose of the Climate Action Plan is to offer tourists the means to reduce their carbon footprint, and also to enable tourism professionals to anticipate the impacts of climate change on tourism activities and to diversify their range of activities and products.

Climate changes disturb and undermine the tourism trade. For fifty years, among other things, snow depth has tended to drop sharply, and the cave of the Mer de Glace is becoming more and more difficult to use.

In the short term, artificial snow has been developed to ensure that people can ski in certain valley bottom ski areas. But now we must find long-term solutions.

Priority actions

1 Optimisation of existing organisations, events and activities

➥ Create incentives for tourism organisations to put in place environmental management/certification/approval procedures through specialised assistance.

➥ Organise tourism, cultural and sports events, etc., in an ecologically responsible manner and create incentives for private organisers to also do so.

2 Innovation to prepare for the future

➥ Create “ecotourism” or “green tourism” products and put them on the market, and develop tourism activities for the spring and autumn seasons.

➥ Create a tourism product dedicated to education on the environment and on sustainable development on the scale of the Valley.■

For further information, see the Projet Vallée Eco-touristique Exemplaire

[Project for a Valley of Exemplary Ecological Tourism]:

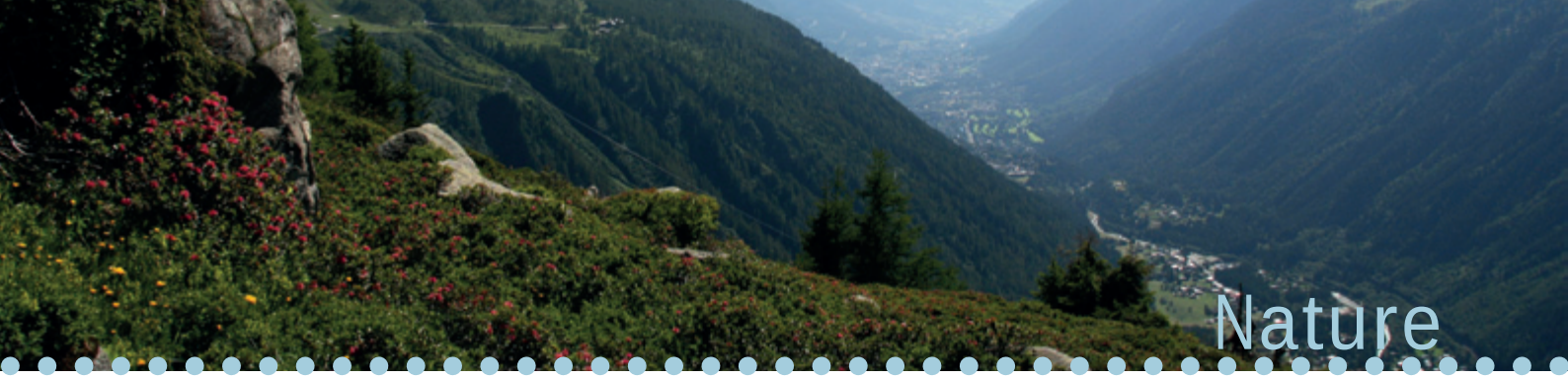
http://www.cc-valleedechamonixmontblanc.fr

What is the purpose of the “Carte d’hôte” pass?

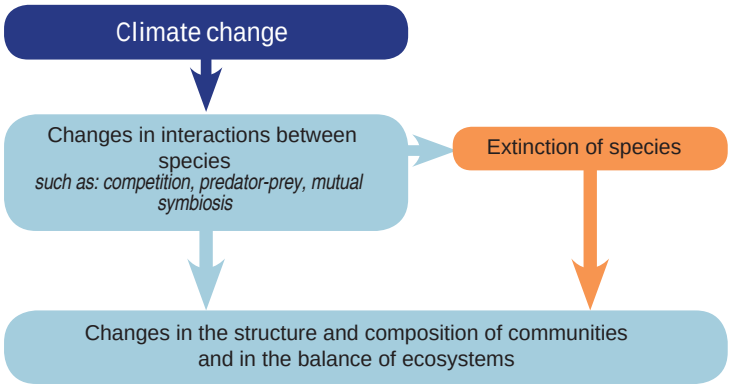
This pass card gives visitors to the valley many advantages, such as the free unlimited use of buses and of the SNCF railway system for journeys between Servoz and Vallorcine, as well as concession rates for admission to public sports and arts facilities.
This card is given to the visitor by their accommodation host on arrival, free of charge.
Do not hesitate to ask for it!

Information ! Useful information !

➥ With Via Mont Blanc, you can calculate your public transport itinerary and download timetables and maps, etc.
http://www.viamontblanc.com/



Nature



The main stakes

The Chamonix Mont Blanc Valley, by its orientation and its topography, offer an outstanding diversity of habitats.

