

Croatia

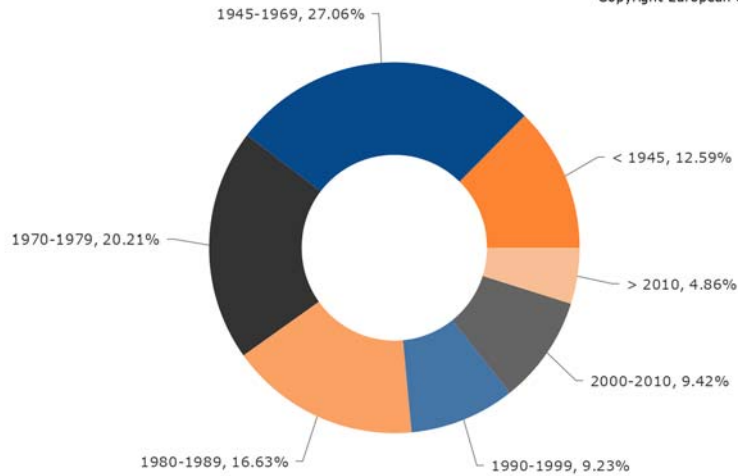
Disclaimer: The graphs below show data available in the EU Building Stock Observatory; some data was not available for this specific country.

## Building Stock Characteristics

The average age of buildings and the share of new buildings in the total stock represent good indicators of the average efficiency of the building stock: the higher the share of recent dwelling, i.e. built with more efficient standards, the higher the energy performance of the stock.

**Figure 1: Residential buildings according to construction date (2014)**

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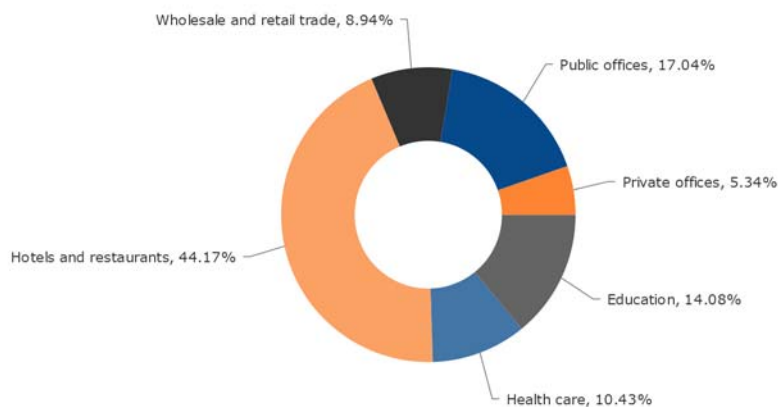


Sources: Estimation

[Notes](#)

**Figure 2: Breakdown of non-residential floor areas by sector (2013)**

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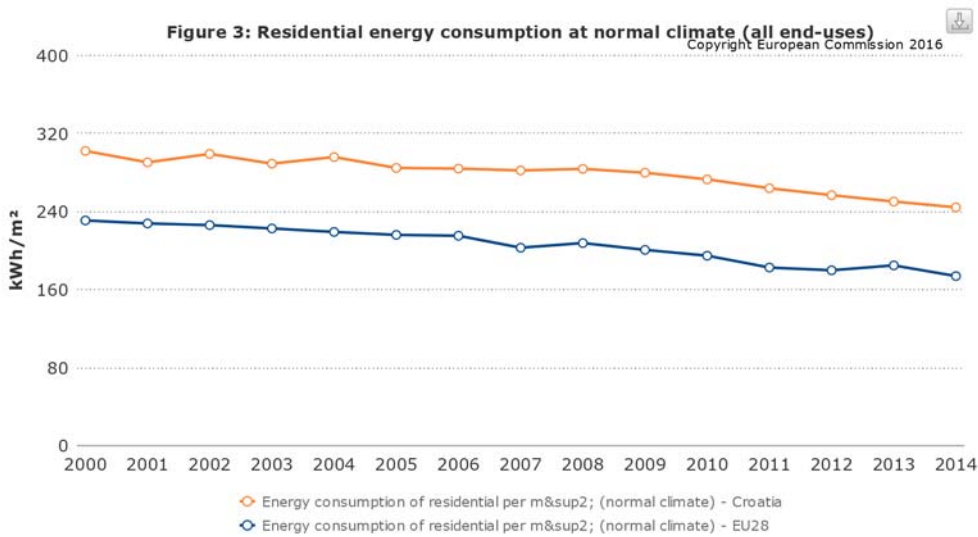
Sources: Estimation

