FIG. 1

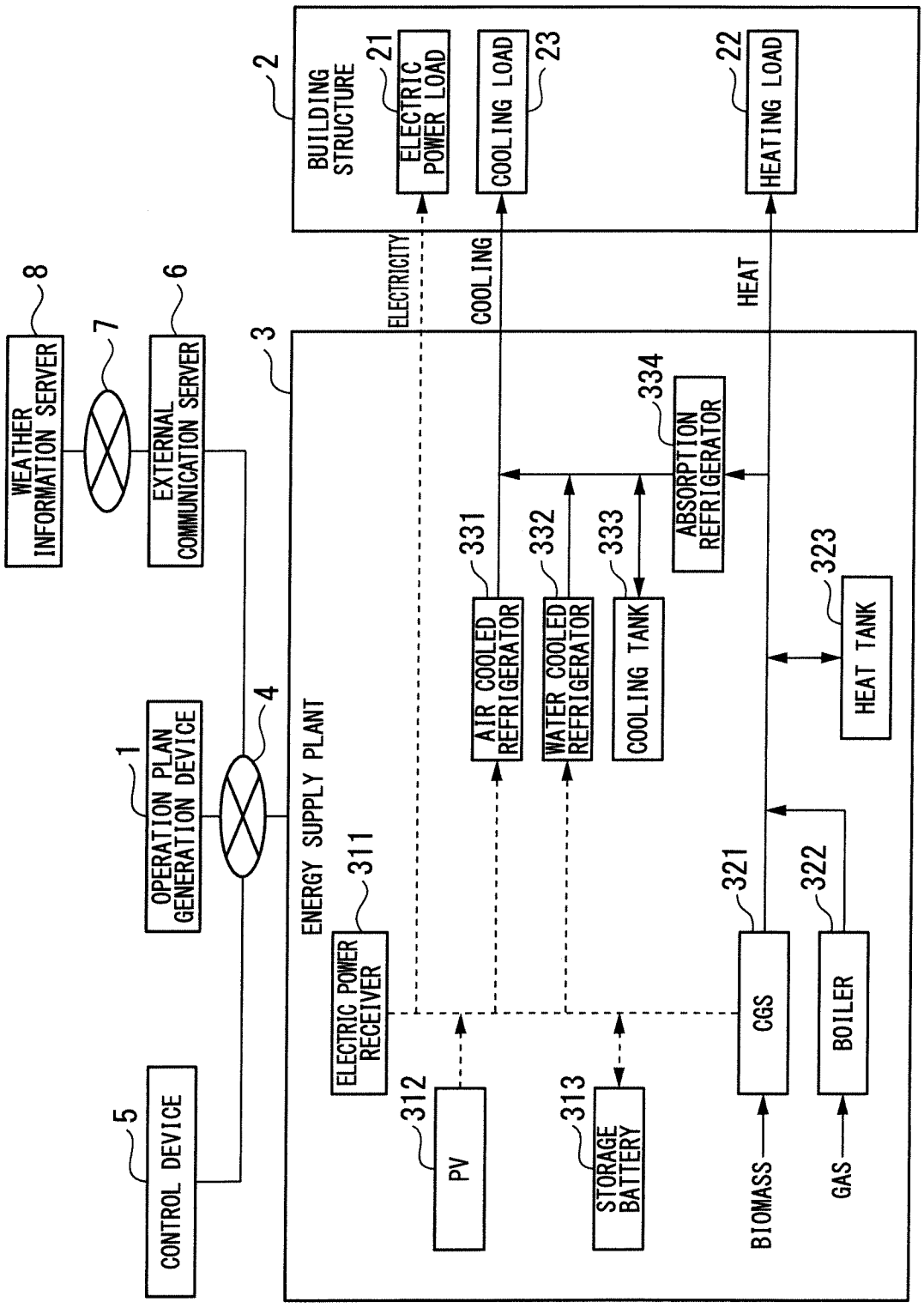

BUILDING STRUCTURE
2
ELECTRIC POWER LOAD
21
COOLING LOAD
23
HEATING LOAD
22
ELECTRICITY
COOLING
HEAT
WEATHER INFORMATION SERVER
8
7
EXTERNAL COMMUNICATION SERVER
6
3
ENERGY SUPPLY PLANT
334
ABSORPTION REFRIGERATOR
331
AIR COOLED REFRIGERATOR
332
WATER COOLED REFRIGERATOR
333
COOLING TANK
323
HEAT TANK
OPERATION PLAN GENERATION DEVICE
1
4
ELECTRIC POWER RECEIVER
311
321
CGS
322
BOILER
5
CONTROL DEVICE
312
PV
313
STORAGE BATTERY
BIOMASS
GAS

