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## NESSAT: Providing a technical-economic assessment toolbox for a more integrated waste management policy

The Nuclear Energy Systems Strategy Assessment Toolbox (NESSAT), is a comprehensive toolbox for evaluating the long-term safety, environmental impact, and sustainability of nuclear energy systems, developed by Nuclear-21, an expert cabinet consultancy focused on nuclear newbuild support, nuclear resource and waste management and sustainability. NESSAT utilizes advanced modeling techniques and data analysis to assess the entire life cycle of nuclear power, from mining to waste disposal and decommissioning. It helps decision-makers analyze waste management options, such as storage, reprocessing, and geological disposal, considering factors like volume, radioactivity, costing and –of increasing importance- (financial) risks as part of the waste fund provisioning. NESSAT also incorporates a set of sustainability indicators to evaluate the environmental, social, and economic impacts of nuclear projects. By optimizing decision-making processes and providing insights for improvement, NESSAT ensures the implementation of sustainable practices in the nuclear energy sector. Overall, Nuclear-21's NESSAT toolbox is a valuable resource for stakeholders involved in nuclear energy planning and policy-making, enabling them to make informed decisions regarding waste management, safety, and the overall sustainability of nuclear energy systems. A few selected examples of applications of NESSAT will be presented.

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