[Notes](#)

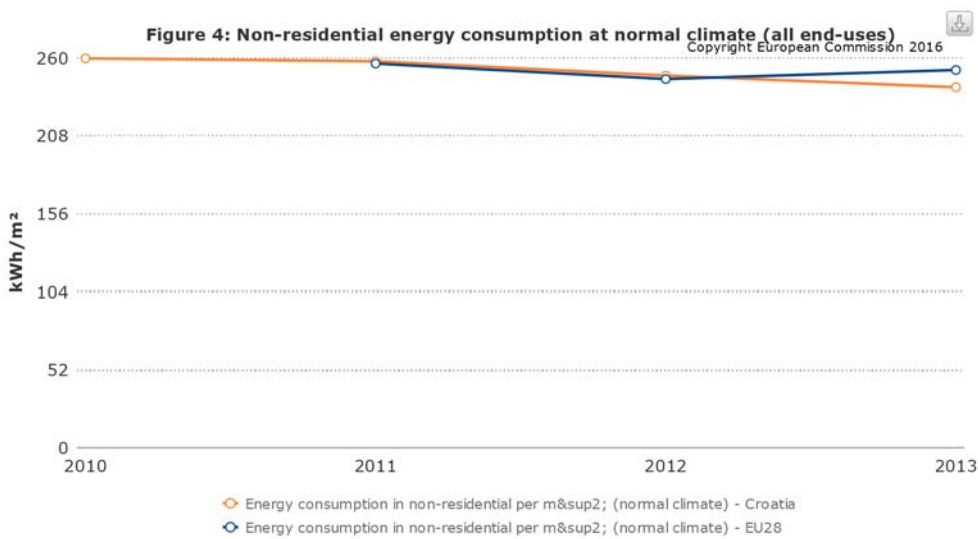
## Energy Use in Buildings

The following graphs display the energy consumption of households for all end-uses, namely space and water heating, cooling, cooking, lighting and appliances. Energy consumption is measured at normal climate (i.e. corrected for climatic variations) to avoid yearly fluctuations due to climatic variations from one year to the other, and thus to have consistent trends.

The energy consumption in residential buildings is below compared to the EU average. The energy consumption in non-residential buildings is below compared to the EU average.



Sources: Calculation - Estimation [Notes](#)

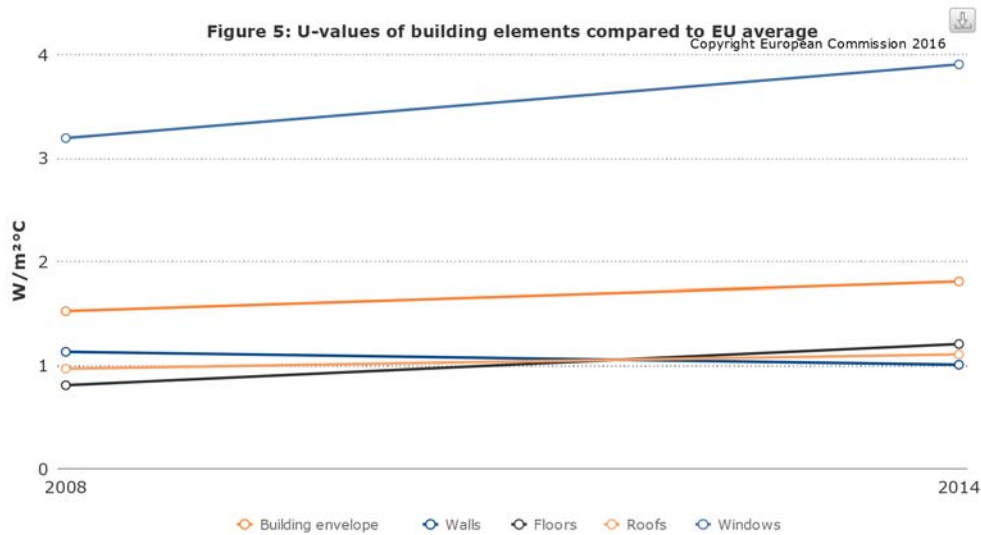


Sources: Calculation [Notes](#)

