Sutarties 28V-15 1 priedas

DALYVAVIMO ES INSTITUCIJŲ, JŲ DARBO GRUPIŲ, KOMITETŲ POSĖDŽIUOSE IR SUSITIKIMUOSE SU ES INSTITUCIJŲ IR VALSTYBIŲ NARIŲ ATSTOVAIS ATASKAITOS FORMA

1. Posėdžio institucinė forma, vieta, laikas ir dalyviai:

Europos Sąjungos mokslinių tyrimų ir inovacijų programos „EURATOM“ virtualus šešėlinio komiteto – branduolių skilimo konfigūracijos - posėdis. Susitikimas vyko 2021 sausio 11 dieną nuo 15:00 iki 18:00 val. Lietuvos laiku.

Dalyviai: EURATOM mokslinių tyrimų ir inovacijos programos „Branduolių skilimo“ (FISSION) konfigūracijos ekspertų komiteto atstovai, EK atstovai

2. Svarstyti klausimai:

1. Darbotvarkės tvirtinimas
2. Komisijos įvadas
3. 2021 – 2022 m. Euratomo darbo programos projekto pristatymas ir aptarimas
5. Kiti klausimai

3. Posėdžio eigos apibendrinimas:

Susitikimo metu, buvo pristatytas naujas posėdžio formatas ir padarytas trumpas EK įvadas. – kol kas programa dar apytikslė ir nepateikta informacija apie finansavimą. Toliau Roger Garbil iš Mokslinių tyrimų ir inovacijų generalinio direktorato, D.4 skyriaus pristatė 2021-2022 metų darbo programos juodraštinę versiją. Šioje programoje, kaip ir anksčiau yra keturi skyriai:

- Branduolinių elektrinių sauga,
- Radioaktyviųjų atliekų tvarkymas, eksploatavimo nutraukimas ir geologiniai atliekynai,
- Apsauga nuo radiacijos ir neenergetiniai įrenginiai,
- Mokslinių tyrimų infrastruktūra, švietimas, mokymas ir mobilumas.

Taip pat yra ir kiti veiksmai.
Šios programos yra skirstomos į 15 smukesnių temų:
1. Eksploatuojamų atominių elektrinių sauga
2. Pažangių ir novatoriškų branduolinių konstrukcijų saugumas
3. Daugkartinis panaudoto branduolinio kuro perdirbimas iš lengvųjų vandens reaktorių (LWR)
4. Pažangiosios medžiagos branduolinėms reikmėms
5. Branduolinė kogeneracija, skirta dekarbonizuoti daug energijos naudojančias pramones
6. Būsimų dalijimosi ir sintezės įrenginių licencijavimo procedūrų, kodų ir standartų derinimas
7. Tričio išsiskyrimo valdymo plėtojimas sintezės ir skilimo įrenginiuose
8. Tarptautinės reguliavimo sistemos kūrimas ir taikymas branduolinių atliekų tvarkymo ir eksploatavimo nutraukimo srityje
9. Bendrai finansuojama Europos radiacinės saugos tyrimų partnerystė
10. Saugus terapinių radionuklidų naudojimas ir jų patikimas tiekimas
11. Tarpsektorinė sinergija ir naujos branduolinių technologijų taikymo galimybės
12. Europos priemonė branduolinių tyrimų srityje
13. Europos branduolinės kompetencijos erdvės link
14. Socialiniai ir ekonominiai klausimai, susiję su branduolinėmis technologijomis
15. Parama Euratomo nacionaliniams informacijos centrams.

Atskirų šalių komiteto nariai pareiškė savo pastabas siūlomai programai, kurios buvo vėliau detaliai aptartos. Dar buvo paminėtas aktualus klausimas dėl finansavimo: CSA ir mokymams skirtos veiklos bus finansuojamos 100 procentų, kai RIA ir kitos technologijas kuriančios veiklos – 50 - 75 procentais.

Žemiau pateikiu naujosios siūlomos EURATOM programos (WP 2021-2022) palyginimą su anksčiau buvusia programa (WP 2019-2020).

