Gas-Cooled Fast Reactor (GFR)

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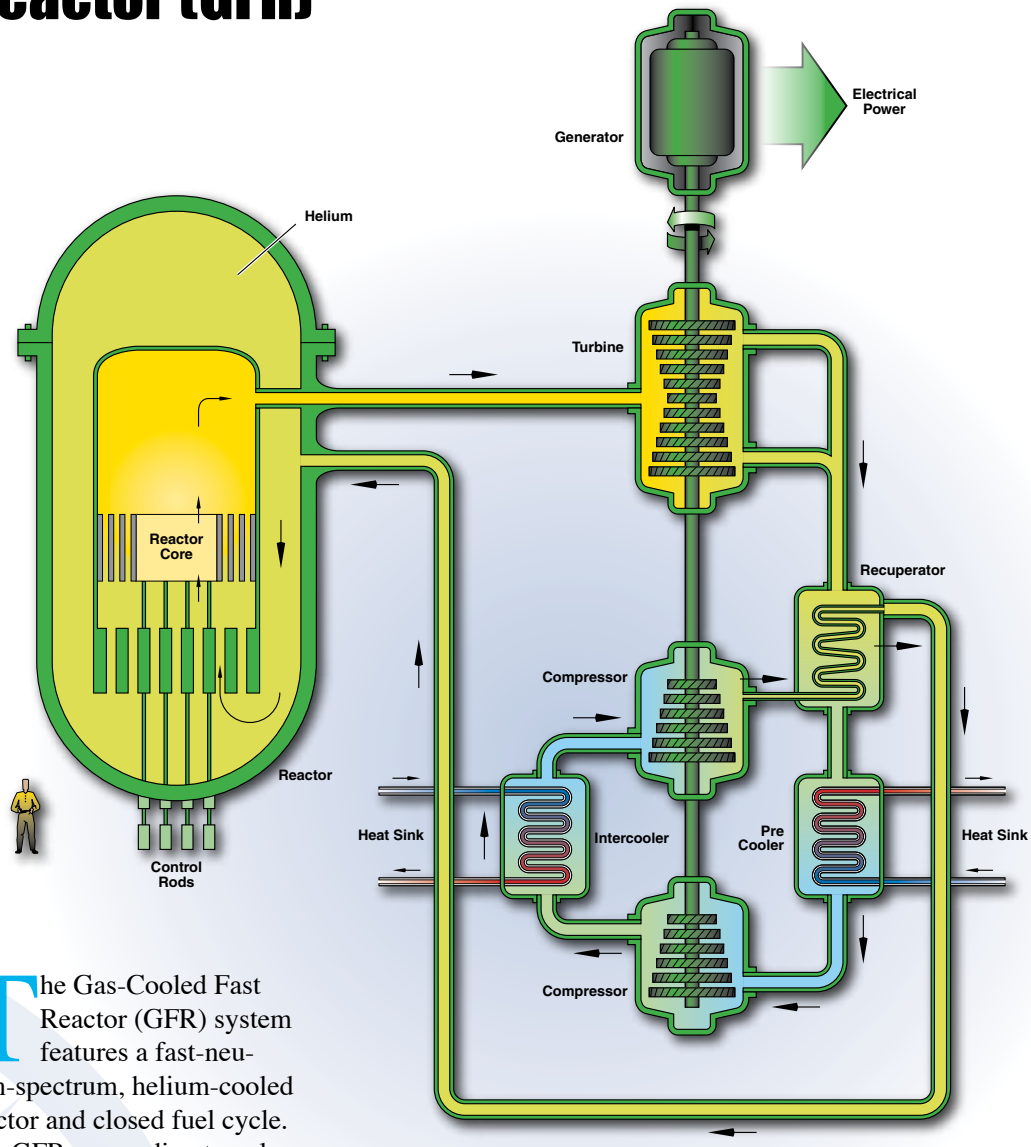

The Gas-Cooled Fast Reactor (GFR) system features a fast-neutron-spectrum, helium-cooled reactor and closed fuel cycle. The GFR uses a direct-cycle helium turbine for electricity generation, or can optionally use its process heat for production of hydrogen. Through the combination of a fast spectrum and full recycle of actinides, the GFR minimizes the production of long-lived radioactive waste. The GFR's fast spectrum also makes it possible to use available fissile and fertile materials (including depleted uranium) much more efficiently than thermal spectrum gas reactors with once-through fuel cycles. Several fuel forms are candidates that hold the potential for operating at very high temperatures and to ensure an excellent retention of fission products: composite ceramic fuel, advanced fuel particles, or ceramic-clad elements of actinide compounds. Core configurations may be based on pin- or plate-based assemblies or on prismatic blocks. The GFR reference has an integrated, on-site spent fuel treatment and refabrication plant.

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