Govern d'Andorra

Presentació

Climate change; a global phenomenon, for a local action.

The case of Andorra

Autumn Meeting of the OSCE Parliamentary Assembly (OSCE-PA)

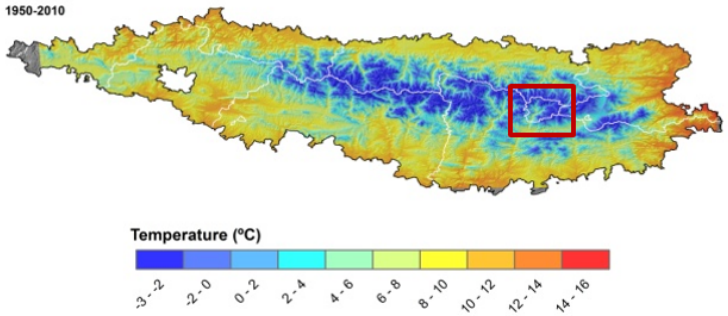
OSCE PA ANDORRA 3-5 OCTOBER 2017

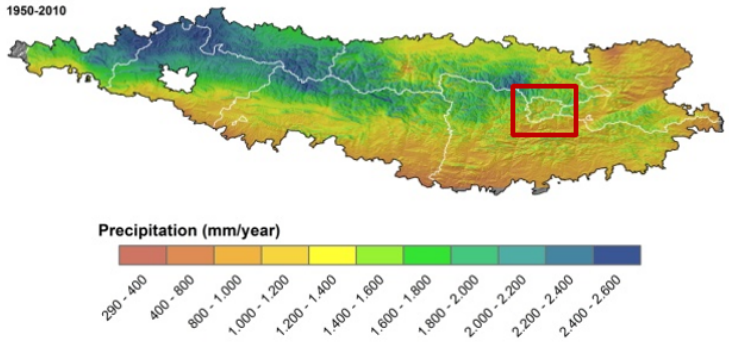
Ministeri de Medi Ambient, Agricultura i Sostenibilitat
Andorra la Vella, 3-5 October 2017

Andorra
Environmental context

Andorra is a mountainous country enclosed in the Pyrenees Mountains, it has an area of 468 Km^2, rugged terrain, an average height of 2.044 meters and its highest point is the peak of Coma Pedrosa (2.942 m). The waters of the country cross-border with France and Spain and feed two major European drainage basins: the Ebro, in the South, and the Garonne, in the North. Forests recovered land from the heaths and meadows (approximately a 39% of the territory of the country)

The climate of Andorra is a wet mountain climate of mid-latitude with a Mediterranean influence in the southern area. Rich biodiversity, with unique or even endemic species.





The temperatures evolve according to the temperature charts of the north hemisphere zones, with an annual average of 4,9ºC. The average rainfall is around 1.000 mm/year (1950-2010).

Andorra
Economic growth in the 20th century

(1) *(2)* *(3)*

Photographie 3. *Augmentation de la population et croissance urbaine de la vallée centrale de Santa Coloma, Andorra la Vella et Escaldes-Engordany* (Arxiu National d'Andorra). *(1) 1903-1932* [Guillem de Plandolit]. *(2) 1950-1970* [Fèlix Peig Ballart]. *(3)* 2008 [Marc Rossell, Departament de Medi Ambient].

Andorra
Socioeconomic context

76.098 inhabitants (2013)

The **agriculture** sector, based on a traditional farming management system insuring a sustainable balance between livestock and agriculture land-coverage, only represents **a 0,6% of the country's GDP** (2014) but plays an important role providing a large number of environmental services

Services are the most important sector of the Principality's economy regarding 87,1% of the countries businesses and 87,1% of the employees.

Tourism is one of the fundamental pillars of the Andorran economy, directly or indirectly responsible of 60% of GDP with about 8 million visitors per year. In **winter, products related to skiing are predominant, but very vulnerable** to climate changes.

Andorra
So, an active mountain environment

Mountains

Natural systems

- Biodiversity
- Carbon sinks and reservoirs
- Water cycle regulation

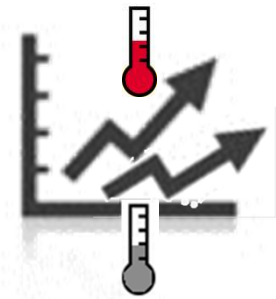
Human systems

- water supply
- Economy (ie. tourism, etc.)
- hydropower, as a renewable energy
- Irrigation, food security

Among others,...

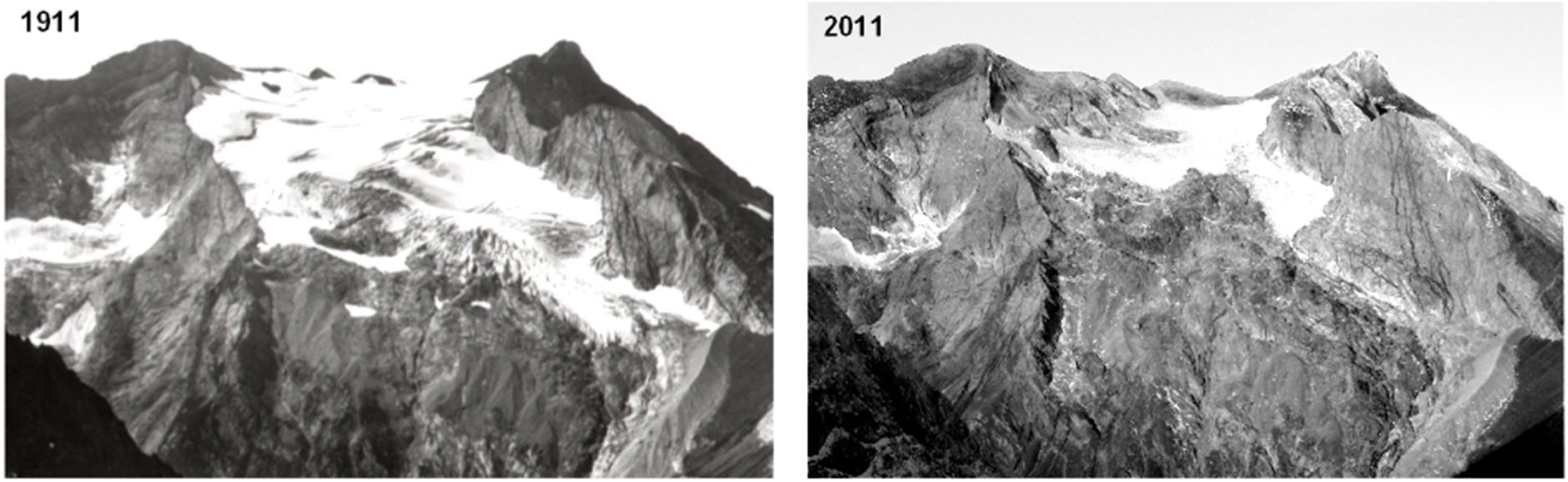
But,

Available data suggest that **climate change may be proceeding more rapidly in mountain regions**, further exacerbating impacts (IPCC, 2007; MIQUEL C, 2012; Mountain Research Initiative EDW Working Group, 2015)



Increase of vulnerability and impact

Andorra
But, in a context of climate change



Ossoue Glacier (Vignemale Massif). (Source: Association MORAINE, 2011). Modified.

