

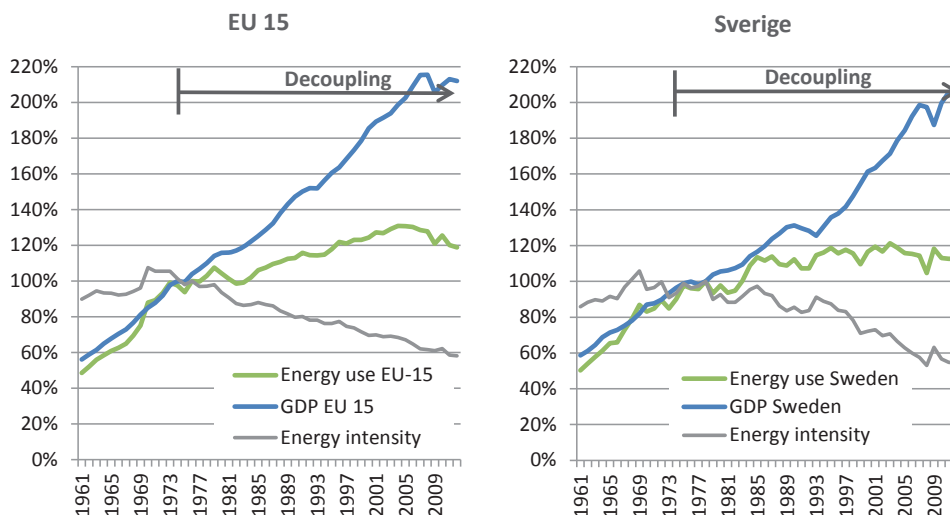
Did you know that ...

The "decoupling" between energy and GDP is a relatively modern phenomenon, and the preceding period with "coupling" was not very long either. Before "coupling" we had a period we could call "pre-coupling", with energy intensity at levels several times what we have today

The energy use has increased with the GDP development, in Sweden as well as in EU (Western Europe), since the late nineteenth century. The "decoupling" did not appear until the oil crisis in the 70s.

The development after the "decoupling" has been similar in Sweden and the EU, with a continued GDP growth at the same rate as before (until the financial crisis) but with only a small increase in the energy use. Thus, the energy intensity has gradually declined to the level it has today, approximately 60 % of what it was in the 1970s. Obviously the economy has become much more energy efficient.

For a period of about 80 years before the oil crises in the 1970s we had a tight linkage ("coupling") between the development of the energy use and the development of the GDP in Western Europe (EU 15). During this period the energy intensity remained relatively constant (at the 70s' level, i.e. the 100 % level in the figures on this and the next side). A small variation can be seen even in this period (90-110 %), but it is still reasonable to see the relation between GDP and energy as "tightly coupled".



The development of GDP, the energy use, and the energy intensity, showed as percent of the levels in 1975, in EU 15 (left figure), and in Sweden (right figure) during the period 1961–2012. Since the 70s, the energy use has been increasingly more "decoupled" from the economic development.

Sources: Statistics for the period after 1960: Eurostat's and World Bank Group's databases. Energy statistics for the period 1700–1960: Gian Paolo Beretta, "World energy consumption and resources", Brescia, Italy, 2006. (Also: Vaclav Smil "Energy Transitions: History,

Requirements, Prospects", 2010). BNP statistics for the period 1700–1960: Angus Maddison, "Historical Statistics of the World Economy: 1–2010 AD", The Maddison-Project, <http://www.ggd.net/maddison/maddison-project/home.htm>, 2013 version.

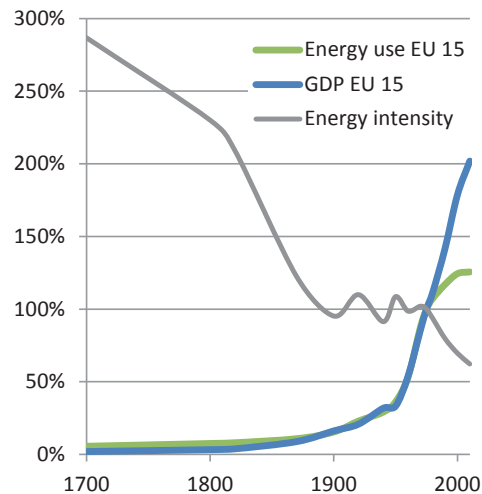


Did you know that ... ?

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Before the end of the 19th century, there was also a “decoupling” between energy and GDP, or maybe it should be called “pre-coupling”. GDP was low and energy intensity was high. The economy was far from energy efficient, even if the energy use was only a few percent of what it is in EU 15 today. Around 1700 we had an energy intensity of about 300 %. As the economy grew, and the energy use did not grow at the same rate, the energy intensity declined. By 1800, the energy intensity was under 250 % and after that it fell rapidly (By 1850 it was only a bit more than 150 %).

But, at the end of the 19th century, the ever faster mechanisation of the industry and the agriculture led to a slower decline of the energy intensity – energy became a central driving force for the development of the economy – and during the 80 years of “coupling” it was relatively constant. It was not until the 1970s that the “decoupling” took speed again.



Development of the GDP, energy use and energy intensity in EU 15 during the period 1700-2010 showed in percent of the levels in 1975.

GDP in a historical perspective

It is important to keep in mind that historical statistics is not an exact science, and the further back in time we try to estimate different series, the larger the degree of uncertainty. The definition and the composition of GDP in the 18th century are different from today, even if statisticians have the ambition to make the statistics as comparable as possible. Different definitions can still give different results. Also, “Krona” did not become the main currency until 1873 and it was then assigned the same value as the “Riksdaler riksmünt”. Before 1873 “Krona” refers to three different kinds of “Riksdaler”; “Riksdaler riksmünt” 1855-1872, “Riksdaler riksgäld” 1789-1854, “Riksdaler” 1776-1789, and before 1776 the currency was “daler kopparmynt”.