HOW MUCH COULD NUCLEAR POWER CONTRIBUTE TO THE MITIGATION OF CO_2 EMISSIONS

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Temperature stabilization requires that CO_2 emissions be limited to less than 2-3 Gt Carbon equivalent, from the present level of more than 6 Gt. Using the WEC-IIASA models as predictions for world energy consumptions and renewable energies contributions, while increasing as much as reasonably achievable, the nuclear contribution at the expense of fossile energies, we find that, even for the most energy consuming scenario with an increase of primary energy demand by 250% in 2050, a nuclear intensive scenario assuming the development of a 2000 GWe pool of PWR reactors by 2030 and of an additional 6000 GWe pool of U-Pu or Th-U breeding reactors by 2050 would lead to temperature stabilization at a level 2 degrees above the pre-industrial level.

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