

**Nuclear Power as part of the Greek energy mix:
Far better to be cost effectively proactive than unconditionally inactive**

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This work advocates preparatory terms, conditions and low cost investments for the smooth incorporation of Nuclear Power by Fission into the Greek energy mix, should this be necessary within the foreseeable future. To this end, and first of all, a concise understanding of the current Greek energy mix and its perspectives is essential in connection to the problems due to the rapid expansion towards Renewable Energy Systems (RES). Yet, these inherent inefficiencies could be avoided to a manageable extent, mainly by energy savings, mostly applicable for the buildings consumption, and also by network upgrades towards a distribution capable of reversing energy flows, along with energy storage facilities. Nevertheless, an assessment of the potential role of the introduction of Nuclear Power in the country should also be examined. It is of utmost importance that both social and political consensus is achieved before the incorporation of nuclear power plants in our system. As a first step towards this goal, a discussion forum could be organized in which political parties, scientists and other stakeholders, pro and against, could communicate and publish their justified opinion. This forum's output either for or against Nuclear Power would be invaluable to our society, our scientists, politicians, financiers, etc. Moreover, a census on our educational and scientific potential in the nuclear engineering field could be initiated and completed within a year or so. This census should include the experts pool of people that have studied and work domestically and abroad in relevant academia and research fields and / or in relevant companies. Their expertise could be proven invaluable. The census could indicate interventions for augmenting the scientific nuclear engineering potential. Furthermore, studies of the necessary administrative infrastructure to be developed and of the applicable legal and regulatory framework to be adopted could follow. International assistance can be obtained from organizations and states with relevant experience such as: IAEA, neighboring Bulgaria and nuclear plant developers as well as strong supporters like Finland and France. Such actions could be supported by an appropriate scientific, administrative and law Task Force, the funding of which could result from the contribution of all major electricity providers and other stakeholders in the country. The TF mandate should be well detailed and of suitable limited duration. It is, of course, to be evaluated with the contribution of all interested parties how a nuclear plant participating in the Greek mixture would serve to the benefit of existing providers by stabilizing the grid and controlling the prices. Extend of participation, is now (2022) foreseen as limited in the vicinity of about 5% - 7% of consumed electricity and could be covered by one or two SMR reactors added locally. Greater participation may be possible, but, in this case, grid permitting, the plants themselves could be built also in neighboring countries or countries within the greater South Eastern flank of Europe. Building such an expertise and managerial capacity in this way and framework, will get the country ready to efficiently study plant siting and technology selection.