



ARMY MEDICINE
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DOD Battery-Management Challenges in a Deployed Environment

Information Brief

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30 July 2013

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Power Reliability in a Deployed Environment

Power Generation (Deployed Environment)

Q. What is the source of generated power in a deployed environment?

A. Diesel generators provide initial power until a stable electrical power grid can be erected.

Q. Is power reliable?

A. Reliability is questionable; especially at first.

Note

Batteries are essential in a deployed environment to enhance power reliability.



Deployed Environmental Impacts (Regional Conditions)

Environmental Impact (Average Temperature Conditions)

REGION	SEASON	AVERAGE TEMPERATURE
Kuwait	Summer	107°F to 118°F
Baghdad, Iraq	Summer	109°F to 113°F
Bagram, Afghanistan	Summer	85°F to 95°F
Bagram, Afghanistan	Winter	25°F to 45°F



Deployed Environmental Impacts (Battery Charging)

Environmental Impact (Battery Charge Capacity)

Sealed Lead Batteries

- Stored at 68°F (20°C) - Takes 16-months to reach a 50% state of charge.
- Stored at 104°F (40°C) - Takes only four-to-five months to reach a 50% state of charge.



Deployed Environmental Impacts (Atmospheric Quality)

Environmental Impact (Dirt/Dust/Humidity)

- Factors the Military must address (not typically encountered by our civilian counterparts).
- Average summer humidity in Qatar - 20% to 60%



Battery Maintenance Program (Storage of Prepositioned Warfighting Stock)

Army Prepositioned Stock (APS)

- West Coast
- East Coast
- Europe
- Asia
- Middle East



Battery Maintenance Program (Storage)

- Nickel Cadmium (Ni-Cd) - Store discharged.
- Lead Acid - Store fully charged.
- Lithium-ion (Li-ion) - Store charged.
- Nickel Metal Hydride - Store charged.

Note

Most manufactures recommend reconditioning batteries while in storage.



Resupply (Limitations)

- Li-ion Batteries - Restricted from bulk air shipments.
- Remote Locations - Longer delivery time (will the battery still operate on arrival?)



Battery Disposal (Local Country Laws)

- Lead Acid - Do not dispose in normal trash.
- Ni-Cd - Do not dispose in normal trash.
- NiMH - Disposable in low volume.
- Li-ion - Disposable in low volume.

What do we do with all of used batteries?





Summary



SUMMARY





Questions & Answers



QUESTIONS & ANSWERS

