## CLAIMS

1. An energy storage system comprising:

a thermal energy storage tank that defines: (i) an enclosed interior space and (ii) an open space extending within the enclosed interior space;

a thermal energy storage medium located within the enclosed interior space;

a first heating device disposed in the open space;

a radiant barrier disposed in the open space; and

a first actuator system coupled to the radiant barrier,

wherein the first actuator system is operable to increase a radiative heat transfer from the first heating device to the thermal energy storage medium by at least partially removing the radiant barrier from being disposed in the open space.

2. The energy storage system of claim 1, further comprising a vacuum chamber that contains the thermal energy storage tank.

3. The energy storage system of claim 1, wherein the thermal energy storage tank defines a plurality of open spaces extending within the enclosed interior space.

4. The energy storage system of claim 1, wherein the radiant barrier comprises multiple sheets of material that are spaced apart from the thermal energy storage tank and that are spaced apart from each other.

5. The energy storage system of claim 4, further comprising spacer members disposed between at least some of the multiple sheets of material such that the multiple sheets of material are spaced apart from each other.

6. The energy storage system of claim 5, wherein the spacer members comprise multiple separate portions that are stacked on each other.

7. The energy storage system of claim 1, further comprising a heating reservoir configured to contain a fluid, wherein the heating reservoir is disposed in a second open space of defined by the thermal energy storage tank.

8. The energy storage system of claim 7, further comprising a second actuator system coupled to a second portion of the radiant barrier that is disposed between: (i) the thermal energy storage tank and (ii) the heating reservoir.

9. The energy storage system of claim 8, wherein the second actuator system is operable to increase a radiative heat transfer from the thermal energy storage medium to the fluid contained in the heating reservoir by at least partially removing the second portion of the radiant barrier from being between the thermal energy storage tank and the heating reservoir.

10. The energy storage system of claim 1, wherein a horizontal cross-section of the thermal energy storage tank has an outer profile that is circular or polygonal.

11. The energy storage system of claim 1, wherein the thermal energy storage medium comprises salt or silicon.

12. The energy storage system of claim 1, wherein the first heating device comprises a resistive heating element.

13. The energy storage system of claim 1, wherein portions of the radiant barrier that are not disposed within the open space are configured to be stationary in relation to the thermal energy storage tank.

14. The energy storage system of claim 1, wherein the radiant barrier comprises at least two sheets of material that are spaced apart from the thermal energy storage tank and that are spaced apart from each other.

15. A method of storing energy, the method comprising:

delivering electrical energy to energize one or more resistive heating devices that are each disposed in a respective open space of one or more open spaces defined by exterior surfaces of a thermal energy storage tank, wherein the exterior surfaces of the thermal energy storage tank also define an enclosed interior space containing a thermal energy storage medium, and wherein, prior to the delivering of the electrical energy to energize the one or more resistive heating devices, a movable radiant barrier is disposed over at least some of the exterior surfaces of the thermal energy storage tank that define the one or more open spaces;

delivering a fluid to a heating reservoir disposed in an additional open space of the one or more open spaces defined by the thermal energy storage tank; and

moving an additional portion of the movable radiant barrier at least partially out of the additional open space to increase a radiative heat transfer from the thermal energy storage medium to the fluid.

16. The method of claim 15, further comprising moving one or more portions of the movable radiant barrier to increase a radiative heat transfer from the energized one or more resistive heating devices to the thermal energy storage medium.

17. The method of claim 15, further comprising, after the delivering electrical energy to energize one or more resistive heating devices, moving the one or more portions of the movable radiant barrier back over the at least some of the exterior surfaces of the thermal energy storage tank to decrease a radiative heat transfer away from the thermal energy storage medium.

18. The method of claim 15, further comprising, after heating the fluid by the radiative heat transfer from the thermal energy storage medium, moving the additional portion of the movable radiant barrier back into the additional open space to decrease a radiative heat transfer away from the thermal energy storage medium.