



# STATISTICHE

figures and graphs to understand Veneto

*Flash*

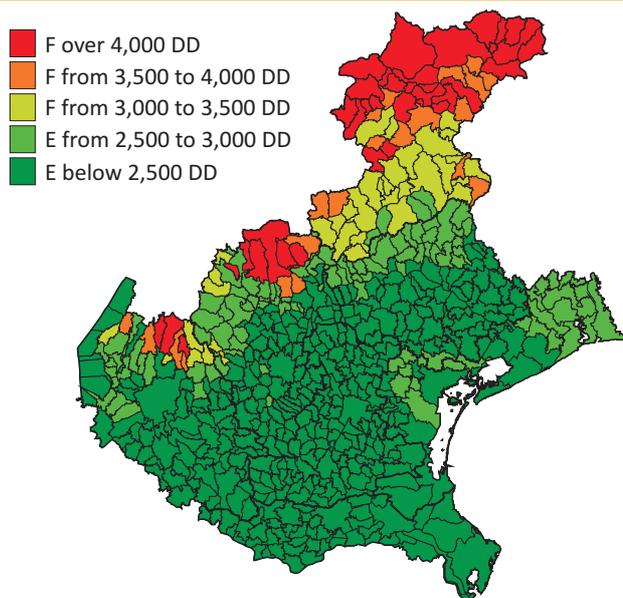
The topic dealt with in this edition of 'Statistics Flash' is centred around saving energy and developing renewable sources, with major focus on energy certifications of buildings. The European Union has set its objectives for 2020 on energy efficiency and use of renewable sources within the 'energy package', defined by Directive 2009/28/EC. This Directive sets the objective of 20% of total energy consumption from renewable resources at a European level and assigns each country an objective based on the starting situation and

the development possibilities: the share set for Italy amounts to 17%. This Directive was implemented in Italy by Law 96/2012 which was followed by Legislative Decree 28/2011 and a Decree of the Ministry of Economic Development dated 15/3/2012, which laid down the objectives for each region, assigning the objective of 10.3% for Veneto. The gross final consumption refers to electricity, thermal energy and transport: the State has reserved the actions to be taken regarding the transport energy sectors,

## ENERGY TO SUPPORT THE ENVIRONMENT

which has meant that the objectives assigned to the regions, referring only to the electricity and thermal energy sectors, are significantly lower than the national target. The building sector plays an important role in reducing the consumption of electricity and thermal energy and increasing the use of renewable energy sources, especially with regard to the energy efficiency of buildings. The European Union Directive 2002/91/EC, regulating the energy performance of buildings, invites the Member States to implement energy certification. Italy has provided for mandatory energy certification with Law 306/2003 and the Italian Legislative Decree 192/2005, but the technical regulations required for implementation are mandated by subsequent decrees. The Decree of the Italian Minister of Economic Development dated 26/06/2009, containing the 'National guidelines for energy certification', exclusively renders this certification mandatory on all national territory with the introduction of the Attestazioni di Certificazione Energetica (Energy Performance Certificates). With regard to the electricity sector, the data shows a decline in consumption starting from 2009, coinciding with the outbreak of the international economic crisis which affected all sectors, including the energy sector. The theme of renewable energy is highly contemporary, and often indicated as an opportunity to revive the economy; a general growth in electricity production from such sources has been seen in recent years. In particular, in the last two years the solar power market has undergone strong development, both in civil and industrial installations.

### THE CLIMATE SITUATION IN VENETO



Energy consumption for heating buildings not only depends on their energy efficiency, but all the characteristics of the territory in which they are built. Based on Presidential Decree no. 412/1993, the national territory is divided into six climate zones. Each municipality is inserted in a climate zone depending on an indicator called 'degree day' (DD). This represents the sum, including all the days of a conventional heating period, of the daily differences between the temperature of the heated environment, set at 20°C, and the average daily external temperature when below 20°C. In Veneto, nearly all municipalities fall within the E and F classes, or rather those with greater energy needs. Within the E and F classes, we have tried to distinguish hypothetical subclasses with boundary values from 2,000 to 2,500, from 2,501 to 3,000, from 3,001 to 3,500, from 3,501 to 4,000 and over 4,000 DD. This method of classification shows that 66.5% of municipalities belonging to class E are below the threshold of 2,500 degree days. These municipalities are mostly located in the plains area. On the contrary, the municipalities with greater energy demand, which represent 6.2% of the total, are all concentrated within the Alpine arc and are all located at an altitude above 800m.

