STAKEHOLDER ENGAGEMENT FOR A CENTRALIZED SPENT FUEL & WASTE MANAGEMENT FACILITY FOR LEAD-COOLED FAST REACTORS IN CONTINENTAL CENTRAL EUROPE

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The successful deployment of Generation IV nuclear reactors depends not only on technological advancements but also on securing investment and fostering strong stakeholder collaboration, especially given that the fragmented approach to spent fuel management across different countries results in inefficiencies in waste disposal and resource utilization. Lead-cooled Fast Reactors (LFRs), utilizing molten lead as a coolant, offer low neutron absorption and fast neutron operation, making them a promising option for sustainable energy production. The Generation IV International Forum (GIF) established a System Steering Committee (SSC) in 2010 to oversee LFR research, with Euratom's Joint Research Centre (JRC) playing a key role. underscoring Europe's commitment to SMRs. Building on this, the present study conducts a comprehensive stakeholder analysis for LFR deployment in Europe, focusing on the implementation of a centralized Spent Fuel & Waste Management facility. This study proposes a structured engagement framework based on participatory decision-making, digital outreach, and consensus-building strategies, aiming to foster transparency, social acceptance, and longterm sustainability in LFR deployment and waste management in Europe. A key component is the application of a power-interest matrix to map stakeholder influence and priorities, identifying regulatory bodies, industry actors, local communities, and environmental organizations as key players in the decision-making process. Additionally, comparative case studies of existing nuclear waste facilities, such as Finland's Onkalo repository and France's CIGÉO, provide insights into effective stakeholder engagement. Ultimately, the findings of this study aim to establish the main pillars for a successful stakeholder engagement strategy, setting a precedent for future Generation IV reactor technologies and guiding their deployment and waste management strategies.

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