

The Global Energy Landscape beyond the here and now

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Since 1970, global energy consumption has more than doubled. Conventional resources, in particular oil, gas and coal, had a dominant share in supply and covered most of the growth in demand in the past. Even in 2015, these fossil fuels still accounted for more than 80 % of global primary energy consumption. The contribution of renewable energies to the total electricity generation was 23 % in 2015, the same share as in 1970. Developments in the coming decades will differ substantially, however. Total energy consumption will rise at a much more moderate pace than in the past, e.g. by up to one third by 2060. Electricity consumption will double during this period. But even this is a considerable slowdown in growth compared with the five-fold increase seen between 1970 and 2015. And, unlike in the past, the emerging rise in consumption will essentially be covered by renewable energy sources. This is true especially of the electricity sector. This comparison with developments in the past shows the extent of the global energy transformation that may be expected in future. These developments are reflected in three global scenarios which were published by the World Energy Council in October 2016. The results of this flagship study World Energy Scenarios to 2060 are mirrored with the main findings of the IEA's World Energy Outlook and the U.S. EIA's International Energy Outlook. The most important challenge indicated by the results of the mentioned studies is: the transformation, which is expected in the covered scenarios is not sufficient, in order to achieve the target of limiting the global temperature increase to less than 2 degrees Celsius compared to pre-industrial levels that was agreed by the international community of states in Paris at the end of 2015. It will be highlighted, which strategies could meet the requirement cost-efficiently – a prerequisite for its success.

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