CLAIMS

1. A floating solar photovoltaic array, comprising:

a plurality of inflatable upper support pontoons with upper mounting hardware thereon;

a plurality of inflatable lower support pontoons with lower mounting hardware thereon; and

a plurality of solar photovoltaic modules, wherein each solar photovoltaic module has an upper end that is connected to the mounting hardware on one of the inflatable upper support pontoons and a lower end that is connected to the mounting hardware on one of the inflatable lower support pontoons,

wherein the mounting hardware on the inflatable upper support pontoons is higher than the mounting hardware on the inflatable lower support pontoons to thereby hold each of the solar photovoltaic modules at an inclined angle; and

an air manifold system, comprising:

at least one of an air source or an air compressor, and

pneumatic tubing connecting the air source or air compressor to each of the plurality of inflatable support pontoons;

pressure sensors for determining air pressures in the inflatable support pontoons; and

an air manifold control system for controlling the air pressures in the inflatable support pontoons.

2. The floating solar photovoltaic array of claim 1, wherein the air manifold system is powered by the photovoltaic modules in the solar photovoltaic array.

3. A floating solar photovoltaic array, comprising:

a plurality of inflatable upper support pontoons with upper mounting hardware thereon;

a plurality of inflatable lower support pontoons with lower mounting hardware thereon; and

a plurality of solar photovoltaic modules, wherein each solar photovoltaic module has an upper end that is connected to the mounting hardware on one of the inflatable upper support pontoons and a lower end that is connected to the mounting hardware on one of the inflatable lower support pontoons,

wherein the mounting hardware on the inflatable upper support pontoons is higher than the mounting hardware on the inflatable lower support pontoons to thereby hold each of the solar photovoltaic modules at an inclined angle; and

wherein the inclined angle of each of the solar photovoltaic modules is adjusted by adjusting an inflation level in one of the inflatable upper support pontoons.

4. A floating solar photovoltaic array, comprising:

a plurality of inflatable upper support pontoons with upper mounting hardware thereon;

a plurality of inflatable lower support pontoons with lower mounting hardware thereon; and

a plurality of solar photovoltaic modules, wherein each solar photovoltaic module has an upper end that is connected to the mounting hardware on one of the inflatable upper support pontoons and a lower end that is connected to the mounting hardware on one of the inflatable lower support pontoons,

wherein the mounting hardware on the inflatable upper support pontoons is higher than the mounting hardware on the inflatable lower support pontoons to thereby hold each of the solar photovoltaic modules at an inclined angle; and

wherein the lower support pontoons have a flattened top surface functioning as a walkway.

5. A floating solar photovoltaic array, comprising:

a plurality of inflatable upper support pontoons with upper mounting hardware thereon;

a plurality of inflatable lower support pontoons with lower mounting hardware thereon; and

a plurality of solar photovoltaic modules, wherein each solar photovoltaic module has an upper end that is connected to the mounting hardware on one of the inflatable upper support pontoons and a lower end that is connected to the mounting hardware on one of the inflatable lower support pontoons,

wherein the mounting hardware on the inflatable upper support pontoons is higher than the mounting hardware on the inflatable lower support pontoons to thereby hold each of the solar photovoltaic modules at an inclined angle; and

wherein a center portion of each solar photovoltaic module is positioned directly

above water with no mechanical structure positioned directly thereunder.

6. A floating solar photovoltaic array, comprising:

a plurality of inflatable upper support pontoons with upper mounting hardware thereon;

a plurality of inflatable lower support pontoons with lower mounting hardware thereon; and

a plurality of solar photovoltaic modules, wherein each solar photovoltaic module has an upper end that is connected to the mounting hardware on one of the inflatable upper support pontoons and a lower end that is connected to the mounting hardware on one of the inflatable lower support pontoons,

wherein the mounting hardware on the inflatable upper support pontoons is higher than the mounting hardware on the inflatable lower support pontoons to thereby hold each of the solar photovoltaic modules at an inclined angle; and

a powered accessory comprising at least one of an aerator, a diffuser, a sub-surface agitator, a sub-surface water circulator, a sub-surface positioning system, a water quality sensor; a panel washer, or a bird removal system,

wherein the powered accessory is powered by the photovoltaic modules in the solar photovoltaic array.

7. The floating solar photovoltaic array of claim 6, further comprising:

at least one inverter on the array for converting DC output from the solar photovoltaic modules into AC power, and

an AC bus on the array connected to the inverter for sending AC power to an on-shore grid,

wherein the powered accessory is connected to the AC bus.

8. The floating solar photovoltaic array of claim 6, further comprising:

at least one on-shore inverter for converting DC output from the solar photovoltaic modules into AC power, and a DC bus on the array for sending DC power to the on-shore inverter,

wherein the powered accessory is connected to the DC bus.

9. The floating solar photovoltaic array of claim 6, further comprising:

at least one inverter that converts DC output from the solar photovoltaic modules into AC power, wherein the powered accessory is powered by output from the solar photovoltaic modules that has been clipped by the at least one inverter.

10. The floating solar photovoltaic array of claim 6, further comprising:

a battery on the array,

wherein the powered accessory is powered by the battery at times when the powered accessory is not being powered by the photovoltaic modules in the solar photovoltaic array.

11. The floating solar photovoltaic array of claim 6, further comprising:

a plurality of mooring cables connected to at least one of the plurality of inflatable upper support pontoons or the inflatable lower support pontoons for mooring the array at a desired location on a body of water.