Source: processing by Veneto Region – Directorate of Regional Statistical System on data taken from annex A of Italian Legislative Decree no

#### ALSO AVAILABLE:

- Statistical Report 2012: Veneto, descriptions and comparisons
- Tourism. Definitive data until June 2012
- Foreign trade provisional data until the 1st quarter of 2012

<http://www.regione.veneto.it/statistica>

According to the preliminary data of the Istat census of the population and of buildings in 2011, in Veneto the housing stock consists of around 1,200,00 buildings and 2,300,000 dwellings. Based on the new standard, as of 1/7/2009, residential units, subject to sale, must be accompanied by Energy Performance Certificates and as from 1/1/2012 commercial sales advertisements must report the energy

## ENERGY PERFORMANCE CERTIFICATES (ACE)

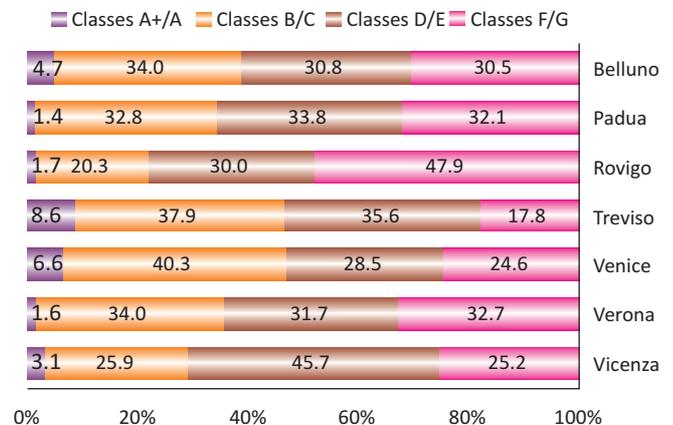
performance index stated on the certificate. Since 2/5/2012, it has been mandatory to send the certificate to the Veneto Region through the 'Ve.Net.energy-edifici' application produced by the Veneto Region and used by professionals prior to the certification system. Although the data on energy performance certificates do not represent a statistic sample of the Veneto housing stock, they do reflect the energy efficiency of the

building subject to sale, of restoration works or more recent construction, in view of the mandatory nature of certification for all new properties. Considering the current procedures for uploading and processing data, the only year fully processed to date and which therefore can be analysed, is 2010, for which 15,855 ACEs were received by the region. Of these, following insertion in an internal database and consequent cleaning of the data, it was possible to analyse 14,272 of these cases. 92% of the ACEs refer to residential buildings and the remaining 8% to non-residential buildings. In the distribution per population size of the municipalities, the residential and non residential ACEs follow symmetrical trends. In both cases, around 50% of the certifications were done in municipalities with between 10,000 and 50,000 inhabitants, which make up around 41% of the population of Veneto. The remaining 50% is primarily distributed within municipalities with between 5,000 and 10,000 inhabitants and large municipalities of over 200,000 inhabitants. The global energy classes represent a standard measure of energy efficiency of the buildings according to a national classification system regarding heating the buildings in winter and the production of hot water: these are classified alphabetically, ranging from 'A+' which indicates the most efficient, with consumption lower than 15 kilowatt/hour per metre squared per year (KWh/m<sup>2</sup>), up to 'G', the worst, with over 160 KWh/m<sup>2</sup> per year, passing through 'A', 'B', 'C', 'D' and 'F'. The most efficient classes, 'A' and 'A+', represent the minority, jointly covering 4.3% of the total. Among the provinces, Treviso presents the highest percentage with 'A' and 'A+' type classes (8.6%) followed by Venice (6.6%). The type of power supply is mainly methane gas with 89.3% of the total. The remaining share of power supply is made up of electricity, LPG and biomass, with 5.5%, 4.7% and 0.4% respectively. With regard to the year of construction and the energy class, the energy efficiency of buildings grew over time with a marked improvement from 1992, after Law 10/1991 came into force, which introduced the requirement to use 4 cm thick insulation on the building envelope. During the period from 2005 to 2010, the distribution of energy classes marked a complete change compared to previous times, a direct consequence of the application of the construction criteria provided for by Italian Legislative Decree 192/2005.