## Envelope Thermal Properties

Heat demand of buildings and dwellings is significantly dependent on the thermal quality of the building envelope. This level is expressed in U-values which are indicators for the heat lost through building elements. National building codes set - based on the EPBD's requirement on cost-optimal minimum performance standards- thresholds at building and/or component level for new buildings and in case of major renovation that indirectly (building level) or directly (component level) influence the U-values realized in new buildings and renovation. But the largest share of the building stock were built before these standards were implemented. The degree of refurbishment of these existing buildings is important for the quality of thermal envelopes.

Figure 5 shows the average U-values per building element in 2008 and 2014 for the total housing stock in Croatia. The change between U-values in 2008 and 2014 is due to the combined effect of new construction and refurbishment of the existing stock and related national requirements.

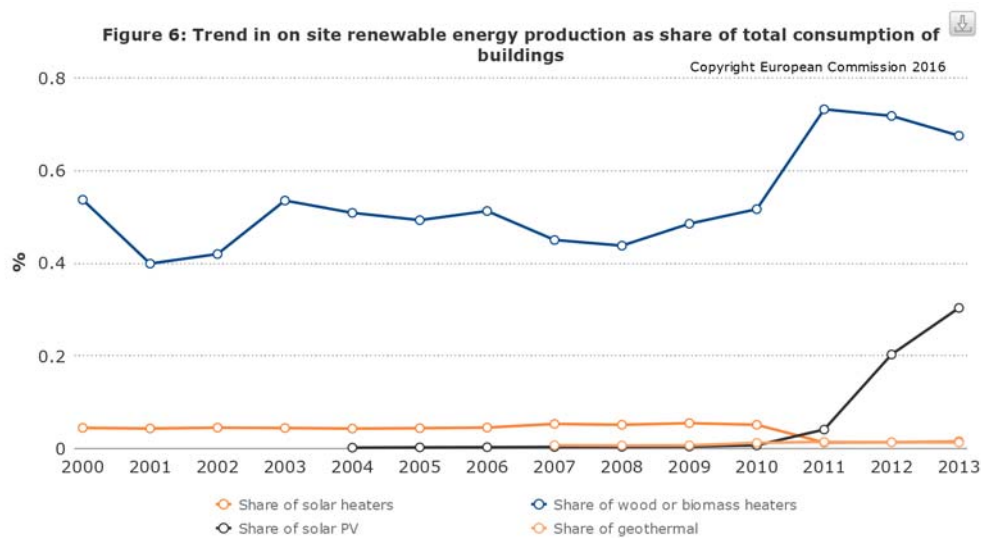


Sources: Calculation - Entranze [Notes](#)

### On-site Renewable Energy

On the long run the building stock in EU must be energy neutral, meaning that all the energy demand is covered by on-site renewable energy generation. The Renewable Energy Directive (RES Directive) establishes an overall policy for the production and promotion of energy from renewable sources in the EU. It requires the EU to fulfil at least 20% of its total energy needs with renewables by 2020 - to be achieved through the attainment of individual national targets. Croatia has set national renewable energy requirements per specific renewable energy source.

Figure 7 shows the share of renewable energy generation compared to total final energy consumption of buildings. The figure shows that today on-site energy only covers a small share of total consumption.