Climate change
Global phenomenon

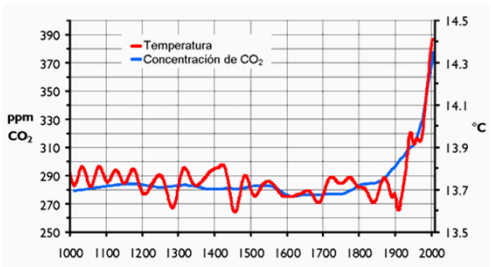
1992 (AND) **2011** United Nations Framework Convention on Climate Change

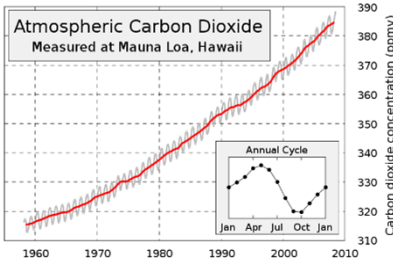
WMO UNEP → **1988** ipcc INTERGOVERNMENTAL PANEL ON climate change

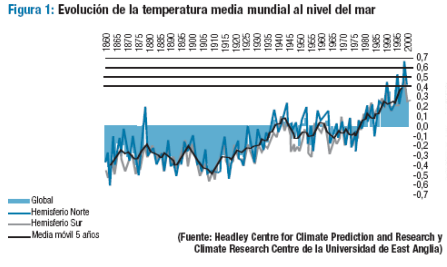
The United Nations Framework Convention (UNFCCC) was adopted in New York on May 9, 1992 and entered into force on March 21, 1994. It allows, among other things, to **strengthen the public awareness, worldwide, of the So-called "global" problems related to climate change**.

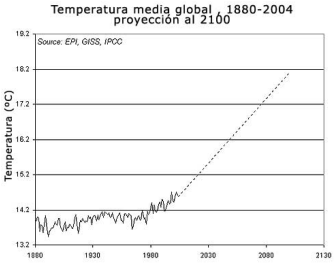
Its aims are:

Achieve stabilization of the concentrations of greenhouse gases in the atmosphere at a level that prevents dangerous anthropogenic interference in the climate system and in a period sufficient to allow ecosystems to adapt naturally to climate change, ensuring that the Food production is not threatened and allowing economic development to continue sustainably.









Climate change
The IPCC assesment reports (5AR)

About temperatures

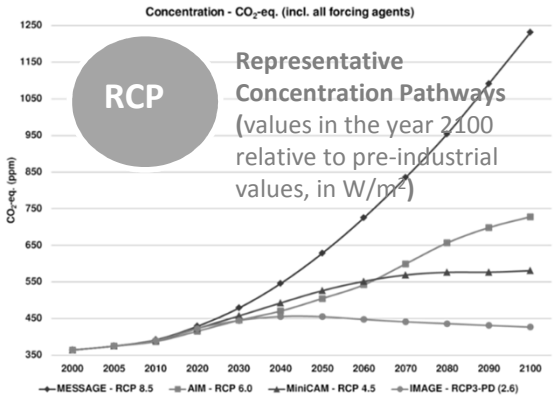
The average temperature of the planet (land and sea) increased 0.85ºC between 1880 and 2012.

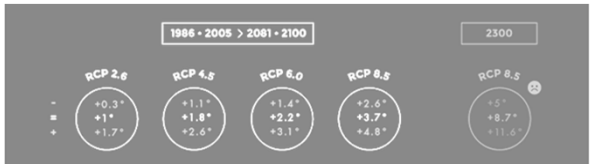
Each of the last three decades has been warmer than the previous one and that any other decade since 1850.

The decade 2001-2010 has been the hottest of all decades since 1850.

The 1983-2012 period was probably the hottest since 1400 years.

IPCC, 2013. Climate Change 2013: The physical science basis. IPCC Working Group I Contribution to AR5.

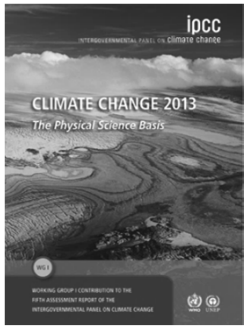




About impacts

The 5th evaluation report prepared by the IPCC deals with these aspects. To give an example, the most important risks that we have to face in Europe are those related to:

- extreme precipitation
- dry periods
- extreme temperatures
- water deficits
- increase of the sea level



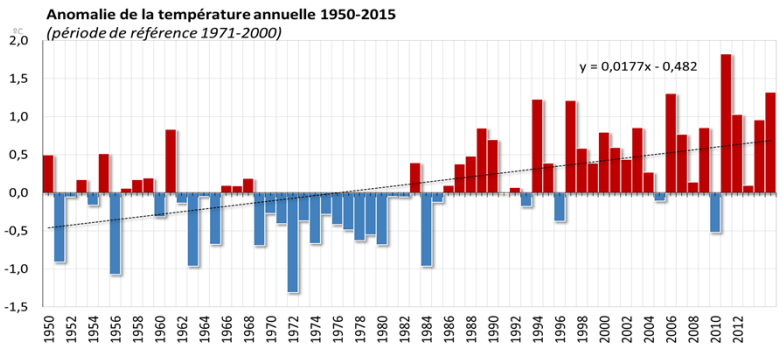
IPCC, 2014. Climate Change 2014: Impacts, Adaptation, and Vulnerability. IPCC Working Group II Contribution to AR5.

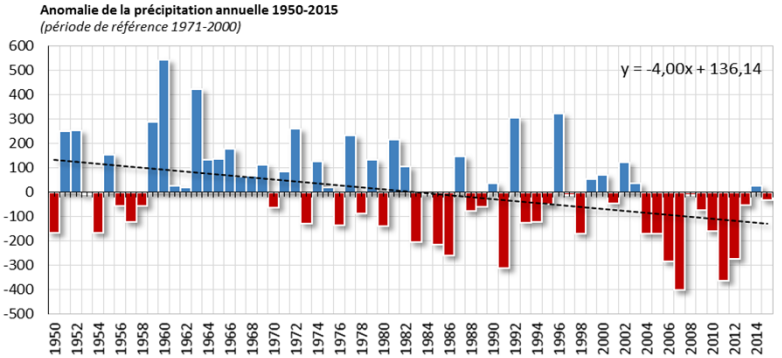
Climate change
The evolution of the climate: effects and impacts

In 2007, the Intergovernmental Panel on Climate Change (IPCC) identified the mountainous areas as particularly sensitive to climate change. And indeed, the climate has already evolved, with an **increasing tendency of approximately +0,18ºC/decade in average temperatures and a reduction of at least 40 mm/decade (1950-2015) in annual rainfalls**.

