ORLEN SYNTHOS GREEN ENERGY SP. Z O.O. ACTIVITIES IN THE FRAME OF NUCLEAR SAFETY ASSESSMENT ON THE BWRX-300 POLISH LICENSING PATH

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Orlen Synthos Green Energy sp. z o.o. (OSGE) plans to deploy BWRX-300 Small Modular Reactors (SMRs) in Poland, aiming to foster sustainable energy generation through innovative nuclear technologies. OSGE's program seeks to ensure steady economic growth and a clean environment for current and future generations. The organization's mission is to lead the deployment of SMRs as a crucial element in the transition to Net Zero by 2050. Within OSGE, the Nuclear Safety Assessment team is focused on building competencies by developing a highly skilled local nuclear safety engineers workforce. This effort is supported by leading international experts and talented Polish professionals, all trained to the highest industry standards.

The activities carried out in the frame of Nuclear Safety Assessment are focused on the License to Construct (LTC) application support in its successful completion. This application is required to be submitted to the National Atomic Energy Agency of Poland with a set of documents (defined in Journal of Laws 2021 item 1667) that provide a basis to guarantee the fulfillment of nuclear safety and radiological protection of the nuclear installation. One of the actions is to prepare the key technical document a Preliminary Safety Analysis Report (PSAR). The PSAR demonstrates the adequacy of the design and results of the safety assessment. OSGE's PSAR format is developed in accordance with International Atomic Energy Agency (IAEA) Specific Safety Guide SSG-61, Format and Content of the Safety Analysis Report for Nuclear Power Plants, but as a solid basis taking into account Polish requirements on the content of the PSAR (Appendix 2 of the Regulation on Safety Analysis – Journal of Laws 2012 item 1043).

Currently, OSGE has finalized the prerequisites in the form of technical reports necessary for the proper preparation of the content of the PSAR document. Among those prerequisites one of them was set of the Regulatory Framework Documents (RFDs). This set provided the licensing basis for the content of each PSAR Chapter, applicable regulatory requirements, applicable regulatory guidance, and an outline for use in drafting the Chapter/Section.

Other type of prerequisites comprise of the set of the documents prepared by OSGE summarizing the methodologies and licensing topics understanding, namely the Polish Regulatory Framework in the fields of: Licensability and Application of Safety Goals, Deterministic Safety Analysis, Safety Classification of Structures, Systems and Components (SSCs), Deterministic Safety Analysis and Deterministic Acceptance criteria.

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