Sources of Power

- Utility
- Indigenous Fuels
- Solar
- Intelligent Power Hubs
- Utility Support
- Backup

Transportable

- Gen-Sets
- UPS
- Sustained Operations
- Islands of Power

Mobile

- On-the-Move
  - OBVP
  - Battery
  - Payload Support
  - Export / Import

Consumers of Power

- Utility Grid
- Infrastructure
- Permanent

Pushing mission power forward to the warfighter
Significant logistics savings achieved using HMMWV OBVP Technology. Program transitioned to MCSC PM Expeditionary Power Systems.
Vehicle Power Solution Approaches

**Topology**
- Transmission
- Integrated Generator (TIG)
- Engine/Transmission Sandwitch
- Power Take Off
- Front/Belt Drive
- Standard Alternator

**Power Range Capability**
- 3kw
- 6kw
- 15kw
- 30kw
- 70kw
- 125kw
- 260kw

**Fully Integrated ISG with Drop In Replacement**
- Separately Housed Gen with Extended DL Length
- Added PTO driven Generator
- Front Mtg Housed Generator with Mods to Underhood Components
- Std Belt Driven Generator

*TIGs produce higher output power across the entire engine operating range*
Transmission Integral Generators
The Basis of the DRS OBVP System
Meeting the Needs

- **30 K-Watts exportable power continuous – for stationary Ops**
- 10 K-W power- *on-the-move*
- Transmission Embedded PM Generator
- **No Increase in driveline length**
- **No belts / pulleys / bearings / shafts / seals / mounts**
- **No additional periodic maintenance**
- Active Generator Controller
- Power Conditioning Modules:
  - **120/208 VAC / 28 VDC**
  - Single and three phase

OBVP Equipped HMMWV’s have been successfully tested at APG and used in field trials by both Navy and SOCOM
Integration Challenges

User Interface
- System Control
- Status Information
- Fault Reporting
- Safety

Driveability
- Monitored Performance Feedback
- Shift Schedules
- Load Management

Mechanical Loads
- Rear Engine PTO
- Electric / Hydraulic
- Electric / Mechanical
The Operator’s focus on system operation is defined by the User Interface
Optimized for Driveability

Hardware in the Loop Integration

Transmission

Engine

TIG

Data Acquisition & Control

System Integrated OBVP Solution Optimizes Driveability

- Monitored Performance Feedback
- Shift Schedules
- Load Management

Modeling & Simulation

Test Vehicle

Electrical Load

On-Vehicle Evaluation
Options are available to replace mechanical systems and transmission based PTO
Summary

• Total system integration of an OBVP solution provides optimized driveability

• Options are readily available to address mechanical systems and the transmission PTO

• The OBVP User Interface defines the operator’s interaction with the system

• TIG based OBVP systems can meet the needs to fight today’s fight and tomorrow’s
THANK YOU!

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