In the *electrical mode*, the two potential electrodes (See Figure 1) will measure the *resistivity* of a volume of material defined by the equipotential surfaces which are always at right angles to the current flow.

Energy Storage Process:- The material through which the current passes will store some portion of the energy in a way determined by the properties of the storage material. The amount of energy stored will depend on the total area of the sulphides (or graphite etc.) presented to the current, and thus, the greater this surface area with respect to the volume of material, the greater will be the energy stored. Finely disseminated material will store substantially more energy than coarse grained material.

The Discharge of Stored Energy:- On cessation of the energising current flow, the energy stored by the *chargeable source* will discharge *internally* within the source as shown by the solid arrows in Figure 1, and *externally* around the body in the medium surrounding the source as shown by the solid heavy lines in Figure 1. These currents are respectively known as *external* and *internal* current flow. The former is of *positive sign* as it is in the *same direction* as the original energising current, and the latter is *negative* in sign because it is in the *opposite direction* to the energising current.

In the electrical mode the discharge outside the body *ONLY* is investigated. In Figure 1 the thick solid lines show this discharge together with the *equipotential surfaces* (thick broken lines) which this current imposes. As with the charging process these surfaces must be at right angles to the current lines which impose them. The potential electrodes will therefore measure the stored energy (chargeability) as seen via the secondary