

1. Pilot Region - Northern part of the Province of Belluno -

1.1 General description and selection criteria

General Data

Country	Italy	
Province	Belluno	
Name of Althouse-Region	Northern part of Province of Belluno	
Area	1924,71	km ²
Population (2007)	59.228	
Central town	Cortina d'Ampezzo	

Description of the region and its location

The northern part of the Province of Belluno is a mountain area including the northern Dolomites, a UNESCO world heritage site. The area is not heavily urbanized and population centers are concentrated mostly in the valley where the presence of economic and productive activities is stronger.

Some areas (the Ampezzo part of Cadore, the Zoldano district and the High Cordevole Valley with its Marmolada mountain) have been extensively developed as summer and winter tourist resorts, unlike fringe zones where the spreading of new production activities has been limited, where farming has been abandoned and the population has dwindled due to migration and where there is a slump in the building trade. The vernacular settlement type is mainly constituted by dense nuclei of *tabià* that are service buildings for agricultural stock and forest activities. In ancient time the economy were based on the utilization of Alpine pastures and forests and the extraction of minerals. The focus will be on traditional villages placed along the valleys: Biois, Cordevole, Zoldana, Fiorentina and Boite. These villages relate with the territory according to different aggregative models since the urban setting and housing models are coherent with the functional needs of the area.

Selection criteria

The Pilot Region is the northern part of the Province of Belluno. This province is the most mountainous in the Veneto Region area. This area includes the most representative characteristic of the entire province: historic settlements, cultural heritage, forestry and manufacturing industry districts (the most important is the eyeglasses district) and also local food processing activities. The landscape is distinguished by the large presence of woodlands, mountainous slopes and urbanised valleys. The local architecture heritage is characterized by the strong tradition in using local wood or stone for building. For the Project aims the are many good examples of old - adapted to different use - buildings and also brand new building stock.



