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ENGINEER PRIME POWER OPERATIONS

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PREFACE

This field manual (FM) provides a doctrinal basis for planning and employing engineer prime power assets in the theater of operations (TO). It describes the responsibilities, relationships, capabilities, constraints, planning considerations, and logistics requirements associated with engineer prime power operations.

The fundamental purpose of this manual is to integrate engineer prime power operations into the overall sustainment engineering structure. The doctrine presented is applicable to operations across the entire continuum of military operations. The manual was designed for all commanders and planning staffs who require engineer prime power support or those who must provide engineer prime power support.

The proponent for this publication is the United States Army Engineer School (USAES). The Prime Power School, operated by the US Army Corps of Engineers (USACE), is responsible for technical content. Submit changes for improvement on Department of the Army (DA) Form 2028 (Recommended Changes to Publications and Blank Forms) to Commandant, US Army Engineer School, ATTN: ATSE-TDM-P, Fort Leonard Wood, Missouri 65473-6650.

Unless this publication states otherwise, masculine nouns and pronouns do not refer exclusively to men.

Chapter 1
OVERVIEW

ELECTRICAL POWER

Electrical power is an essential element of military operations. Without it, many crucial systems cease to operate. Command, control, communications, and intelligence (C^3I) functions are highly reliant on dependable electrical power. Administrative, health service support (HSS), and logistical support operations would be seriously jeopardized without it. Some weapons systems are dependent on electrical power for operation. The proliferation of automated data processing equipment that supports modern warfare further contributes to the Army's dependence on electricity. The result of this growing dependence on electricity is a continual increase in the quantity and quality of power required to support operations. The indispensable nature of electrical power compels commanders and planners to recognize their electrical power needs and to ensure that those needs are met.

THE ELECTRICAL POWER CONTINUUM

From the military perspective, electrical power encompasses the entire spectrum of power generation, distribution, and transmission systems that support military operations. It ranges from the power produced by the smallest tactical generators (TACGENS) through prime power to the power produced and distributed by the largest commercial power plants and their associated transmission and distribution networks.

TACGENS, which range from 0.5 kilowatt (kW) generators to 200 kW generators, are standard military portable generator sets. They provide a mobile source of power to units operating in the field. TACGENS are included in unit tables of organization and equipment (TOE) as required. Installation, operation, maintenance, and repair of TACGENS are unit responsibilities. TACGENS power may be supplemented with small commercial portable generators when they are available. Distribution systems for TACGENS power are usually very simple and often consist only of standard components such as general illumination kits or the electrical distribution and illumination system (Distribution Illumination Set, Electrical–DISE).

Prime power is reliable, commercial-grade utility power continuously generated by nontactical generators (NTGs). NTG power plants comprise the Army's family of portable generators larger than 200 kW. NTGs are portable, but