FIG. 2

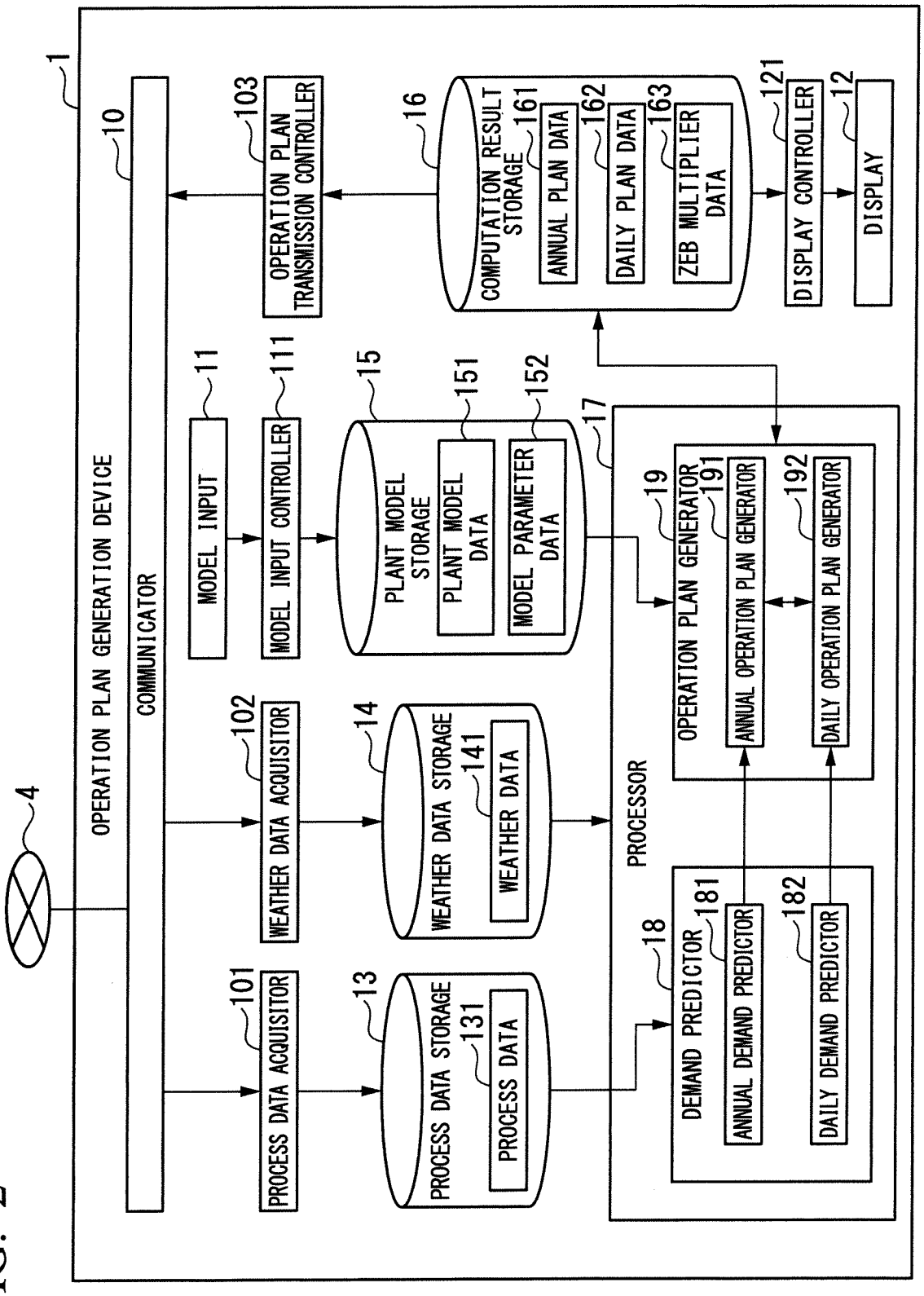

1
OPERATION PLAN GENERATION DEVICE
10
COMMUNICATOR
4
101
PROCESS DATA ACQUISITOR
13
PROCESS DATA STORAGE
131
PROCESS DATA
102
WEATHER DATA ACQUISITOR
14
WEATHER DATA STORAGE
141
WEATHER DATA
11
MODEL INPUT
111
MODEL INPUT CONTROLLER
15
PLANT MODEL STORAGE
151
PLANT MODEL DATA
152
MODEL PARAMETER DATA
103
OPERATION PLAN TRANSMISSION CONTROLLER
16
COMPUTATION RESULT STORAGE
161
ANNUAL PLAN DATA
162
DAILY PLAN DATA
163
ZEB MULTIPLIER DATA