figure 02 - overview of the region
- Regione Veneto -

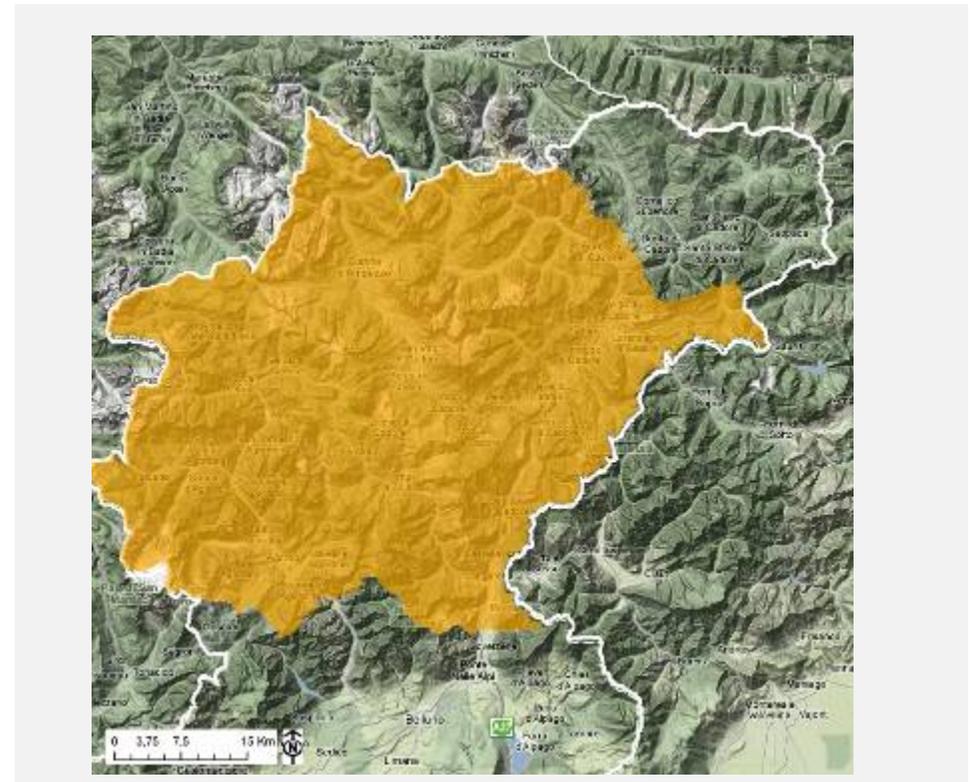


figure 01 - overview map of the region
Regione Veneto — based on google map-

1. Pilot Region - Northern part of the Province of Belluno -

1.2 Regional and supra-regional framework

Natural landscape

The Pilot Region is characterized by a typical mountain landscape with the dominant presence of the Dolomites that reach an altitude of 3000m and that alternate with deep, narrow valleys: Biois, Cordevole, Zoldana, Fiorentina, Boite, Cadore mainly north-south oriented. Most of the territory is covered by forests, the presence of meadows and pastures has been gradually decreasing because of the progressive advancement of the forest due mainly to the abandonment of farming and pastoral activities. In terms of natural area, there are 36 natural habitats and habitats of species. Much of the land is affected by hydrogeological problems and especially by landslides. Two-thirds of urban settlements are located 800 meters above the sea level

The land use in the territory is characterized by the following:

- urbanized areas: 2 %
- agricultural areas: 2,2 %
- water areas: 0,4 %;
- wet areas: 0.01%
- woods: 95,4 %
- protected areas (92/43/EEC): 54%

Settlements

The settlements are characterized by a recognizable historical nucleus, often with the presence of buildings of architectural merit and small twentieth centuries expansions with low population density. The settlements are concentrated in the bottom areas of the valley where the productive areas have also arisen. Many communities are characterized by the presence of tourist activities and facilities and part of the housing stock is used as a second home for tourism. The scattered settlements in the agricultural zone have maintained their original rural characteristics and their relationship with the natural environment especially in areas at higher altitudes.

