CLAIMS

1. A method of erecting a modular power generation facility, the modular power generation facility comprising:

a plurality of primary modules, each primary module including a housing that is adapted from an ISO intermodal shipping container having four posts, a pair of top side rails, a pair of bottom side rails, a front sill, a rear sill, a top front rail, and a top rear rail, all of which are connected together at the eight primary corners by shipping container corner castings, wherein each primary module includes an interior space at least partially enclosed by a top wall, a side wall, and wherein the primary modules include:

(i) one or more gen-set modules, each having an engine-generator operatively installed in the interior thereof, and

(ii) a switchgear module having switchgear operatively installed in the interior thereof; the method comprising:

(a) at an installation location, positioning the primary modules, with the respective engine-generator or switchgear operatively installed therein, in a vertical stack;

(b) attaching the primary modules, with the respective engine-generator or switchgear operatively installed therein, to one another in the vertical stack, thereby forming a substantially modular enclosure; and

(c) interconnecting the engine-generators of the one or more gen-set modules with the switchgear of the switchgear module.

2. The method of Claim 1, further comprising:

(d) operating the engine-generators and the switchgear to provide electricity to a transformer connected to the switchgear in response to a power load demand including using a control system, arranged in communication with each of the gen-set modules, to coordinate the engine-generators of the one or more gen-set modules as a unit and to control the loading of each of the generators in response to the power load demand.

3. The method of Claim 1, further comprising, prior to the step of positioning the primary modules at the installation location:

(e) shipping the plurality of primary modules, with the respective engine generator or switchgear operatively installed therein, to the installation location by handling and transporting the shipping container-based primary modules, each with a respective engine-generator or switchgear operatively installed therein, using the corner castings of the respective shipping container housings.

4. The method of Claim 3, wherein at least some of the switchgear modules are transformer/switchgear modules, wherein each transformer/switchgear module has a transformer operatively installed in the interior thereof and operatively connected to the respective switchgear, wherein the shipping step is carried out for each transformer/switchgear module with the respective transformer operatively installed therein, and wherein the operating step is carried out for each transformer/switchgear module using the transformer installed therein.

5. The method of Claim 1, wherein the positioning step includes maneuvering the shipping container-based primary modules, each with a respective engine-generator or switchgear operatively installed therein, using the corner castings of the respective shipping container housings.

6. The method of Claim 1, wherein the positioning step includes attaching the primary modules to a base frame or foundation via twist lock fasteners mounted to the base frame or foundation, thereby holding the modules in place thereon.

7. The method of Claim 2, wherein the operating step is carried out for a period of time, wherein the method further comprises a subsequent step of terminating the operating step, wherein the method further comprises attaching an additional primary module, which is an additional gen-set module, to the vertical stack of existing primary modules, wherein the method further comprises interconnecting the engine-generator of the additional gen-set module to the switchgear of the switchgear module, and wherein the method further comprises reinitiating the operating step.

8. The method of Claim 7, further comprising a step, prior to the step of attaching an additional primary module and after the terminating step, of removing one of the one or more

gen-set modules, and wherein the step of attaching an additional gen-set module includes attaching the additional module as a replacement for the removed module.

9. The method of Claim 1, further comprising a step of producing one or more staircase module, each having eight primary corners, wherein each primary corner of each staircase module is a shipping container corner casting, and wherein the method further comprises attaching one or more staircase modules, in a vertical stack, to the vertical stack of primary modules to provide access to upper primary modules.

10. The method of Claim 9, wherein the step of attaching the vertical stack of staircase modules to the vertical stack of primary modules is carried out via respective corner castings on the staircase modules and the primary modules.

11. The method of Claim 9, further comprising a step of shipping the one or more staircase modules to the installation location, wherein the shipping step is carried out by handling and transporting the staircase modules using the corner castings of the one or more staircase modules.

12. The method of Claim 9, further comprising a step, prior to the step of attaching the vertical stack of staircase modules to the vertical stack of primary modules, of attaching a lowermost of the staircase modules to a base frame or foundation via twist lock fasteners mounted to the base frame or foundation, thereby holding the lowermost staircase module in place thereon.

13. The method of Claim 1, wherein the one or more gen-set modules are a first set of gen-set modules, wherein the switchgear module is a first switchgear module, wherein the vertical stack of primary modules is a first vertical stack of primary modules, wherein the plurality of primary modules also includes at least a second set of the gen-set modules and at least a second switchgear module, wherein the method further includes a step of positioning the second set of primary modules in a second vertical stack, wherein the method further comprises attaching the second set of primary modules, with the respective engine-generator or switchgear operatively installed therein, to one another in the second vertical stack, thereby forming a substantially modular enclosure, wherein the method further comprises interconnecting the engine-generators of the second set of gen-set modules with the switchgear of the second switchgear module.

14. The method of Claim 13, wherein all of the primary modules have a common height.

15. The method of Claim 13, wherein all of the primary modules have a common length.

16. The method of Claim 13, wherein all of the primary modules have a common width.

17. The method of Claim 1, wherein the step of attaching the primary modules to one another in the vertical stack includes attaching each primary module to the primary module above it or below it via the corner castings and corresponding twist lock fasteners.

18. The method of Claim 1, wherein the interior space is further enclosed by an end wall, and wherein the method further comprises a step of installing a respective superstructure on each of one or more of the plurality of primary modules, the superstructure extending outwardly from the end wall, and a step of supporting one or more operational component on the superstructure.

19. The method of Claim 18, wherein at least one of the one or more gen-set modules includes the superstructure.

20. The method of Claim 19, wherein the step of supporting one more operational component on the superstructure includes supporting a respective fluid tank on each superstructure, external to the interior space of the respective primary module.

21. The method of Claim 20, wherein each respective fluid tank is a diesel exhaust fluid (DEF) tank.

22. The method of Claim 18, wherein the switchgear module includes the superstructure.

23. The method of Claim 18, wherein the step of supporting one more operational component on the superstructure includes supporting cables that are routed to/from an adjacent primary module.

24. A method of erecting a modular power generation facility, the modular power generation facility comprising:

a plurality of primary modules, each primary module including a housing that is adapted from an ISO intermodal shipping container having four posts, a pair of top side rails, a pair of bottom side rails, a front sill, a rear sill, a top front rail, and a top rear rail, all of which are connected together at the eight primary corners by shipping container corner castings, wherein each primary module includes an interior space at least partially enclosed by a top wall, a side wall, and wherein the primary modules include:

(i) one or more gen-set modules, each having an engine-generator operatively installed in the interior thereof, and

(ii) a switchgear module having switchgear operatively installed in the interior thereof; the method comprising:

(a) at an installation location, positioning the primary modules, with the respective engine-generator or switchgear operatively installed therein, side by side in a row;

(b) attaching the primary modules, with the respective engine-generator or switchgear operatively installed therein, to one another side by side in a row, thereby forming a substantially modular enclosure; and

(c) interconnecting the engine-generators of the one or more gen-set modules with the switchgear of the switchgear module.