CLAIMS:

1. A method for energy recovery from a geologic formation having predetermined available potential thermal capacity, the method comprising:

drilling into said formation using a destructive mechanism in a predetermined sequence of drilling and sealing to form an inlet wellbore, an outlet wellbore, and a primary lateral wellbore therein having a substantially impermeable interface between said wellbore and said formation, the inlet wellbore and the outlet wellbore each having a surface casing;

drilling at least one subsequent lateral wellbore by electromagnetic guidance at least from said primary wellbore, the primary and the subsequent wellbores being open sealed wellbores that are substantially parallel to each other and that meet at a junction at the toes of the wellbores, wherein the open wellbores are un-cased wellbores and wherein the subsequent lateral wellbore is disposed at a depth greater than a depth of the primary lateral wellbore, such that a closed L-shaped loop arrangement is formed by the inlet wellbore, the primary wellbore, the subsequent wellbore, and the outlet wellbore;

selectively utilizing at least one of cumulative signals and individual signals from the drilled at least one subsequent wellbore to guide drilling in forming a predetermined pattern of wellbores within said formation;

linking said predetermined pattern of said wellbores in the closed loop arrangement within thermal areas of said formation through the inlet wellbore and the outlet wellbore to an energy recovery device to recover energy from the loop arrangement in the closed loop between the wellbores and said device, said closed loop arrangement having a predetermined energy output within said available potential thermal capacity of said formation;

circulating a fluid composition having a predetermined composition with a predetermined residency time within said closed loop arrangement to form an energy charged fluid, and

generating on demand energy to an end user through interaction between said charged working fluid and said energy recovery device.

2. The method as set forth in claim 1, wherein the sequenced drilling operation seals any, if present, pre-existing fissures, fractures, cracks or other geologic anomalies and any fissures, fractures, cracks or other geologic anomalies formed as a result of drilling, to form said interface.

3. The method as set forth in claim 1 or 2, further including conducting said method in formation temperatures of at least 50°C.

4. The method as set forth in any one of claims 1 through 3, further including conducting said method in formation temperatures of greater than 400°C.

5. The method as set forth in any one of claims 1 through 4, further including selectively modifying during a drilling operation at least one parameter comprising:

i) drilling rate of penetration;
ii) drilling face preconditioning with active coolant;
iii) drilling destructive mechanism selection;
iv) electromagnetic communication between selected wellbores;
v) drilling direction of said wellbores;
vi) networking of closed loop arrangements;
vii) proximity of closed loop arrangements;
viii) circulation fluid composition, flow direction, residency time, flow rate;
ix) flow cycling of compositionally different circulation fluids;
x) residency time for cycled compositionally different circulation fluids; and
xi) combinations of i) through x) in any number and sequence.

6. The method as set forth in claim 5, wherein said drilling rate of penetration parameter includes varying percussion force and rotation speed of drilling apparatus during drilling.

7. The method as set forth in claim 5, wherein said drilling face preconditioning parameter with active coolant includes cooling with a phase change material.

8. The method as set forth in claim 7, further including at least one of i)pre-cooling a rock face to be drilled with said phase change material prior to drilling, ii) cooling with said phase change material during drilling, iii) continuous sequenced combinations of i) and ii) and iv) discontinuous sequenced combinations of i) and ii).

9. The method as set forth in claim 5, wherein said drilling destructive mechanism selection includes forming a thermally conductive interface between a wellbore being drilled and the formation being drilled substantially impermeable to fluids during drilling of said wellbore by inducing irreversible formation damage to said wellbore while drilling said wellbore using at least one of a thermal mechanism, mechanical mechanism, chemical mechanism and biological mechanism, absent the presence of auxiliary material between a formed interface and said wellbore.

10. The method as set forth in claim 5, wherein said electromagnetic communication between selected wellbores parameter includes:

a) providing a U shaped wellbore with spaced apart vertical wellbores interconnected with a horizontal wellbore;

b) establishing a signal path within said U shaped wellbore;

c) drilling a second horizontal wellbore from at least one of said vertical wellbores;

d) sensing a signal from said U shaped wellbore;

e) directing said drilling of said second horizontal wellbore along a predetermined path relative to said first horizontal wellbore based on a sensed signal from step d);

f) forming a signalling pair with drilled first and second wellbores;

g) drilling a third horizontal wellbore from at least one of said vertical wellbores;

h) sensing a signal from at least one of said signalling pair, said U shaped wellbore and said second wellbore; and

i) directing said drilling of said third horizontal wellbore along a predetermined path relative to said first horizontal wellbore and said second horizontal wellbore based on a sensed signal from step h).

11. The method as set forth in claim 5, wherein said electromagnetic communication between selected wellbores parameter includes:

establishing a primary horizontal bore connected to vertical wellbores;

drilling each subsequent horizontal bore from said vertical wellbores of said primary horizontal wellbore utilizing cumulative and combined sensor guidance from said precursor horizontal bore whereby trajectory drift from a finally drilled wellbore is substantially reduced relative to a first drilled horizontal wellbore.

12. The method as set forth in claim 5, wherein networking of closed loop arrangements parameter includes commonly connecting outlet wellbores at a central location.

