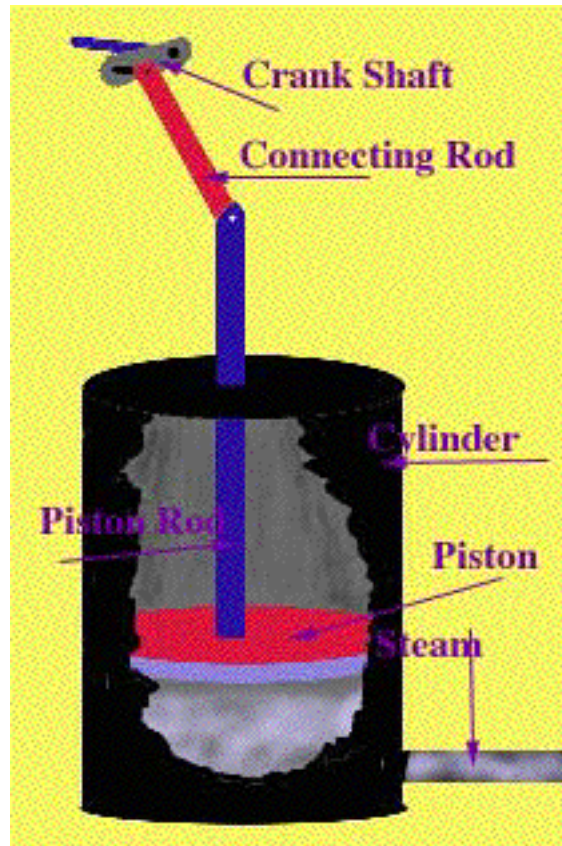


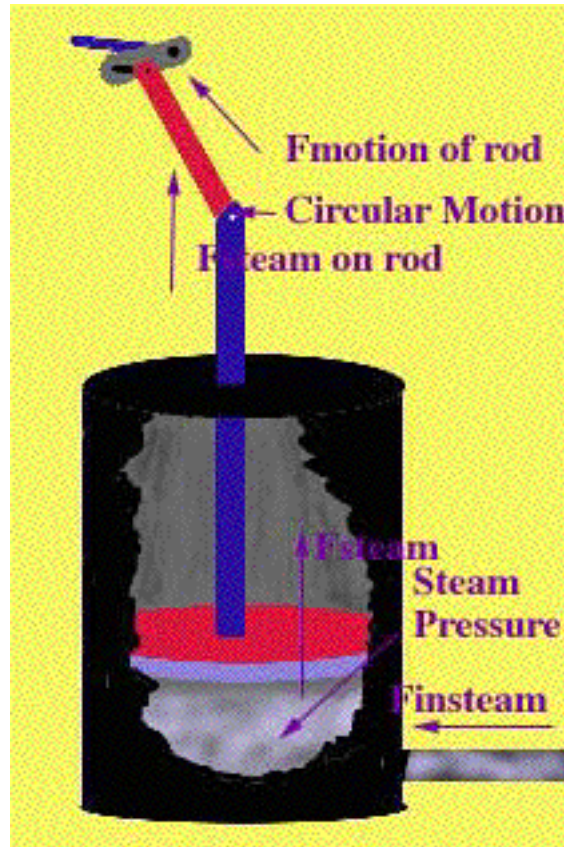
Nuclear Power Systems

Nuclear Power is composed of two stages, first the reaction, then the steam turbine that converts the moving heated water into mechanical energy, and a generator converts this mechanical energy to electrical energy. This page will not only show nuclear power system information, but also the reciprocating steam engine and a separate system involving a steam turbine. It would be interesting to switch between this page and the [nuclear power history](#) page as you read this.

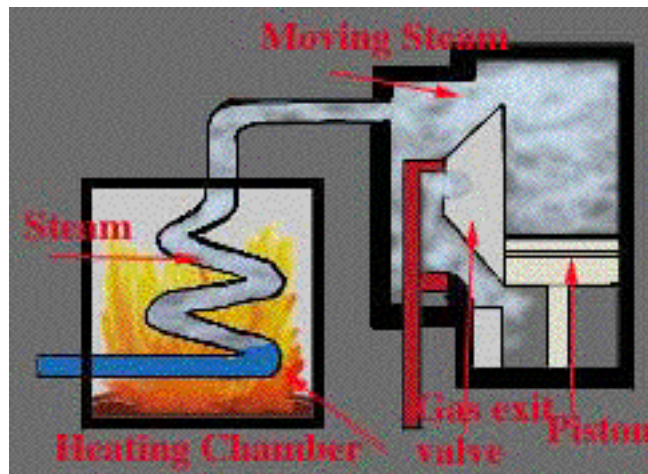
The reciprocating steam engine was one of the first steam engine designs that incorporated a piston. This picture shows a reciprocating steam engine that pushes on the piston and causes a crank to rotate.