121
DISPLAY CONTROLLER
12
DISPLAY
17
PROCESSOR
18
DEMAND PREDICTOR
181
ANNUAL DEMAND PREDICTOR
182
DAILY DEMAND PREDICTOR
19
OPERATION PLAN GENERATOR
191
ANNUAL OPERATION PLAN GENERATOR
192
DAILY OPERATION PLAN GENERATOR

FIG. 3

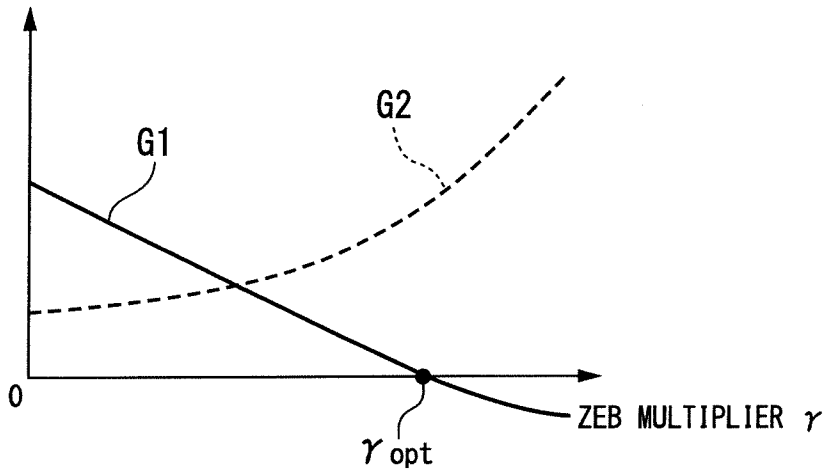

G2
G1
0
ZEB MULTIPLIER γ
γ opt

FIG. 4

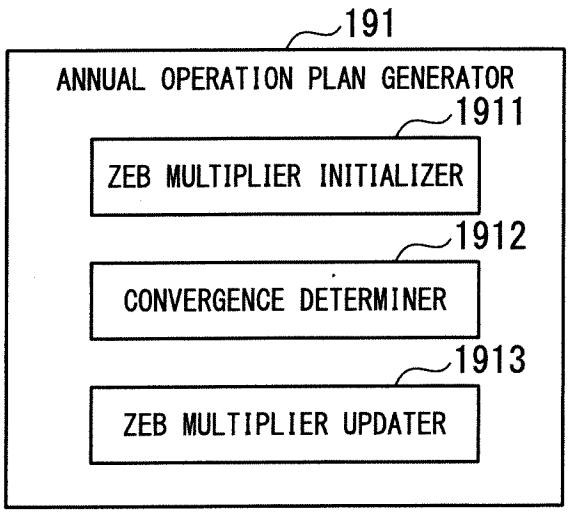

191
ANNUAL OPERATION PLAN GENERATOR
1911
ZEB MULTIPLIER INITIALIZER
1912
CONVERGENCE DETERMINER
1913
ZEB MULTIPLIER UPDATER

