Securing Army installations with energy that is clean, reliable and affordable

EITF 101
April 2014
Army Energy Consumption and Investment

United States
97,301 Trillion Btu

Federal Government
1,116.6 Trillion Btu

DoD
890.3 Trillion Btu

U.S. Army
187.7 Trillion Btu

- Facilities
- Vehicles & Equipment (Tactical & Non-tactical)

Army FY 2011 Energy Budget
$5B

FY 2012 Army Energy Expenditures

<table>
<thead>
<tr>
<th>Source</th>
<th>Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid Fuel</td>
<td>$3.6B</td>
</tr>
<tr>
<td>Facility Energy</td>
<td>$1.2B</td>
</tr>
</tbody>
</table>

Sources: Energy Information Agency 2011 Annual Energy Review, September 2012; U.S. Army Energy Data
Strategic Context

The Army is addressing energy security through a comprehensive program to ensure that we have assured access to reliable supplies of energy and the ability to protect and deliver sufficient energy to meet mission-essential requirements.

- **Soldier:**
  - Lightening soldier power loads
  - Agility and self-reliance through advanced portable power systems, lighter batteries, universal charging devices and water purifiers

- **Vehicles:**
  - Utilizing alternative fuels, hybrid and electric systems
  - Improving efficiency and extending engine life
  - Includes tactical (air and ground) vehicles and non-tactical vehicles

- **Basing:**
  - Improving installation fuel, water and energy efficiency
  - Net Zero strategy
  - Diversity of supply through renewable energy enhancing energy security
  - Energy Initiatives Task Force
Army Power and Energy

**Basing**
- Net Zero Installations
- Energy Initiatives Task Force (EITF)
- Contingency Basing
- Smart & Green Energy
- Mini Grid Power Plants
- Adv. Mobile Medium Power Sources
- Insulated Tents/Spray Foam
- Renewable Energy Program Plan
- ARNG Energy Lab (Schools)
- LED & Electroluminescent Lighting
- Shower Water Reuse System
- Expeditionary Water Packaging
- Water From Air System
- System Integration Lab - Ft Devens
- Solar, Wind, Geothermal Power

**Soldier**
- Rucksack Enhanced Portable Power
- Expeditionary Energy
- Soldier Power Manager
- Nett Warrior

**Vehicles**
- Tactical Fuels Manager Defense
- Smart-Charging Micro Grids
- Vehicle-to-Grid (Fort Carson, CO)
- Alternative Fuels
- Low Speed Electric Vehicles
- Hybrid Electric Vehicles
- Hybrid Truck Users Forum (TARDEC)
- Hydrogen Fuel Cell Vehicles
- Improved Turbine Engine Program

**OSD Operational Energy Strategy**
- Senior Energy & Sustainability Council
- Energy Initiatives Task Force
- Army Energy Security Initiatives
- Net Zero Strategy
Army Energy Outlook

Major Issues for Army Large-Scale Renewable Energy Projects:

- Declining Budgets/Incentive Leverage
  Need for private financing
- Specialized Expertise
  Requires financial, regulatory, environmental and real estate expertise
- Enterprise Strategy
  To define the most efficient path to reach Army goals

Energy Efficiency May Lower Baseline by 30%

Remaining Electric Consumption

NDAA Renewable Energy Requirement 25% by 2025 or 2,500,000 MWh


6% Progress in FY 2012 from 194 different projects

Current Army Performance

Path to Compliance

Assistant Secretary of the Army (Installations, Energy & Environment)
Established by the Secretary of the Army on September 15, 2011. The Energy Initiatives Task Force (EITF) serves as the central management office for partnering with Army installations to implement cost-effective, large-scale, renewable energy projects, leveraging private sector financing.

