NOVA

POWER SOLUTIONS, INC.

ENTERPRISE POWER SELECTION

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PRESENTATION OVERVIEW

- Power reliability
- Protect COTS equipment
- Use efficient components
- Save $$$

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NOVA POWER SOLUTIONS, INC.

- Woman-Owned Small Business
- Product Solution Offerings
  - Rack-Mount **Power Conditioners and Battery Back-up**
  - Designed for Shipboard **C4I systems** and Military Ground Installations

- *Unprecedented* Pre- and Post-Sale Customer Support
  - **Customer-Driven** Projects & Requirements
  - **20+ Years** of Successful Contract Performance
  - **Large install base,** 8,000+ UPS Systems Deployed Worldwide

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TYPICAL AMERICAN RESIDENTIAL ELECTRICAL SYSTEM

Consistent, Reliable, Taken-for-Granted

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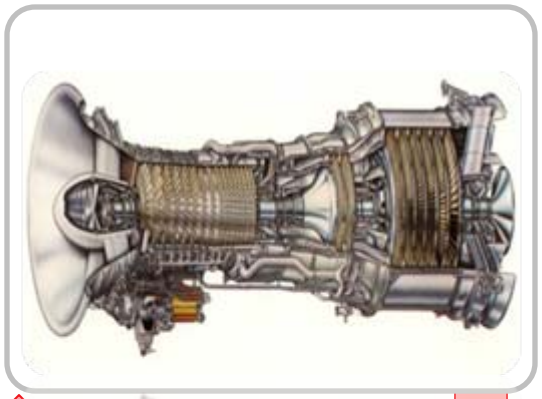
TYPICAL SHIPBOARD ELECTRICAL SYSTEM



Clean Power is not a Given

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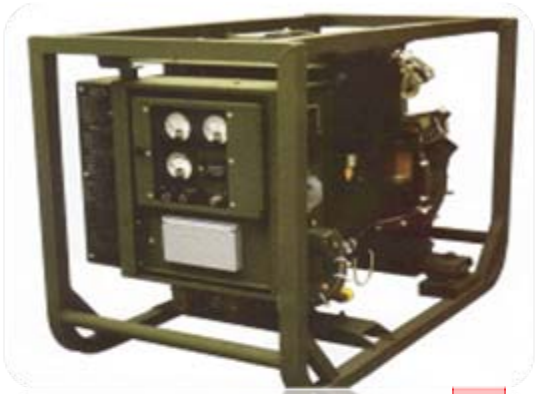
TYPICAL FIELD GENERATOR ELECTRICAL SYSTEM



Clean Power is not a Given

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WHY USE POWER CONDITIONING AND BACK-UP?

- Two Primary Functions of an UPS
- Online versus Offline
- Appropriate Battery Technology

Type	Energy/Weight	Energy/Vol.	Self-Discharge rate
VRLA	30-40 Wh/kg	60-75 Wh/L	3%/mo
NiCd	40-60 Wh/kg	50-150 Wh/L	10%/mo
NiMh	30-80 Wh/kg	140-300 Wh/L	30%/mo
Li Ion	150-200 Wh/kg	250-530 Wh/L	5-10%/mo

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TYPICAL C4I SYSTEM DESIGN REQUIREMENTS

- COTS Equipment in Mil-Std Environment
- Space, Weight and Power
- Standard 20A Circuit
- Life Cycle Costs

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UPS SELECTION CONSIDERATIONS

- Online
- Rugged and Rack-mount
- Shipboard 20A Circuit
- Delta -> Wye
- Redundancy
- Standard Features

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PROPOSED C4I SYSTEM IMPROVEMENTS

- Common UPS
  - Avoid Proprietary Features
- Rugged versus Ruggedized
- Open Architecture
- Efficient System Components

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EFFICIENCY EXAMPLE

- Assumptions
  - Gas-turbine generator produces 3,000 kW/hr
  - Burns 100 gal/hr @ $2.00/gal
  - Per GTG cost $200/hr, or $1,752,000/yr
  - 115 watts costs $5,000/yr per GTG

Fuel-cost Savings in the Millions!

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ALTERNATIVE UPS OPTIONS

- 2300 Watts Maximum
- Power Efficiency
- Online AC UPS = 1955 Watts → $15,187/yr/GTG
- 48VDC UPS = 2070 Watts → $ 10,124 /yr/GTG
- Increased Power Available
- Reduced Heat
- Avoid Unnecessary Hot-Work

$1,020,000
Total Savings

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PRESENTATION SUMMARY

- Shipboard COTS Equipment Requires Clean Power
- Rugged Components for Tactical Applications
- Power-Efficient Components:


Computing Power


Wasted Heat Energy


Re-Wiring


Fuel-Costs

Ideal :

A **rugged, common UPS** that fits on a **20A Circuit** and powers **efficient computers.**

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QUESTIONS/MORE INFORMATION

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This presentation is based on a white paper that can be found at www.novapower.com under the Applications/ATCA Standard Rugged Power page. Copies can also be found at the **NOVA Power Booth # 408**.

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