CLAIMS:

1. An electrolysis system, comprising:

   a power supply configured to provide an input voltage;

   a controller configured to receive the input voltage and output a pulse width modulated voltage, the output voltage being a 30V square wave having a variable duty cycle in the range of 1% to 10%; and

   at least one electrolysis cell configured to receive the output voltage, each electrolysis cell comprising a plurality of metal plates, wherein the input voltage is varied such that the voltage between each of the plates of the at least one electrolysis cell is in the range of 1.2V to 2V, each electrolysis cell being configured for receiving water containing an electrolyte to split the water when the output voltage is received.

2. The system according to claim 1, wherein the input voltage is between 75Vdc and 250Vdc.

3. The system according to claim 1, wherein the square wave has a frequency of 30 Hz.

4. The system according to claim 1 wherein the at least one electrolysis cell comprises four electrolysis cells connected in parallel.

5. The system according to any one of claims 1 to 4, wherein a concentration of the electrolyte in the water is 100g KOH per litre.

6. The system according to any one of claims 1 to 5, wherein each of the at least one electrolysis cells comprises fifteen neutral plates and 2 terminal plates, each of the terminal plates forming an end of the electrolysis cell.

7. The system according to claim 6, wherein the input voltage is varied such that the voltage between each of the plates of the at least one electrolysis cell is in the range of 1.24V to 2V.

8. The system according to any one of claims 1 to 7, wherein the duty cycle is varied based upon voltage measured across the at least one electrolysis cell.

9. A method of performing electrolysis, the method comprising:

receiving, at a controller, an input voltage;

generating, by the controller using the input voltage, a pulse width modulated output voltage, the output voltage being a 30V square wave having a variable duty cycle in a range of 1% to 10%;

receiving, by at least one electrolysis cell, the output voltage, each electrolysis cell comprising a plurality of metal plates, wherein each electrolysis cell comprises at least fifteen neutral plates and two terminal plates, wherein the input voltage is varied such that the voltage between each of the plates of the at least one electrolysis cell is in the range of 1.2V to 2V, each electrolysis cell being configured for receiving water containing an electrolyte to split the water when the output voltage is received.