DISTRIBUTION OF ACEs PER POPULATION SIZE OF MUNICIPALITIES (%VALUES)



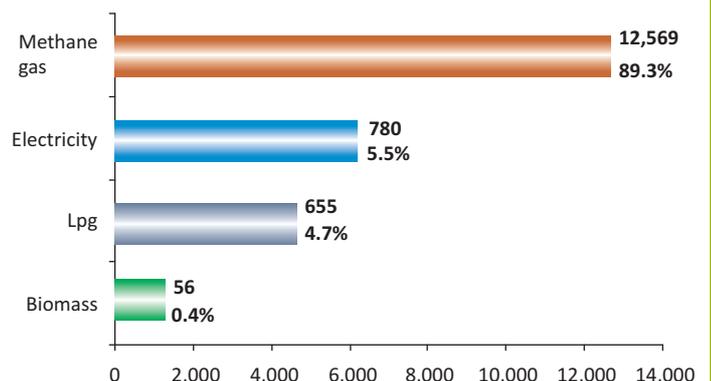
DISTRIBUTION OF THE ENERGY CLASSES PER PROVINCE (%VALUES)



RELATIVE FREQUENCY (%VALUES) PER COMBINED CLASSES



ACEs PER TYPE OF POWER SUPPLY (ABSOLUTE VALUES AND %)



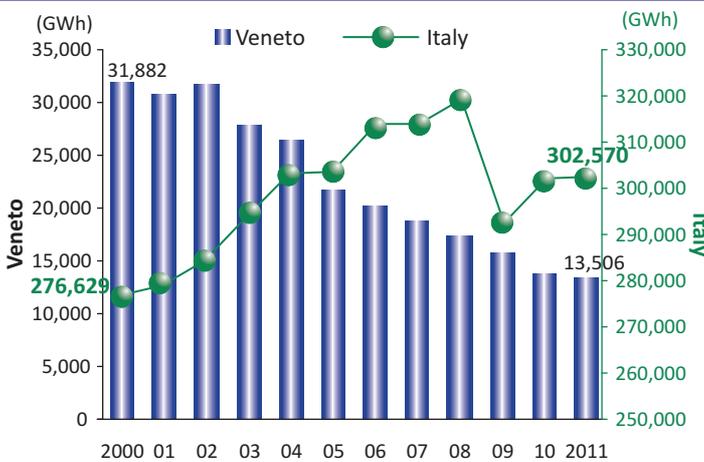
With a view of achieving the objectives relative to energy efficiency and increasing the contribution of renewable energy sources, a key role is played by the electricity sector. Production and consumption in Veneto follow different trends compared to the rest of the peninsula. In 2000, regional production exceeded consumption, unlike Italy as a whole, where the deficit situation was only remedied

## ELECTRICITY IN VENETO

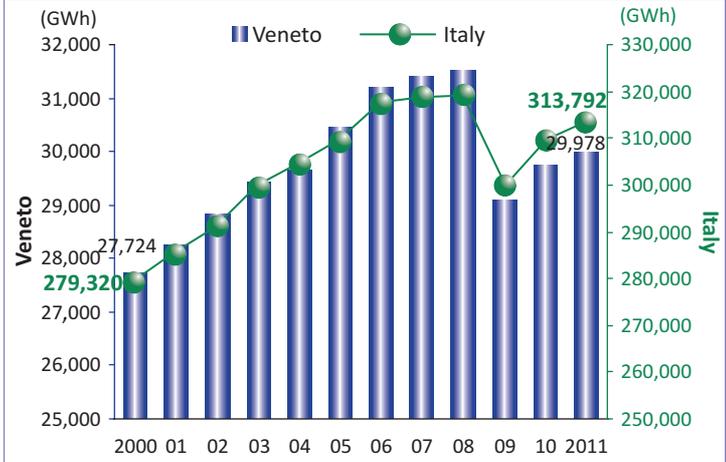
by importing electricity from abroad. Thereafter, while remaining a negative situation, the level of production on a national scale underwent constant growth up until 2009, a year in which, due to the start of the economic crisis, there was a decline in production, also accompanied by a strong fall in consumption. Over the course of the decade, Veneto,

whilst maintaining a symmetrical trend to consumption, saw a progressive weakening in production, reaching 13,506 Gigawatt/hour per year (GWh in 2001, against a consumption of 19,978 GWh. This decrease was largely due to the lack of productive contribution by the Porto Tolle plant. Regarding the sectors in more detail, in 2011 industry was the most 'energy consuming', absorbing over 51% of final consumption of electricity in Veneto, with 31.1% and 22.4% in the rest of the peninsula. Agriculture closes in with a remaining share, which on a regional scale slightly exceeds 2%, and 1.9% on a national scale. When focussing on internal consumption of the provinces, the situation remains in line with the regional situation with regard to Padua, Treviso, Venice, Verona and Vicenza: a growing trend until 2009, followed by a rather sharp stop and then a rise in 2010 and 2011, with the exception of Venice, which continued a trend in decline. The situations in Belluno and Rovigo differ slightly, with the lowest consumption and an overall constant trend over the whole period considered. With regard to the sectors, the provinces have similar situations and reflect the above situation for the region as a whole. The only province that differs is Venice, where industrial consumption affects 'only' 37.4%. On the one hand this sector presents the lowest absolute values compared to the other provinces of the central band of the region (Padua, Treviso, Verona and Vicenza), and on the other, the service sector is distinguished by the highest consumption out of all the seven provinces, touching on 39%.