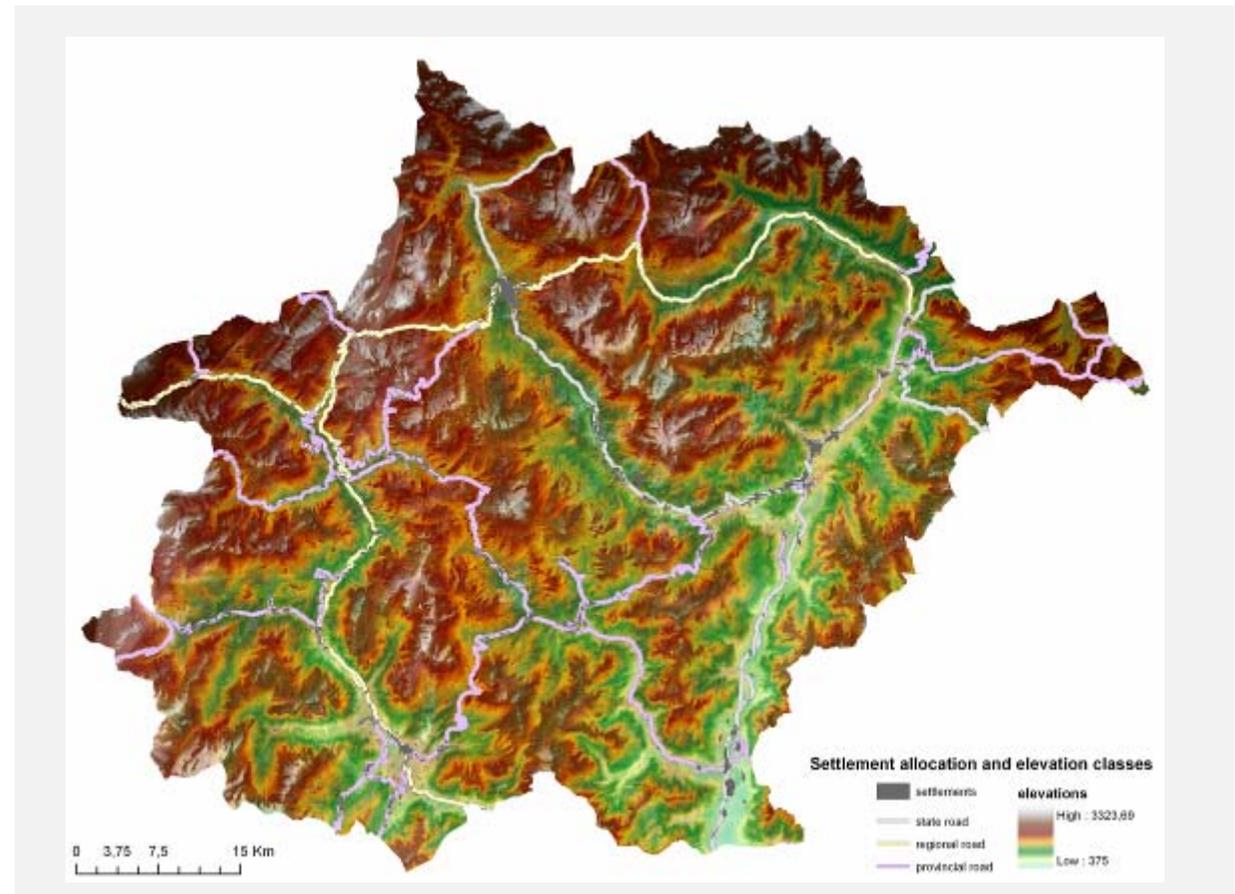


Figure 03 – overview map elevation and building location
- Regione Veneto-

1. Pilot Region - Northern part of the Province of Belluno -

Population and households

The population density is greater in the settlements at the bottom of the valley, near the few flat areas, where are also concentrated most of the productive activities, and along the main arterial roads into the south area of the province and the capital of Belluno.

The age structure of the population is as follows:

- 15.7 % under 20 years of age;
- 24,3% from 20 to 40 years of age;
- 28,6% from 40 to 60 years of age;
- 24,4% from 60 to 80 years of age;
- 7% over 80 years of age.

The average household size is 2.1 and the rate of households is:

- 29.9% of single households,
- 27.7 % of two-person households,
- 21.8 % of three-person households,
- 16.3 % of four-person households
- 4.4% of households with five or more people.

Houses by type of occupation:

- rate of dwellings occupied by residents:64,25%;
- rate of dwellings occupied by non residents: 35,7%;
- rate of empty dwellings:0.04%.

(source ISTAT 2001)

Economy

In the Pilot Region in recent years there has been a decline in local units engaged in economic activities, this is mainly due to the general structural crisis.

The statistics on employment underline the prevalence of the secondary sector, followed by the tertiary sector. The latter is instead first for number of firms in the area and with an improved growth performance compared to previous decades. Finally, the primary sector is in sharp decline, Compared to the 1982 census the number of farms decreased by 70%: the causes lie in the aging of the workforce, the lack of innovation in production processes and problems related to the reorganization of the highly fragmented land ownership.

Sector	relevance[1-5]	Comment	Statistics 2001 (% of employees)
Primary	2		0.4%
- Forestry & Farming	2	Number of enterprises :104	
- Alpine pasture	2		
- Mining	2	Number of enterprises :28	
Secondary	5		61.8%
- building sector	5	Number of enterprises :2293	
- manufactory	5	Number of enterprises :2465	
Tertiary	4		36,5
- bank, financial, real estate, other business	4	Number of enterprises :2828	
- Tourism	4	Number of enterprises :1802	
- Trade	5	Number of enterprises 3.772	
Other service	3	Number of enterprises 734	1,3%

Table 02 – Relevance of economical sectors –Province of Belluno

- source ISTAT 2001-

1. Pilot Region - Northern part of the Province of Belluno -

Climate

The climate is subalpine with an accentuated precipitation gradient in the south. The summers are quite short, the winters especially cool in the highest altitude areas but also, due to thermal inversion, even at altitudes below 1,000 meters in some places in the valley wide and flat.

