electrolyte through a heat exchanger, or using heat pipes to produce heating, or alternatively to produce electricity using a pressurised steam cycle or a low-boiling-point fluid turbine cycle, or by other means.

The present invention further provides apparatus for carrying out methods disclosed herein comprising an anode, first and second cathodes, a reaction vessel having an inlet and an outlet, means for feeding an electrolyte through the vessel from its inlet to its outlet, the electrolyte having a catalyst therein suitable for initiating transitions of hydrogen and/or deuterium atoms in the electrolyte to a sub-ground energy state, means for applying a voltage across the anode and the first cathode to form hydrogen and/or deuterium atoms, and means for applying a voltage across the anode and second cathode to generate a plasma discharge in the electrolyte, the second cathode being downstream from the first cathode.

During the methods described herein, atoms of hydrogen and/or deuterium are believed to undergo a fundamental change in their structure by exchange of photons with salts in solution. The applicants believe that this change, and the observed phenomena, can be explained as set out below.

It is well known that a system comprising a spherical shell of charge (the electron path) located around an atomic nucleus constitutes a resonant cavity. Resonant systems act as the repository of photon energy of discrete frequencies. The absorbtion of energy by a resonant system excites the system to a higher-energy state. For any spherical resonant cavity, the relationship between a permitted radius and the wavelength of the absorbed photon is:

$$2\pi r = n\lambda$$

where n is an integer
and λ is the wavelength