WP 2019-2020		WP 2021-2022		
Section	**Topic**	**Section**	**Topic**	**Comments**
A. Nuclear Safety	01 (RIA): Ageing phenomena of components and structures and operational issues	Safety of Nuclear Power Plants	01 (RIA): Safety of operating Nuclear Power Plants	Activities could include the development and use of models and codes for probabilistic safety assessments (PSA) and deterministic assessments of plant safety-related transients, use of advanced safety methodologies. seismic, flooding and fire propagation modelling. external hazards linked to most recent climate projections; integration of human factor in safety assessment. severe accidents, in-vessel and ex-vessel corium/debris coolability and interactions, containment behaviour including hydrogen explosion risks, evaluation of the source term for any potential radioactive releases, emergency preparedness and response.
	02 (RIA): Safety assessments for Long Term Operation (LTO) upgrades of Generation II and III reactors		02 (RIA): Safety of advanced and innovative nuclear designs	development of innovative reactor safety designs and technologies for deployment in the medium and long term, including the Small Modular Reactors; advanced safety systems for existing Generation II and III plants could also be included; R&D could support existing and new concepts to improve long-term operation by design, safety by design, passive systems, manufacturing of innovative components, reducing maintenance and enhancing the economics. In addition, advanced cooling systems
	03 (RIA): Safety margins determination for design basis-exceeding external hazards		03 (RIA): Multi-recycling of spent nuclear fuel from Light Water Reactors	Development of a strategy for multi-recycling of LWR spent nuclear fuel, closing MOX fuel cycle, and reducing radiotoxicity of the nuclear waste originating from the LWR nuclear fuel
	04 (IA): Innovation for Generation II and III reactors		04 (RIA): Advanced materials for nuclear applications	development of nuclear structural materials, such as austenitic, ferritic, and martensitic steels, SiCf/SiC composites and other ceramic materials, refractory alloys and other prospective materials; pre-normative research, standardisation of atypical and miniature specimen tests, development of respective codes and design rules; advanced modelling of structural materials and characterisation of the

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				respective phenomena; state-of-the-art understanding of the ageing processes of materials in nuclear installations; compatibility between coolant (water, gas, heavy liquid metals and structural materials and effect of irradiation on the structural materials, including fuel cladding. Proposals should clearly address problems for both fission and fusion* technologies with the involvement of both research communities. * Issues specific only for fusion materials will be addressed by the EUROfusion European Partnership
	05 (RIA): Support for safety research of Small Modular Reactors		05 (RIA): Nuclear cogeneration for the decarbonisation of high energy-consuming industries	to validate the safety features of High Temperature Reactors for cogeneration initiatives for high energy-consuming industries, provide know-how for standardisation, design tools for different temperature ranges, design the coupling between the power generating plant and associated processing plants and analyse transients and buffering technologies, licensing requirements.
	06 (RIA): Safety Research and Innovation for advanced nuclear systems		06 (RIA): Harmonisation of licensing procedures, codes and standards for future fission and fusion plants	To support the development of performance-based licensing methodologies for both innovative nuclear fission and fusion designs, based on their related "source terms" to allow a comparison among safety levels. It should facilitate the establishment of a common understanding on licensing methodologies for each technology between nuclear safety regulators, contributing to harmonisation of licensing of future installations. It should also lead to a more transparent and predictable licensing process and more effective regulatory oversight.
	07 (RIA): Safety Research and Innovation for Partitioning and/or Transmutation		07 (RIA): Development of tritium management in fusion and fission facilities	1) Modelling activities, assessment of 3D tritium migration, detailed description of permeation transfers through metallic walls, H/Tritium profile in material; 2) Tritium measurement including online measurement in liquid metal, online inventory measurement in tritiated aerosol, in waste and in real configuration; 3) Control of tritium release during operation with reference to the influence of the properties of the surface (oxidation, roughness effect) and of the physical-chemical properties of the interface between different materials in real-life

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				conditions (e.g. during tritium experiments study of co-permeation with hydrogen), 4) Improve knowledge in radiotoxicity, radiobiology and dosimetry via experimental study of the atmospheric dispersion of aerosol, accumulation and associated toxicity in plants, exposure in mammalian and non-mammalian models, potential biological effects, investigations on how higher levels of biological organisations (e.g. population level) could be impacted, 5) Dismantling activities - comparison of the different dismantling techniques in the EU, dismantling activities and social sciences surveys, characterisation of work situations on dismantling sites of tritiated installations, monitoring of the preparation and the operation of the dismantling site, monitoring of tritium releases for disposed waste.
	08 (CSA): Towards joint European effort in area of nuclear materials			
B. Decommissioning and Environmental Remediation	09 (IA): Fostering innovation in decommissioning of nuclear facilities	Radioactive waste management, decommissioning and geological disposal	08 (CSA): Towards an aligned harmonised application of international regulatory framework in waste management and decommissioning	to provide solutions for obstacles to an international regulatory framework in waste management and decommissioning, providing a basis for improving harmonisation.

WP 2019-2020		WP 2021-2022		
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C. Radioactive Waste Management	10 (RIA): Developing pre-disposal activities identified in the scope of the European Joint Programme in Radioactive Waste Management			
E. Radiation Protection and Medical Applications	12 (RIA): Further integrating Radiation Protection research in the EU	Radiation Protection and non-power applications	09 (CfP): Co-funded European Partnership for research in radiation protection	EC invites proposals for establishment of the European Partnership for improved radiation protection and emergency preparedness. MELODI, ALLIANCE, EURADOS, NERIS and EURAMED EJP CONCERT, SAMIRA, EURAMED
	13 (CSA): Research roadmap for medical applications of ionising radiation		10 (RIA): Safe use and reliable supply of therapeutic radionuclides	The proposed research action should cover development of reactor-based and alternative production of therapeutic radionuclides; development and optimisation of suitable targets for the different irradiation modalities including target fabrication techniques, possible raw materials and their availability, novel target geometries, radiochemistry for target dissolution and separation of desired radionuclides.
	14 (RIA): Improving low-dose radiation risk appraisal in medicine		11 (IA): Cross-sectoral synergies and new applications of nuclear technologies	This action should aim at ‘open innovation’ involving a broad spectrum of actors from research and academic communities, industry, entrepreneurs and users. It should bring together multidisciplinary teams to generate ideas and solutions in an open innovation environment by increasing investment and bringing more companies and regions into the knowledge economy. This action could focus on closer-to-the-market activities including prototyping,

