V.K
PJ M DESIGN AND APPLICATION OF
DC STATION SERVICE FOR TRANSMISSION FACILITIES

1.0 SPECIFICATION

1.1 As a minimum requirement, DC station service systems and equipment should be
designed for the purpose intended and should support Clause II (Transmission System
Design Criteria) and be specified to meet the requirements of all applicable industry
standards, including but not limited to ANSI, IEEE and NEMA.

1.2 This guide should be used in conjunction with the latest PJM Guide for the Design and
Application of Stationary Batteries and Chargers for Transmission Facilities.

1.3 The typical nominal rating for this application is 125 volts.

1.4 The DC system design must take into consideration the voltage drop between the battery
and the load terminals. 4% is typical for DC control systems.

1.5 The maximum load terminal voltage should not exceed the product of (the number of
cells in battery) times (the maximum defined cell voltage).

2.0 APPLICATION AND INSTALLATION

2.1 When multiple battery and charger systems are provided to supply independent relay
systems (often referred to as primary and backup or system one and system two), the DC
distribution systems, including all associated wiring, should be kept physically and
electrically separated to avoid problems with one system from affecting the other system.

2.2 DC station service system components should be installed in accordance with
manufacturer’s instructions and applicable industry standards.

2.3 All devices connected to the dc station service system should be capable of operating
continuously and properly without malfunction or overheating in the voltage range
specified by the designer of the system.

2.3 The output cables from the battery to the first breaker or protective device should be kept
as short as possible; should be separately routed to reduce the possibility of a short circuit
between the positive and negative cables; should be installed in non-metallic conduit to
avoid grounding; and should be sized in consideration of the available dc short-circuit
current from the battery.

2.5 DC station service systems must be adequately monitored and alarmed to assure that
improper operation and abnormal conditions are reported for immediate corrective action.

2.6 DC station service systems should be physically arranged to facilitate safe and effective
inspection and maintenance.

3.0 MAINTENANCE

See section V.I.2.K for maintenance requirements.