The average annual temperature in the area is 6,2°C with an average annual precipitation of 1500mm. The average snowfall have a good consistency and sometimes can sometimes take on special dimensions and present accumulations of several feet of snow on the ground at only 1000-1200 meters, such as in winter 2008-2009. With few exceptions, the closed and winding valleys results more snowy. The valley of Zoldo and the area of Falcade are areas of high snowfall. The average wind speed is low with 1.2 m/s. The average of heating degree days per year is 3829

(source ARPAV 2009)

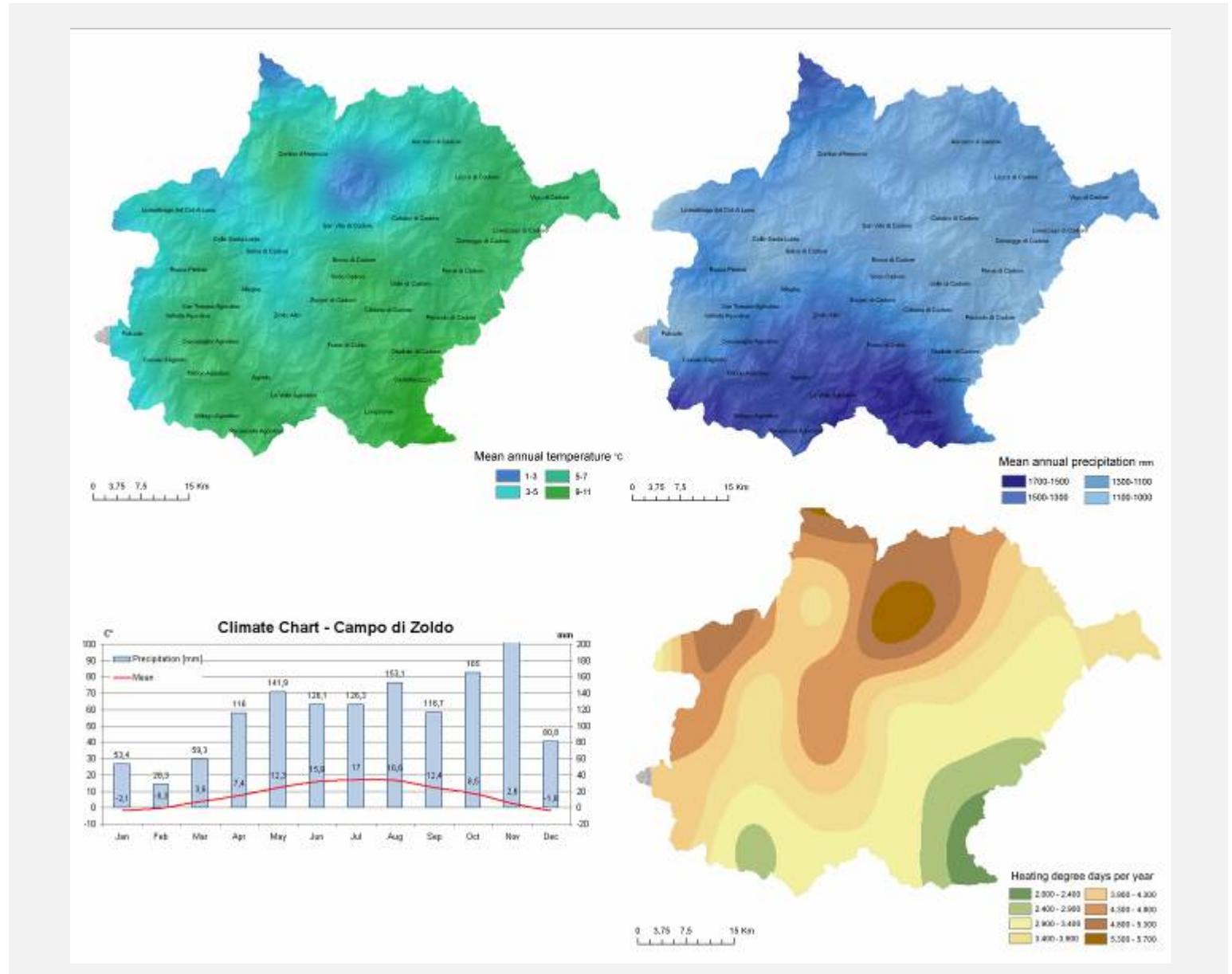


Figure 04 – climate diagram and maps
- Regione Veneto – ARPAV 2009-

1. Pilot Region - Northern part of the Province of Belluno -

1.3 Overview: Building stock and energy supply

Building stock

In the Pilot Region the biggest number of buildings was erected before the 1919. Some of them were farms or barns and now are residential houses. More than half of residential houses are of one and two family type and the remaining stock are multi-family houses and non residential buildings. There are also many agrarian buildings, often abandoned or used for simple shelter. The traditional old buildings are the “tabià”, the earliest examples date from the second half of 1600.