FIG. 5

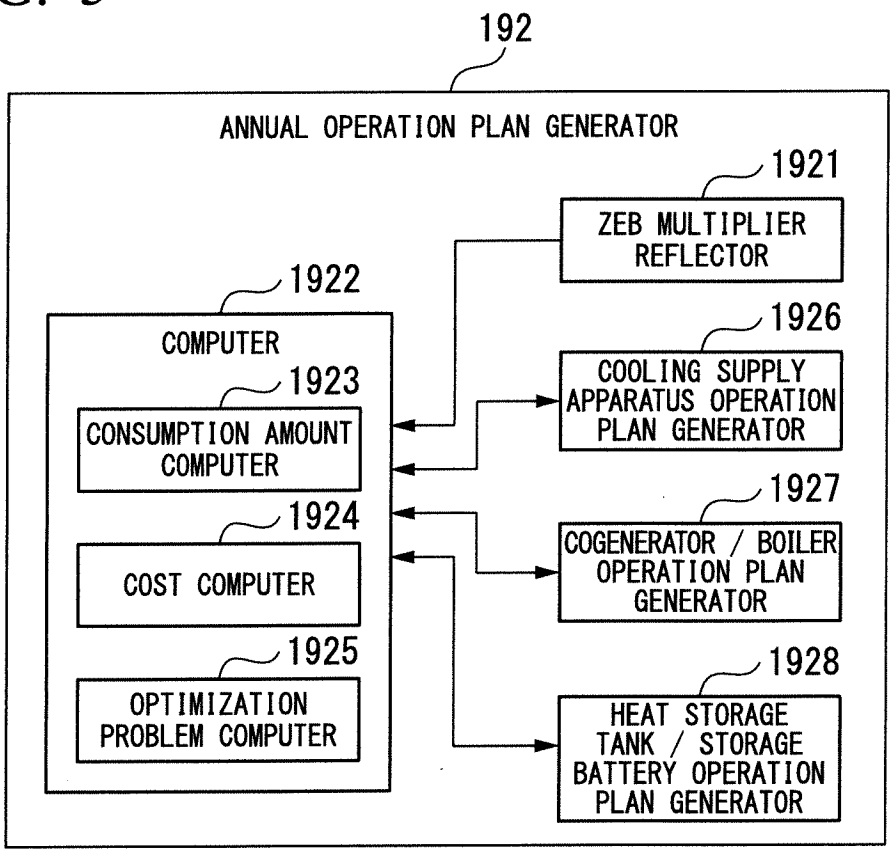

192
ANNUAL OPERATION PLAN GENERATOR
1921
ZEB MULTIPLIER REFLECTOR
1922
COMPUTER
1923
CONSUMPTION AMOUNT COMPUTER
1924
COST COMPUTER
1925
OPTIMIZATION PROBLEM COMPUTER
1926
COOLING SUPPLY APPARATUS OPERATION PLAN GENERATOR
1927
COGENERATOR / BOILER OPERATION PLAN GENERATOR
1928
HEAT STORAGE TANK / STORAGE BATTERY OPERATION PLAN GENERATOR

FIG. 6

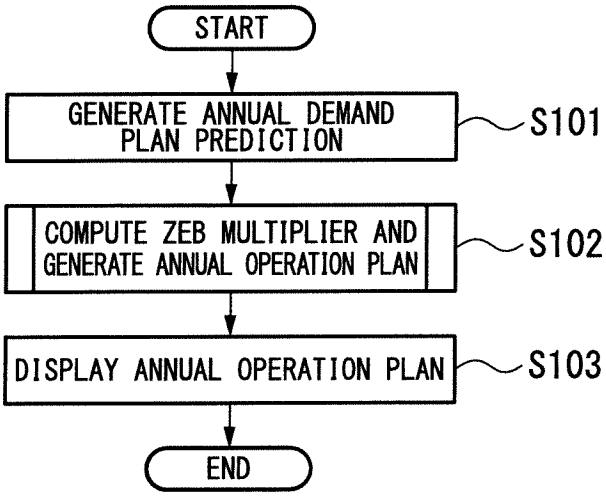

START
GENERATE ANNUAL DEMAND PLAN PREDICTION
S101
COMPUTE ZEB MULTIPLIER AND GENERATE ANNUAL OPERATION PLAN
S102
DISPLAY ANNUAL OPERATION PLAN
S103
END