For the end of the 21st century, the country can expect a rise of 3,6ºC in temperatures and a decrease of 16,8% in rainfall.

The water resources of Andorra will also be affected, estimated at 282 Hm^3/year on average for period 1961-1990, the expected future trends based on this period are -42 Hm^3 for 2021-2050 (-14,9%) and -106 Hm^3 for 2071-2100 (-37,6%).





[OPCC, Projet EFA 235/11. Climate Action. Working Community of the Pyrenees, 2014, updated by the Energy and Climate Change Agency, 2016.]

Climate change
And, what about the responsability of Andorra?

Even if, Andorra is heavily dependent on fossil fuels and importing electrical energy. 74% of the total consumed energy depends on petrol (totally imported). Electricity consumed in Andorra (around 600 GWh/year) is primarily imported from France and Spain. Domestic production only attained a 16,7% in 2010 and 13,7% in 2011.

Andorra
Principat d'Andorra
Andorra la Vella

Bandera | *Escut*

Lema: Virtus Unita Fortior *(la unió fa la força)*

Himne nacional: el Gran Carlemany

Codi ISO: 020 / AND

0,00112%
global emissions

Climate change
But, Andorra is committed

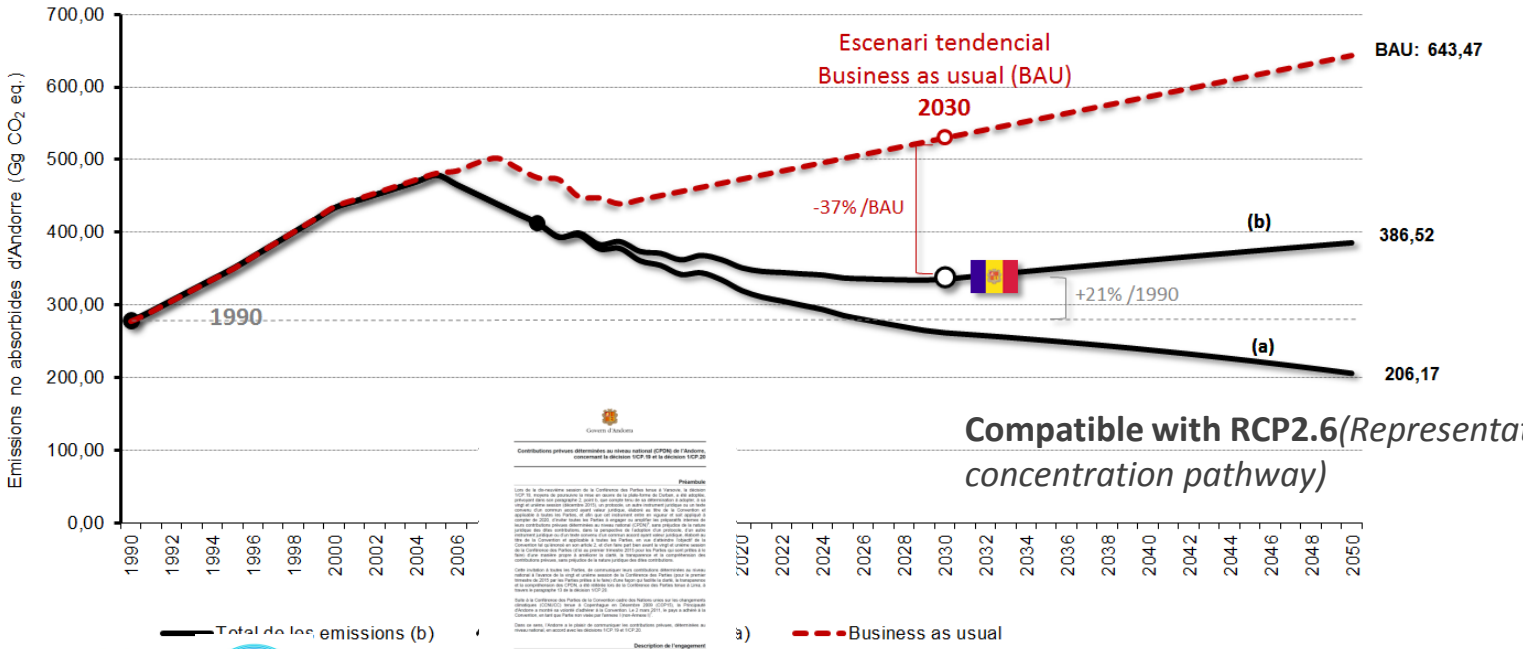
United Nations Framework Convention on Climate Change

Climate change is a global phenomenon, which involves an **international response through local action**

Non-Annex I National Reports	
National Comunication (NC)	4 years
Biennal Updated Reports (BUR)	2 years
Nationally Determined Contributions (NDC)	5 years

Climate change
Intended Nationally Determined Contributions

Reduction of 37% of greenhouse gas emissions by 2030, in relation to the business as usual scenario.



Compatible with RCP2.6*(Representative concentration pathway)*

Intended Nationally Determined Contributions (INDC)