- Projects equal to or greater than 10MW
  - Will coordinate with installations for 1-10MW opportunities
  - Potential for projects that exceed Army requirements
- Solar, Wind, Biomass and Geothermal technologies
- Resources to perform project development and execution
- Will use existing DoD land-use and third-party financing authorities

The EITF’s projects will help ensure the Army’s goal to deploy 1 GW of renewable energy projects by 2025
EITF Organization

Executive Director
Amanda Simpson

Regional Energy & Environmental Offices

Heidi Hansen
Office of the Army General Counsel

Planning Directorate
Kathy Ahsing, Director

Execution Directorate
Alan King, Director
Megan McCluer
Douglas Waters
Erich Kurre

Communications Directorate
Joyce Vanslyke, Director

Partnerships

National Renewable Energy Lab
U.S. Army Corps of Engineers
Defense Logistical Command
Department of Energy
Army Environmental Command
Pacific Northwest National Lab
Department of Air Force
General Services Administration
Department of Interior
Mission and Installation Contracting Command
Department of Navy

Assistant Secretary of the Army (Installations, Energy & Environment)

UNCLASSIFIED
A Balanced Enterprise Approach

Securing Army Installations with energy

Energy Security
- Surety (access)
- Survivability (resilience)
- Supply (alternative resources)
- Sufficiency (adequacy for missions)
- Sustainability

Price Stability
24x7 supply for critical assets

Mandates
- NDAA - 25% by 2025
- EPAct - 7.5% renewable electricity consumption by 2013
- EO 13514 - 34% GHG reduction by 2020
- Climate Action Plan - 20% renewable electricity consumption by 2020

Economic Benefits
- In-kind revenue
- Reduced/stable energy bills
- Cost avoidance

that is clean, reliable, and affordable

Creating a balanced pipeline of opportunities serving three driving principles

Assistant Secretary of the Army (Installations, Energy & Environment)
Assistant Secretary of the Army (Installations, Energy & Environment)

ACP MO 8-1: Adapt / Execute Installation Energy Security and Sustainability Strategies

VISION: Securing Army Installations with Clean, Reliable and Affordable Energy

MISSION:

M1. Develop comprehensive capability
M2. Plan and execute a cost effective portfolio of privately financed, large scale renewable energy projects

STAKEHOLDERS:

S1. Achieve White House, Congress and DoD mandates
S2. Demonstrate process and value proposition to Army Leadership
S3. Ensure secure, reliable, cost effective and stable energy for Installations
S4. Develop realistic and attractive projects for Industry

FINANCIAL:

F1. Stabilize total installation energy cost
F2. Increase investment impact
F3. Attract private capital

PROCESSES:

P1. Deploy privately financed renewable energy projects
P2. Shape and enable the energy environment
P3. Develop and institutionalize a transparent, agile and sustainable process

LEARNING AND GROWTH:

L1. Create a cost and performance driven culture
L2. Enhance organizational infrastructure
L3. Build confidence and engagement
Tiered Energy Security Integration approach

I. Coverage of total installation requirements from on-site generation
II. Production capacity to maintain critical loads in emergency situations
III. Designed to easily integrate with future energy security infrastructure
Enterprise Wide Approach

The EITF has screened the entire Army enterprise to identify a strong pipeline of opportunities.

Large Scale RE Potential
96 sites, 179+ opportunities

Where are the RE Markets?

Solar
2013 Planned Capacity (MW)

First-Cut Economic Analysis
Estimate grid premium at 180 sites x 3 asset types

Where could RE be cheaper than grid power?

Where are potential sweet spots?
• Large scale potential
• High security value
• Minimum grid premium
• Fulfill long-term requirements
Enterprise-Wide Portfolio

Potential Projects

Less than 4,000 MW

Phases 1 & 2
Project Assessment & Validation

258 MW

Phase 3
Contracts & Agreements

269 MW

Phases 4 & 5
Construction, Operations & Support

>50 MW
Anticipated construction to start in 2014

Near Term Procurement Actions

- Three Notices of Intent to Award
- Three Requests for Proposals or Qualifications
- Two Utility Agreements
- Advancing an additional 200 MW of projects this year
The EITF is producing a process for developing large-scale renewable energy projects that is **clear, consistent and transparent**.
### Project Assessment Criteria

**Mission/Security**
- How does the project enhance energy security on host and surrounding installations?
- What are the possible impacts to Installation operations or tenant missions?
- Has the project been approved by Installation, Army HQ, and DoD staffs?

**Economics**
- What is the estimate of the baseline capital cost?
- What is the value of any RECs or other incentives?
- What is the predicted resource? Has it been validated?
- What is the existing utility rate and alternative tariffs?
- What are the impacts of the project to the POM?

