WHAT IS CLAIMED IS:

1. A system, comprising:

a variable controllable power circuit;

an electrolytic cell coupled to the variable controllable power circuit and comprising an anode and a cathode, the electrolytic cell configured to operate in different ones of multiple operating states at respective different times dependent on a potential difference between the anode and the cathode;

a power circuit controller that causes the variable controllable power circuit to apply a given potential difference across the anode and the cathode to initiate operation of the electrolytic cell in a particular one of the multiple operating states associated with the given potential difference, the multiple operating states comprising:

a production state associated with a first non-zero potential difference in which a product of interest is produced by the electrolytic cell; and

an idle state associated with a second non-zero potential difference that is insufficient to support production of the product of interest by the electrolytic cell; and

a monitoring and control subsystem configured to maintain a predefined set of production process conditions for the electrolytic cell while the electrolytic cell is operating in the production state and while the electrolytic cell is operating in the idle state, the predefined set of production process conditions comprising a predefined operating temperature range;

wherein the product of interest is chlorine.

2. The system of claim 1, wherein the electrolytic cell comprises two or more tanks, each comprising a feedstock for an electrochemical process, and an ionic conduction path between the tanks.

3. The system of claim 1, wherein:

the electrolytic cell is one of a plurality of multi-state electrolytic cells each comprising a respective anode and a respective cathode; and

potential differences across the anodes and cathodes in the multi-state electrolytic cells are collectively controllable.

4. The system of claim 1, wherein:

the electrolytic cell is one of a plurality of multi-state electrolytic cells each comprising a respective anode and a respective cathode; and

respective potential differences across the anodes and cathodes in each of the multi-state electrolytic cells are individually controllable.

5. The system of claim 1, wherein the variable power control circuit is configured to receive power from a non-schedulable power source.

6. The system of claim 1, wherein the variable power control circuit is controllable to select a power source for applying the given potential difference across the anode and the cathode from among two or more power sources.

7. The system of claim 1, wherein the monitoring and control subsystem is configured to receive data from a sensor representing a measurement of a current condition in the electrolytic cell.

8. The system of claim 1, wherein the electrolytic cell comprises a recirculation loop through which an output of the electrochemical process is returned to the electrolytic cell as an input.

9. The system of claim 1, wherein the electrolytic cell is configured to produce a second product of interest while the electrolytic cell operates in the production state.

10. The system of claim 1, wherein:

the production state is one of a plurality of production states in which the electrolytic cell is configured to operate; and

at least one of the rate at which the electrolytic cell produces the product of interest and the rate at which the electrolytic cell consumes input resources is dependent on the one of the production states in which the electrolytic cell is operating.

11. The system of claim 1, wherein

the production state is one of a plurality of production states in which the electrolytic cell is configured to operate;

the electrolytic cell is configured to produce a plurality of products of interest; and

the relative amounts of the plurality of products of interest produced by the electrolytic cell is dependent on the one of the production states in which the electrolytic cell is operating.

12. The system of claim 1, wherein the predefined set of production process conditions further comprises at least one of:

a predefined pressure range for back pressure on a head gas within the electrolytic cell; and

a predefined concentration range for concentration of an active species within a feedstock of the electrolytic cell.

13. A method, comprising:

configuring a variable controllable power circuit to apply a first non-zero potential difference across an anode and a cathode of an electrolytic cell to initiate operation of the electrolytic cell in a production state associated with the first non-zero potential difference in which a product of interest is produced by the electrolytic cell;

operating the electrolytic cell in the production state to produce the product of interest;

while operating the electrolytic cell in the production state, configuring the variable controllable power circuit to apply a second non-zero potential difference across the anode and the cathode of the electrolytic cell to initiate operation of the electrolytic cell in an idle state associated with the second non-zero potential difference, the second non-zero potential difference being insufficient to support production of the product of interest by the electrolytic cell; and

while operating the electrolytic cell in the idle state, configuring the variable controllable power circuit to reapply the first non-zero potential difference across the anode and the cathode of the electrolytic cell to return the electrolytic cell to the production state;

wherein the product of interest is chlorine.

14. The method of claim 13, further comprising, prior to application of the first non-zero potential difference across the anode and the cathode of the electrolytic cell, configuring the electrolytic cell to operate under a predefined set of production process conditions comprising a predefined operating temperature range.

15. The method of claim 14, further comprising,

maintaining the predefined set of production process conditions while the electrolytic cell is operating in the production state; and

maintaining the predefined set of production process conditions while the electrolytic cell is operating in the idle state.

16. The method of claim 15, wherein maintaining the predefined set of production process conditions comprises activating a heating or cooling element to return a temperature of the electrolytic cell to a value within the predefined operating temperature range in response to receiving an indication that the temperature is outside the predefined operating temperature range.

17. The method of claim 15, wherein maintaining the predefined set of production process conditions comprises applying or reducing back pressure on a head gas within the electrolytic cell to return the back pressure on the head gas to a value within a predefined pressure range in response to receiving an indication that the back pressure on the head gas is outside the predefined pressure range.

18. The method of claim 15, wherein maintaining the predefined set of production process conditions comprises increasing or reducing a concentration of an active species within a feedstock of the electrolytic cell to return the concentration of the active species within the feedstock to a value within a predefined concentration range in response to receiving an indication that the concentration of the active species within the feedstock is outside the predefined concentration range.

19. The method of claim 13 wherein:

the electrolytic cell is one of a plurality of multi-state electrolytic cells each comprising a respective anode and a respective cathode; and

configuring the variable controllable power circuit to apply the first non-zero potential difference across the anode and the cathode of the electrolytic cell comprises collectively controlling respective potential differences across the anodes and cathodes of each of the plurality of multi-state electrolytic cells.

20. The method of claim 13, wherein:

the electrolytic cell is one of a plurality of multi-state electrolytic cells each comprising a respective anode and a respective cathode; and

configuring the variable controllable power circuit to apply the first non-zero potential difference across the anode and the cathode of the electrolytic cell comprises individually controlling respective potential differences across the anodes and cathodes of each of the plurality of multi-state electrolytic cells.