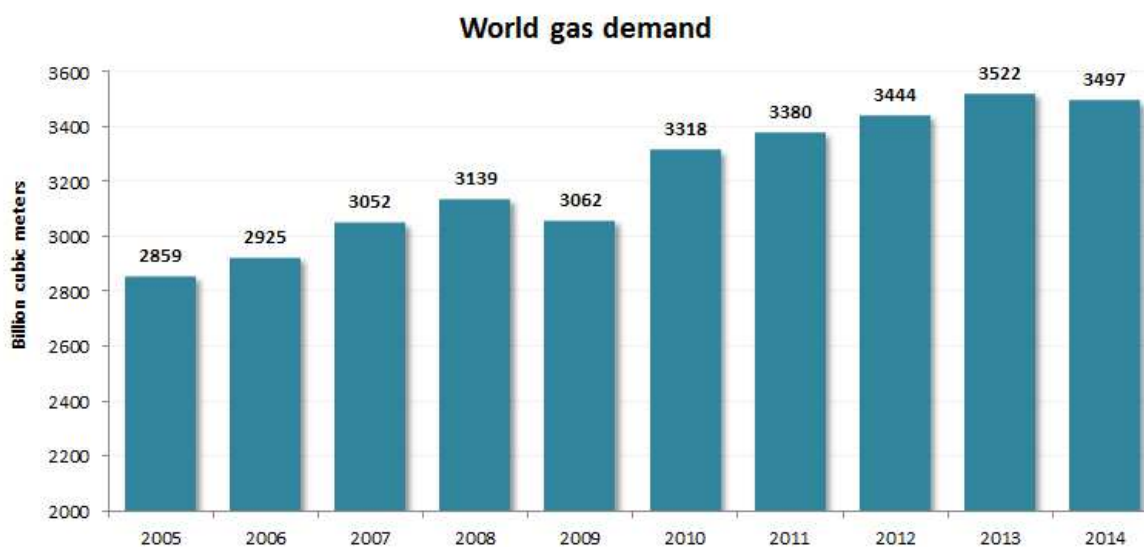


## A decade of gas demand

### World demand for natural gas

Eni publishes annually the World Oil and Gas Review, the annual statistical survey of the world oil and gas market and of the refining system, this year in its fourteenth edition. This is a good opportunity not only to see what happened last year, but also to find out what happened in the last decade to gas demand and identify the trends that characterised it. Let's try to do it with the help of the statistics of the International Energy Agency (IEA - International Energy Agency), the organisation that has become one of the international points of reference for the collection and processing of energy data and of the data of the new eni World & Oil Gas Review.



*Source: IEA – International Energy Agency*

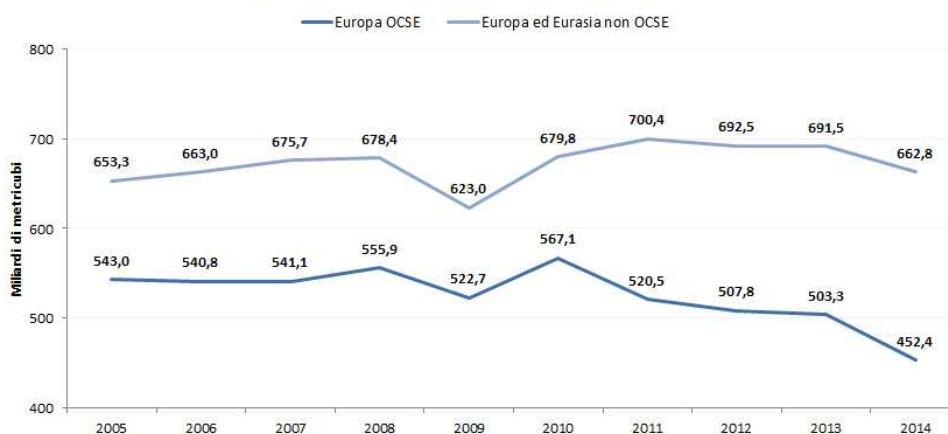
In 2014, the world demand for natural gas showed a slight decrease compared to 2013 (-0.7%) from 3522 to 3497 billion cubic metres (bcm). In the period 2005-2014, global demand grew, nevertheless recording an increase of more than 638 bcm (equivalent to an increase of 18.2%). The trend, however, was not always positive in these ten years, since there were also situations in which natural gas consumption decreased. In particular, the **chart of world natural gas demand** shows a decrease in 2009, in correspondence with the most acute phase of the global economic crisis. Only since 2010 has consumption started growing again.