FIG. 7

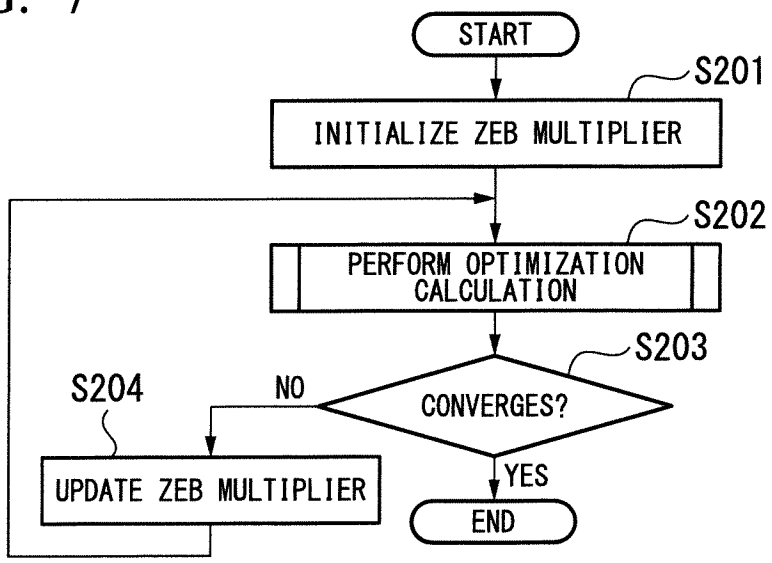

START
S201
INITIALIZE ZEB MULTIPLIER
S202
PERFORM OPTIMIZATION CALCULATION
S203
CONVERGES?
NO
YES
S204
UPDATE ZEB MULTIPLIER
END

