

Fuel efficiency of commercial aircraft. An overview of historical and future trends
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It is a wide-spread believe that civil aviation fuel efficiency historically increased continuously and considerably – an often cited figure is 70% during the last four decades, first published by the IPCC Special Report on Aviation and the Global Atmosphere. Furthermore a constant annual increase of fuel efficiency is often assumed to calculate efficiency gains in the future. We will first show based on bottom-up (micro) and top-down (macro) analyses of aircraft fuel efficiency, that the long term increase has been much less. Also it will be shown that the efficiency gain per year is not a constant. This is due to the fact that fuel efficiency is only one of the parameters in aircraft design. Cost, overall economy, travel speed, and airport compatibility play a significant role as well. A further reduction of fuel consumption with 50% by 2020, as predicted by many studies, is unlikely to evolve in the real world.