CLAIMS

We claim:

1. A method for manufacturing hydrogen, comprising:

placing a water-borne structure into a body of water, the water-borne structure comprising a buoy including a water collection reservoir in fluid communication with an effluent conduit, a liquid pressurizing columnar conduit depending from the buoy configured to inject water into the water collection reservoir, an electrical energy generator operatively coupled to the effluent conduit to generate electrical energy from a flow of water through the effluent conduit, and an electrolyzer electrically coupled to the electrical energy generator;

vertically displacing water from the body of water to the water collection reservoir via the liquid pressurizing columnar conduit;

evacuating water from the water collection reservoir through the effluent conduit to energize the electrical energy generator;

electrolyzing water by electricity generated by the electrical energy generator to evolve hydrogen; and

storing the hydrogen in a tank.

2. The method of claim 1, wherein the floating, self-propelled, water-borne structure is controlled by satellite.

3. The method of claim 1, wherein the electrical energy generator includes a water turbine.

4. The method of claim 1, further comprising transmitting electromagnetic control signals to the water-borne structure via satellite to control a hydrogen production rate of the water-borne structure.

5. The method of claim 1, wherein the water-borne structure further includes a hydrogen port on an exterior surface.

6. A method for manufacturing hydrogen, comprising:

deploying a hydrodynamic pump to an ocean, the hydrodynamic pump including an inertial water tube comprising a constricting feature to pressurize ocean water, a pressurized fluid reservoir partially filled with ocean water transported from the ocean to the pressurized fluid reservoir via the inertial water tube, a turbine energized by a flow of pressurized ocean water exiting the pressurized fluid reservoir, an electrical generator coupled to the turbine, an electrolyzer, and a hydrogen tank;

transmitting electrical energy from the electrical generator to the electrolyzer to generate hydrogen; and

storing the hydrogen in the hydrogen tank.

7. The method of claim 6, wherein the electrical generator is a rim-drive generator.

8. The method of claim 6, wherein the hydrodynamic pump further includes a navigation control computer.

9. The method of claim 6, wherein an electromagnetic control signal changes a flow rate of water from the pressurized reservoir by adjusting an electrical current draw of the electrolyzer.

10. A method for generating and transporting hydrogen, comprising:

deploying a hydrodynamic pump to an ocean, the hydrodynamic pump including a pressurized fluid reservoir partially filled with ocean water transported from the ocean to the pressurized fluid reservoir through wave action, a columnar conduit extending below the pressurized fluid reservoir to impel ocean water to the pressurized fluid reservoir, a turbine energized by a flow of pressurized ocean water from the pressurized fluid reservoir, an electrical generator coupled to the turbine, an electrolyzer, and a hydrogen tank;

conducting electrical energy from the electrical generator to the electrolyzer to generate hydrogen;

storing hydrogen in the hydrogen tank;

coupling a ship to the hydrodynamic pump by a hydrogen conduit;

transferring hydrogen from the hydrodynamic pump to the ship; and

decoupling the ship from the hydrodynamic pump.

11. The method of claim 10, further comprising transferring water from the ship to the hydrodynamic pump for water-splitting.