The “tabià” was originally used for agricultural stocking and for livestock production. There are two main types of tabià: the first one is made of stones on ground floor and made of wood on first floor and on roof (covered with shingle), the second one is all made of logs (blockbau). The tabià combines living space and stall on ground floor and barn on first floor.

The south-facing front is dedicated to the residential purposes and to the rooms for milk processing. On the back of the building was the barn and the hay loft above it.

Everything was connected by corridors and staircases, so that the care of animals was possible without having to go outside in bad weather. In the communities of the Pilot Region the best preserved tabià are located within the settlements in agricultural zone.



Figure 06 – The “tabià” houses
- Regione Veneto -

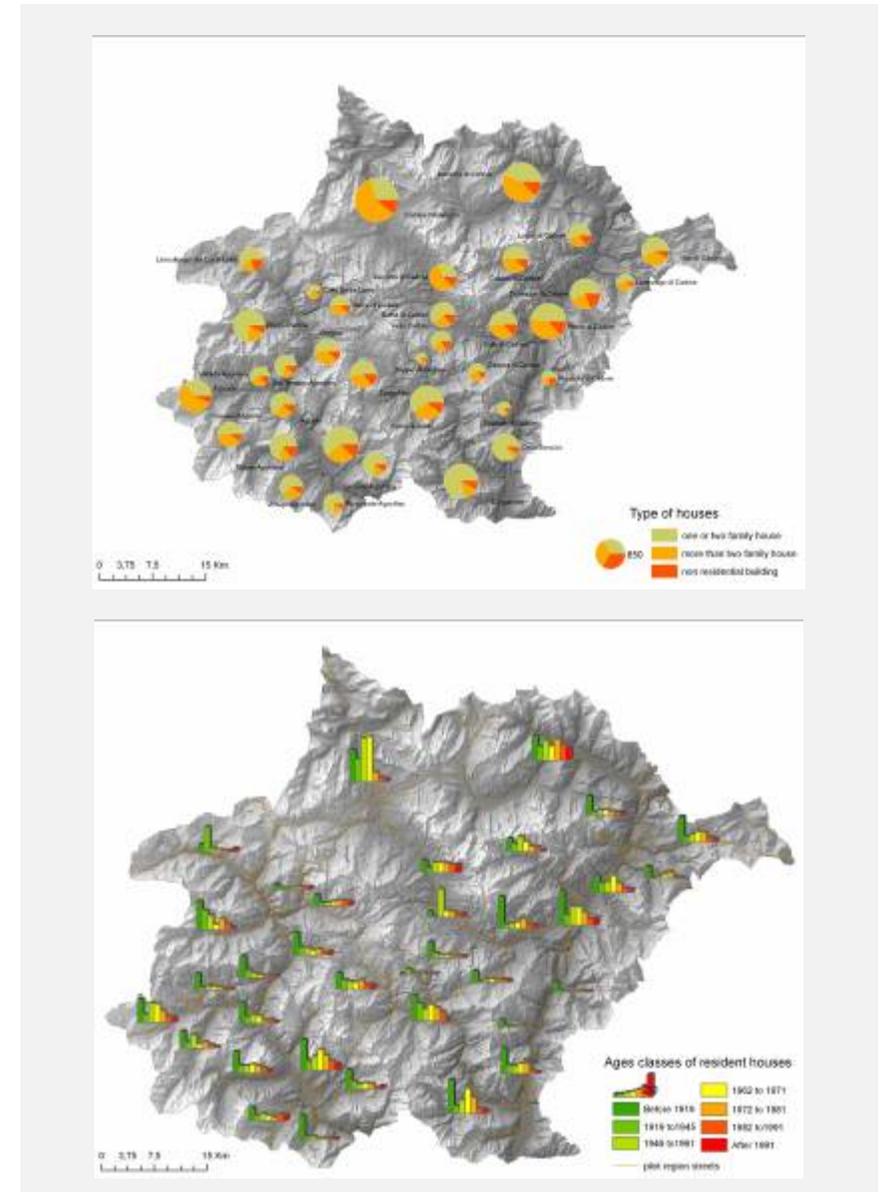


Figure 05 –Map of house type and ages
- Regione Veneto - ISTAT 2001 -

1. Pilot Region - Northern part of the Province of Belluno -

Energy usage

Fuel oil and natural gas are the main carriers for residential heating even if the local trend indicates an overall decrease in recent years. Secondary and Tertiary buildings mainly use natural gas. The construction of the gas distribution network in the pilot only began in 1985 and not in all communities the distribution to users is active. Coal virtually doesn't exist for heating. Wood, wood chips and pellets play a particular role because the use of this fuel for heating is rooted in local tradition. In many homes there is a stove or a wood boiler as the main source of heating or as an auxiliary device. Because many users are also self-producers, most of the consumption of wood escapes the census. In recent years, some geothermal plants for domestic use have been activated as well although, in general, the study area does not present very favorable characteristics for the exploitation of this kind of energy. Percentages of consumption by source in the pilot region are as follows: 37% from petroleum products, natural gas 26%, 20% wood and 17% electric

(source ARPAV 2007)