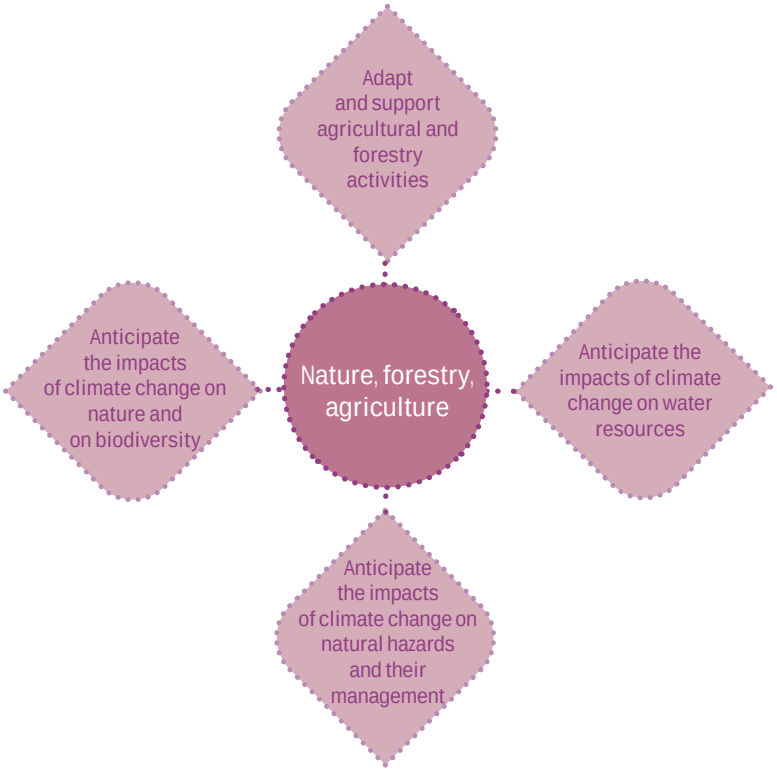
The landscape includes all stages of vegetation, from hill level (at around 800 m in Servoz) to the altitude of snow cover (4,810 m). It has a remarkable diversity of wildlife, with numerous protected and emblematic species. This unique heritage is not only the pride of local people in the valley, but also attracts many visitors, contributing to the area's economic attraction.

Climate change may have very marked impacts on the fauna and flora and on the habitats themselves: 45% of the species of Alpine flora are threatened with extinction by 2100; gradual reduction of high altitude grass areas and of the associated species (ibex, marmot, etc.) is foreseeable.

These impacts may be amplified or reduced according to the developments that will be carried out in the future and according to the practices that will be developed, particularly to maintain and develop leisure activities (opening new tracks or increased number of visitors to certain sites, artificial snow, etc.).

The undermining of habitats, particularly forest habitats, may have significant impacts on natural hazards.

The Climate Action Plan's 4 areas of action



Therefore, as part of the Climate Action Plan, we must:

➥ Anticipate climate change in natural habitats, biodiversity and natural hazards, in order to develop appropriate protective measures.

Priority actions

1 Protection or creation of ecological corridors

➥ Functionally linking together both small and large protected areas and complex habitats.

2 Actions to encourage the continued maintenance and harvesting of forests

➥ To improve the prevention of natural hazards (protective forest).

➥ To develop the wood-based energy industry.

Examples in the valley

The Chamonix Mont Blanc Valley has very numerous natural areas of great quality. The surface area of spaces that have protection is 32,000 ha, that is, 91.4% of the valley. These consist of the following:

➥ Listed conservation areas of the Mont Blanc mountain and shoulder (25,825 ha),

➥ Three nature reserves (Aiguilles Rouges, Carlaveyron, and Vallon de Bérard)

Sites of European importance (Natura 2000): Aiguilles Rouges and Haut Giffre cover 10,636 ha.■

I really love the mountains. Are all these beautiful landscapes going to disappear?

There will probably be major changes. But, if we are all careful and if we increase efforts that have already been made to protect natural habitats and to enable them to adapt, Nature will still offer us magnificent landscapes where your children and grandchildren will be happy to live and visit.

Useful information !

➥ Since 2004, the *Centre de Recherche sur les Ecosystèmes d'Altitude* [High Altitude Ecosystems Research Centre] (CREA) based in Chamonix, has been conducting programmes of research into the impact of climate change on mountain ecosystems: *http://www.creamontblanc.org/crea/*

VALLÉE DE CHAMONIX
MONT-BLANC

See the complete Climate & Energy Action Plan document on the Internet:
http://www.cc-valleedechamonixmontblanc.fr

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