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Desirable Back-End of Nuclear Fuel Cycle

After the irradiation of the nuclear fuel, it is necessary to storage the fuel for cooling into the reactor pools, this is the first step of a series of process before reach his final destination.
Up to now there are two options more commonly adopted for the nuclear fuel cycle, one is the open cycle which requires a deep geological repository for final disposition of fuel. the other will be the reprocessing of the fuel to extract uranium and plutonium as the two valuable material remaining into the spent fuel
The back end of the fuel cycle should be carefully planned to avoid delays in the implementation of any of the options available to complete the activities related with each option. also important are the time steps for each option and interfaces between them.
First it is important to decide if the nuclear fuel cycle will be: open cycle or closed cycle to focus the activities, facilities and technology necessary to complete the fuel cycle selected. so, it is important to plan an integrated approach for the management of the back end of the nuclear fuel cycle.
The steps for the back-end are as follow: After irradiation there is a step for cooling the spent fuel, this step will last 5 years, as the cooling takes place in the reactor pool, eventually will be saturated and a storage step out of the rector pool will continue for part of the total fuel discharged from the reactor.
A Short Term Option is available if there is not a policy that indicates clearly if the nuclear fuel cycle will be open or closed. in such a case the option will be: Interim Wet or Dry storage, These options will provide at least, 100 years to think over what will be the final destiny of the fuel.
This paper will show some of the alternatives available and interfaces between them, as show in the following diagram.

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