FIG. 8

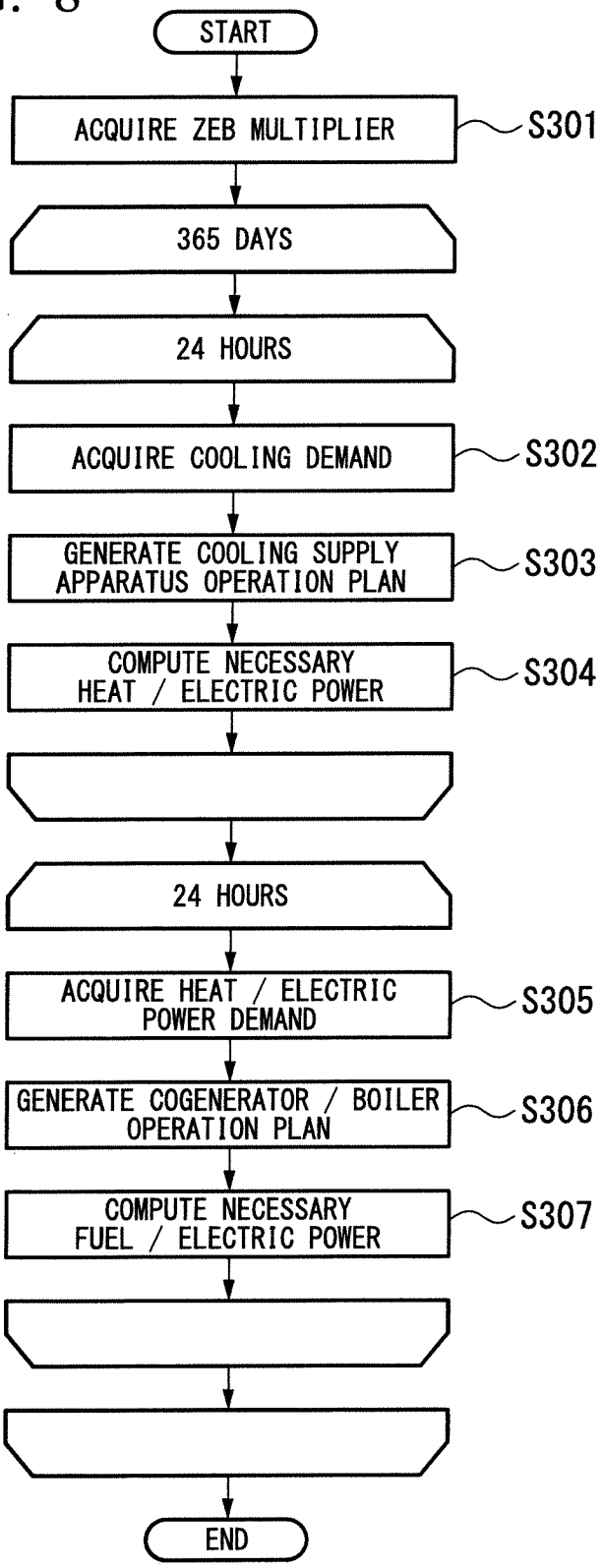

START
ACQUIRE ZEB MULTIPLIER
S301
365 DAYS
24 HOURS
ACQUIRE COOLING DEMAND
S302
GENERATE COOLING SUPPLY APPARATUS OPERATION PLAN
S303
COMPUTE NECESSARY HEAT / ELECTRIC POWER
S304
24 HOURS
ACQUIRE HEAT / ELECTRIC POWER DEMAND
S305
GENERATE COGENERATOR / BOILER OPERATION PLAN
S306
COMPUTE NECESSARY FUEL / ELECTRIC POWER
S307
END

FIG. 9

TIME (HR)	0	1	...	7	8	...	12	13	14	15	16	...	21	22	23	
AIR COOLED REFRIGERATOR FUEL COST (JPY/KWH)	3	3	...	3	9	...	9	12	12	12	9	...	9	3	3	L1
WATER COOLED REFRIGERATOR FUEL COST (JPY/KWH)	2	2	...	2	6	...	6	8	8	8	6	...	6	2	2	L2
ABSORPTION REFRIGERATOR FUEL COST (JPY/KWH)	4	4	...	4	4	...	4	4	4	4	4	...	4	4	4	L3
																L4