The economic and financial crisis originated in the US in July 2007 and subsequently affected the whole world. However, it became particularly deep in OECD countries<sup>1</sup>, starting from October 2008. In particular, the crisis caused significant damage to the economies of the most financially exposed countries. Due to the crisis, there was a general decline in the consumption of raw materials. In particular, the global demand for gas decreased by 2.5% from 2008 to 2009. The decrease did not assume even higher proportions only thanks to the emerging economies in Asia, most notably China and India, who kept their relentless upward trend in energy demand, necessary to support constant economic and

<sup>1</sup> The OECD (Organisation for Economic Cooperation and Development) was established with the Convention on the Organisation for Economic Cooperation and Development, signed on 14 December 1960 and which came into force on 30 September 1961, replacing the OEEC, created in 1948 to administer the so-called "Marshall Plan" for the postwar reconstruction of the European economy. From the initial 20 countries, including Italy, a founding country, the OECD today includes 34 member countries (Australia, Austria, Belgium, Canada, Chile, Denmark, Estonia, Finland, France, Germany, Japan, Great Britain, Greece, Ireland, Iceland, Israel, Italy, Luxembourg, Mexico, Norway, New Zealand, Netherlands, Poland, Portugal, Czech Republic, Republic of Korea, Slovakia, Slovenia, Spain, United States, Sweden, Switzerland, Turkey and Hungary), Chile, Estonia, Israel and Slovenia having joined more recently (between May and December 2010).

industrial development. In this way, worldwide, the significant decreases in consumption recorded in industrialised countries, including North America (-1.9% compared to 2008) and OECD Europe (-1.8% compared to 2008) were partially offset. Starting in 2010 there was a global recovery in natural gas consumption (+7.7% compared to 2009), due to both the relentless economic growth of emerging countries, as well as the anti-crisis policies adopted, which favoured the recovery of the areas most affected by the economic recession (North America, Europe, former Soviet Union countries, industrialised countries in the Pacific area). In these latter areas, the growth in natural gas consumption has been positive, even if the losses recorded in 2009 have not been fully recovered.

### Domanda di gas naturale in Europa OCSE, Europa ed Eurasia non OCSE

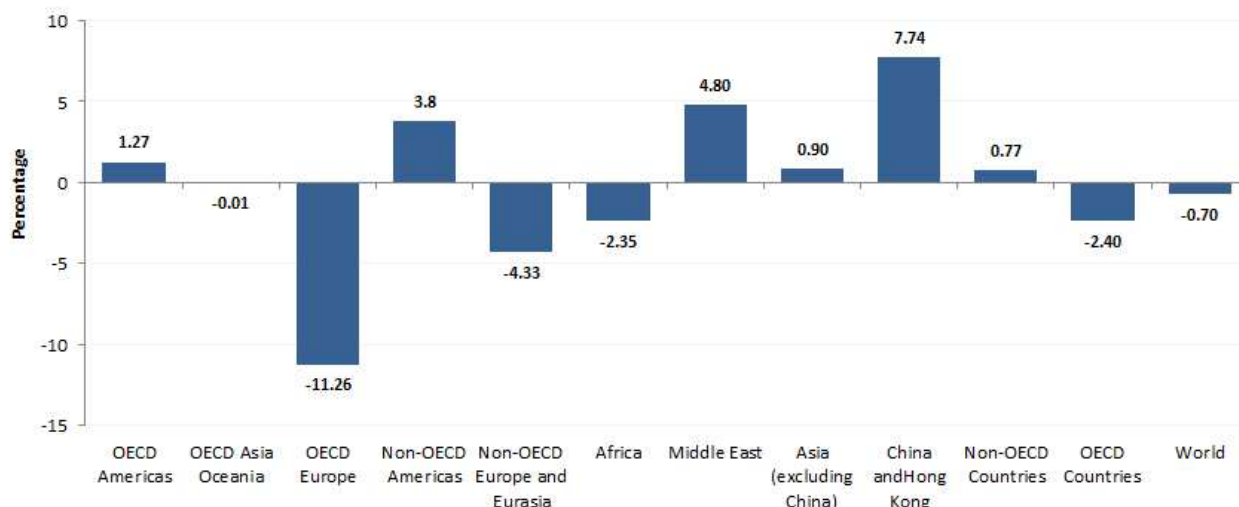


Source: IEA – International Energy Agency

In Europe, the demand for gas grew by 7.8% in 2010 compared to 2009 while, since 2011, it has started to decrease. Curbing gas consumption in Europe were several contributing factors: particularly mild winters, growth of renewables, which compete with gas in electricity generation, energy efficiency policies, especially in the residential sector, and the economic depression, which has reduced - in some cases irreversibly - industrial demand.

To better understand what happened, let us analyse the most recent data in detail.