UNITED NATIONS CLIMATE CHANGE CONFERENCE COP19/CMP9 WARSAW 2013

LIMA COP20/CMP10

CDP21-CMP11 PARIS 2015

2013 2014 12/2015

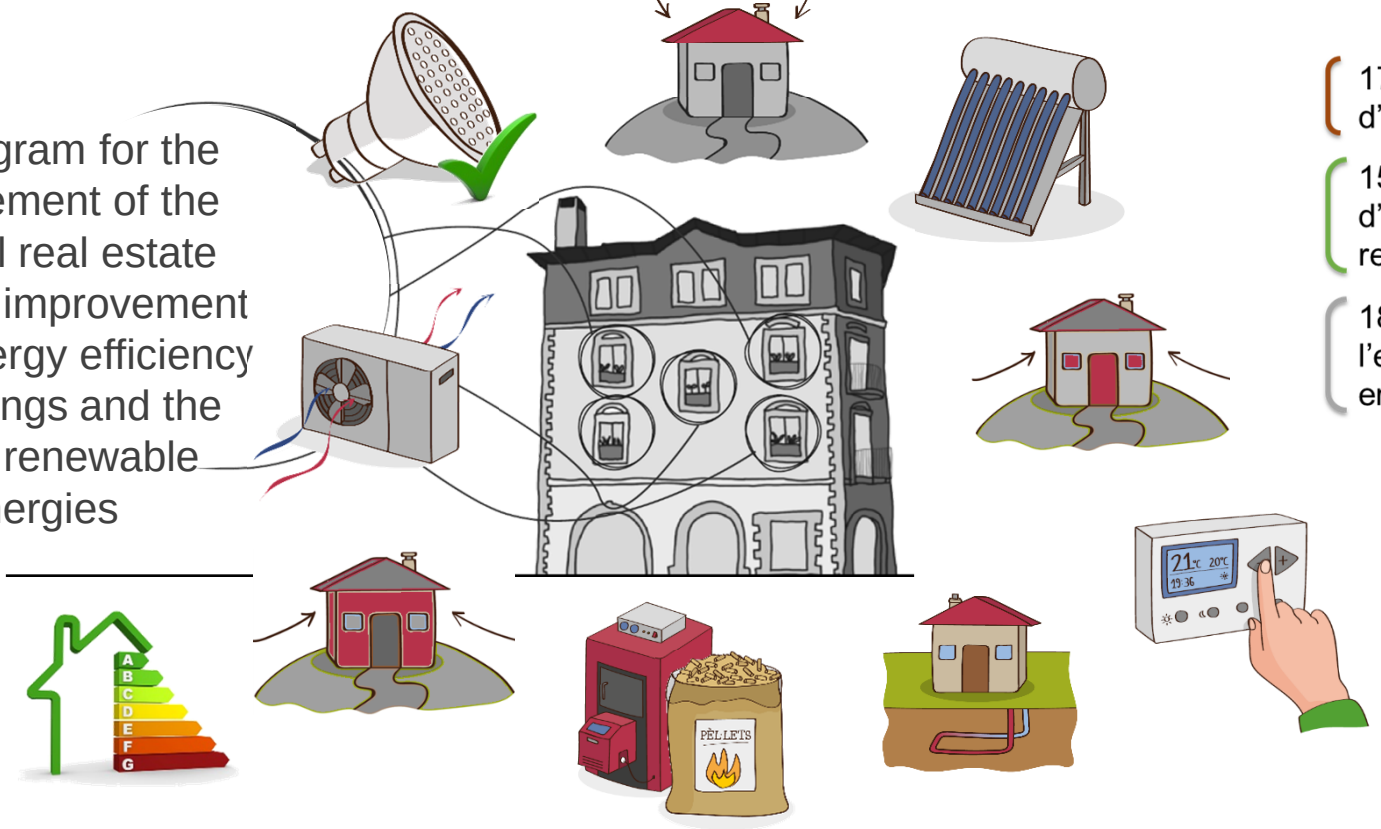
Accions

Energy efficiency and energy savings in buildings

1.

Govern d'Andorra

Aid program for the improvement of the national real estate park, the improvement of the energy efficiency of buildings and the use of renewable energies



96% de les sol·licituds

17, combinació d'actuacions

15, implantació d'energies renovables

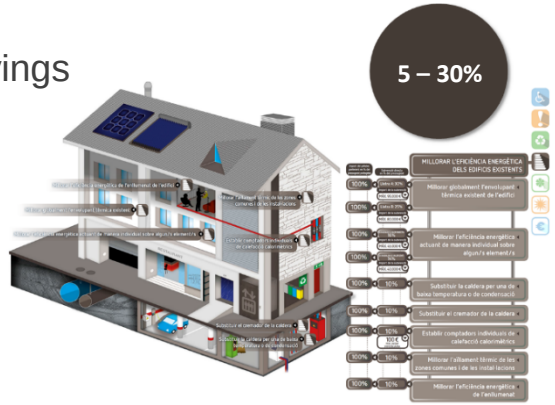
189, millora de l'eficiència energètica

Accions

Energy efficiency and energy savings in buildings

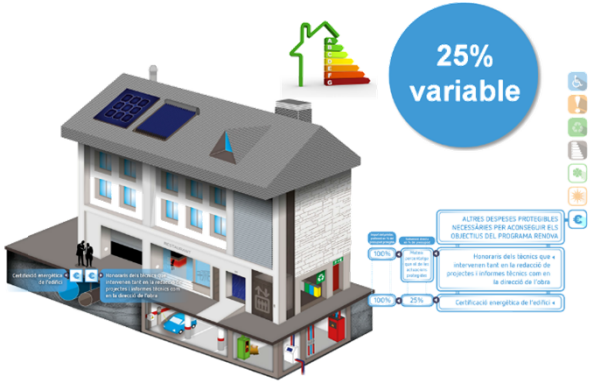
Promotion of renewable energies

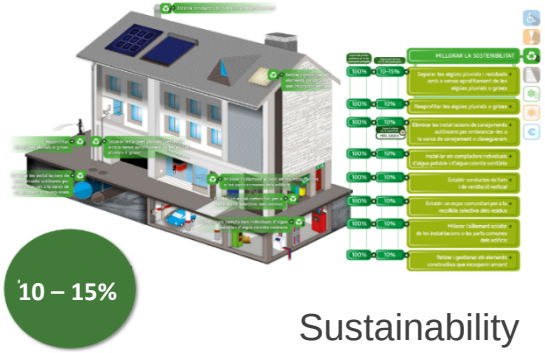
Energy Efficiency and savings



Tools to make the information accessible

Technical cabinet work





Sustainability

http://www.mediambient.ad/images/MiniSites/renova_2017/

Accions

Energy efficiency and energy savings in buildings

2. 3E project. Energy efficiency in schools

Tools to make the information accessible

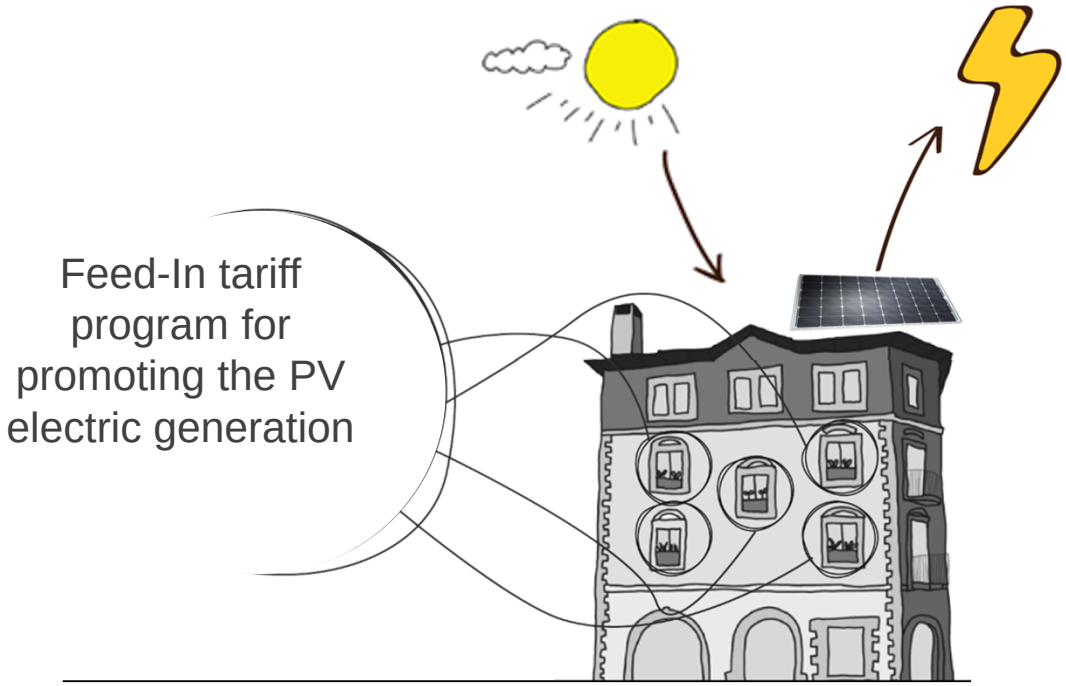
- Exemplary role of the administration
- Thermal and electric smart meters
- Energy management system (EMS)
- Rehabilitation and improvement of buildings

