FIG.1

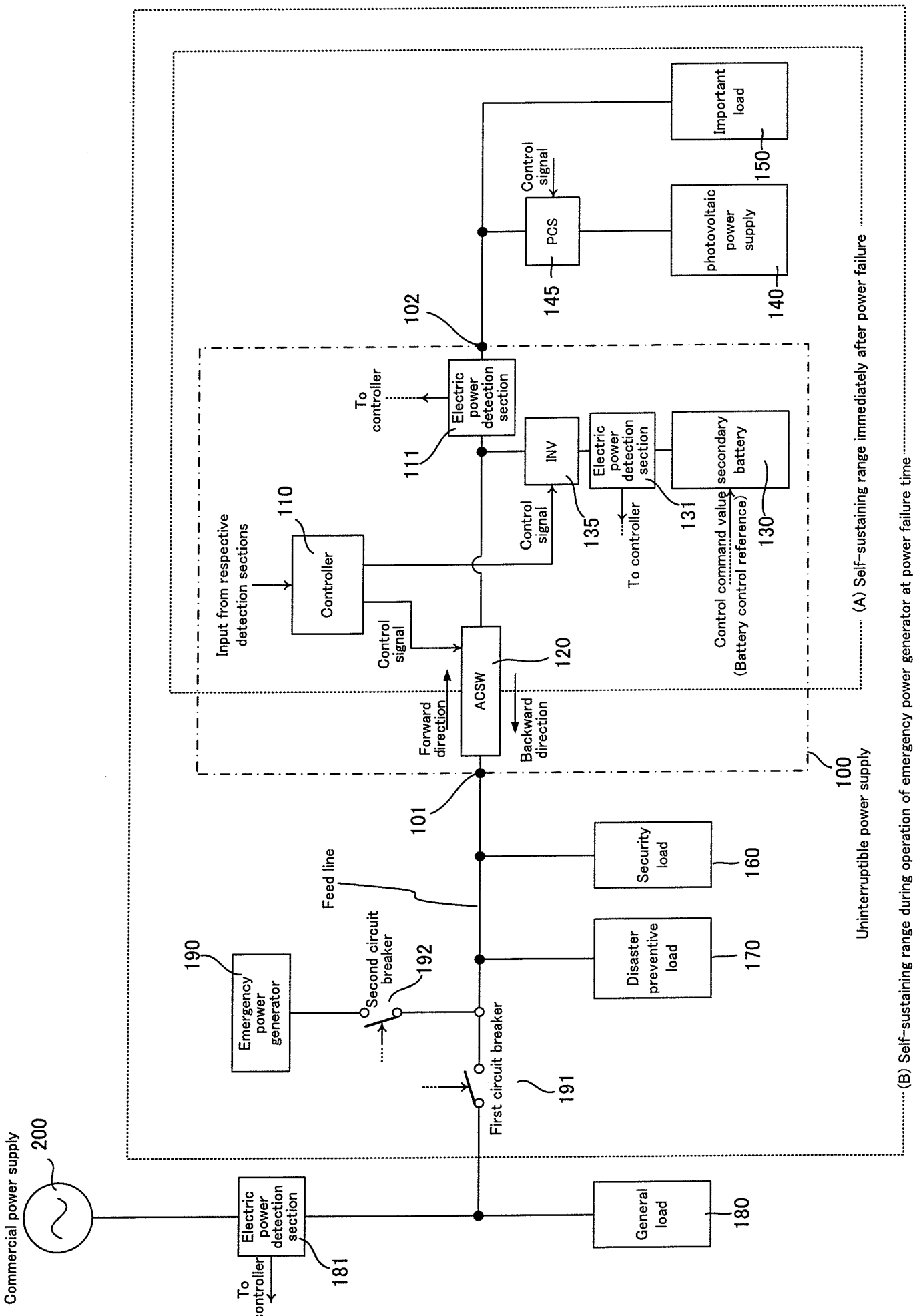

Commercial power supply
200
Electric power detection section
181
To controller
General load
180
First circuit breaker
191
Second circuit breaker
192
Emergency power generator
190
Feed line
Security load
160
Disaster preventive load
170
101
Forward direction
Backward direction
ACSW
120
Input from respective detection sections
Controller
110
Control signal
Control signal
To controller
Electric power detection section
111
102
INV
135
Electric power detection section
131
To controller
Control command value (Battery control reference)
secondary battery
130
PCS
145
Control signal
photovoltaic power supply
140
Important load
150
100
Uninterruptible power supply
(A) Self-sustaining range immediately after power failure
(B) Self-sustaining range during operation of emergency power generator at power failure time