**Real Estate**
- What is the Real Estate approach and what authority is being used?
- Has the project received required BLM approvals?
- Is the project consistent with the Installation Master Plan?

**Regulatory**
- What are the regulatory limits for interconnection, net-metering?
- What is the status of getting required PUC approvals?

**Off-Take**
- Will the installation consume all electricity generated?
- What is the status of state RPS and other incentives to drive external demand?
- If power is to be sold off the installation, have off-takers been identified?
- Can the utility wheel power to other potential off-takers?

**Integration**
- Is there sufficient line and substation capacity? What upgrades are required?
- Are flow studies required? What is the status?
- Is the system upgradeable for smart grid and energy storage technologies?

**Environmental**
- What are the major NEPA issues?
- Which parties will implement NEPA and what is the timeline?

**Procurement**
- What is the acquisition strategy and timeline to implement?
- What performance risks are there with the developer or other partners?
Army Large-Scale Renewable Energy Projects

Assistant Secretary of the Army (Installations, Energy & Environment)

Location: Ft. Irwin, CA
Project: 15 MW Solar
Business/Acquisition Model: Competitive PPA through DLA

Location: Ft. Detrick, MD
Project: 15 MW Solar
Business/Acquisition Model: PPA Notice of Intent to Award to Ameresco Inc.

Location: Ft. Drum, NY
Project: 28 MW Biomass
Business/Acquisition Model: PPA Notice of Intent to Award to ReEnergy Holdings LLC

Location: Ft. Stewart, GA
Project: 18 MW Solar
Business/Acquisition Model: Competitive lease in conjunction with the GA Power Advanced Solar Initiative (ASI)

Location: Schofield Barracks, HI
Project: 50 MW Biodiesel
Business/Acquisition Model: Lease with HECO

Location: Schofield Barracks, HI
Project: 90 MW Solar
Business/Acquisition Model: GSA Areawide Contract through GA Power

Location: Ft. Huachuca, AZ
Project: 18 MW Solar
Business/Acquisition Model: GSA Areawide Contract through TEP

Location: Redstone Arsenal, AL
Project: 10 MW Solar
Business/Acquisition Model: MATOC PPA

Location: Redstone Arsenal, AL
Project: 25 MW Renewable CHP
Business/Acquisition Model: Competitive PPA through HNC

Note: Capacity reported in megawatts AC
Key Enabling Authorities

The EITF will leverage existing key Congressional authorities to meet renewable energy goals:

• **Contracts for Energy / Fuel for Military Installations (10 USC 2922a)**
  
  - Authorizes Department of Defense to utilize 30 year Power Purchase Agreements.
  - Requires Secretary of the Defense Approval - Delegated to the Deputy Under Secretary of Defense (Installations and Environment).

• **Leasing (10 USC 2667)**
  
  - Lease of non-excess, available property if benefit to national defense.
  - Lease term can be longer than five / within useful life of the energy production facility.
  - Payment: cash or in-kind / fair market value.
  - Competition in Contracting Act (CICA) not applicable.
Renewable Energy
Multiple Award Task Order Contract

79 Awards to 48 Companies, Including 20 Small Businesses

- MATOC pool of qualified renewable energy firms includes:
  - 15 Biomass Companies
  - 6 Geothermal Companies
  - 38 Solar Companies
  - 20 Wind Companies

- Task order winners will finance, build, own, operate, and maintain the generation assets.

- The Government will buy power from the asset through 10 U.S.C. 2922a for a contract term of up to 30 years.

- Power purchases will be funded through existing must-pay utility bills.

- Total ceiling of the contract is $7 billion.

- Awards under the MATOC are subject to the Davis Bacon Act and the Buy American Act.

- The MATOC is not restricted to use by the EITF.

- The EITF uses multiple procurement vehicles in addition to the MATOC.
Wrap Up

- Energy and energy security continue to be key components to enhance Army mission capability and effectiveness.

- Renewable energy is and will continue to be a significant part of the Army’s energy security strategy.

- Through the EITF, the Army is aggressively developing new and efficient business models to support the rapid deployment of 1 GW of renewable energy by 2025.
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