Escola Verda

Accions
Promotion of renewable energy

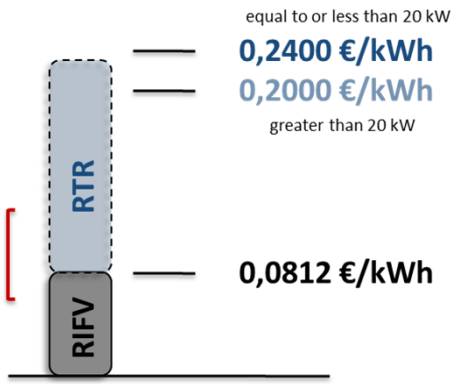
3.

Govern d'Andorra



Feed-In tariff program for promoting the PV electric generation

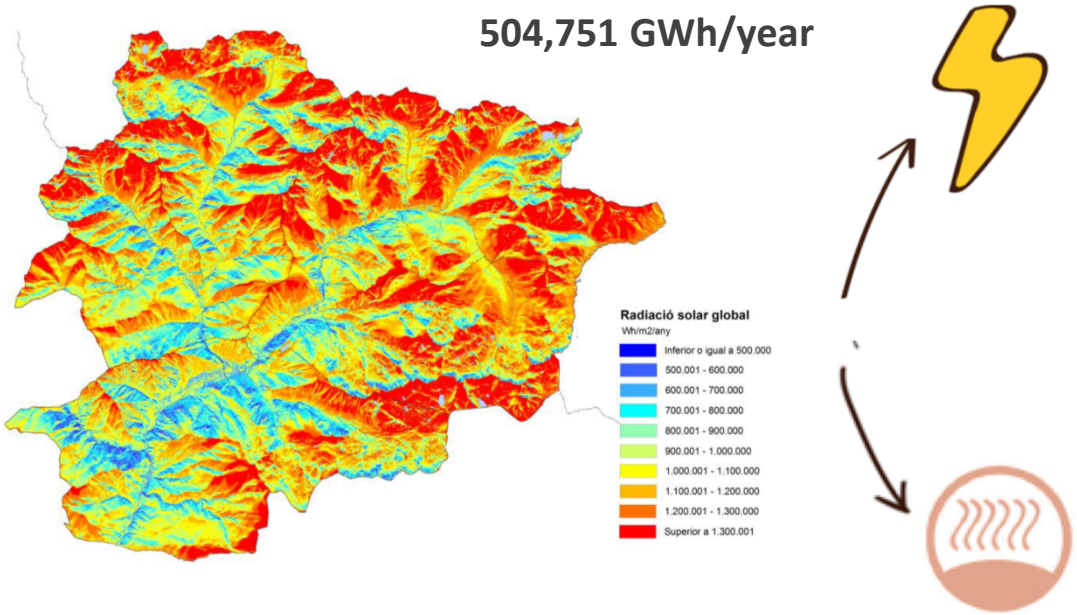
Installations integrated in buildings and interconnected to the low voltage network