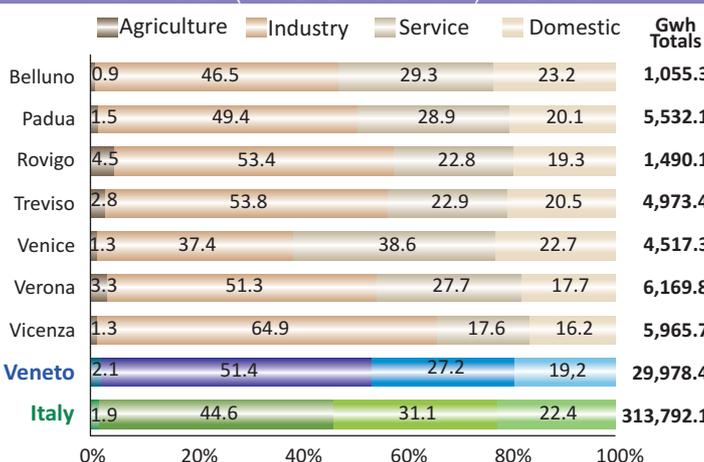
GROSS TOTAL PRODUCTION OF ELECTRICITY (GWh).  
VENETO AND ITALY – YEARS 2000:2011



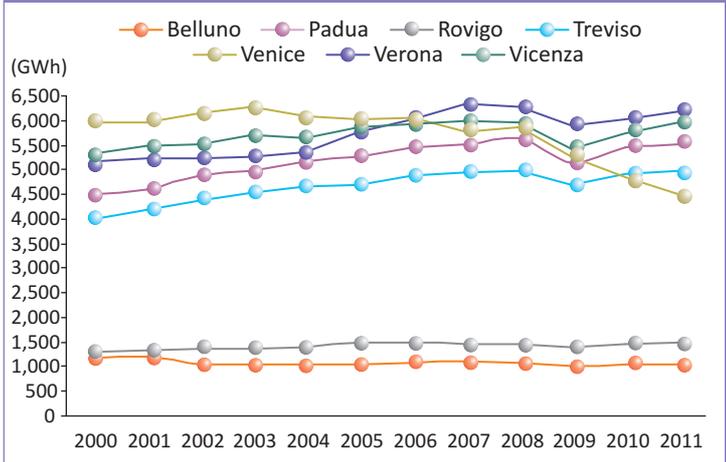
FINAL CONSUMPTION OF ELECTRICITY (GWh).  
VENETO AND ITALY – YEARS 2000:2011



FINAL CONSUMPTION OF ELECTRICITY PER SECTOR  
AND TOTALS (%VALUES AND GWh) - YEAR 2011



FINAL CONSUMPTION OF ELECTRICITY (GWh) PER PROVINCE.  
YEARS 2000:2011



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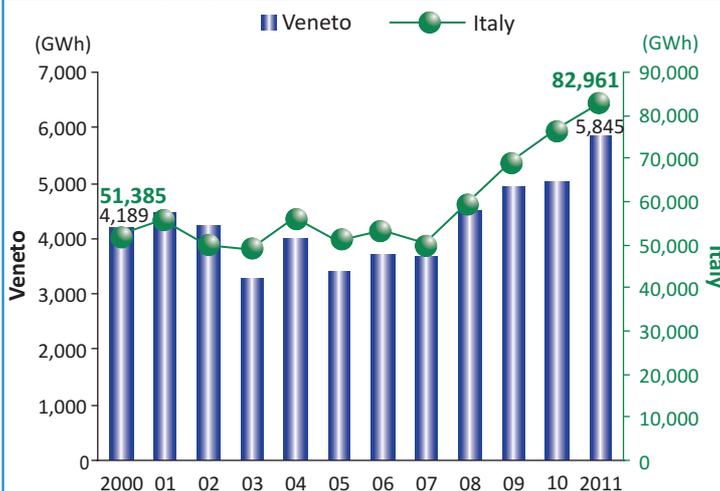
In terms of renewable energy, the production of electricity recorded an increase of 61.4% in Italy from 2000 to 2011, rising from 51,386 GWh to 82,962 GWh, i.e. from 18.6% to 27.4% of the total gross production. In Veneto, within the same period, the increase was smaller, although still relevant, given that it is almost 40%, rising from 4,190 GWh to 5,845 GWh. The analysis of the incidence of renewable energy out of total production is more critical.

