

ABSTRACT

STATION-BUILDING POWER SUPPLY DEVICE

5 To provide a station-building power supply device that
can effectively use surplus regenerative power while
suppressing fluctuations in the amount of power of an AC
system that supplies AC power to station loads. The
station-building power supply device includes a capacitor
10 unit 9 that stores therein surplus regenerative power in an
electrical transformation zone, a first power conversion
unit 11 that performs DC/DC power conversion in both
directions between a feeder 6 and the capacitor unit 9, and
a second power conversion unit 12 that converts DC power
15 supplied from the capacitor unit 9 to AC power to be
supplied to the station loads 4. A first voltage threshold
for detecting the occurrence of surplus regenerative power
generated in the electrical transformation zone is set for
a feeding voltage and a first SOC threshold for detecting
20 whether the capacitor unit 9 can discharge is set for an
SOC of the capacitor unit 9. The first power conversion
unit 11 is controlled such that power is supplied from the
feeder 6 to the capacitor unit 9 to charge the capacitor
unit 9 when the feeding voltage exceeds the first voltage
25 threshold, and the second power conversion unit 12 is
controlled such that power is supplied from the capacitor
unit 9 to the station loads 4 when the SOC of the capacitor
unit 9 exceeds the first SOC threshold.

30 FIG. 1