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## NAAREA's XAMR® safety approach

NAAREA is a French startup currently designing a 80 MWth fast modular micro-reactor fueled with a molten chloride. No such reactor has been designed or operated in the past, the available experience return on molten salt reactors being limited to fluoride based thermal reactors built at ORNL in the fifties and sixties. The current safety framework which has capitalized on several decades of PWR operation is not readily adapted to molten-salt reactors, and the solutions which were implemented in the sixties are not adequate today. Furthermore, molten salt reactor design is strongly versatile due to the very nature of the fuel used and the maturity of the various designs currently under work is not enough to outline a general safety approach.

Thus, this paper presents the approach chosen by NAAREA for its safety case, and especially:

- The main differences compared to standard PWR safety approach.
- The design options selected to ensure decay heat removal, reactivity management and containment of radionuclides.
- The severe accident definition selected by NAAREA and its consequences on the reactor design.

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France

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### Confirm that the work is original and has not been published anywhere else

YES

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