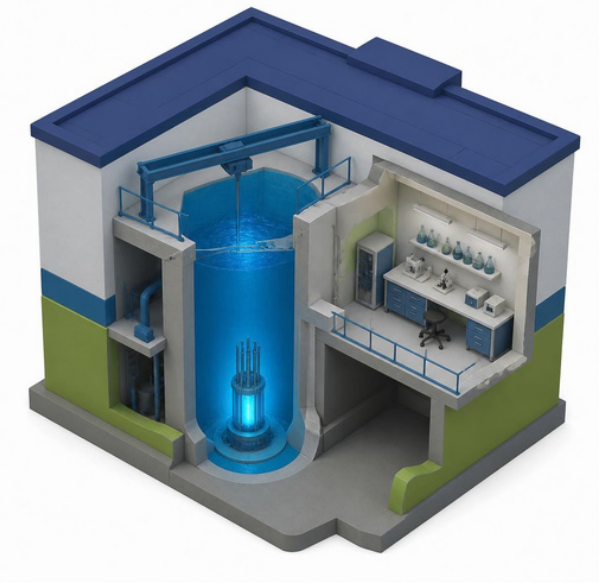
REPUBLIC OF KENYA

NuPEA NUCLEAR POWER & ENERGY AGENCY

Nuclear power plant and research reactor: what is the difference?

Kenya is planning both. They use the same science for different jobs.





	NUCLEAR POWER PLANT	RESEARCH REACTOR
MAIN JOB	Makes electricity for homes and industry.	Makes neutrons (tiny particles) for research, medicine, training and testing. It does not make electricity.
SIZE	Large. A typical unit produces about 3,000 megawatts of heat, giving about 1,000 megawatts of electricity.	Small. Most produce up to 100 megawatts of heat, and many produce far less.
THE HEAT	The heat is the product. It makes steam that turns a turbine.	The heat is a by-product. Cooling water carries it away, usually at below 100°C.
FUEL IN THE REACTOR	About a hundred tonnes of uranium fuel.	A few kilograms of uranium.
WHAT IT GIVES	Steady electricity, day and night.	Medical isotopes, tested materials, research results and trained people.
WASTE	Used reactor fuel and operating waste, in larger amounts.	The same kinds of waste, in much smaller amounts.
IN KENYA	Planned for Siaya County. Stated target: first electricity by 2034.	Planned for Konza Technopolis. Target reported in 2024: commissioning between 2030 and 2034.

WHAT THEY SHARE: both must be licensed and inspected by the Kenya Nuclear Regulatory Authority, both follow IAEA safety standards, and both produce radioactive waste that must be managed. Kenya has neither today.