### Annual percentage change in natural gas demand (2013-2014)



Source: IEA – International Energy Agency

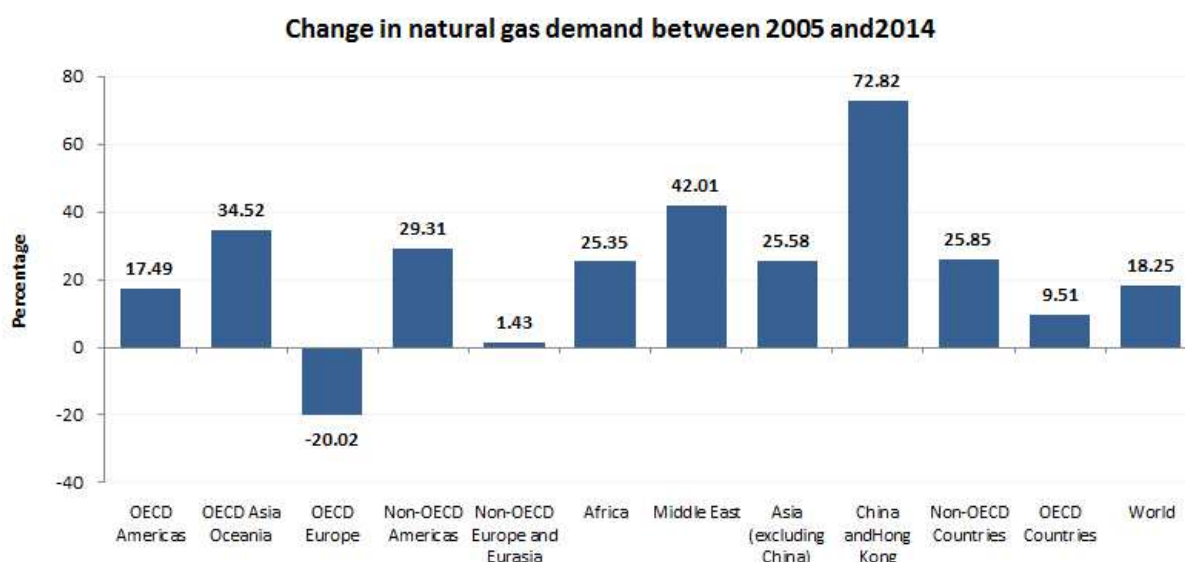
If we analyse the percentage changes in the demand for natural gas between 2013 and 2014 in the various geographical areas, we see that they reflect different economic scenarios, the result of opposing trends. In fact, **industrialised countries** (OECD\* area), whose natural gas consumption decreases (-2.4% compared to 2013), while **emerging and developing countries** (including first and foremost China, India and Brazil), which continue to increase their consumption with no signs of a slowdown, move in the opposite direction (non-OECD area, +0.77%).

The decline in global demand for gas in the OECD area compared to 2013 is mainly caused by an exceptionally mild winter in Europe, whose demand fell by 11.3% compared to 2013.

As regards the growth in the demand for gas in the non-OECD area, in 2014 this slowed down compared to previous years - in which the growth rate exceeded 2% - due to the energy policies of certain Asian countries, which limited the use of gas in favour of coal. Nevertheless, the demand for gas of in non-OECD area exceeded OECD demand by 240 bcm, equivalent to the sum of the consumption of France, Germany, Italy and the UK.

As for the total consumption of individual countries, in 2014 the United States confirmed itself as the number one consumer of natural gas with 759.4 bcm (21.7% of the world total). Its consumption is 1.6 times that of the second country, Russia (461.4 bcm) and 4.2 times higher than that of the third country, China (181.6 bcm). As for our country, gas consumption in 2014 amounted to 61.9 bcm: in 2014, Italy fell out of the top ten largest gas consumers.

**What happened therefore in the last decade?**



Source: eniscuola elaboration on IEA data

From 2005 to 2014 the trend in gas demand was positive in all geographic areas, except Europe, where there was an overall decrease of 20% in the reporting period. As we have already seen in part, the decreasing trend in demand in Europe is due to multiple causes, including: increased energy efficiency (in particular in the residential sector), change in the energy mix of energy sources and development of renewables and, finally, the impact of the economic and financial crisis.

As regards emerging and developing countries (non-OECD area), gas demand in the period 2005-2014 showed a constantly growing trend. China was one of the countries in which the demand for gas grew the most, with a 72.82% increase in consumption at the end of the period compared to 2005.

