Abstract

Nine Euratom projects started since late 2011 in support of the infrastructure and R&D of the seven fast reactor systems are briefly presented in the paper in terms of key objectives, results and recommendations.

1. Introduction

In November 2010 Sustainable Nuclear Energy Technology Platform (SNETP) set up a Task Force comprising research organisations and industrial partners to develop the European Sustainable Nuclear Industrial Initiative (ESNII) addressing the need for demonstration of Generation-IV Fast Neutron Reactor technologies, together with the supporting research infrastructures, fuel facilities and research and development (R&D) work.

SNETP has prioritised the different Generation-IV systems and is proposing to develop the following projects: the sodium-cooled fast neutron reactor technology ASTRID as the reference solution; the lead-cooled fast reactor ALFRED supported by a lead-bismuth irradiation facility project MYRRHA as a first alternative; the gas-cooled fast reactor ALLEGRO as a second alternative.

The EU framework programs have supported the R&D activities on these three systems as well as on a number of other Generation-IV technologies: European Sodium Fast Reactor (ESFR); Swedish Advanced Lead Reactor (SEALER); Molten Salt Fast Reactor (MSFR). All seven fast neutron systems are presented at Fig. 1.

The paper briefly presents in terms of key objectives, results and recommendations nine Euratom projects started since late 2011 in support of the infrastructure and R&D of the seven fast reactor systems presented above (see Fig. 1). Tab. 1 presents the list of the project acronyms, participants and coordinators. Fig. 2 presents domains and categories of advanced systems, while Tab. 2 gives more details about the R&D areas. Finally, Fig. 3 presents the budgets and time spans of the presented projects.