Blue Tariff (BOPA, dec. 2016)
0,0731 ~ 0,1356 €/kWh

For an electric power less than 500 kW

Accions
Promotion of renewable energy

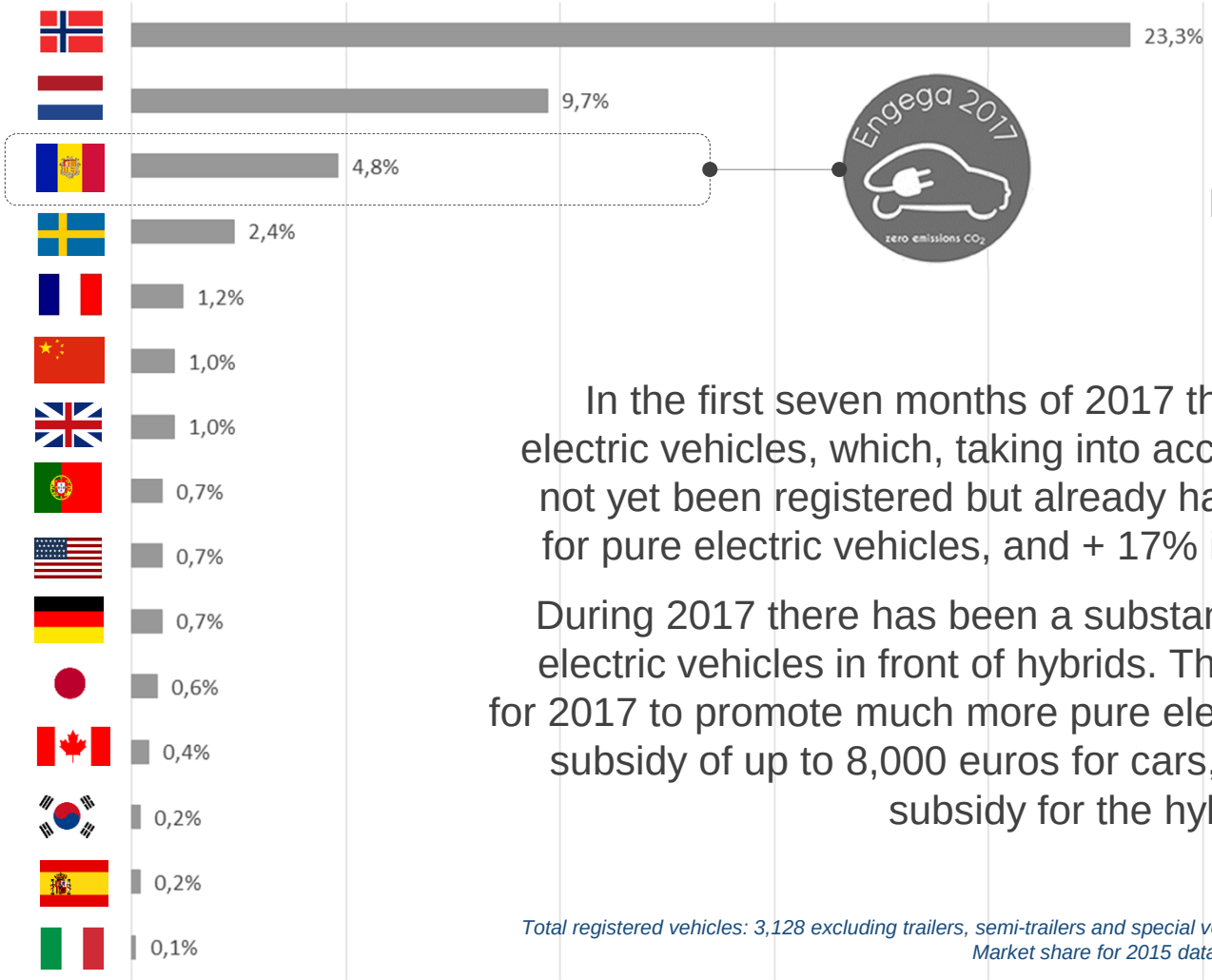


Andorra has great potential in solar energy

Tools to make the information accessible

http://www.mediambient.ad/energia/generacio-d-energia-electrica-d-origen-fotovoltaic

4. Sustainable mobility
The promotion of EV



2016

Market share: 4,83%

August 2017

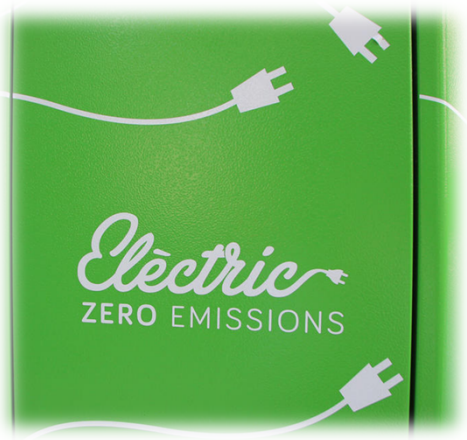
In the first seven months of 2017 there is an increase in electric vehicles, which, taking into account those that have not yet been registered but already have a grant, is + 63% for pure electric vehicles, and + 17% in the plug-in hybrids

During 2017 there has been a substantial increase in pure electric vehicles in front of hybrids. The government opted for 2017 to promote much more pure electric vehicles, with a subsidy of up to 8,000 euros for cars, twice the maximum subsidy for the hybrids of 4,000 euros.

Notes:

Total registered vehicles: 3,128 excluding trailers, semi-trailers and special vehicles. Engega *registered vehicles: 151*
Market share for 2015 data. Source: Global EV Outlook 2016 (IEA)

Sustainable mobility
Raising barriers



EV Chargers

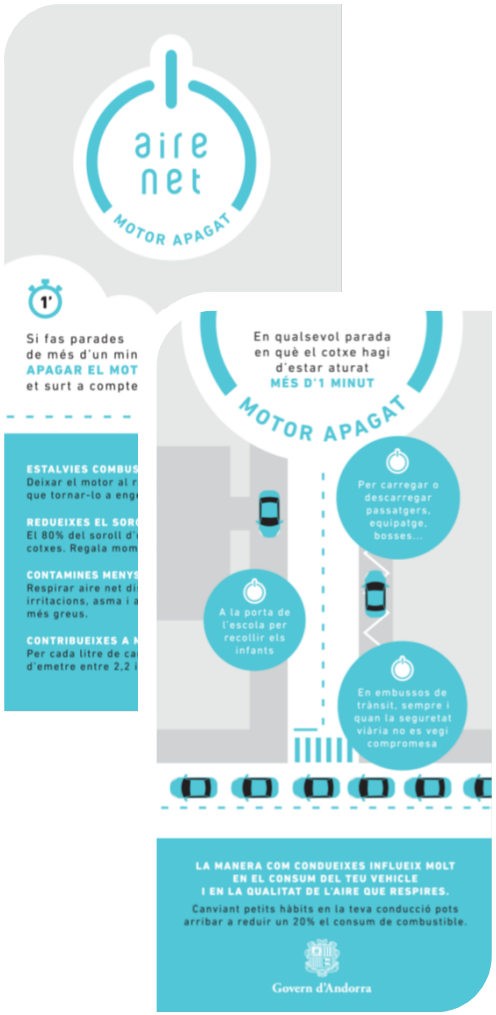
At the end of the program, 35 fast chargers, for about 500 estimated vehicles, reached a ratio of 14 EVs per charging point, placing Andorra among the countries with the highest world rates of public chargers on the street.

(Sweden 40, France 100, Norway 100)

Outreach and awareness

The JME17 aims to disseminate and bring to the public the great variety of electrical mobility options that exist in the market and that allow to replace vehicles with a combustion engine to a great extent.

Sustainable mobility
“Clean air, engine off” campaign



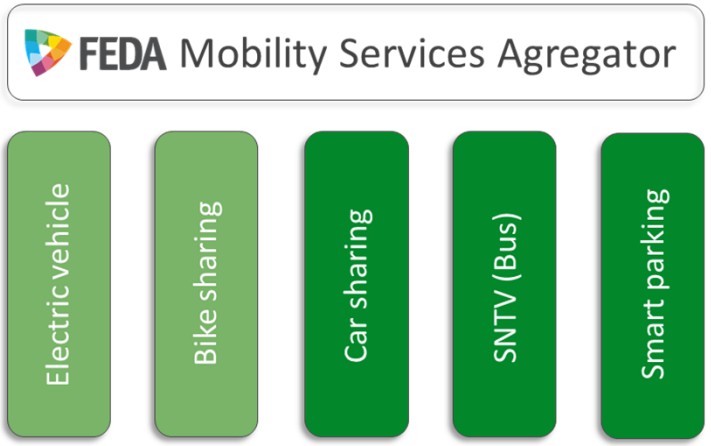
Within the framework of the European Week of Sustainable Mobility and Safe 2017, the Ministry of Environment, Agriculture and Sustainability has launched a sensitization campaign to raise awareness of drivers about the benefits of extinguishing the motor of the vehicles when they stop more one minute:

· Improvement of air quality thanks to the reduction of emissions of polluting gases and noise, with a direct beneficial impact on the health of people and the environment.

· Improvement of energy efficiency. Reduction in fuel consumption with a beneficial impact on economic savings.

· Action against climate change, thanks to the reduction of emissions of polluting gases. Each liter of fuel saved means stopping emitting between 2.2 and 2.5 kg of CO_2 into the atmosphere.

Sustainable mobility
Global mobility planning



Within the framework of policies driven by integrated mobility, it is expected to incorporate, within a single platform, different modes of mobility that include, in addition to the regular national passenger transport lines, electric bicycles (the Government is already going bid the project a few weeks ago), the integration of transport tariffs, charging points for electric vehicles, a new management of car parks and a vehicle sharing system.