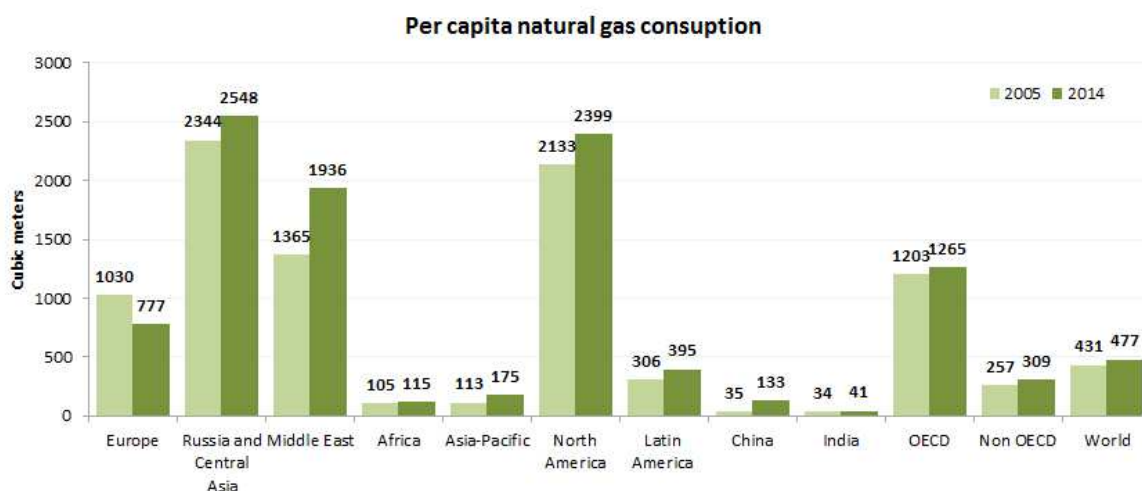
In practice, almost a fifth of the global increase in consumption in the decade (+638 billion cubic metres) was due to the energy hunger of China (+134 billion cubic metres).

## Per capita gas consumption

Useful information in understanding the extent of the gap between rich and poor countries and getting an idea of how much more gas would be required if the latter were to reach our level, is provided by the **consumption of natural gas per capita**. We can analyse the current situation with the aid of the statistics contained in the 2015 World Oil & Gas Review.

In 2014, every inhabitant of the planet consumed an average of **477** cubic metres of gas.

Like any statistical average, also that of "average consumption" hides significant disparities in the distribution between countries. In fact, while in industrialised (OECD) countries, every person consumes an average of **1,265 cubic metres per year**, in non-OECD countries average consumption is **309 cubic metres per year**, i.e. about 4 times less than the former.



*Source: 2015 World Oil & Gas Review*

Then, in terms of individual countries or geographies, the disparity is even more pronounced.

Russia and Central Asia, for example, are one of the areas in which the gas consumption per capita is highest (in 2014, on average, every inhabitant consumed 2,548 cubic metres per year). Basically, on average, every person resident in this area consumes more than three times that of a European citizen (777 cubic metres per year), more than 19 times the consumption of a Chinese citizen (133 cubic metres per year), more than 62 times the consumption an Indian citizen (41 cubic metres per year) and more than 2,548 times that of an inhabitant of Mozambique (1 cubic metre per year). From these few figures it is clear that in certain areas a lot of gas is consumed, perhaps too much, and it would be appropriate to use more efficient technologies and save energy.

In the last 10 years, average world per capita consumption has increased from 431 cubic metres in 2005 to approx. 477 cubic metres in 2014. In OECD countries, this indicator is substantially stable, while in China per capita consumption has almost quadrupled in ten years, even if it remains at very low levels. Considering that we are talking about a country with a population of almost 1.4 billion people, we can say that this was significant growth with a significant impact worldwide (and we saw this earlier when we analysed the trend of total consumption in the period 2005-2014). In the Africa and Asia Pacific countries, on the other hand, per capita consumption grew little and, therefore, very low, equal to 115 and 175 cubic metres per capita per year, respectively. This is a clear sign of the poverty and extremely poor living conditions that continue to plague these populations.

What we have seen so far is just a part of the many pieces of data available for each country. Anyone wishing to explore these issues can find useful and detailed statistics in the eni World Oil & Gas Review.

## 2015 World Oil & Gas Review

To study the energy requirements of the planet, it is necessary to have scientific analyses and updated, complete and reliable historical data, making it possible to identify the trends of the energy future.

It is precisely with this spirit that eni publishes the World Oil and Gas Review (WOGR), now in its fourteenth edition.

The WOGR is one of the most important sources of information on the oil and natural gas market. Also in this edition, the oil and natural gas industry and markets are illustrated with data on production, reserves, consumption, imports and exports. Each of these indicators is provided by country, by geographical area and by market area. These figures are accompanied by specific indicators, charts and rankings that provide an additional interpretation compared to the absolute values alone.

*by Benedetta Palazzo*