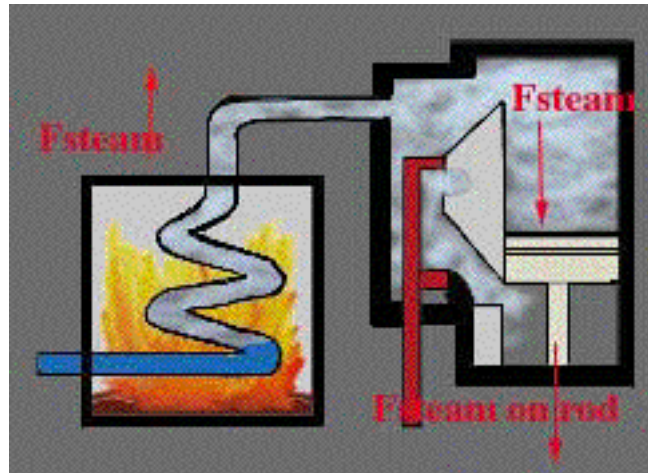
The forces in the reciprocating steam engine diagram are the forces of gravity, the steam being exerted against the piston, and the piston being forced outward.



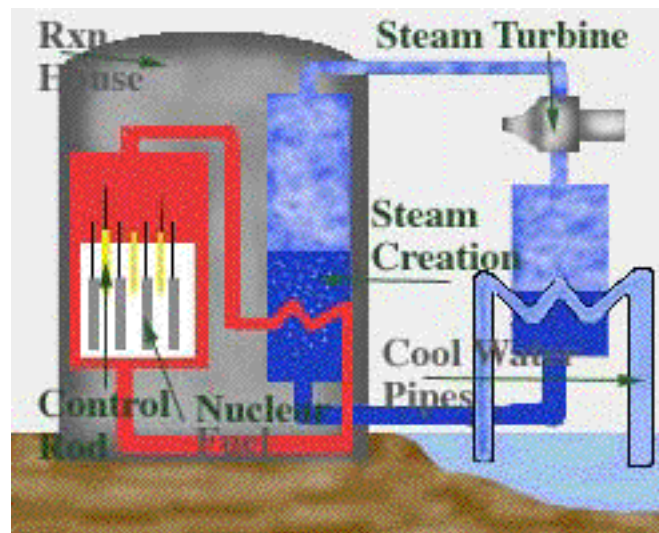
This steam turbine diagram represents a generic illustration of the second main step in the nuclear power system. Anything may be used to heat up the water in the first step. This idea is further discussed at the [combustion comparison page](#).



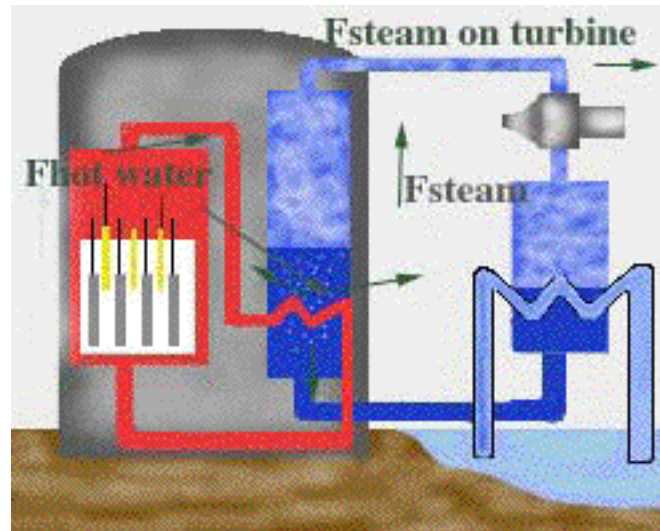
All of the same forces exist in the next diagram as were in the diagram for the reciprocating steam engine except the piston is substituted by a steam turbine, something that resists the motion of the steam exactly like the piston did.



Finally, the nuclear power plant is the combination of the steam turbine and generator, and the first step, where the water is heated from the energy of the nuclear reaction.



The forces that are apparent in the nuclear power plant are exactly like those of the previous steam engine. While a fire is used in the previous diagram, the nuclear reaction could be also substituted. Both the fire and the nuclear reaction provide heat that increases the temperature of the water.



Compare this page to [solar power systems](#), [wind power systems](#), and [hydro power systems](#). Also see the [combustion](#) comparison page.