utilization system 1 to make constant a temperature of water injected to the hot water well 11.

[0083]

In this aspect, the control system 50 can control the temperature of the water injected to the hot water well 11 to be constant, making the temperature of the hot water well 11 constant.

[0084]

(5) The control system 50 according to a fifth aspect is the control system 50 according to any one of (1) to (4), wherein the second mode control unit 512 controls the geothermal heat utilization system 1 in the second mode in summer.

[0085]

In this aspect, the control system 50 allows the heating obtained from the heat storage assist facility 20 to be stored in the hot water well 11 in summer.

Therefore, the geothermal heat utilization system 1 facilitates storage of heating even in a cold district and can continuously utilize geothermal heat.

[0086]

(6) The control system 50 according to a sixth aspect is the control system 50 according to any one of (1) to (5), wherein the heat source well facility 10 further includes the piping 13 connecting the hot water well 11 and the cold water well 12 and the heat exchanger 40 configured to exchange heat between water in the piping 13 and the medium on the sides of the apparatus AA and the heat storage assist facility 20.

[0087]

In this aspect, heat is exchanged between the water in the piping 13 and the medium on the sides of the apparatus AA and the heat storage assist facility 20, whereby heat collection between the heat source well facility 10 and the apparatus AA and between the heat source well facility 10 and the heat storage assist facility 20 is facilitated.

[0088]

(7) The geothermal heat utilization system 1 according to a seventh aspect includes: the control system 50 according to any one of (1) to (6); the heat source well facility 10; and the heat storage assist facility 20.

[0089]

In this aspect, the geothermal heat utilization system 1 can store the heating obtained from the heat storage assist facility 20 in addition to the heating obtained from the apparatus AA to be stored in the hot water well 11.

According to the aspect described above, the stored heating is less likely to fall short.

Reference Signs List

[0095]

1 Geothermal heat utilization system
11 Hot water well
12 Cold water well
13 Piping
14 Rectifying unit
15 Injected water thermometer
16 Regulating valve
20 Heat storage assist facility
30 Heat pump
40 Heat exchanger
50 Control system
51 CPU
52 Memory
53 Communication interface
54 Recording medium
61 Switching valve
62 Pump
70 Pump
80 Switching valve
131 First end
132 Second end
201 Waste heat recovery mechanism
202 Cooling tower
203 Air-cooled heat pump
204 Switching valve
205 Pump
206 Heat exchanger
207 Outlet thermometer
208 Switching valve
511 First mode control unit
512 Second mode control unit
513 Third mode control unit
514 Outlet temperature control unit

Claims

[Claim 1]

A control system, comprising:

a first mode control unit configured to control a geothermal heat utilization system including a heat source well facility including a hot water well and a cold water well and a heat storage assist facility including a waste heat recovery mechanism, a cooling tower, or an air-cooled heat pump in a first mode in which cooling stored in the cold water well is supplied to an apparatus and heating obtained from the apparatus is stored in the hot water well; and

a second mode control unit configured to control the geothermal heat utilization system in, instead of the first mode, a second mode in which the cooling stored in the cold water well is supplied to the heat storage assist facility and heating obtained from the heat storage assist facility is stored in the hot water well.

[Claim 2]

The control system according to claim 1, wherein the waste heat recovery mechanism recovers waste heat from a factory.

[Claim 3]

The control system according to claim 1 or 2, further comprising an outlet temperature control unit configured to control the geothermal heat utilization system to make constant a temperature of a medium at an outlet of the heat storage assist facility.

[Claim 4]

The control system according to any one of claims 1 to 3, further comprising an injected water temperature control unit configured to control the geothermal heat utilization system to make constant a temperature of water injected to the hot water well.

[Claim 5]

The control system according to any one of claims 1 to 4, wherein the second mode control unit controls the geothermal heat utilization system in the second mode in summer.

[Claim 6]

The control system according to any one of claims 1 to 5, wherein the heat source well facility further includes

piping connecting the hot water well and the cold water well and

a heat exchanger configured to exchange heat between water in the piping and a medium on sides of the apparatus and the heat storage assist facility.

[Claim 7]

A geothermal heat utilization system, comprising:

the control system according to any one of claims 1 to 6;

the heat source well facility; and

the heat storage assist facility.

[Claim 8]

A control method, comprising:

controlling a geothermal heat utilization system including a heat source well facility including a hot water well and a cold water well and a heat storage assist facility including a waste heat recovery mechanism, a cooling tower, or an air-cooled heat pump in a first mode in which cooling stored in the cold water well is supplied to an apparatus and heating obtained from the apparatus is stored in the hot water well; and

controlling the geothermal heat utilization system in, instead of the first mode, a second mode in which the cooling stored in the cold water well is supplied to the heat storage assist facility and heating obtained from the heat storage assist facility is stored in the hot water well.

[Claim 9]

A program causing a computer to execute:

controlling a geothermal heat utilization system including a heat source well facility including a hot water well and a cold water well and a heat storage assist facility including a waste heat recovery mechanism, a cooling tower, or an air-cooled heat pump in a first mode in which cooling stored in the cold water well is supplied to an apparatus and heating obtained from the apparatus is stored in the hot water well; and

controlling the geothermal heat utilization system in, instead of the first mode, a second mode in which the cooling stored in the cold water well is supplied to the heat storage assist facility and heating obtained from the heat storage assist facility is stored in the hot water well.