The integrated mobility project, which is expected to lead FEDA, will have to develop a platform for the management of all these services, the current ones and those of future implementation that will have to improve the internal mobility of the country.

Sustainable mobility
Alternative sources of energy

Hydrogen

At European level, Directive 2014/94 / EU on the deployment of alternative fuel infrastructures foresees that the use of alternative fuels in the transport sector is encouraged to minimize transport dependence on oil and mitigate the environmental impact.

The H2PyiR project could be a good first approach to Andorra for the production, storage, distribution and use of hydrogen in applications, such as:

- Mobility and transportation to provide electricity and heat to 100% hydrogen vehicles;
- or electric with "range extender" of fuel cell;
- the backup in hospitals, telecommunication centers etc.

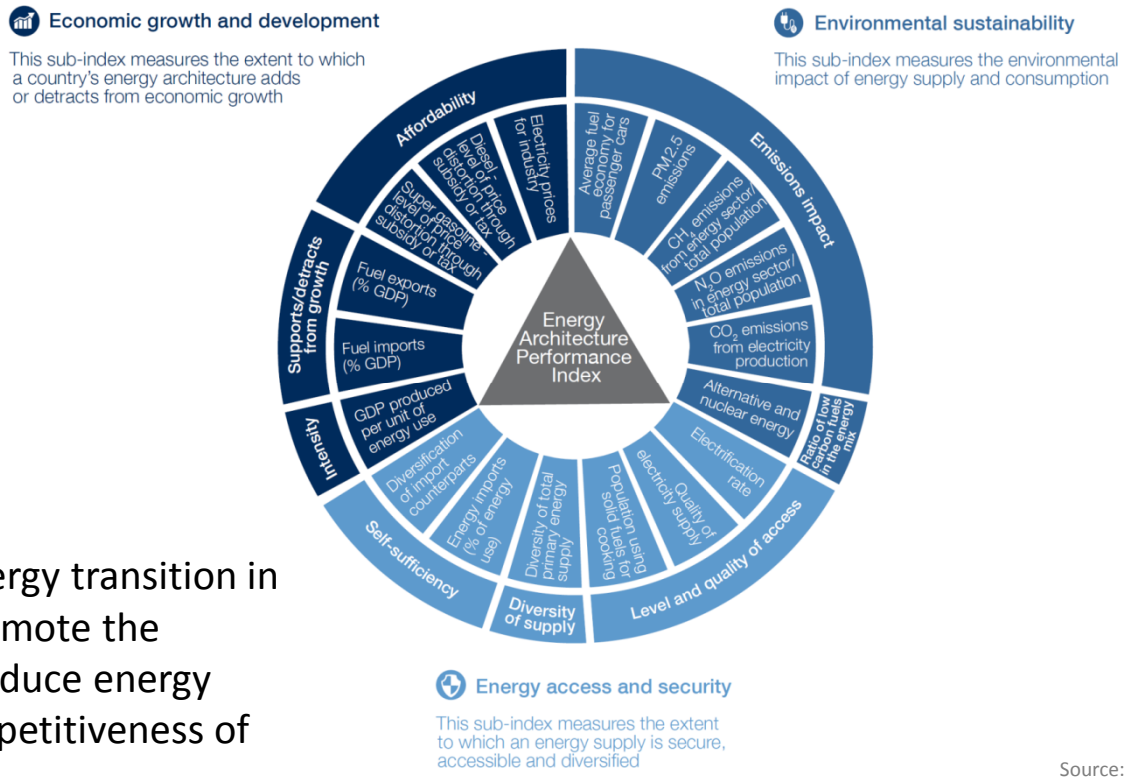
Construction of 6 hydrogenerators in the Pyrenees area (hydrogen service stations) in Spain, France and Andorra.

FEDA | Interreg POCTEFA H2PiyR EUROPEAN UNION

Public participation and approach
Energy transition and climate change

SUSTAINABLE ENERGY WEEK 19-25 JUNE 2017
An initiative of the European Commission

Seminar of public reflection on energy transition and climate change



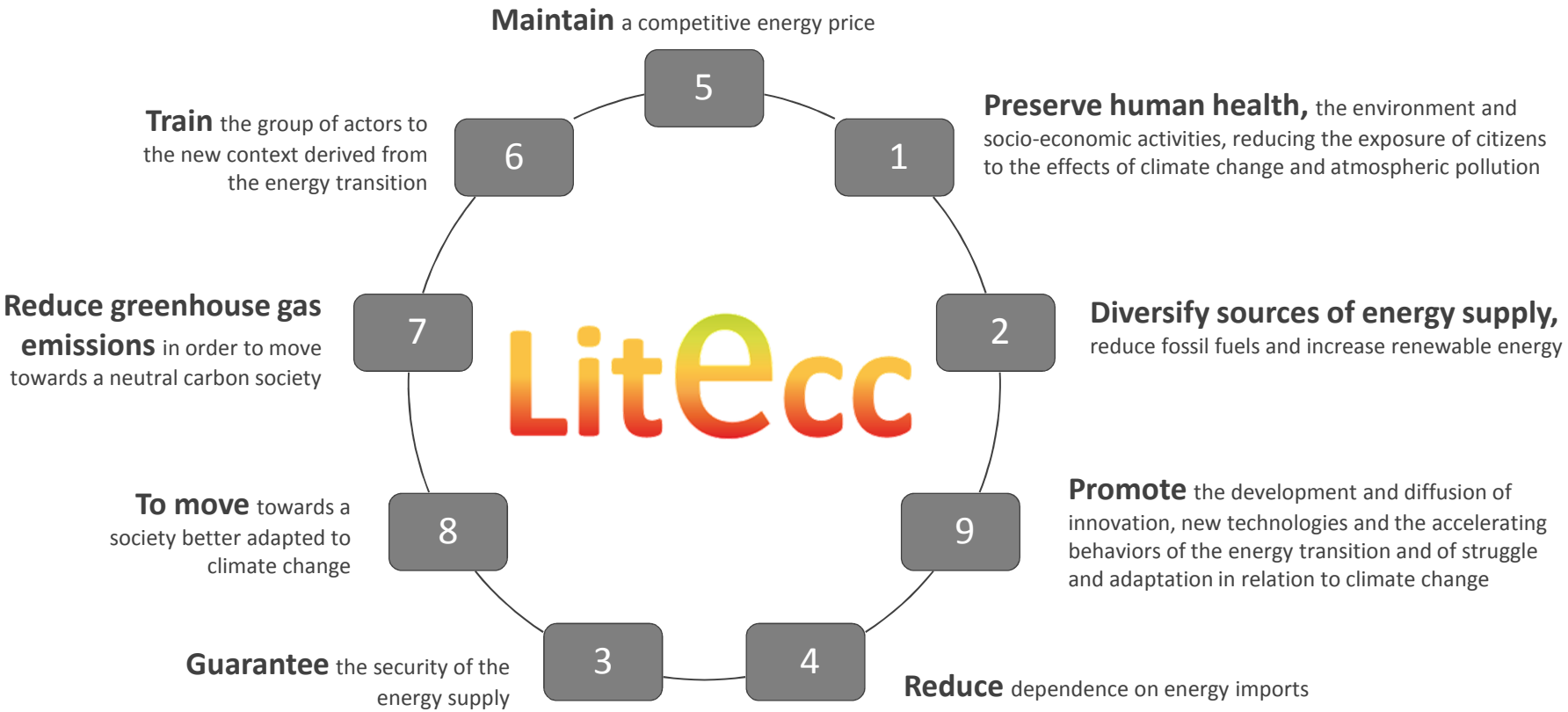
Source:
World Economic Forum and Accenture analysis