13. The method as set forth in claim 5, wherein networking of closed loop arrangements parameter includes connecting an outlet wellbore of the closed loop arrangement with an inlet wellbore of a second closed loop arrangement at a second location.

14. The method as set forth in claim 5, wherein said proximity of closed loop arrangements parameter includes at least one of vertically stacking closed loop arrangements, interdigitating closed loop arrangements and combinations thereof.

15. The method a set forth in any one of claims 1 through 14, wherein said drilling operation includes

sequencing drilling while sealing pore space in a formation with drilling with a phase change material with subsequent sealing of said pore space; and

cooling a rock face being drilled in said formation with said phase change material to increase the rate of penetration during drilling of said formation relative to the rate of penetration absent said phase change material.

16. The method as set forth in claim 15, further including the step of sealing fissures, cracks and voids in said formation pre-existing or resultant from drilling.

17. The method as set forth in claim 15, wherein the sequencing drilling while sealing pore space operation utilizes an alkali silicate composition in a drilling fluid.

18. The method as set forth in claim 15, wherein sequencing is conducted in an alternating sequence.

19. The method as set forth in claim 15, wherein sealing of said pore space forms an interface between the drilled formation and the periphery of a drilled borehole.

20. The method as set forth in claim 19, further including the step of circulating a chemical composition within said borehole capable of inducing precipitate formation with said interface to augment the sealing capacity and mechanical integrity of said interface.

21. The method as set forth in claim 20, further including the step of circulating a fluid within the sealed borehole containing an interface maintenance additive for maintaining impermeability during circulation of said working fluid within said borehole.

22. The method as set forth in claim 15, wherein drilling into said formation comprises drilling the inlet wellbore, an outlet wellbore and an interconnecting wellbore to form a closed loop with an auxiliary device, at least said interconnecting wellbore disposed within a heat producing area of said formation.

23. The method as set forth in claim 5, further including selecting modifications based on formation rock porosity, formation rock type, formation temperature, drilling depth, tectonics, faults in said formation, geologic anomalies and variations in each or as at least some in a group encountered during practice of said method.

24. The method as set forth in any one of claims 1 through 23, further including the step of forming a plurality of closed loop arrangements for recovering available potential thermal capacity.

25. The method as set forth in claim 24, further including the step of linking said plurality of closed loop arrangements in a predetermined pattern.

26. The method as set forth in claim 25, further including the step of linking discrete predetermined patterns of closed loop arrangements.

27. The method as set forth in claim 26, further including the step of linking discrete predetermined patterns of closed loop arrangements in at least one of a localized network, a dispersed network, in a nested grouping in thermal contact with proximate closed loop arrangements and combinations thereof.

28. The method as set forth in claim 26, further including the step of linking discrete predetermined patterns of closed loop arrangements by an inlet wellbore of one closed loop arrangement with an outlet wellbore of a proximate closed loop arrangement.

29. The method as set forth in claim 5, further including the step of circulating said fluid in said closed loop arrangements with a predetermined residency time to thermally load circulating fluid through conduction from said formation; and adapting the flow rate of thermally loaded fluid within said loop based on user energy demand.

30. The method as set forth in any one of claims 1 through 29, further including the step of supplementing said fluid with energy charged fluid from adjacent closed loop arrangements in said formation.

31. The method as set forth in any one of claims 1 through 30, wherein said closed loop arrangements include an inlet wellbore, an outlet wellbore and an interconnecting section there between for fluid communication, where said interconnecting section is

cased, uncased, lined, chemically treated, chemically sealed, thermally sealed, includes single pipe, coaxial pipe and combinations thereof in a continuous or discontinuous configuration.

32. The method as set forth in claim 1, further including the step of facilitating energy delivery on demand through thermal discharge of said fluid in a power production apparatus to an end user which temporarily exceeds said predetermined energy output, while maintaining a delivered energy output average equal to said available potential thermal capacity over a predetermined timeframe.

33. The method as set forth in claim 32, wherein energy delivery for a temporary duration is a timeframe during which user demand is high relative to the entire predetermined timeframe.

34. A method for optimizing power distribution on a pre-existing grid, comprising:

providing an intermittent power production arrangement having a designed maximum power production quantity and a second effective power production quantity on said pre-existing grid;

positioning an energy recovering and producing closed loop within a thermal bearing geologic formation adjacent said intermittent power production arrangement, said loop including an inlet wellbore, outlet wellbore, interconnecting section between said inlet wellbore and said outlet wellbore, said interconnecting section positioned in said formation to facilitate thermal recovery in said formation, said formation having an available potential thermal capacity, said closed loop being formed in accordance with the method of claim 1;

positioning said closed loop in a configuration within said formation to produce a predetermined energy output from said available potential thermal capacity;

circulating a working fluid within said loop with a predetermined residency time to thermally charge circulating working fluid through conduction from said formation; and

selectively thermally discharging said working fluid through said intermittent power production arrangement to increase power production to a quantity above said second

effective power production quantity and below said designed maximum power production quantity, whereby overall power production is optimized using said preexisting grid.