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				testing, demonstrating, piloting and scaling-up for new or improved products, processes or services. Proposals may include limited research and development activities and clearly demonstrate European added value. Activities are expected to focus on Technology Readiness Levels 5 to 7 (indicative).
D. Education & Training	11 (CSA): Advancing nuclear education	Research Infrastructures, Education, Training and Mobility	12 (CSA): European Facility in Nuclear Research	to promote access to infrastructures that provide essential and unique services to the European research community and are typically beyond the reach of individual laboratories, in order to advance research in all areas (except for fusion research)
F. Research Infrastructure	15 (RIA): Optimised fuels for production of medical radioisotopes		13 (CSA): Towards a European nuclear competence area	The action will consolidate the field of nuclear education and training in the EU; the action will provide a detailed analysis of national strategies and knowledge management programmes in terms of supply (academia) and demand (end-users) and how these strategies can be translated into educational and training programmes to ensure sufficient and skilled staff is available for the sector. A mobility scheme should be an integral part of the action.
	16 (CSA): Roadmap for use of Euratom access rights to Jules Horowitz Reactor experimental capacity		14 (CSA): Socio-economic issues related to nuclear technologies	Proposed action should examine the costs of different power technologies and strategies to reduce greenhouse gas emissions in the EU. The analysis of possible energy contributions from nuclear to decarbonisation should consider all potential options for how energy from nuclear could contribute to meeting the climate target. The comparison of costs for different technologies should account for whole system and full lifecycle costs.
	17 (CSA): Optimised use of European research reactors		15 (CSA): Support to Euratom National Contact Points	Support will be given to a consortium of National Contact Points (NCPs) in the area of Euratom Nuclear Fission Safety and Radiation Protection. Only NCPs officially appointed by the relevant national authorities in Euratom Member States and Associated Countries are eligible to participate and receive funding under this action.

01 – 06, 08 - 13: It is recommended that consortia make use of the services of the Joint Research Centre (JRC). The JRC would bear the operational costs for its staff and research infrastructure.

WP 2021-2022

OA-01. Co-funded European Partnership for fusion research

- Preparation of operation scenarios for ITER experimental campaigns ensuring substantial European participation in the exploitation of this facility.
- Extending the physics and technology basis of ITER-relevant fusion science to ensure that future ITER operation will be effective and efficient;
- Preparation of conceptual design of a demonstration fusion power plant (DEMO), relevant technologies and vision for the orientation of the European Fusion Programme towards DEMO with strong involvement of European industry.
- Training of the next generation of scientists and engineers for the effective implementation of the European Fusion Programme through doctoral support, fellowships and other instruments.
- Establishment of technology transfer as a permanent feature of the European Fusion Programme resulting in added value for European industry, economy and society.

The beneficiaries for this grant are members of the EUROfusion Consortium

4. Posėdžio sprendimai, kito posėdžio data:

Šiai programos versijai galima teikti pasiūlymus iki sausio 15 d. Kitas posėdis bus vasario 8 dieną ir jau tuomet bus aiškus biudžetas ir kiek projektų bus kiekviename kvietimo skyriuje.

5. Pasiūlymai dėl tolesnių Lietuvos veiksmų:

Informuoti suinteresuotus Lietuvos organizacijų asmenis apie rengiamą EURATOM 2021-2022 metų darbo programą. Skatinti Lietuvos tyrėjų ir mokslininkų dalyvavimą šioje programoje.

6. Pridedama informacija (posėdžio darbotvarkė, išdalyta medžiaga, nuorodos):

Posėdžio metu dalyta medžiaga:
1. Kvietimas į posėdį " Invitation letter Fission.pdf"
2. Posėdžio darbotvarkė „sPC-2021-01 Agenda (Meeting of 11.01.21).doc"
3. WP2021-2022 darbo programos juodraštinė versija „sPC-2021-02 Draft Euratom WP 2021-2022 for sPC.doc"
4. WP2021-2022 darbo programos juodraštinės versijos pristatymas „sPC-2021-04 Draft Euration Work Programme 2021-2022 (Fission).ppt"

7. Tiesioginis ataskaitos rengėjas (vardas ir pavardė, institucija, pareigos, telefono numeris, elektroninio pašto adresas):

Algirdas Kaliatka, Lietuvos energetikos institutas, Branduolinių įrenginių saugos laboratorijos vyriausiasis mokslo darbuotojas, tel. nr.: 8 37 401903; algirdas.kaliatka@lei.lt