CLAIMS

1. A method for controlling a thermal output of a geothermal well system, the well system comprising an inlet wellbore, an outlet wellbore, an interconnecting wellbore in a geothermal formation connecting the inlet wellbore and outlet wellbore, and a working fluid in the inlet, outlet and interconnecting wellbores that is capable of thermal charging from said formation, the method comprising:

modulating circulation of said working fluid within said well system to vary thermal output of thermally charged said working fluid both above and below a characteristic potential thermal output capacity of the well system, where the characteristic potential thermal output capacity of the well system is a capacity operating in a baseload thermal output manner with said working fluid flowing at a constant flow rate for a specified timeframe, and where the modulating circulation comprises modulating circulation to produce an average thermal output for the specified time frame equal to or less than said potential thermal output capacity.

2. The method of claim 1, wherein the average thermal output is over 80% of the potential thermal output capacity.

3. The method of claim 1, wherein the average thermal output is over 90% of the potential thermal output capacity.

4. The method of claim 1, wherein the average thermal output is at least 97% of the potential thermal output capacity.

5. The method of claim 1, where the specified timeframe is at least thirty days.

6. The method of claim 1, where the modulating circulation comprises controlling a residence time of the working fluid in the geothermal formation.

7. The method of claim 1, where the modulating circulation comprises modulating circulation between a charging cycle where said working fluid is thermally charged through conductive heat transfer with said formation and a discharging cycle where thermal energy is removed from said working fluid, and the method comprises: the modulating circulation further comprising the charging cycle during a period of peak solar production; and generating electricity from the removed thermal energy onto an electrical grid during the discharging cycle.

8. The method of claim 1, where the modulating circulation comprises modulating circulation between a charging cycle where said working fluid is thermally charged through conductive heat transfer with said formation and a discharging cycle where thermal energy is removed from said working fluid, and where the discharging cycle is during the night.

9. The method of claim 1, where the modulating circulation comprises modulating circulation between a charging cycle where said working fluid is thermally charged through conductive heat transfer with said formation and a discharging cycle where thermal energy is removed from said working fluid, and where the discharging cycle is scheduled based on the charging and discharging of another geothermal well system.

10. The method of claim 9, where the discharging cycle is sequenced relative to the discharging cycle of the other geothermal well system.

11. The method of claim 10, where the discharging cycle is sequenced relative to the discharging cycle of the other geothermal well system based on a demand profile over a second specified timeframe.

12. The method of claim 9, where the discharging cycle is simultaneous with the discharge cycle of the other geothermal well system.

13. The method of claim 9, where the method comprises generating electricity from the removed thermal energy onto an electric grid during the discharging cycle of the geothermal well system and the other geothermal well system.

14. The method of claim 1, where the modulating circulation comprises modulating circulation between a charging cycle where said working fluid is thermally charged through conductive heat transfer with said formation and a discharging cycle where thermal energy is removed from said working fluid; where the method comprises generating electricity from the removed thermal energy onto an electric grid during the discharging cycle; and where the modulating circulation comprises modulating circulation for electricity generation based on an electrical grid demand profile.

15. The method of claim 1, where the geothermal well system comprises a multilateral system comprising a plurality of interconnecting wellbores.

16. The method of claim 1, where the geothermal formation is dry rock; and where the geothermal well system is a part of a closed-loop thermal recovery system.

17. The method of claim 16, where the interconnecting wellbore is uncased.

18. The method of claim 17, where the geothermal well system comprises a multilateral system comprising a plurality of interconnecting wellbores.

19. The method of claim 17, where the method further comprises sealing fractures and/or permeability in the formation with the working fluid.

20. The method of claim 16, comprising modulating the circulation to produce an average thermal output of over 90% of the potential thermal output capacity.

21. A method for controlling a thermal output of a geothermal well system, the well system comprising a working fluid therein that is capable of thermal charging from a

geological formation, the method comprising:

modulating circulation of said working fluid within said well system to vary thermal output of thermally charged said working fluid both above and below a characteristic potential thermal output capacity of the well system, where the characteristic potential thermal output capacity of the well system is a capacity operating in a baseload thermal output manner with said working fluid flowing at a constant flow rate for a specified timeframe, and where the modulating circulation comprises modulating circulation to produce an average thermal output for the specified time frame equal to or less than said characteristic potential thermal output capacity.