Energy & Water Security through Army Utilities Privatization (UP)

Federal Utility Partnership Working Group Seminar
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Curt Wexel, P.E.
UP Program Manager
Assistant Chief of Staff for Installation Management
Operations Directorate
Overview of Army UP

UP leverages industry expertise & financing to upgrade and sustain utilities for safe & efficient mission support.

✓ 44% Life-Cycle Benefits (compared to Army ownership):
   - 27% “Should-Cost” avoidance  ($2.2 B Net Present Value)
   - Less Leaks & Losses  (17% cost avoidance)
   - Reduced Risk & Liability
   - Energy Security & Resilience
   - Shovel-ready year-end projects

✓ Benefit-to-Cost Ratio = 18 to 1

✓ Full Sustainment Platform  (10 USC §2688: 50-year contract authority)
Backlog

... threatens Mission, Health, Safety & Environment
Risk Management

San Bruno, CA 2010

Fort Bragg
FY13 Gas UP:

Fort Benjamin Harrison 1990
Explosion: 2 killed, 27 injured
NTSB found Army negligence

366 Leaks Detected
92 Grade 1 Leaks
FY16 Metered UP Results

31% less Gas use
@ 19 Gas UP sites
$33 M/yr cost avoidance

68% less Oil use
@ 19 Gas UP sites
$33 M/yr cost avoidance

3% net Electric savings
@ 23 UP sites
$6 M/yr cost avoidance

26% less Water use
@ 21 UP sites
$10 M/yr cost avoidance

$49 M/yr cost avoidance
Affordable Risk Management

**Project Options**
(FY17-19 UP)

- $967M MILCON unplanned
  (ISR repair estimate)
- $703M UP Lump-Sum
  (USMA Parametric Model)
- ~$70M/yr UP Amortized

Strategic investments for critical missions

- Affordable
- Resilient
- Efficient
- Safe
Army Conveyance Policies

10 USC §2688 conveyance authority delegation:

- Adjusts for condition & risk (Nov’14)
- Consider Energy Security & other factors (Apr’16)

<table>
<thead>
<tr>
<th>Natural Gas</th>
<th>+3%</th>
<th>+5%</th>
<th>+10%</th>
<th>+15%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water/Wastewater with Treatment Plant</td>
<td>+1%</td>
<td>+3%</td>
<td></td>
<td>+9%</td>
</tr>
<tr>
<td>Water/Wastewater without Treatment</td>
<td>0</td>
<td></td>
<td>+4%</td>
<td>+6%</td>
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<tr>
<td>Electric</td>
<td></td>
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</tr>
<tr>
<td>Other Utilities &amp; Plants</td>
<td>0</td>
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Risk →

Deterioration →

+15%
$353M in UP Projects

* FY06–15 on 17 utility systems

- Deficiency Correction
- Redesign & reconfigure
- Modern controls
- Full Sustainment

UP brings more resilient & capable mission support

OLD Electro-Mechanical

NEW Digital

Voltage Regulator Control (Digital)
$353M ES Measures Completed

**Electric:** Gordon, Belvoir, Natick, Myer-McNair-H.Hall, Polk, APG, Arlington Nt’l Cemetery, Gillem, Alaska  
**Natural Gas:** Richardson, Bragg, Gillem.  
**Heat & Power:** Greely, Wainwright

<table>
<thead>
<tr>
<th>Energy Security Measures</th>
<th>Sites</th>
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<tbody>
<tr>
<td>1. Periodic Renewal &amp; Replacement</td>
<td>All</td>
</tr>
<tr>
<td>2. Distribution voltage upgrade</td>
<td>11</td>
</tr>
<tr>
<td>3. Install SCADA system</td>
<td>12</td>
</tr>
<tr>
<td>4. Add redundant supply lines</td>
<td>13</td>
</tr>
<tr>
<td>5. Replace switchgear or substation</td>
<td>12</td>
</tr>
<tr>
<td>6. Install generation</td>
<td>8</td>
</tr>
<tr>
<td>7. System modeling, studies, &amp; testing</td>
<td>All</td>
</tr>
<tr>
<td>8. Replace gas lines</td>
<td>3</td>
</tr>
<tr>
<td>9. Micro-Grid</td>
<td>1</td>
</tr>
</tbody>
</table>

FY16 Electric & Natural Gas at Fort Hood will add $106M in projects.
10 USC §2688 conveyance authority delegation:

- Adjusts for condition & risk (Nov’14)
- Energy Security emphasis & other factors (Apr’16)

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0 Risk → Deterioration → +15%
Emerging ES Opportunities

Sec Army Policy Emphasis on ES

✓ Deployment of Combined Heat & Power (CHP) 1 Nov 16
✓ Army Installation Energy & Water Security Policy (23 Feb 17)

Army UP ES Initiatives

✓ Conveyance delegation guidelines consider ES (1 Apr 16)
✓ ES informed UP Schedule thru FY2023 (17 May 16)
✓ Incorporate MicroGrid & Co-Gen projects, where appropriate
✓ Coordination with Energy Initiatives Task Force

☑ UP schedule to direct evaluation of thermal utility systems
  ▪ In addition to Electric, Water & Wastewater, Gas
  ▪ Evaluate systematically; rather than by exception
Utilities Privatization:  E= electric  G= natural gas  W= water  WW= wastewater  P= heat & power