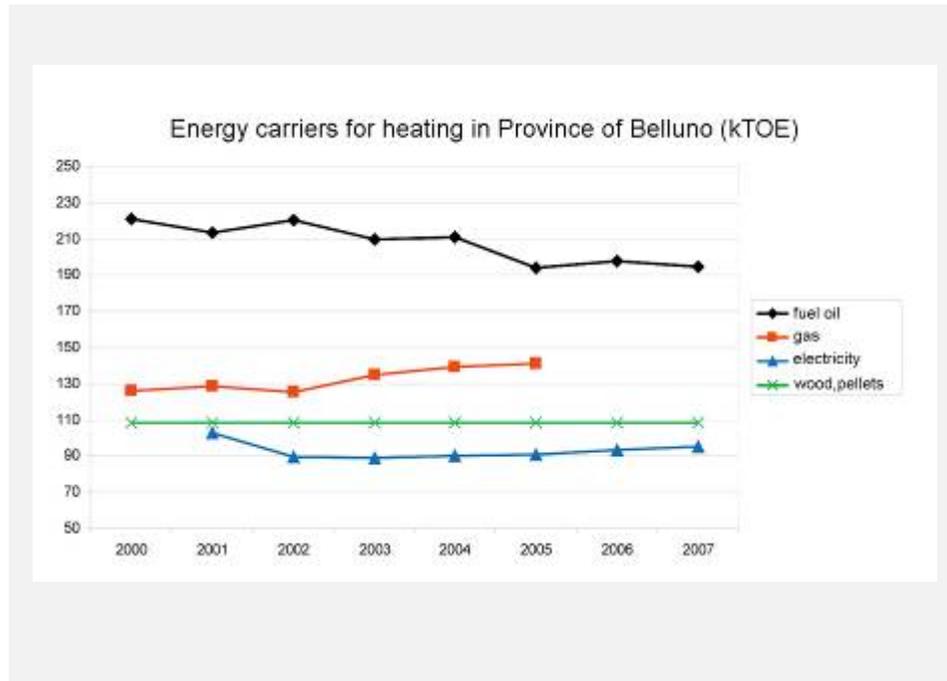


Table 03 – Energy carriers for heating
- Regione Veneto - ISTAT 2004

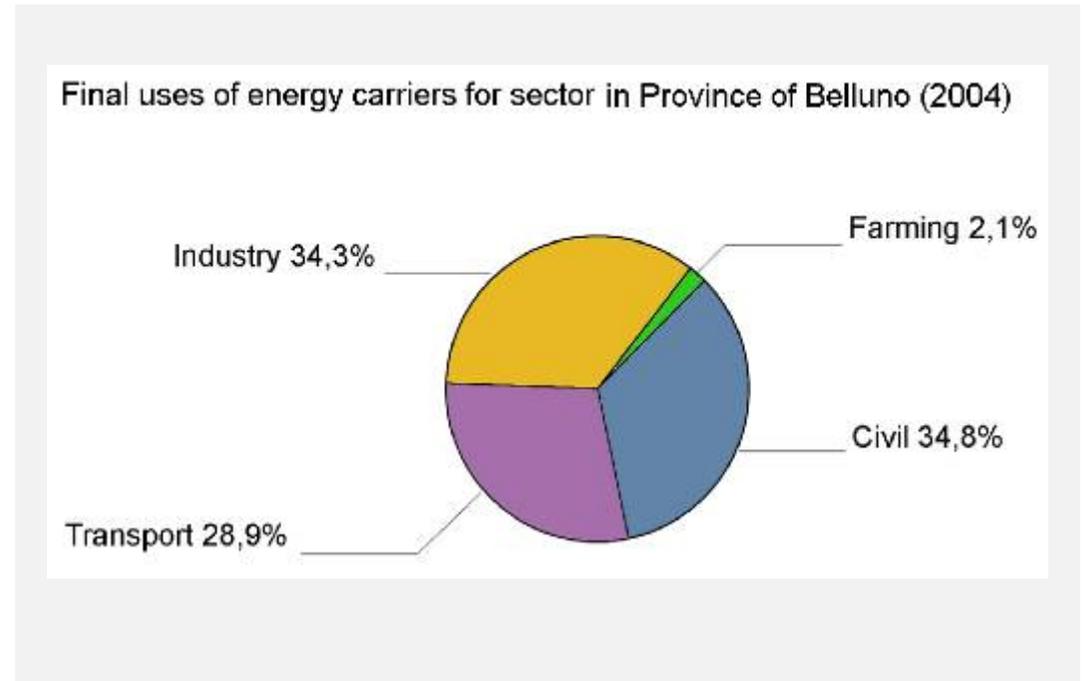


Figure 07 –Map of use of energy carriers
- Regione Veneto - ISTAT 2004-

1. Pilot Region - Northern part of the Province of Belluno -

Legal background

National legislation defines the energy constraints for all new construction and renovations. Further specific constraints are provided based on the intended use of the area where the object is located.

The Italian legislation on energy efficiency of buildings has evolved in recent years with four specific regulations: DL 311/06, DL 115/08, DL 133/08, DDR 59/09, furthermore energy certification is now mandatory for all residential and industrial buildings.

In this framework, there are tax incentives for those using heat produced from renewable energy sources and for those who improve the thermal performance of the building materials. In these cases it is possible to get a refund of 36% of the costs of the renovation works that becomes 55% if the energy efficiency of the building is improved by at least 20%.

According to the regional Law 14/2009 there are incentives in terms of volumetric expansion for those who build with techniques of bio-architecture. In the residential area these extensions can be up to 35% of the volume of the existing building.

