electrolyte is from first to second cathode. The design of the apparatus seeks to direct the flow of electrolyte to maximise contact of monatomic hydrogen or deuterium atoms with the plasma. The characteristics and magnitudes of the voltages applied to each cathode are preferably similar, but may have different duty periods.

In a preferred embodiment, the cathode design and applied voltage are such as to provide a current density of 400,000 amps per square metre or even greater. More preferably, the current density at the cathode is 500,000 amps per square metre or above.

In carrying out a preferred method in accordance with the invention, it has been found that the process may be assisted by initial heating of the electrolyte, which may be water or a salt solution, prior to applying electrical input to the vessel. A temperature in the range 40 to 100°C, or more preferably 40 to 80°C, has been found to be particularly beneficial.

The ratio of water to deuterium oxide (D_20) in the electrolyte may be varied to control the energy generation. In some circumstances it may be preferable to use "light" water H_20 alone and in others to use D_20 alone. Additionally, the amount of catalyst added to the electrolyte may be varied as a controlling factor and preferably lies in the range 1 to 20 mMol.

In preferred embodiments, the method includes the step of generating a magnetic field in the region of the electrodes. The intensity and/or frequency of the current used to generate the field may be adjusted to move the plasma discharge away from the electrode from which it is struck in order to minimise erosion and extend the operating life of the system. Only slight separation may be required to achieve this effect.

In further preferred embodiments, the heat generated by the process may be removed and utilised by way of a number of known and proven technologies including the circulation of the