FIG.2

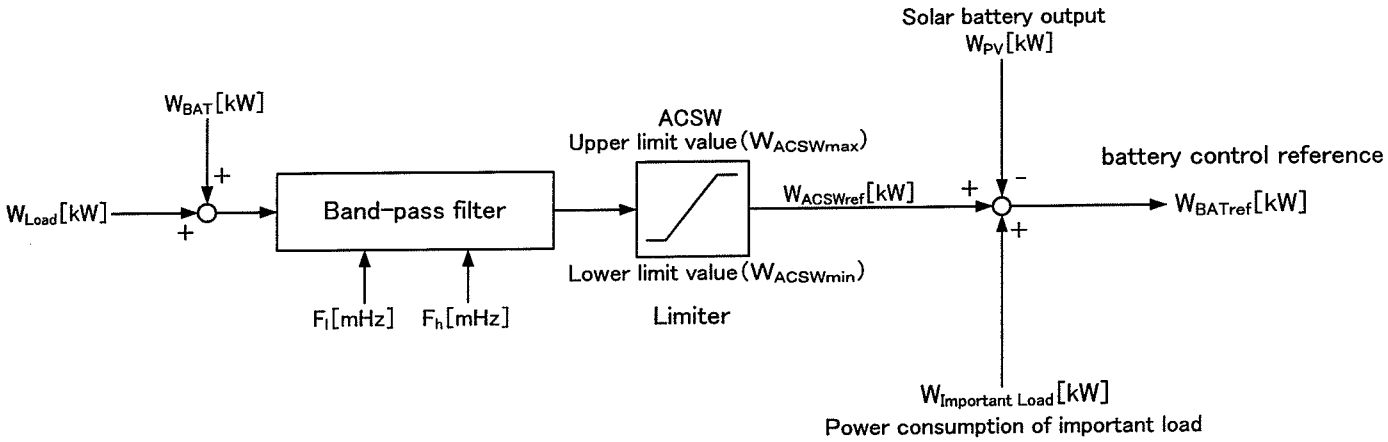

Solar battery output
W_{PV}[kW]
W_{BAT}[kW]
ACSW
Upper limit value ($W_{ACSWmax}$)
battery control reference
W_{Load}[kW]
Band-pass filter
$W_{ACSWref}$[kW]
W_{BATref}[kW]
F_l[mHz]
F_h[mHz]
Lower limit value ($W_{ACSWmin}$)
Limiter
$W_{Important\ Load}$[kW]
Power consumption of important load