FIG. 10

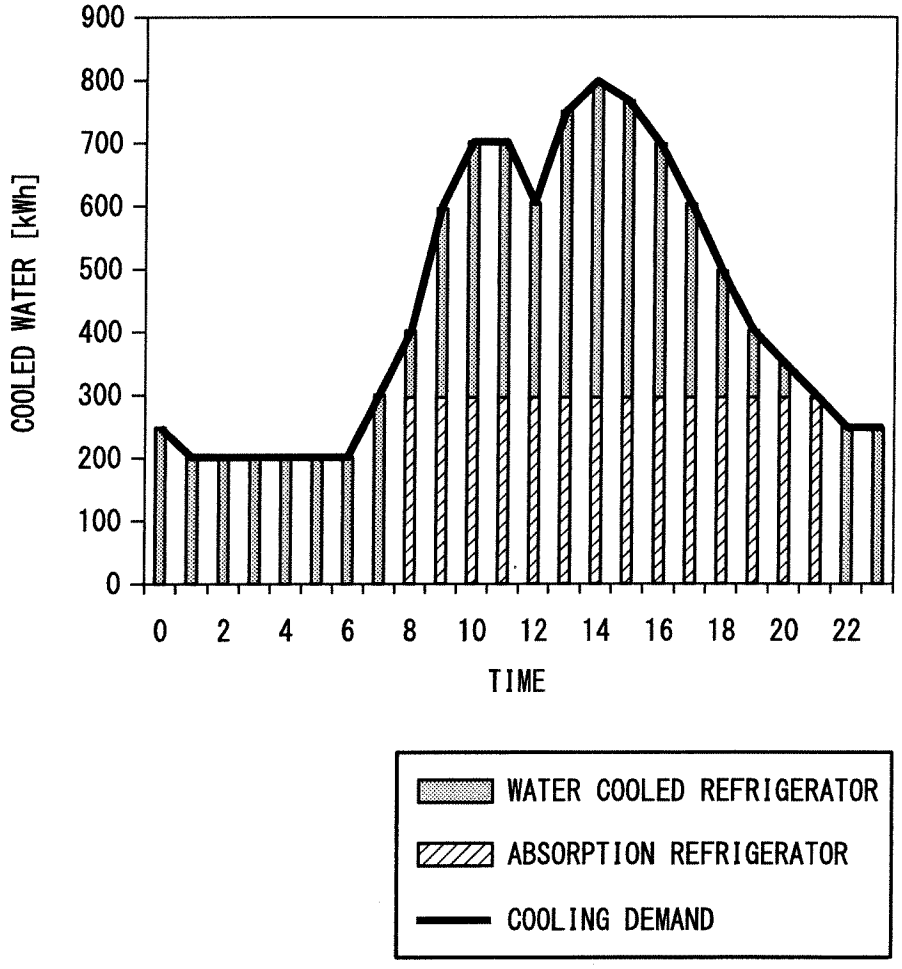

900
800
700
600
500
400
300
200
100
0
COOLED WATER [kWh]
0
2
4
6
8
10
12
14
16
18
20
22
TIME
WATER COOLED REFRIGERATOR
ABSORPTION REFRIGERATOR
COOLING DEMAND