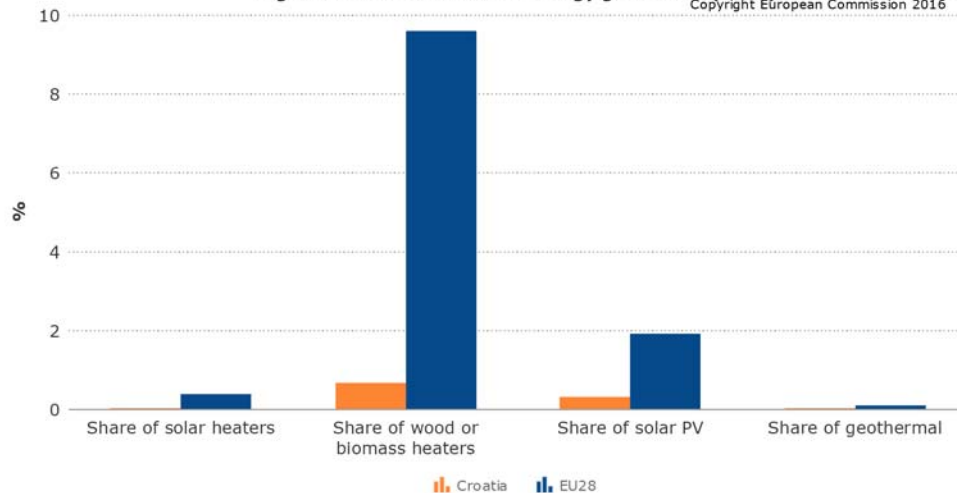


Sources: Own calculations [Notes](#)

Renewable energy generation is increasing rapidly in Europe as well as in Croatia. Due to a strong cost decrease of solar PV since 2005, solar electricity production in Europe has grown with on average 56% per year. In Croatia this growth is even bigger.

Figure 7: On-site renewable energy generation (2013)

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Sources: Own calculations

[Notes](#)

## Appliances

The introduction of eco-design requirements has compensated for the growth of appliances' energy use by demanding more efficient appliances. Following eco-design requirements for appliances like refrigerators, freezers, washing machines and more, energy consumption of these individual appliances has decreased significantly.

Like in most countries in Europe, the energy consumption of appliances in Croatia is relatively small compared to heating. The number of appliances in Croatia is rising. For 'standard' equipment, like refrigerators and television sets, the penetration is close to 100%. The ownership rate of more luxurious equipment like dishwashers and dryers is steadily rising. The average number of computers in households is rapidly growing.

Sources: JRC-IDEES - Odyssee

[Notes](#)

## Social Aspects

Croatia is one of the countries without an official definition for "energy poverty". Energy poverty is generally described as the "inability to keep homes adequately warm", an indicator monitored by EU statistics on income and living conditions (EU-SILC), which can be correlated with a low household income, high energy costs and energy inefficient homes. Data shows that in 2014, 9.7% of the total population in Croatia was unable to keep an adequate level of warmth in their houses and 29.1% of the population faced difficulties in paying their utility bills. The corresponding EU28 average values were 10.2% and 10.2%. The evolution of the two indicators since 2004 is displayed in the following graphs.

Sources: Eurostat

[Notes](#)

Sources: Eurostat

[Notes](#)

## Breakdown of dwellings by ownership & tenure

This indicator shows the shares of multifamily dwellings by ownership & tenure: owner occupied, rent at market price and rent at reduced price or free. In the EU the largest group of inhabitants live in owner occupied dwellings - they represent 70% of dwelling users (EUROSTAT, 2014). In Croatia they make up for 90% of inhabitants (EUROSTAT, 2014).

The ownership of a dwelling defines among others whether the users can influence the energy performance of the building which has crucial environmental and social impacts (e.g. Landlord/Tenant Dilemma). Further social impacts are defined by the share of rent at reduced price or free that averages within the overall housing stock across the EU at about 11% (EUROSTAT, 2014).

Rent at market price represent only 2% of the inhabitants in Croatia (EUROSTAT, 2014) and they have less possibilities than owners to influence the current state of the building stock.

The general issue is whether the ownership of a comfortable dwelling is affordable for inhabitants and if the number of rent at reduced price or free, which makes up for 8% of the building stock in Croatia (EUROSTAT, 2014), is enough or not to meet the existing demand. As the largest part of the building stock is owner occupied in Croatia, we can assume that affordability of housing is relatively high.

Sources: Eurostat

[Notes](#)

