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SPACE FISSION NUCLEAR POWER – A ROADMAP FOR EUROPE

Abstract

There have been a number of studies of fission nuclear power generation for space applications over the past decade. Mostly they focus on technical development required or perceived achievable. The EC FP7 Disruptive Technologies for Power and Propulsion (DiPOP) Study is investigating the wider issues, mostly focusing on the technical problems and their solutions. In actuality, there are key socio-economical questions that have not yet been addressed, for instance: Which applications might attract the investment to develop space fission nuclear power generation? What expertise and infrastructure must be developed and what existing capabilities may be relevant? Which organisations might invest in developing the capability and for what reasons? What is required for public acceptance, safety and sustainability of space fission nuclear power?

At the request of the EC the DiPOP project has arranged for an international Advisory Board of experts to give guidance and review progress, with a view to clarify and supply answers, preliminary as they may be, to these questions. The European Advisory Board member is from the Commissariat à l'énergie atomique et aux énergies alternatives (CEA). The Russian and United States Advisory Board members have first-hand experience of space fission nuclear power projects.

A Fission Nuclear Power Generation Draft has been created with the guidance of the Advisory Board. It draws on past and current projects and studies and identifies a programme of work to fully investigate the issues. Results from research during the Summer of 2012 will be used to update the Roadmap to a final version for review in September and publication in October. This paper will give a preliminary presentation of the findings, that will be used to direct and focus future technology keeping in mind the constraints posed by the public and the current European financial situation.