FIG. 11

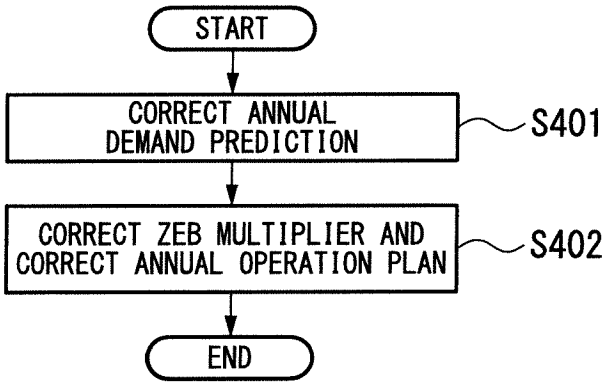

START
CORRECT ANNUAL DEMAND PREDICTION
S401
CORRECT ZEB MULTIPLIER AND CORRECT ANNUAL OPERATION PLAN
S402
END

FIG. 12

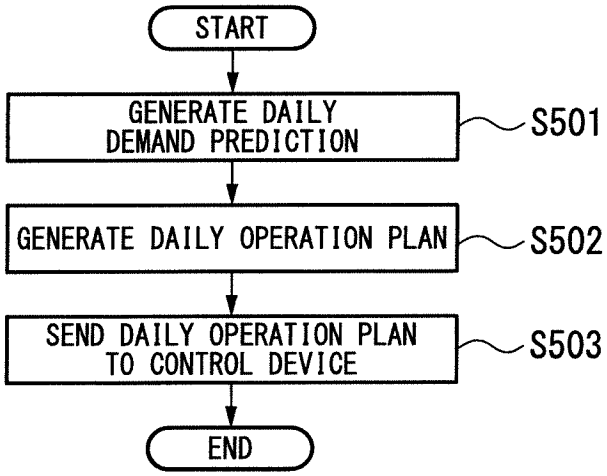
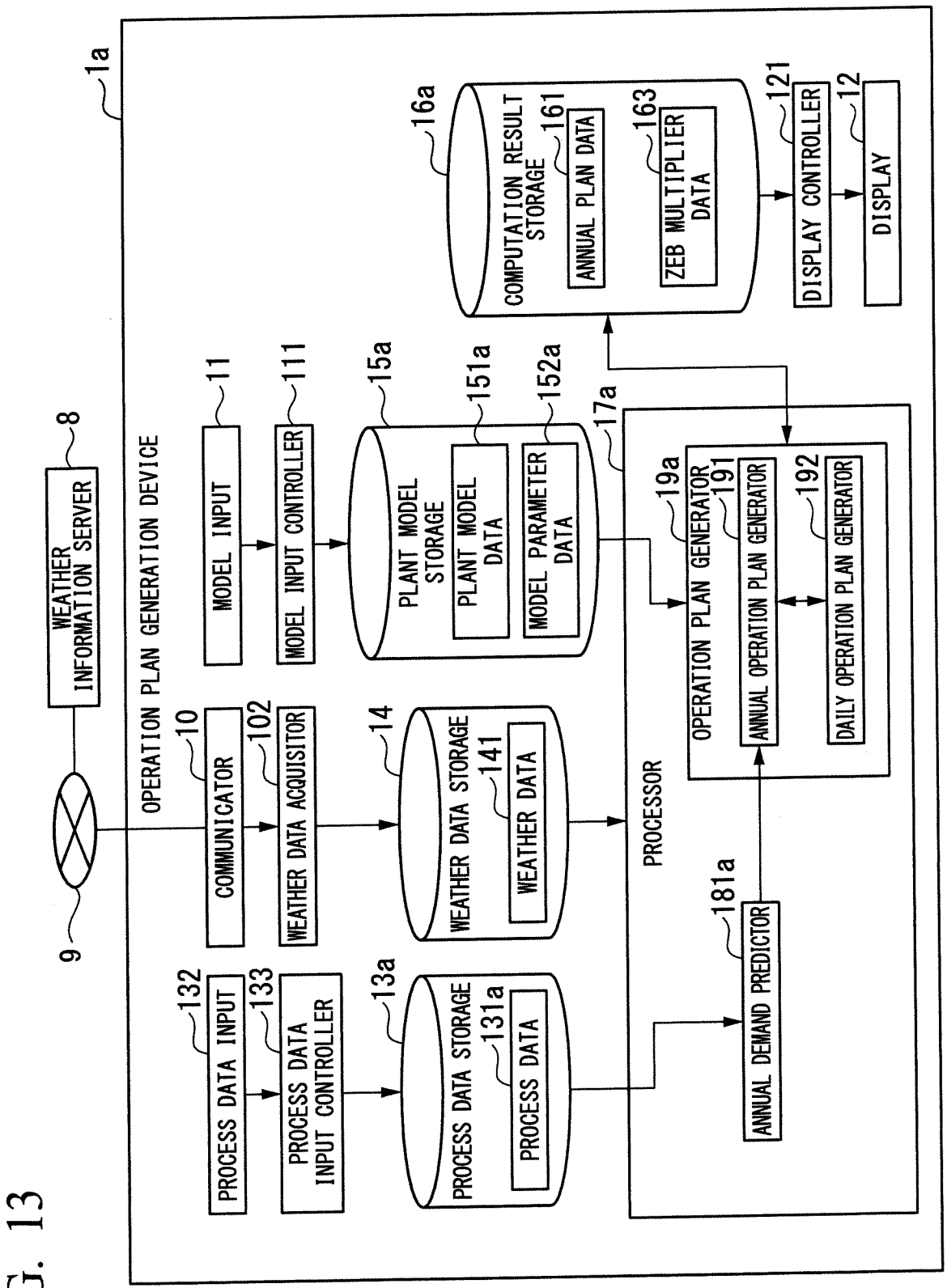

START
GENERATE DAILY DEMAND PREDICTION
S501
GENERATE DAILY OPERATION PLAN
S502
SEND DAILY OPERATION PLAN TO CONTROL DEVICE
S503
END

FIG. 13


1a
OPERATION PLAN GENERATION DEVICE
WEATHER INFORMATION SERVER
8
9
COMMUNICATOR
10
MODEL INPUT
11
MODEL INPUT CONTROLLER
111
WEATHER DATA ACQUISITOR
102
PROCESS DATA INPUT
132
PROCESS DATA INPUT CONTROLLER
133
PROCESS DATA STORAGE
13a
PROCESS DATA
131a
WEATHER DATA STORAGE
14
WEATHER DATA
141
PLANT MODEL STORAGE
15a
PLANT MODEL DATA
151a
MODEL PARAMETER DATA
152a
COMPUTATION RESULT STORAGE
16a
ANNUAL PLAN DATA
161
ZEB MULTIPLIER DATA
163
DISPLAY CONTROLLER
121
DISPLAY
12
PROCESSOR
17a
OPERATION PLAN GENERATOR
19a
ANNUAL OPERATION PLAN GENERATOR
191
DAILY OPERATION PLAN GENERATOR
192
ANNUAL DEMAND PREDICTOR
181a