

What are the main differences between burning nuclear fuel and fossil fuel?

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There are a number. First of all, nuclear fuel produces energy from fission and not from combustion; there is no need for oxygen or any other oxidizing agent since the energy is produced (uranium fission reaction) by nuclei interactions, not by chemical reactions. Secondly, TPP is burning all fossil fuels that are loaded into the furnace, there are no "non-combustible reserves" left. In the process of chain fission reaction that is taking place in the nuclear reactor, not all of the fissile material (uranium-235) is burnt, but only the excess over the critical mass for a specific reactor core. As a result, unburned uranium after regeneration can be reused (as opposed to ashes and the slag of fossil fuels) as fuel. And finally, through exposure to radiation in the nuclear fuel uranium generates a new fissile material – plutonium, which can also be used as fuel.