It should be considered that sometimes the buildings subject to architectural constraints, such as vernacular buildings, are difficult to recover with innovative techniques for energy saving and, in this particular cases, a specific authorization have to be requested from the regional body responsible for the protection of historical buildings.

The 2008 National Budget Law requires, as of January 1, 2010, to install facilities for the production of electricity from renewable sources on all new construction. The installed equipment must ensure as energy production not less than 1 kW for each housing unit, consistent with the technical feasibility of the intervention. The same law provides that the use of geothermal and heat pump systems, as well as being covered by the tax deduction, should be regulated by specific local regulations

1. Pilot Region - Northern part of the Province of Belluno -

1.4 Sources

Literature

Main documents and data sources which have been used to produce this report are from:

- Regione del Veneto – Direzione Urbanistica e Paesaggio
www.regione.veneto.it/Ambiente+e+Territorio/Territorio/Urbanistica+e+Beni+Ambientali/
- Regione del Veneto – Direzione Pianificazione Territoriale
www.regione.veneto.it/Ambiente+e+Territorio/Territorio/Pianificazione+territoriale/
- Regione del Veneto – Direzione Statistica
www.regione.veneto.it/Temi+Istituzionali/Statistica/Banche+dati.htm
- ARPAV - Agenzia Regionale per la Prevenzione e protezione Ambientale del Veneto
<http://www.arpa.veneto.it/home2/htm/home.asp>
- Provincia di Belluno
http://www.provincia.belluno.it/nqcontent.cfm?a_id=1
- ISTAT - Istituto nazionale di statistica
<http://www.istat.it/>