WHAT IS CLAIMED IS:

1 A composition of matter comprising a mixture of biochar, a metal and graphite, with (a) a graphite content of between about 25 to 65 percent by weight, (b) a metal content of between about 15 to 75 percent by weight and (c) a biochar content of between about 1 and 35 percent by weight, wherein the total percentage of components (a), (b) and (c) of the composition cannot exceed 100%.

2 The composition as claimed in claim 1, wherein the graphite has a *d*-spacing of between about 0.3354 and 0.3401 nm.

3 The composition as claimed in claim 1, wherein the graphite electrochemical capacity is at least 200 mAh/g.

4 The composition as claimed in claim 1, wherein the graphite electrochemical capacity is at least 300 mAh/g.

5 The composition as claimed in claim 1, wherein the specific surface area of the graphite is between about 0.2 to 50 m^2/g.

6 The composition as claimed in claim 1, wherein the specific surface area of the graphite is between about 0.5 to 20 m^2/g.

7 The composition as claimed in claim 1, wherein the graphite exhibits a "Coulombic" or first cycle efficiency of greater than 60%.

8 The composition as claimed in claim 1, wherein the graphite exhibits a "Coulombic" or first cycle efficiency of greater than 80%.

9 The composition as claimed in any one of claims 1 to 8, wherein one or more of the following apply:

(i) the graphite content in the mixture is in particulate form;

(ii) the metal content in the mixture is in particulate form;

(iii) the biochar content in the mixture is in particulate form; and

(iv) the graphite, metal and biochar content are all in particulate form.

10 The composition as claimed in any one of claims 1 to 9, wherein the mixture is a binary mixture having an elemental composition of between about 25 to 75

percent carbon made up of biochar and graphite and between about 75 to 25 percent of a selected metal.

11 The composition as claimed in any one of claims 1 to 10, wherein the biochar content is derived from woody biomass heated to temperatures of between about 200 and 1000 degrees Celsius.

12 The composition as claimed in any one of claims 1 to 11, wherein the metal is a transition metal, preferably the transition metal is selected from chromium, zirconium, molybdenum, ruthenium, rhodium, palladium, silver, cadmium, zinc, copper, nickel, cobalt, iron, manganese, chromium, vanadium or any combination thereof.

13 The composition as claimed in any one of claims 1 to 12, wherein one or more of the following apply:

(i) the particulate sizes of the biochar component are less than about 1 millimetre;
(ii) the particulate sizes of the metal component are less than about 1 millimetre;

(iii) the particulate sizes of the graphite component are less than about 1 millimetre; and

(iv) the particulate sizes of all the components are less than 1 millimetre.

14 The composition as claimed in any one of claims 1 to 13, wherein the mixture has a total graphitic carbon content greater than about 55%wt.

15 A method of producing a mixture as claimed in any one of claims 1 to 14; the method including the steps of:

i) thermally treating biomass in particulate form at a temperature of between 200 and 1000 degrees Celsius to form a particulate biochar;

ii) combining the resulting biochar with a particulate metal compound combining the resulting biochar with a particulate metal compound in a wet or a dry form to create a precursor mixture;

iii) heating the precursor mixture to between about 400 to about 3000 degrees Celsius under inert conditions to form a graphite containing mixture;

iv) sieving the final mixture to below about 1 mm particulate size to produce a mixture having (a) a graphite content of between about 25 to 65 percent by weight, (b) a metal content of between about 15 to 75 percent by weight and (c) a biochar content of between about 1 and 35 percent by weight,

wherein the total percentage of components (a), (b) and (c) of the composition cannot exceed 100%.

16 The method as claimed in claim 15, wherein the biomass is thermally treated in water in a hydrothermal step.

17 The method as claimed in claim 15, wherein the biomass is thermally treated under inert conditions in a dry pyrolysis step.

18 The method as claimed in any one of claims 15 to 17, wherein the biomass is selected from forestry residue, sawdust, wood chip or other wood-based material.

19 The method as claimed in any one of claims 15 to 18, wherein the biomass particles are less than about 10mm or more preferably, less than about 1 mm.