154 Privatized Systems

<table>
<thead>
<tr>
<th>Aberdeen PG: E,G,W+WW</th>
<th>McNair &amp; Myer: E,G</th>
</tr>
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<tbody>
<tr>
<td>Aberdeen (Edgewood): G</td>
<td>Meade: E,G,W+WW</td>
</tr>
<tr>
<td>Adelphi Lab: G</td>
<td>Natick Lab: E,G</td>
</tr>
<tr>
<td>Arlington Ntl Cemetery: E</td>
<td>Oahu, Schofield Barracks: WW</td>
</tr>
<tr>
<td>A.P. Hill: E,W+WW</td>
<td>Ord Community: E,G,W+WW</td>
</tr>
<tr>
<td>Benning: E,G,W+WW</td>
<td>Picatinny Arsenal: E,G,W+WW</td>
</tr>
<tr>
<td>Bliss: E,G, W+WW</td>
<td>Pickett: E,W</td>
</tr>
<tr>
<td>Blue Grass AD: G</td>
<td>Polk: E,W+WW</td>
</tr>
<tr>
<td>Campbell: G,W+WW</td>
<td>Red River AD: E,W+WW</td>
</tr>
<tr>
<td>Detrick: G</td>
<td>Redstone Arsenal: WW</td>
</tr>
<tr>
<td>Detroit Arsenal: G</td>
<td>Rucker: E,G,W+WW</td>
</tr>
<tr>
<td>Devens: E,G,W+WW</td>
<td>Sierra AD: E,G</td>
</tr>
<tr>
<td>Gordon: E,G,W+WW</td>
<td>Stewart: E; G @sub-post</td>
</tr>
<tr>
<td>Greely: E,W+WW,P</td>
<td>Sunny Point MOT: E</td>
</tr>
<tr>
<td>Hawaii: W</td>
<td>Tooele AD: G</td>
</tr>
<tr>
<td>Hood: E,G,W+WW</td>
<td>Vancouver Barracks: G</td>
</tr>
<tr>
<td>Huachuca: E</td>
<td>Watervliet G</td>
</tr>
<tr>
<td>Hunter AAF: E</td>
<td>Wainwright: E,W+WW,P</td>
</tr>
<tr>
<td>Irwin: E,W+WW</td>
<td>Yakima Training Center: G</td>
</tr>
<tr>
<td>Jackson: W+WW</td>
<td>22 Joint Base &amp; BRAC Systems:</td>
</tr>
<tr>
<td>Knox: E,W+WW</td>
<td>Dix: E,G</td>
</tr>
<tr>
<td>Leavenworth: E,W+WW</td>
<td>Eustis &amp; Story: E,G,W+WW</td>
</tr>
<tr>
<td>Lee: E,W+WW</td>
<td>Monmouth: G</td>
</tr>
<tr>
<td>Leonard Wood: E,G</td>
<td>Monroe: E,W+WW</td>
</tr>
<tr>
<td>Letterkenny AD: W+WW</td>
<td>Richardson: E,G,W+WW,P</td>
</tr>
<tr>
<td>Lewis: G</td>
<td>Sam Houston: E,G</td>
</tr>
<tr>
<td>McCoy: E,G</td>
<td>Walter Reed AMC: G</td>
</tr>
</tbody>
</table>

UP Decision Schedule  ACSIM Memo 17 May 16

**FY17**
- Fort Campbell: E
- Blue Grass AD: E
- Joint-Base (JB) Lewis-McChord: E
- Fort Riley: E,G,W+WW
- USAG West Point: E,G
- Fort Jackson: E,G

**FY18**
- JB Lewis-McChord: W+WW
- USAG West Point: W+WW,P
- Pine Bluff Arsenal: G
- Oahu, Schofield Barracks: E
- Fort Leonard Wood: W+WW
- Fort Buchanan: E,W+WW
- Hawaii (PTA & KMC): WW
- Oahu, Schofield Barracks: W

**FY19**
- Anniston AD: W+WW
- Aberdeen (Edgewood): W+WW
- Yuma PG: E,W+WW
- JB Myer,H.Hall & ANC: W+WW
- Redstone Arsenal: E,G,W
- Rock Is. Arsenal: E,G,W+WW

**FY20**
- Watervliet Arsenal: E,W+WW
- White Sands MR: E,G,W+WW
- Tobyhanna AD: W+WW
- Ft McNair & Arlington Cemetery: G
- Fort Carson: E,G
- Fort Detrick: E,G,W+WW

**FY21**
- USAG Kwajalein Atoll: E,W+WW,P
- Dugway PG: E,G,W+WW
- Fort Carson: W+WW
- Radford AAP: E,G,W+WW

**FY22**
- Fort Drum: E,G
- Rivanna Station: E,G,W+WW
- Fort Hamilton: E,G,W+WW
- Red River AD (RRAD): G,P
- Tooele Army Depot: E,W+WW,P
- Fort Hunter-Liggett: W+WW

**FY23**
- Fort Drum: W+WW
- Fort Hunter-Liggett: E,G
- Mark Center: WW
- Parks RFTA: E,G
- Scranton AAP: E,W+WW
- Iowa AAP: E,G,W+WW
UP Strategic Imperatives

Add Thermal Systems into UP Schedule

FY17 ISR Condition Ratings:

- Q1: Excellent
- Q2: Nominal
- Q3: Poor
- Q4: Failing

Heat & Power
- W: water
- WW: wastewater
- E: electric
- G: gas

Chilled Water

... and other failing utilities

Assistant Chief of Staff for Installation Management