In 2000 it was equal to 13.1% and in 2011 exceeded 43%. In reality, the strong drop in total regional production must be taken into account, which occurred during the period considered as mentioned above, and which therefore tends to 'distort' the indicator by reducing the denominator. However, the comforting fact is the growth of renewable sources, found mostly in the photovoltaic sector, especially within the last two years. In fact, 2011 witnessed a real 'explosion' of solar power,

## RENEWABLE SOURCES AND SOLAR POWER

with increases of around 600% as regards production, 250% for installed power and 120% in the number of plants.

GROSS PRODUCTION OF ELECTRICITY FROM RENEWABLE SOURCES (Gwh). VENETO AND ITALY - YEARS 2000:2011

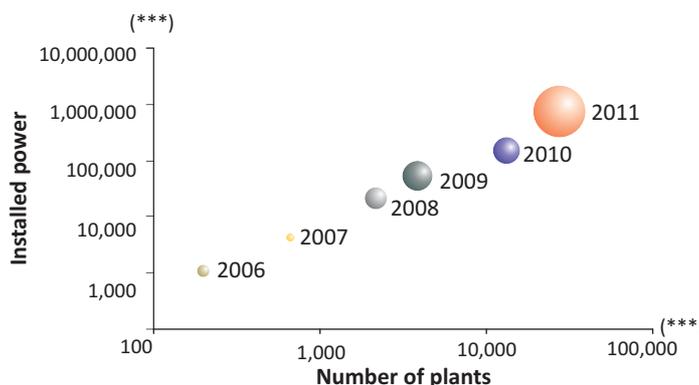


NUMBER, POWER (MW\*) AND PRODUCTION (GWh) OF RENEWABLE ENERGY PLANTS IN VENETO. YEARS 2010:2011

	2011			% var. 2011/2010		
	Plants (no.)	Power (MW)	Production (GWh)	Plants (no.)	Power (MW)	Production (GWh)
Hydropower	270	1,113.8	4,227.7	5.5	0.7	-6.3
Wind power	9	1.4	1.5	80.0	0.0	-11.8
Solar power	45,004	1,157.4	913.0	121.3	251.0	605.6
Bio energy	149	209.7	703.2	109.9	47.4	91.8
<b>Total</b>	<b>45,432</b>	<b>2,482.3</b>	<b>5,845.4</b>	<b>119.8</b>	<b>57.2</b>	<b>16.7</b>

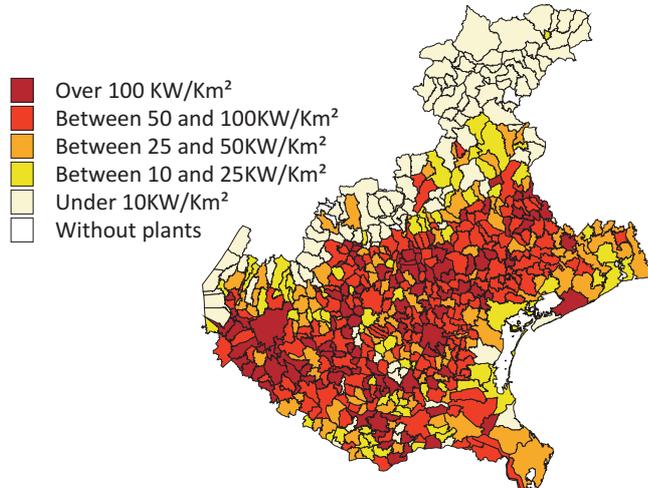
(\*) The initials MW indicate Megawatt

NUMBER, POWER AND AVERAGE POWER (KW\*\*) OF PLANTS IN VENETO PER YEAR - YEARS 2006:2011



(\*) The diameter of the bubble represents the average power  
 (\*\*\*) The initials KW stand for Kilowatt  
 (\*\*\*) Logarithmic scale

PHOTOVOLTAIC PLANTS: INSTALLED POWER IN THE MUNICIPALITIES IN VENETO (KW/KM<sup>2</sup>) - YEAR 2011



Source: processing by Veneto Region - Directorate of Regional Statistical System on TERNA and GSE data

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