FIG.3

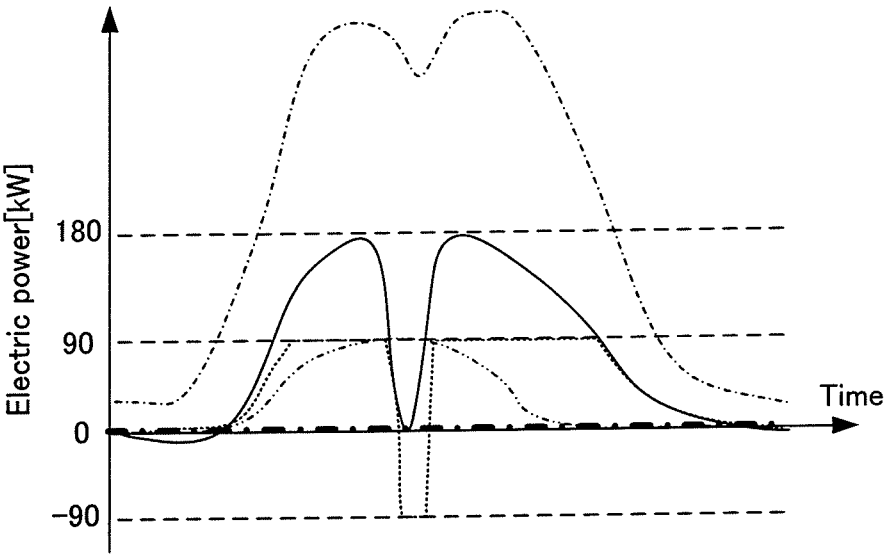

Electric power[kW]
180
90
0
-90
Time

FIG.4

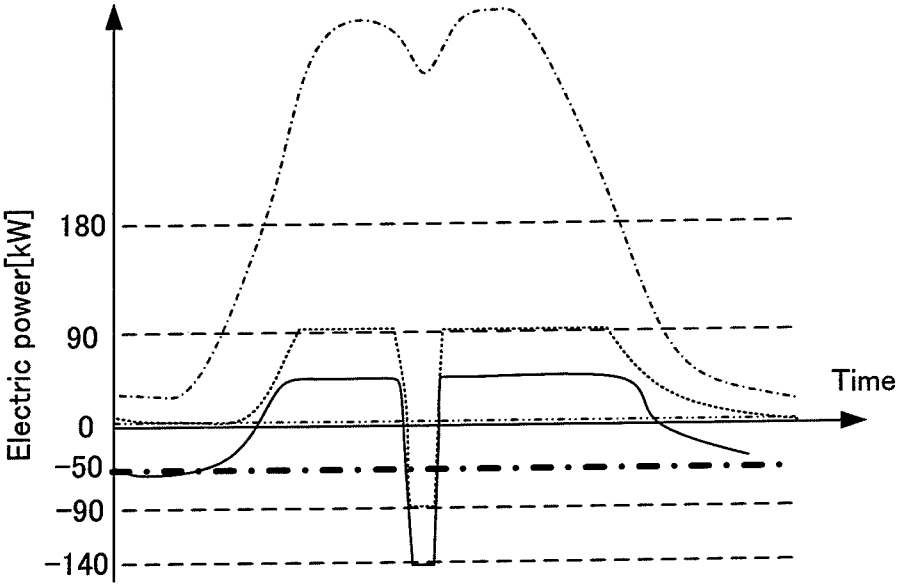

Electric power[kW]
180
90
0
-50
-90
-140
Time

FIG.5

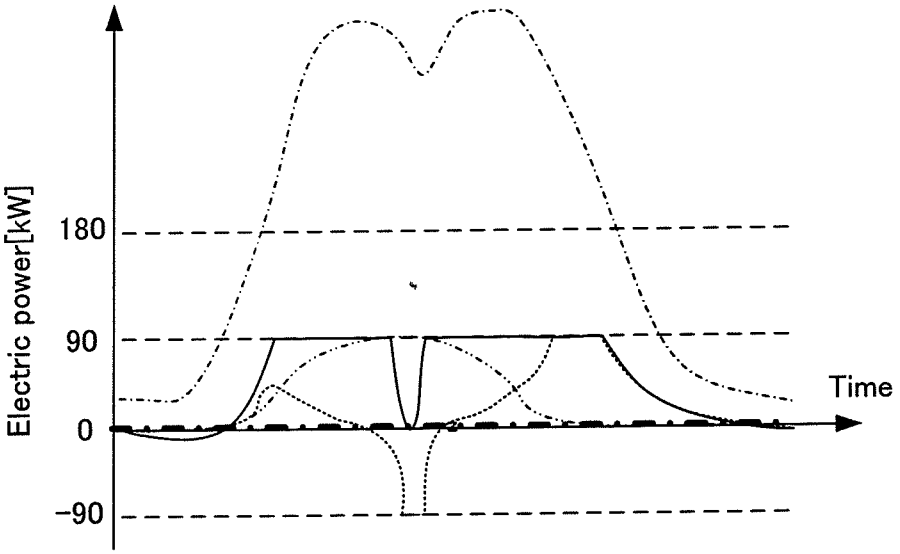

Electric power[kW]
180
90
0
-90
Time

FIG.6

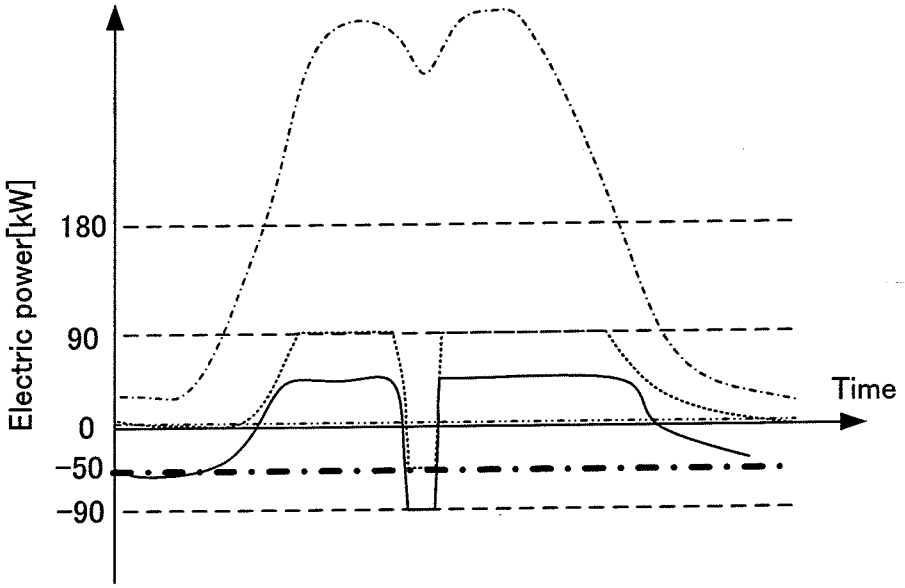
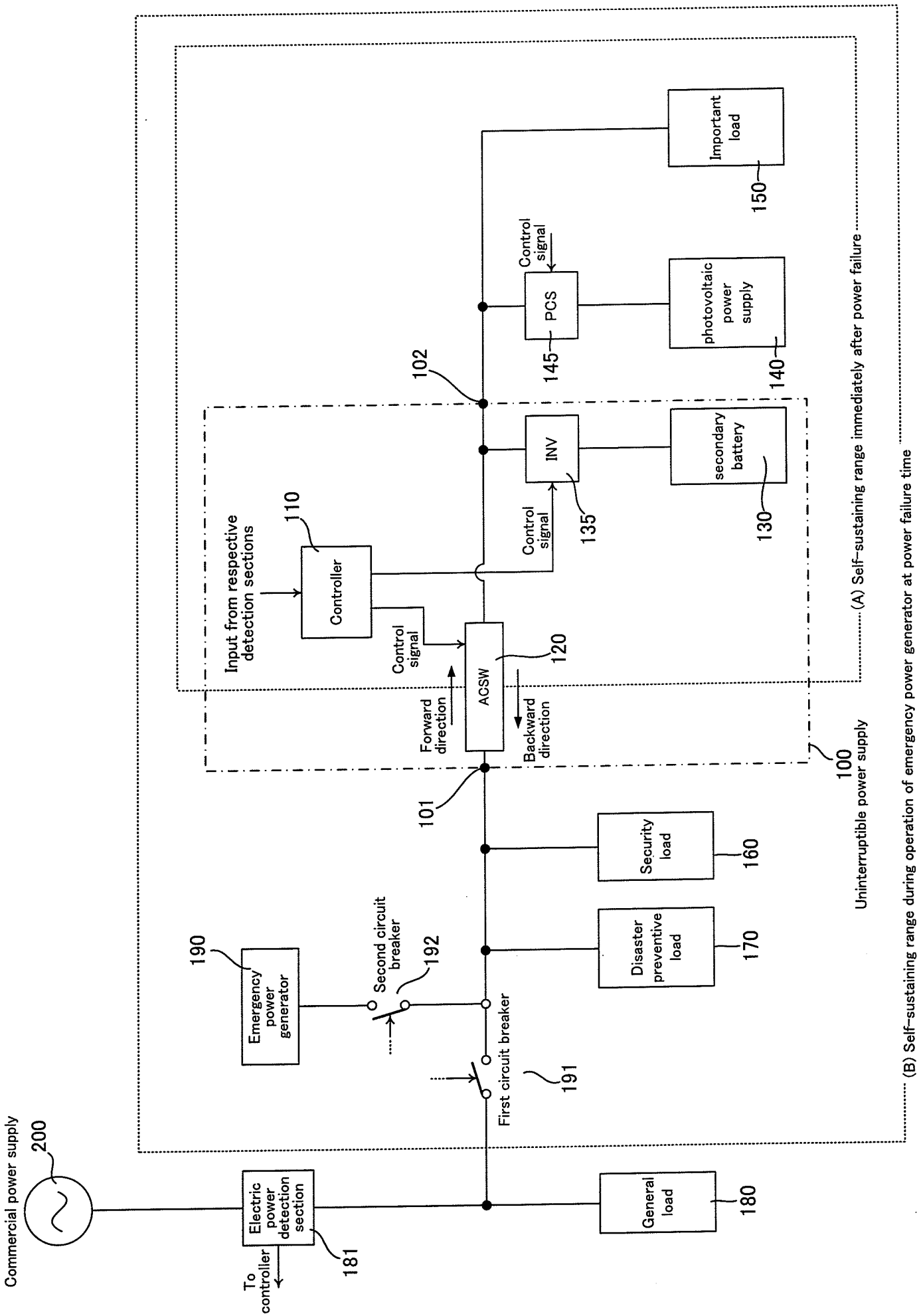

Electric power[kW]
180
90
0
-50
-90
Time

FIG.7


Commercial power supply
200
Electric power detection section
181
To controller
Emergency power generator
190
Second circuit breaker
192
First circuit breaker
191
Input from respective detection sections
Controller
110
Control signal
Forward direction
ACSW
120
Backward direction
Control signal
INV
135
Control signal
PCS
145
102
101
100
Uninterruptible power supply
(A) Self-sustaining range immediately after power failure
(B) Self-sustaining range during operation of emergency power generator at power failure time
Important load
150
photovoltaic power supply
140
secondary battery
130
Security load
160
Disaster preventive load
170
General load
180