

Feeding-loss Reduction by Higher-voltage DC Feeding System adopting DC-to-DC Converters

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A feeding loss and a voltage drop often cause problems in DC feeding system, which is relatively lower-voltage and higher-current system in comparison with AC feeding system. It is difficult to raise a feeding voltage of existing DC lines due to the costs of both dual-voltage vehicles and infrastructures although higher voltage is effective in solving such problems. Therefore, the authors investigated another DC feeding system with a focus on feeding-loss reduction. This system consists of higher-voltage feeders and DC-to-DC converters in addition to the existing feeding circuit and makes it possible to feed vehicles with conventional-voltage power. This paper reports the effect of feeding-loss reduction and other expected benefits brought by this system.