

Comparison of the sectoral approach with the reference approach

The GHG emissions estimates for the energy sector uses two approaches: the reference approach (RA) and the sectoral approach (SA).

The reference approach is a top-down method, that uses the carbon balance of a country, requiring information about the production, import, export and stored amount of fuels.

The sectoral approach is a bottom-up method, using detailed information about the fuel consumption in each distinct sub-sector (power and thermal energy production, processing and construction industry, different ways of transport, trade, institutional and residential sectors, as well as agriculture and other economic branches).

Differences between the reference and the sectoral approach are outlined through the values in the next Table.

Difference[%]	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Fuel consumption	30.34	20.82	26.24	16.92	16.55	14.35	18.41	11.30	14.60	15.90	17.01	14.60	13.73	6.08	7.97	5.30	9.01	12.48
CO ₂ emissions	20.70	13.44	21.75	13.01	13.35	11.71	16.04	7.96	9.97	11.50	13.17	11.06	10.40	3.52	5.12	2.85	5.37	8.83

Differences between the reference and the sectoral approach, for each fuel category, for 2006 are outlined through the values in the next Table.

Difference [%]	Liquid fuels	Solid fuels	Gaseous fuels	Total
Fuel consumption	10.87	14.24	12.44	12.48
CO ₂ emissions	12.03	5.12	10.57	8.83

A comparison between the Reference Approach (RA) and the Sectoral Approach (RA) indicates differences in both the energy consumption data and CO₂ emissions.

One of the reasons for this differences refers to the fact that the “Reference Approach” deals with the non-energy uses of fuels as if they are combustion activities. A correction is done by the carbon stored from non-energy fuel use, but the information related to this area is limited in the national energy balance. The highest difference is observed in 1989 due to the large amount of non-energy use of fuels. Another reason is probably caused by the high statistical differences reported in the energy balance.

Another reason is the fact that the reference approach does not estimate the fuel delivered for international bunkers consumption. For the sectoral approach, the fuel consumption is divided into domestic and international bunkers (the later not being included in the overall sectoral fuel consumption).