This process aims to promote the energy transition in order to fight climate change and promote the adaptation of society to its effects, reduce energy dependence and strengthen the competitiveness of the economy.

Also, promoting research and innovation, and fostering education and awareness of society in the aforementioned areas.

Energy transition and climate change
Purposes

The aims of the energy and the fight against climate change policies:

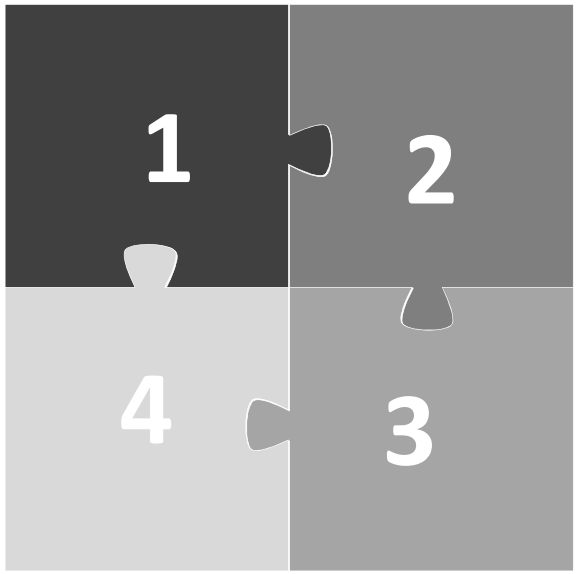


Energy transition and climate change
Guiding principles

Guiding principles of the energy and the fight against climate change policies:

Sustainability
The actions promoted must meet the needs of the current generation without compromising the ability to meet the needs of future generations applied in the broadest sense and to all kinds of aspects in the social, environmental and economic fields;

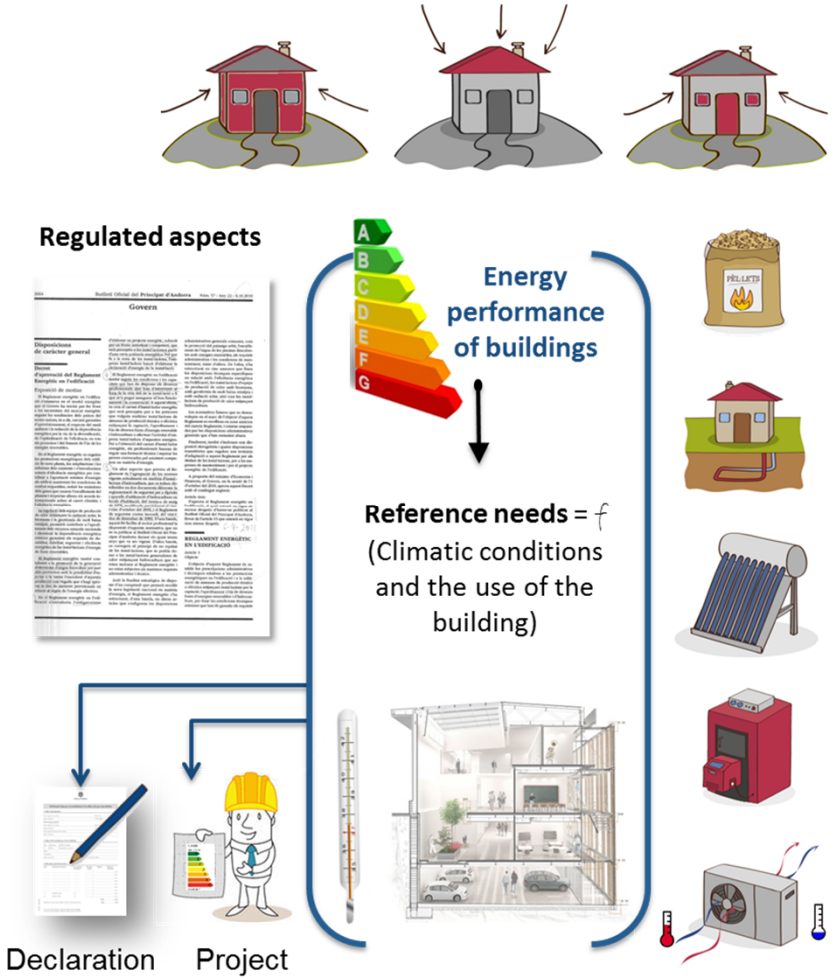
Best technique available
The measures and actions carried out should favor the use of the best available technology to avoid, or at least minimize, emissions and the impact on the environment as a whole.



Exemplary role of the Administration
in all the measures, actions and projects that are carried out;

Public participation
Participation of the citizens and agents involved, in the elaboration of the implemented measures;

Energy transition and climate change
Near zero energy buildings



Annex **1**
Energy efficiency in building

Annex **2**
Biomass

Annex **3**
Geothermal energy

Annex **4**
Solar thermal panels

Annex **5**
Hydrocarbons

Annex **6**
Aerothermy

Directive 2010/31/ EU, of May 19, relative to the energetic efficiency of the buildings and the **recommendation (UE) 2016/1318 of the Commission** of the 26 of July of 2016, on the directives to promote the buildings of consumption of buildings. Quasi-zero energy and best practices to ensure that by the end of 2020 all new buildings are buildings with near-zero energy consumption.

Collaboration, teamwork and networking
Climate change knows no borders

Pyrenees climate change observatory

- Evolution of the climate in the Pyrenees
- Paleoclima, lakes and peatlands
- Forests
- Flora
- Water resource

Interreg POCTEFA

CLIMPY OPCC | REPLIM OPCC | CANOPEE OPCC | FLORAPYR OPCC | PIRAGUA OPCC

Ibero-American network of climate change offices.

Conclusions
So, climate change; a global phenomenon, for a local action?

Mirador panoràmic del Roc del Quer,
Parròquia de Canillo.

Conclusions

Yes, i.e. the case of Andorra.

Govern d'Andorra

Thank you for your attention

Gràcies per la seva atenció